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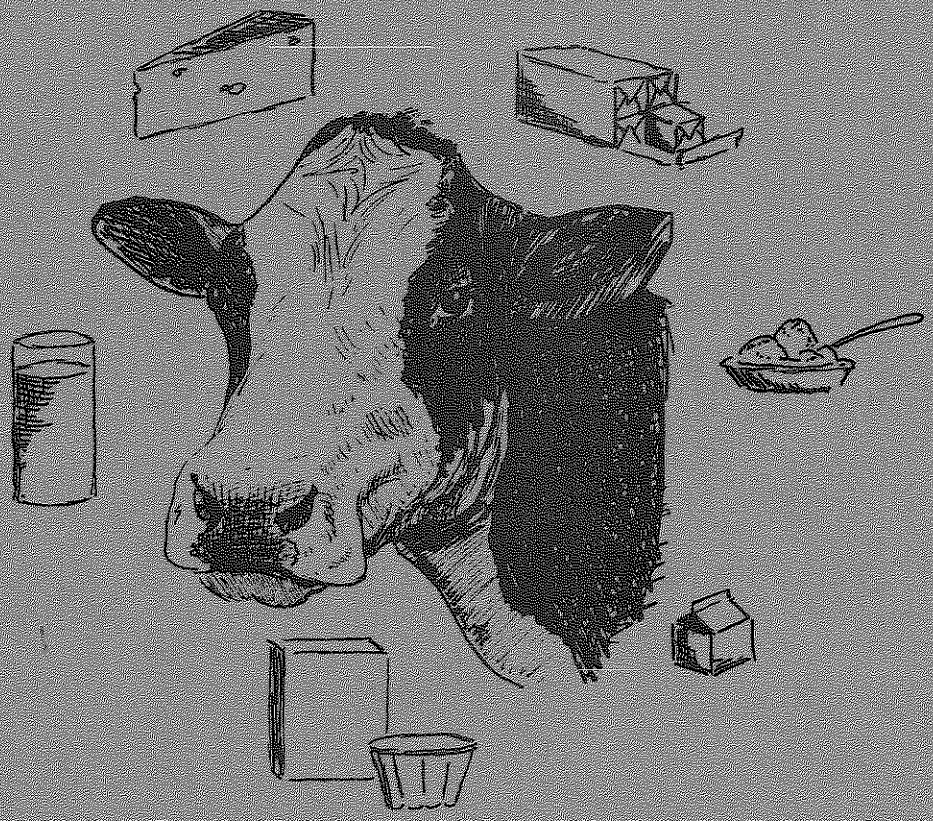
THE DAIRYMAN'S GUIDE TO MILK MARKETING



William Quinn
Walter Wasserman

Department of Agricultural Economics
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, New York 14853

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THE DAIRYMAN'S GUIDE TO MILK MARKETING

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Preface

The material in this publication was originally prepared as a series of informational letters on milk marketing for use by dairymen, dairy leaders, cooperatives and others interested in the subject. Because substantial revision of the original copy was not undertaken, the presentation of the material is more "compartmentalized" than might otherwise be the case. Each chapter presented here was in its original form, a separate letter designed to stand alone as a report on but a single facet of what is obviously a very big subject. As a consequence, occasionally the text may lack easy transition from one subject to another.

This bulletin is not intended to serve as a complete reference on milk marketing, nor is it in any way to be considered total coverage of what is obviously a highly complex, very broad subject. Rather it's intended as an easy-to-read introduction to the subject.

Since the original material was prepared for New York dairymen, some of the content as well as many of the examples employed may prove specific to New York conditions. However, we believe that much of the material should prove relevant to milk marketing in other areas.

In the rapidly changing world in which we live, almost the only thing which remains constant is change itself. In milk marketing, we accept this as axiomatic. Changes in our economy, in technology, in our social or cultural attitudes, in public policy, are quickly translated into changes in our milk marketing system. So the reader should be aware that while the content of this publication was entirely appropriate at publication time, passing times could outdate in part its accuracy or relevance.

In the preparation of the material, the authors used many different sources of information. They wish to acknowledge the contributions of various government agency personnel, of dairy farm editors, and of college-employed milk marketing specialists, from whose work they have borrowed liberally. They are particularly indebted to Dr. Leland Spencer and Dr. Charles J. Blanford for much of the historical information. The assistance of Dr. Robert Story, Professor Emeritus, Agricultural Economics, N.Y.S. College of Agriculture, was invaluable in the preparation of a great part of the material in this publication. They are indebted also to Professor Andrew Novakovic for resource material and editorial assistance in the preparation of the chapter on Component Pricing, and they acknowledge with thanks the resource material on Milk Quality provided by Professor David Bandler. The authors also acknowledge with great thanks the excellent typing skills and patience of Diana Atkinson, Stefanie Barber, Wendy Barrett, and Robin Greenhall in typing this publication.

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CHAPTER I. AN INTRODUCTION TO MILK MARKETING

The milk marketing business is a lot like the kind of weather we get in these parts. If you don't like it, just wait awhile. It's bound to change.

At first glance, marketing milk looks simple enough. But don't bet too much on it! Because just when you think you have things all figured out - something comes along and fouls up all your expectations.

Start talking too loud about what's going to happen in the milk market and along will come a late spring, a dry spell, a wet spell, a change in the price of beef or feed - and you're apt to end up with egg on your face.

Learning something about milk marketing is no guarantee that you'll be able to predict what's going to happen, but it certainly ought to improve your odds.

Even the word "marketing" itself means different things to different people. In fact, that's one reason behind this publication. We hope to make "marketing" something more than a nebulous term used to describe somewhat uncertain things some other people do.

BASICS OF THE SYSTEM

Let's begin our story with a look at some of the basics of the milk marketing system. First, we should recognize that it's a highly volatile, ever-changing system.

This is particularly true in Federal Milk Marketing Order 2 (N.Y.-N.J.), where just a 5% increase in production means nearly 500 million pounds more milk a year. A small excess or a slight shortage of supply tips things mighty fast. With just a little change, we can swing from a buyers' market to a sellers' market, (or vice versa) before you know it.

Another basic fundamental of our milk marketing system is that it is indeed a system - a highly complex, highly sophisticated creature that requires organizations and institutions as well as competent people to make it work. Milk marketing doesn't just happen. It involves effort. And it takes money to do it.

The system certainly isn't perfect. But then, it is not unchangeable either. It has changed in the past, is changing now, and will continue to change in the future.

But what's important about it is that the marketing system does work. The job gets done.

A DAIRYMAN'S RESPONSIBILITY

Where do you as an individual dairyman fit into the total marketing picture? Certainly no one has a greater stake in a healthy and stable milk market than you do. Things never stay the same. This year it's a surplus, next year it may be a shortage. But in good years and bad, whether you like it or not, you're always involved in marketing. There's absolutely no return from milk if it's not marketed. And your ability to market and to control market conditions will determine what your returns will be.

You can be the most efficient producer in the country; you can produce milk "'til the cows come home." But without the capacity to market what you produce, without adequate facilities and organizations to handle the milk supply, the results of all that production efficiency are in certain jeopardy. Because not one dollar can come back to a dairyman unless the milk he produces goes through the marketing system!

THE DAIRYMAN'S STAKE

As a dairyman, you may not like to get involved in marketing. You may even find it frustrating. You may say "I've got enough to do growing the crops, caring for the cows, doing all kinds of things a busy dairyman has to do. Besides, I just don't have the time. Let George do it."

But George can't. Or at least he won't. What's more, he doesn't have the stake in a healthy milk market that you do. He doesn't have that huge investment in a dairy farm to protect. Ultimately marketing your milk is <u>your</u> responsibility, not the milk dealer's, and not the government's. And while it's your problem, it's your opportunity as well. Your future as a dairyman rests on it - on ensuring a healthy and stable market - one with a reasonable level of demand, with

adequate facilities to handle all the milk, with dairymen's organizations that can get the job done, with flexibility enough to respond to new technology and constantly changing conditions. How do you get a market like that? Ultimately, you'll have to answer that. After all, you're part of the answer.

OPTIONS AVAILABLE

You have many options. You can assemble milk marketwide with one cooperative unit. You can coordinate the total market clearing function. You can level out seasonal production and get balancing on a break-even basis, or share any losses over the widest base of producers. You can improve the efficiency of your cooperative marketing organizations. You can push for the merger of orders. You can petition for base or quota plans. You can improve the financial health of your co-ops. You can do lots of things.

Which of these should you do? That's up to you. But one thing is certain; not a single one of them can you do without knowing something about the marketing system.

SELF STUDY

That's why we hope you'll study this milk marketing publication with care. Just as "you can't tell the players without a program," you can't help your milk market without knowing something about "the marketing game." So read it carefully. Before you know it, you'll feel as comfortable talking about marketing milk as you always have been in talking about producing it. Obviously, this one booklet cannot provide total coverage of a subject as complex and far-reaching as milk marketing, but it can provide a good introduction. Probably the best place to start is with a look at the language.

LEARNING THE LANGUAGE

Suppose you were down in the Big Apple standing on the corner of Broadway and 5th Avenue telling a native New Yorker about that springer of yours that was pretty slopey in the rump, or how you lost an "Excellent" last year to hardware disease, or perhaps that you'd decided to use only 1000-pound-plus sires, or that this year's first cutting was only fair. Do you think that person would have the faintest idea what you were talking about? Of course not.

It's that way in all businesses. We all have our own way of using words. Dairymen, doctors, deep sea divers - all of us have a lingo of our own. The same holds true in the milk marketing game. In that spirit, we present this dictionary, our own milk marketing version of Funk and Wagnals.

GLOSSARY OF TERMS

Fluid or Grade A Milk - milk that meets specified health or sanitary requirements. All federal order milk supplies must meet these requirements.

Manufacturing or Grade B Milk - milk that doesn't meet those established fluid grade health and sanitary requirements. (There's a difference between "manufacturing grade milk" and "milk used for manufacturing." As a matter of fact much of the milk used for manufacturing is not manufacturing grade milk at all; it's fluid grade milk. Conversely, much of the manufacturing grade milk could readily qualify, if the need existed, to become fluid grade.)

Manufacturing - the conversion of milk into other dairy products.

Soft Products - the more perishable manufactured dairy products such as cottage cheese, sour cream, and yogurt.

Hard Products - more concentrated, storable products such as cheddar cheese, butter, and dried skim milk powder.

Milk Co-ops - organizations owned and controlled by dairymen for the purpose of marketing their milk or for bargaining with others to sell their milk.

Milk Price Support - a USDA "target" price for manufacturing grade milk. Supports provide "a floor" under milk prices nationally.

Federal Marketing Order - a set of regulations that establish the terms of sale which milk buyers must comply with when they buy milk from farmers. Orders

provide for a system of classified pricing and pooling (see definition in this dictionary).

Milk Market Administrator - a person appointed (by the Secretary of Agriculture) to supervise and administer the provisions of a Milk Marketing Order.

Milk Handler - a handler is one who buys milk for resale or processing and is regulated by the Marketing Order. Handlers can be private individuals or companies (referred to as proprietary handlers) or cooperatives.

Classified Pricing - a system that classifies milk according to its use and separately prices milk in each use classification. The top price is established for fluid use (Class I) and lower prices apply to milk used for manufactured products such as cheese, butter, and ice cream (Class II).

M-W Price - The M-W price is the average monthly price paid farmers for milk of manufacturing grade in Minnesota and Wisconsin. The price is published monthly by the USDA. The M-W is important because it's used in all federal marketing orders to set class prices.

Class I - milk used for fluid or bottling purposes, the highest priced classification in federal milk orders.

Class II - milk used for manufacturing purposes, lower priced classifications under federal milk orders.

Pooling - blending the proceeds from the sale of milk at two (or even more) different prices into a single blended uniform price. The term "pool" and "pooling" does not refer to the milk itself. Instead it means "to put into a pool or common fund to be shared by agreement."

Uniform or Blend Price - the minimum price that must be paid to dairy farmers under marketing orders. It's the price that results when returns from the various use classifications are "pooled."

CHAPTER II. THE UNIQUENESS OF MILK IN THE MARKET PLACE

MILK MARKETING IS COMPLEX

All of us have some idea of what we mean when we use the word "marketing." Probably all of us don't have the same definition; and probably that's not too important. If we want a precise definition we can look one up in the dictionary. What is important is that all of us in the dairy business, one way or another, like it or not, are involved in marketing.

When it comes to marketing milk, moving it from the cow to the consumer through all its various stages of assembly, processing, and distribution, problems are generated in a number and of a complexity that are unapproached by any other agricultural commodity. In fact, a U.S. appeals court justice once called them "exquisitely complicated."

We've come a long way from the days when a dairyman marketed milk by dipping it out of a can into a housewife's container. Today's dairyman doesn't even see the person who uses his product.

Milk marketing today involves thousands of units making up an industry involving billions of dollars. But it's not just the size of the industry nor the dollars involved in it that make milk marketing so complex. The nature of the product itself complicates its marketing.

MILK IS UNIQUE

In contrast to most other agricultural products, milk has some unique characteristics. Milk is the only food that's harvested in its natural form as a liquid. In this state, it's highly perishable and easily contaminated. Its flavor is easily altered. It's produced daily and must be marketed within a day or two. Except for very short periods, it cannot be stored in its natural state. (At first, those who had maple syrup on their hot cakes this morning might not agree that milk is the only agricultural product that's in liquid form in its natural state. However, after thinking about it, most would agree that maple syrup has been processed; it's the sap, not the syrup that's in a natural state. The same holds for other liquid agricultural products - orange juice, cranberry juice, apple cider, whatever - all have been altered.)

Milk differs in another way from most other agricultural products. Different "lots" of milk may differ in quality, but you can't tell so just by looking at them. You can look at a crib of corn, a bushel of potatoes, beef steak on the hoof, or beef steak on the hook and tell the good from the not-so-good. But take a look at milk. Does a pail of yours look any different than a pail of your neighbors? Yet, while both look the same, we all know they can be very different. Different in flavor, in cleanliness, and in healthfulness. Because you can't see bacteria; you can't see sediment; you can't see residues.

But while all milk's not the same, it's still a homogenous product, sufficiently similar in physical and chemical structure to permit the intermingling of different lots with no change in appearance.

Milk can be readily altered. It can be physically or chemically pulled apart and its component parts rebuilt into scores of different dairy products, some perishable and bulky, others more concentrated and storable.

COMPOSITION IMPORTANT

Even though milk may appear the same, different lots of milk differ markedly in their composition. Composition is mighty important. It determines the quantities of dairy products that can be made from the milk. How much butter? How much cheese? In other words, how will it yield? This is what a manufacturer needs to know when buying a milk supply.

We tend to think of milk as "liquid," and apples as "solid." Yet apples contain more water than milk. Typically, milk is 87¼% water and 12 3/4% solids. The solids include fat (3.65% average), protein in the form of casein and albumin (3.5%), and lactose or milk sugar (4.9%). While minerals in milk represent only about seven-tenths of one percent of its total, these minerals (like calcium, phosphorus, and potassium) have great nutritional importance.

The figures we quoted for milk might be considered as its "typical" composition. In practice, this varies all over the place. It varies with the breed of cow that produces the milk and among individual cows of the same breed. It varies with the stage of lactation of the cow and with her age and health. It varies with the season of the year and with how the cow is fed; in fact, it even varies with the weather.

CHARACTERISTICS

Without question, from a marketing standpoint, milk is a unique product. It is perishable, easily contaminated, and subject to flavor changes. It's produced daily and must be marketed daily. The only other farm product produced daily is eggs, but they come in their own package. Milk is a liquid. Its a natural medium for bacterial growth, and therefore must be refrigerated and pasteurized and protected from the environment. What's more, it's relatively bulky. And because of its liquid state and homogenous appearance, milk can't be separated into grades by its looks alone.

ADDED BURDENS

All these characteristics that make milk unique from other farm products place added burdens on any system for marketing it.

They increase the cost and complexity of marketing milk. In fact, the extra demands on the marketing system start right at the cow. Her health must be periodically checked. The environment in which she lives and produces her product (the barn, the milkhouse) and even the equipment used to harvest that product must also be inspected.

Unlike most other farm products, milk is subject to many controls. The public first became involved with milk to ensure its healthfulness, to make certain that it did not carry disease, and to see that it did not become adulterated. This involvement started way back in the days when the milk "peddler" started dipping milk out of a can into the consumer's container. In fact, health regulations are the oldest of all the various public policies that now affect the marketing of milk.

This was the starting point in the development of the marketing system we have today, a system that is extra complicated because of all the extra things that have to be done, done especially because of the unique character of the product being marketed.

The milk marketing system is not only a highly complex, extremely sophisticated, constantly changing structure. It's also one involving countless numbers of people other than those actually producing the product. The middleman is many men.

MARKETING CHANNELS

Like water running to the sea, milk flows from farm to market through many channels. The channels can be as diverse and as multifaceted as those which raindrops follow as they rush onward to the ocean.

Think of the multiplicity of ways that milk gets from your farm to its ultimate destination, the consumer. Think of the multiplicity of forms that it may assume before it gets there. It's no longer just milk. It may be eggnog, whipped topping, butter, sour cream, fluid cream, milk candy, yogurt, condensed skim milk, evaporated milk, dry milk powder - or cheeses almost infinite in variety. In one form or another milk ends up in a bewildering array of food products.

Think of the multiplicity of people who are involved with milk as it moves from producer to consumer, people employed in assembling, in processing, and in distributing. Think of the variety of equipment and facilities that are needed - trucks, laboratories, bottling plants, manufacturing plants, merchandising departments, accounting departments, personnel offices, transportation departments - you name it.

All are necessary parts of our milk marketing system. Without them, milk would not get from your farm to the consumer's table in the form he or she wants it, in the right quantity, and at the desired time. Collectively, these parts make up the marketing system for the product you produce.

COSTS ADDED

Any kind of traveling is expensive nowadays. Milk traveling through the marketing system is certainly no exception. At

every stage, as milk flows from the dairyman on to the consumer, more costs (and more value) are added.

Follow a quart of milk as it moves from an upstate dairy farm down to a consumer in New York City. To the original cost of the milk on the farm must be added the country assembling costs, its transportation to a city plant, those inevitable product losses, the cost of quality control, the cost of processing, the cost of paper containers, the cost of milk cases, direct delivery costs, administrative costs, in-store costs, the cost of milk that isn't sold, the cost of balancing, and, of course, enough return on their dollars to keep people interested in making the investments required to handle your milk. All these costs - costs incurred by a quart of milk in its travels - are about equal to the value the milk had back on the farm. So its total cost and value are approximately doubled when it reaches the city consumer.

Elimination of any step along this route can create efficiencies and reduce costs. That's why country assembly plants were eliminated in favor of reload stations; and why reload stations have almost been eliminated in favor of direct farm-to-market hauling.

A DYNAMIC SYSTEM

Our market system is constantly changing. Just as technological changes have changed the structure, operation, and efficiency of your farm, so technology has changed the milk marketing system. New technology has made possible push-button plants where labor is replaced by computer-controlled machines. This has drastically shifted the relative costs of large plants and small plants. The large plant of a few decades ago is just too small to compete today.

The home delivery market has virtually disappeared. Distributors no longer deal with hundreds of thousands of individual consumers. Instead they deal with a relatively small number of large retailers and restaurants. And some major supermarket chains have integrated, buying their own milk directly from producers, running their own processing and bottling plants and delivering that milk to their own stores.

If you don't believe that changes take place in the marketing system, stop and think of the number of milk dealers who existed in the city nearest you a couple of decades ago. How many remain today?

HOW MARKETING BEGAN

To understand the current marketing system, we need to go back and see how it started and how it grew. The process has been a constantly evolving one.

At one time no milk marketing system was needed. Most every family had its own cow. In many early American communities, these family cows were pastured collectively or "in common." That term is still in use today in many New England towns and villages (i.e., the Boston Commons).

Marketing began when specialization (or division of labor) began. Some workers became craftsmen, shoemakers, blacksmiths, tailors. Others, choosing to remain at farming, paid for the products and services of the craftsmen with the yield of their farms, including milk, butter, and cheese.

Before the days of railroad shipping of milk, much of New York City's milk supply came from cows kept in the stables of breweries or distilleries within the city, supplemented to a small extent by wagon receipts from Long Island and Westchester County. In 1835 there were more than 500 dairies inside New York City with more than 15,000 cows. The cows were fed distillery slop, and the milk they produced was often called slop or swill milk.

RAILROADS SHAPED MARKET

Later, milk was placed in cans and picked up at sidings along the rail routes leading to the city. Names now but memories - the Erie, the New York and Harlem, the Central New England, the New York, New Haven and Hartford, the Morris and Essex, the DL and W, the Lehigh Valley - were important cogs in the milk assembly system.

Consequently the milkshed pushed out in fingers along these rail routes. As demand for milk grew in the New York Metropolitan area, the railroads added ever more distant milk pick-up points. Dairying already existed in those new upstate areas but the milk produced wasn't sold

for bottling. Instead it was made into butter and cheese. Many New York counties had developed lively export markets for these two products. Orange County butter and Herkimer County cheese were particular favorites with the people of Great Britain. (Herkimer cheese went by canal boat to Albany and by sailing ship from Albany to New York City, there to be reloaded into ocean-crossing vessels).

ASSEMBLY PLANTS DEVELOPED

In the early days, the milk cans went directly from the farmer to the railroad car. When assembly plants replaced the rail siding, these too were built along the rail line. These plants, often built by individuals under contract with the railroad, permitted bulk shipment of milk in railroad tanker cars.

When milk was first shipped by rail down the Hudson Valley, a sizeable chunk of ice was placed in each can by the dairyman to keep the milk from souring - this at a time when ice was known only in its natural form, cut from rivers and lakes and ponds. A later "improvement" had the ice chunks dumped around the outside of the can. The refrigerated car and later the tank car - an oversize vacuum bottle on wheels - were stimulants to milk preservation. They permitted dealer-buyers to penetrate even further into distant production areas.

Since the rail lines bypassed some large production areas near to market (Delaware County, N.Y., for example), milk in these areas, together with milk more distant from the city, was used for manufacturing. But as highways and motor trucks improved, milk began to move from country plants direct to city markets. Some of the earlier "bypassed" areas then became a part of the city market.

MOTOR TRUCKS TAKE OVER

As far as milk transport was concerned, the 20's and before were the golden age of the railroads. But the decade of the 30's belonged to the truck. The truck gave to both farmers and dealers increased selectivity and bargaining power. Farmers, able to haul their milk greater distances, had a far wider choice of outlets. Conversely, milk buyers could select from a much larger number of producers.

As truck hauling stepped up, rail shipping declined. Nearby milk began to move by truck directly from the farm to city plants. Further "up-country", trucks pulled up to the can decks of country plants where the milk was dumped and cooled; later to be transported on to the city.

The farm bulk tank signalled the beginning of a new era in milk assembly. Though bulk handling of milk on the farm started in the Northeast back in the early 50's, the transition from can to bulk took longer than in some other markets. In fact, in the NY-NJ market it has extended over almost three decades. Even today not all milk cans have been turned into umbrella stands and decorative pieces. A small amount of can milk is still being received at some Order 2 plants.

THE BULK REVOLUTION

Once the farm bulk tanker started to pull up at the milkhouse door a domino motion occurred. The transition to bulk initiated a series of changes felt throughout the entire assembly system.

To begin with, the truck itself was different. The old stake-body farm truck previously used to delivery milk could also be used to pick up feed or deliver fertilizer once it had completed its milk run. The bulk tanker, however, was limited to a single use and was expensive. Obviously this affected fixed costs.

Furthermore, when milk was received at a country plant, it could be identified with the farmer who delivered it. But now that it was collected at the farm, it lost its identity the moment it was pumped into the pickup tanker. So several functions, like the decision to accept or reject the milk, weighing or measuring, sampling and testing, even more of the cooling, moved from the plant back to the farm.

Even the qualities needed for a driver were different. No longer could he be just a truck jockey with a back strong enough to manhandle 100 lb. cans. Now he had to be trained in the skills needed by a milk receiver.

Because milk was cooled rapidly down to a lower temperature on the farm, it didn't have to hurry to a nearby plant for more complete cooling. It could be sent greater distances in those well insulated bulk tankers. Nor did it have to be

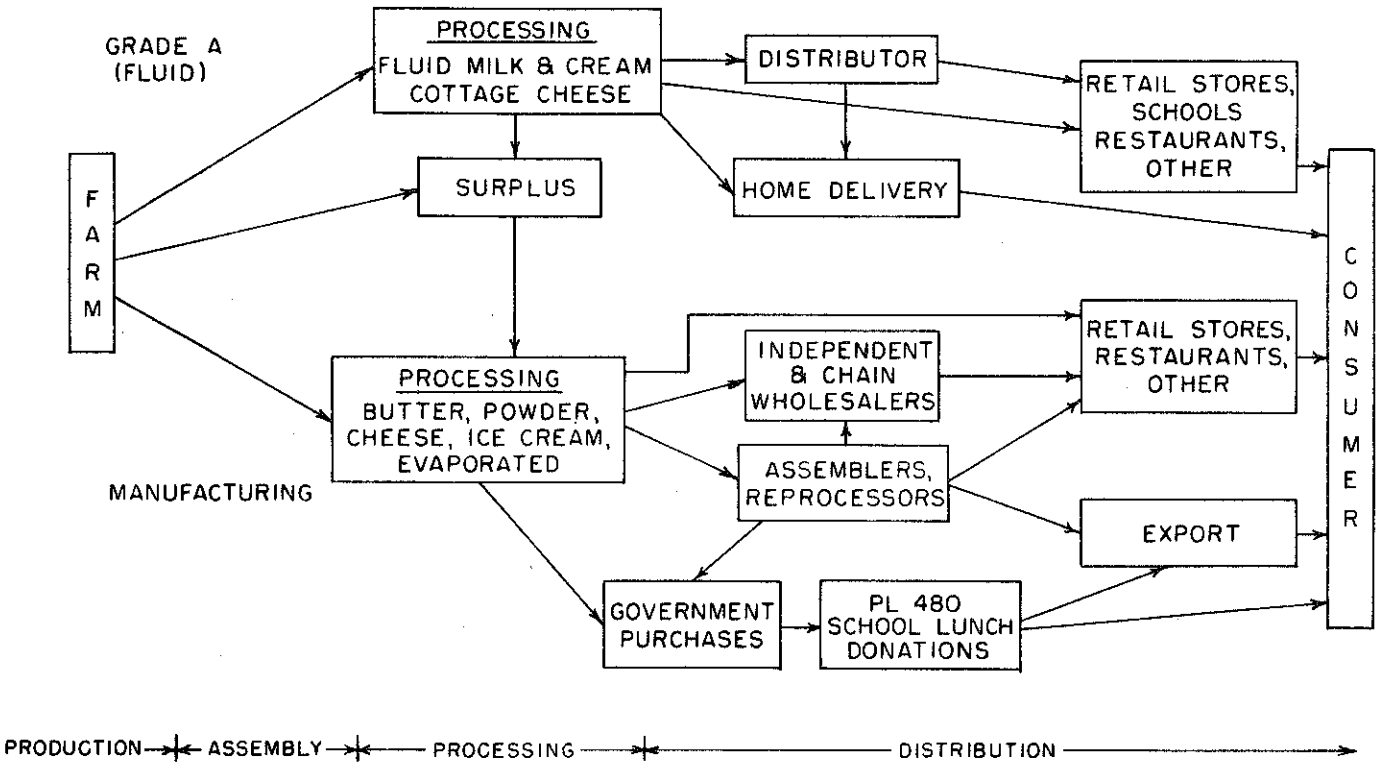
shipped to a particular plant on a regular basis, but instead enjoyed great flexibility as to its delivery point. It could be shipped to different outlets on a day-to-day basis.

Quick, low temperature cooling on the farm retarded bacterial growth in milk and improved its keeping quality, so it could be picked up less frequently. Every-other-day pickup replaced the daily farm stop, reducing by one-half the total truck mileage involved in assembly. Since milk was cooled and ready for shipment almost as soon as the milking was done, it could be picked up at the farm at almost any hour of the day or night. And since dairymen no longer had to meet the deadline hour at the milk plant, some of them started sleeping a bit later in the morning.

Just as the airplane shrunk geography, so did the bulk tanker. It made it economically feasible to haul milk longer distances from the farm to the plant. Country receiving plants, necessary with can assembly, were no longer needed with bulk. The savings were substantial.

Even in the largest milksheds (like NY-NJ) most country assembly plants were eliminated. Instead milk was direct-hauled or was reloaded from farm tankers at manufacturing plants or pump-over points. Those big semi's wheeling into farm driveways could direct-haul milk still longer distances.

MARKETING CHANNELS FOR MILK AND DAIRY PRODUCTS



CHAPTER III. MILK SUPPLY, MILK DEMAND - COORDINATE IT IF YOU CAN

A RESERVE SUPPLY NEEDED

If you're going to have enough milk to drink every day you've got to have more than enough.

That's about what it boils down to when you're trying to coordinate milk supply and demand. It would be nice if we could keep the two exactly in balance, but we can't. They're plenty of reasons. Suppose we look at some of them.

Nature giveth, and nature taketh away. That's the way it goes in any biological business. Those inexorable laws of nature insist on having their say about just how big a harvest will be. Some years for instance, Mother Nature produces some bin-busting, headline-grabbing yields of corn and other grains. Yields that can put a bit of strain on any marketing system.

But the strains that might be produced by a bumper crop of wheat, corn, or soybeans are nothing compared to the strains an over-supply of milk can place on its marketing system. Because there's a basic difference between grain and milk. Grain is a storable, nonperishable product. It is produced yearly and may be marketed any time in the year it is produced, or even in some other year. Milk, on the other hand, is produced daily and must be marketed daily.

PERISHABILITY - A MAJOR FACTOR

Milk in its natural form is a perishable non-storable product. As a result, an individual dairyman has limited negotiating power. His milk must be marketed as it's produced. If he doesn't like the price, he can't keep it home and send it to market another day!

What complicates the matter even more is that milk is produced by millions of individual animals, which at varying times temporarily stop producing milk. It would be nice if cows would produce uniform amounts of milk every day throughout the year. But they don't. So production is not easy to regulate in the short run. It's affected by the season, the weather and the feed supply. We consider production pretty uniform in a market where the volume in the high month does not exceed that of the low month by more than 15 percent. Many markets exceed those ranges.

In addition to seasonal highs and lows, milk production is also characterized by year-to-year variations. Dairymen can't readily move in and out of the dairy business. When there's too much milk, they don't quickly reduce the number of cows. Nor if milk supplies are low do dairymen quickly expand the size of our national dairy herd. After all, a cow is a biological creature. Mother Nature writes the rules on how long it takes to turn baby calves into milking cows.

CONSUMPTION PATTERNS

In contrast to production, with its seasonal and cyclical variations, consumption is much more constant. Consumers want about the same amount of milk throughout the year. Unfortunately, however, they don't want equal amounts every day. Some days they want more than others. If company's coming, if the weather's hot and the kids are thirsty, if it's the day of the week for doing the shopping, if today's menu calls for more, if school's are on vacation, if there is a holiday - all will produce daily differences in the amount of milk the market needs.

So, while the amount of fluid milk bought is fairly constant from season to season, there's considerable variation on different days of the week. Collectively, consumers buy the least milk on weekends, the most on Friday and Monday.

And unfortunately, the seasonal variations that do occur usually complicate the problem. With few exceptions, milk production in the major dairy areas is highest in May and June and lowest in the fall. Consumption of fluid milk on the other hand, is highest in the fall and lowest in June, July, and August. An exception to this occurs in the summer and winter resort areas. In Miami, for instance, fluid sales are higher in January than they are in July. Conversely, in northern resort areas like the Adirondacks, summer visitors boost July milk sales well above those of January.

Fluid milk can't be "stocked" in the store or a warehouse like most other food products. Yet it must be available in that store at all times. The real trick of the game is to satisfy those variable daily requirements without taking a big loss on unsold milk that's returned.

SOME EXTRA NEEDED

To be sure that enough milk is available in thousands of food stores on days when consumers want a lot, there's often more than enough on those days consumers decide they need less. The extra amount that has to be processed is a "necessary reserve."

Inevitably, in a market that is self-sufficient (in other words, that doesn't bring in milk from other areas) if consumers are to have enough fluid milk at the time of the year when production is lowest, there is a surplus of milk at the time of the year when production is highest. This extra milk in the high production months is called a seasonal reserve. It must be turned into other dairy products less perishable than milk.

Some markets don't have seasonable surplus problems, but may have some of a different kind, perhaps day-to-day or year-to-year variations. Many southern markets run short of milk in the short season and must import from other areas that have excess milk. Generally, a market has to be "long" in the long season if it's not going to be "short" in the short season.

Compounding the situation still further, even though cows produce milk seven days a week, milk plant operators don't run their plants on cow's schedules. New York City processors presently run a 5-day week, and in some other markets, milk is processed only four times a week. Occasionally because of holidays or 3-day weekends, processing may occur on only three days. What's more, milk dealers don't make wholesale deliveries every day.

Yet milk keeps coming off the farm every day. Despite giant strides in genetic engineering, no one has come up with a cow geared to a 5-day work week. So, inevitably, milk reaching a dealer's plant on a weekend (or any other time when the plant's not running) must be stored or diverted to a manufacturing plant and converted into butter, cheese, ice cream, milk powder, or some other dairy product less perishable than milk.

A MAJOR CHALLENGE

The "economics" of handling these reserves, the day-to-day, the seasonal, and the year-to-year kind, is a major problem with which our market system must contend.

It is a real challenge to the system to coordinate all the facets of the milk business - the cow, the consumer, and the processor - and do it on a day-by-day, month-by-month, season-by-season basis. A big part of that challenge, since milk is perishable and can't be stored at length, is to take any amount not needed on a particular day for bottling, and convert it into storable products that can be used at a later date.

Assembly and transport logistics add to the problem. When milk is not needed in the bottle or carton it has to go elsewhere.

Supply-demand coordination is not only a major function of our milk marketing system, it's a major headache. Trying to coordinate the seasonally-varying milk supply with the daily-varying demand in such a way that all residual milk is profitably used is an unbelievably complex challenge.

Coordination of production to consumption is more difficult with milk than with other agricultural products. The marketing system has to accommodate the wishes of the consumer with the requirements of the processor and the production of the cow.

There are some economic tools available to help with this coordination. Our milk marketing system, like any other business in a free economy, has one major mechanism it uses to speed up or slow down either supply or demand. That mechanism, serving as both throttle and brake, can encourage or discourage supply or demand. The mechanism of course is price. Let's see how it works to coordinate the amount of milk produced with the amount the market needs.

A BIT OF ECONOMICS

Why does fluid milk command a higher price than milk used in making other dairy products? For one thing, it must be

produced under stricter health and sanitation requirements. That alone should justify a higher price. But it's also more expensive to transport than are products like dried milk, butter, or cheese. Fluid milk weighs approximately 10 times as much as the cheese that can be made from it. Therefore, the shipping cost for a given quantity of milk is about 10 times the cost of its equivalent in cheese. Hence, milk for fluid use is more valuable (since transportation costs make it more costly) than milk used for cheese at all points up to the most distant that a particular market must tap to keep its fluid supply adequate.

MILK DEMAND INELASTIC

But the major reason for fluid milk is higher price is that consumers have long considered fluid milk more essential as a food than they have other dairy products. They expect a constant and convenient supply of fluid milk and will pay what's required to obtain it. They have "first call" on the available milk supply. They do not curtail their purchases very much when prices increase, nor does a bargain price stimulate them to buy very much more. A situation such as this, when price changes do not greatly affect the amount sold, is described by economists as having inelastic demand.

Elasticity refers to the change in the amount of a product that consumers will buy in response to a change in price. With some products, a small drop in price results in a large increase in purchases; demand for these is called elastic. With other products a similar change in price produces little or no change in the amount purchased; demand for these is called inelastic.

These terms do not describe absolutes. Nothing is totally elastic or totally inelastic. Rather, it's a matter of degree. Products for which there are substitutes tend to be more elastic. Total sales of these products respond positively up or down depending on the price.

When the price goes up, consumers substitute something else. For example, they may buy broilers instead of beefsteak.

On the other hand, products with few substitutes, like bread and milk, are less elastic (or are relatively inelastic). Gasoline is a classic example of a product with low elasticity. Even though gas prices have doubled in the past few years, sales haven't changed correspondingly because no one's yet found a substitute to pour into gas tanks.

Demand for products made from milk (like ice cream and cheese) is more elastic than is the demand for milk itself. So price changes affect the sale of those more than they affect the sale of milk. Cut the price of ice cream, and you sell some more ice cream. Cut the price of milk - you sell very little more.

FLUCTUATING SUPPLIES

These concepts cut both ways. Because demand for milk is relatively fixed (or inelastic), it takes a lot of price cutting (particularly at the farm level) to move much of any extra. That's why a little over-production quickly becomes a major farm problem. (A little under-production is not a farm problem, it's a consumer problem.)

Wholesalers of milk sometimes end up with only two options, a lower price or no market. Milk is perishable, and can't be left on the showroom floor another day. So any milk looking for a home has to be priced to move. On the other hand, when supplies of milk are tight, it's the buyer who ends up in the squeeze play. Then the consumer is given two choices - pay sharply higher prices or get no milk.

SHORT RUN VS. LONG RUN

In the short run, high milk prices bring little immediate increase in milk supply, nor do lower prices immediately shorten it. Dairymen don't respond very much or very quickly to changes in milk price. With their heavy investment in cows, buildings, and specialized equipment they can't readily move in and out of the dairy business. Discounting the year-by-year influence of weather, feed, disease, or catastrophe, dairymen expand and contract production only over comparatively long periods of time. That's why milk production tends to be much more stable from year to year than the production of about any crop you can think of.

Sure, if the milk price jumps or if the price of grain falls, dairymen do alter their grain-to-milk feeding ratio. And providing cull-cow prices aren't sky high, they'll slow down culling and come up with

a bit more milk. But, in the short run, not many dairymen expand or contract the size of their herds in response to short-run changes in price. Only over time will they (or can they) respond to changes in the production cost-milk price relationship. So milk supply then, like milk demand, can be described as inelastic in the short run.

However, many things other than price also change over time--inflation and technology to name two. These other changes often mask or obscure long-run price-supply relationships. And obviously, the supply of a biologically related product like milk is much more erratic than is the demand for it.

Demand doesn't change much from year to year, but can change significantly over time. Small annual changes over time can total to a significant amount. We have witnessed some in recent decades - beef consumption going up, and whole milk consumption down.

PRICE VS. MARKETING

Often when dairymen say, "we ought to do something about milk marketing," what they really mean is "we ought to do something about milk prices."

We've been talking about supply and demand in relation to price. So let's look at price as an economist might. We can start by distinguishing between marketing and price. Marketing is the physical movement of goods and services. Price is the force that makes them move. Depending on price, goods and services are offered for sale in the market and removed from the market or not even produced.

Price influences many things: the number of farmers engaged in dairying, the level of milk production per cow, the amount of milk production per farm, even the areas where milk is produced and how it will be used. For example, Wisconsin milk produced closest to Chicago is used for fluid; further from Chicago it's turned into cheese.

If there's a limited supply of any product, price determines who gets it.

OTHER FACTORS AFFECT SUPPLY

There are many factors other than price that cause milk supplies to change over time - inflation, technology, the attractiveness of other agricultural alternatives or the availability of off-farm jobs. Technology tends to increase supply, providing more milk for every unit of input.

Technology has some other effects. Most of the time it gives a bigger break to the bigger farmer, thus encouraging consolidation of farm units. Consider the effects of the technology of pipelines, free stalls, and milking parlors on dairy farm size. Over time, technology reduces unit costs, increases milk supplies, and drops milk prices. If you don't believe it, stop and think what our milk price might be now if the milking machine had never been invented.

Inflation, on the other hand, has a contrary effect. It increases the price of things farmers must buy to produce milk, increases their production costs, and over time requires that they receive a higher milk price. Otherwise, they'd stop producing enough milk.

ALTERNATIVES

Alternatives affect the supply. If there's a good job waiting in town, some dairyman will take it. If not, most likely he will keep on producing milk. If other farm enterprises become more attractive than dairying, some will shift to those. Some people just love cows and wouldn't be in any other business. But, most people won't nursemaid dairy cows seven days a week if they can make just as much or more doing something that's easier and gives them more free time. If the alternatives are not more attractive, most dairymen will just keep on making milk.

Alternatives also affect where milk is produced. Obviously, some milk is produced in all states. However, much of the supply flows from a relatively few. We call these the dairy states.

In recent years five states have produced almost half our total U.S. supply. The top five, in order of total milk production, are Wisconsin, California, New York, Minnesota, and Pennsylvania.

Did you ever wonder why milk is concentrated in certain states and not in others? For instance, why is New York a major dairy state and not Illinois? They have many similarities. Both have big

city markets nearby. Both have plenty of good farmland for growing feed and forage. So, the answer must involve more than just markets and natural resources.

It certainly does. It involves alternatives, and how attractive they appear. That's why Illinois isn't a dairy state. It can produce milk just as cheaply as we can, probably even more cheaply, but it hasn't had to. Its had other alternatives that were more profitable, like corn and soybeans.

The place where dairying has declined the most in recent years has been in the corn belt and in the wheat states. That's because for many of those years, wheat and corn prices made grain growing a more attractive alternative.

New York became a dairy state back in the 1800s, when cows replaced sheep as the best outlet for the crops which New York farmers could grow. And on about 14,000 New York farms, the dairy cow still seems to be the best alternative for marketing the pasture and roughage crops for which New York is best suited.

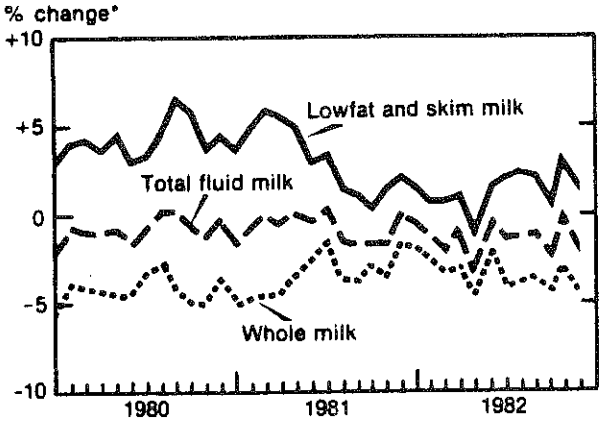
Certainly in the short run, many things other than the milk price affect the amount of milk produced. In the long run, however, cost-price relationships and the comparative advantage of dairy farming are the two principal determinants of how much milk will be produced and where and how it will be produced.

Use of market supply of milk, 1976-82

Item	1976	1977	1978	1979	1980	1981	1982[1]
				Billion pounds (milk equivalent)			
Fluid use	51.5	51.4	51.2	51.4	50.9	50.2	49.4
Butter[2]	19.4	21.9	19.7	19.4	22.8	24.6	25.0
Cheese							
American	20.6	20.5	20.7	21.9	23.8	26.2	27.5
Other	8.2	8.4	9.2	9.7	10.2	10.3	11.4
Creamed cottage cheese	1.0	1.1	1.1	1.0	1.0	1.0	1.0
Evap. & condensed milk[3]	2.5	2.4	2.3	2.3	2.1	2.3	2.2
Dry whole milk	0.6	0.5	0.5	0.6	0.6	0.7	0.8
Frozen dairy products, net	11.6	11.7	11.7	11.7	11.9	12.0	12.1
Other factory products	0.7	0.7	0.7	0.9	0.9	0.8	.7
Total factory products[4]	64.7	67.1	65.9	67.5	73.3	77.9	80.6
Miscellaneous[5]	1.3	1.6	2.1	2.3	2.2	2.8	3.7
Market supply of milk[6]	120.4	122.9	121.9	123.7	128.7	133.2	136.0

[1]Preliminary. [2]Excludes milk equivalent of whey cream, includes milk equivalent of residual cream from fluid and other uses [3]Canned and bulk. [4]May not add due to rounding. [5]Minor miscellaneous uses and any inaccuracies of independently determined use items. [6]Milk marketed by farmers, net imports of ingredients such as frozen cream, butterfat-sugar mixtures and "ice cream", and net change in storage cream.

Daily Average Sales of Fluid Milk Items



*From year earlier. Adjusted for calendar composition.

USDA Neg. ERS 2705-83(3)

Milk cow numbers, milk per cow, and changes by production regions, 1982

Production regions	Milk cow numbers[1]	Milk per cow	Change from year earlier: Milk cow numbers[1]	Milk per cow	Milk production
	1,000 hd	*Pounds*		*Percent*	
Northeast	2,200	12,435	+1.0	+1.1	+2.1
Lake States	3,127	12,416	+0.7	+1.0	+1.7
Corn Belt	1,457	11,494	+0.5	+1.3	+1.8
Northern Plains	506	10,836	+1.2	−2.4	−1.2
Appalachian	796	11,035	−0.3	+2.4	+2.1
Southeast	428	10,909	−0.2	+0.6	+0.4
Delta States	283	9,473	−1.0	+2.3	+1.2
Southern Plains	440	11,216	+1.4	+1.1	+2.5
Mountain	530	13,425	+4.6	+1.6	+6.3
Pacific[2]	1,251	15,221	+2.1	+0.9	+3.0
United States[2]	[3]11,032	[3]12,310	+1.0	+1.1	+2.1

[1]Average number during the year. [2]Includes Alaska and Hawaii. 3/ May not add to totals because of rounding.

CHAPTER IV. DAIRY COOPERATIVES

PART I - "THEIR BIRTH AND EARLY HISTORY"

CO-OPS: A COUNTERFORCE

There is a basic law of physics that states that for every action there is an equal and opposite reaction. The law applies equally well to the development of cooperatives.

Co-ops weren't developed out of the clear blue sky. It wasn't a case of somebody who had nothing else to do saying "let's start a co-op." Instead, cooperatives were a reaction to forces existing at that time in the marketplace.

An understanding of those forces will lead to an understanding of how co-ops came to be. Back in the early 1800s, during the formative years of the New York City market, milk supplies came from farms within the city limits, or from other farms not more than horse-and-wagon distance away. But as open land within the city limits was consumed by its growing population, another source of milk was sorely needed. This need was answered largely by dairies built adjacent to breweries and distilleries. The spent grains from the breweries and distilleries provided a cheap source of by-product feeds. The milk from these dairies was referred to as "distillery milk" (and sometimes, in a less kindly vein, as "slop milk").

New York City's population continued to grow, reaching about 400,000 by 1840. Ample supplies of fresh milk were available upstate to supply the city all it needed, but there was no way to get it there. Railroad milk-runs were yet to be developed.

Buoyed by growing export markets for butter and cheese, dairy farming had already spread rapidly throughout much of New York State before the mid-century mark. As wool production moved westward, the cow took the place of the sheep on most farms as the most profitable user of the pasture and hay crops for which much of the state was so ideally suited. Cheese factories and creameries literally dotted the upstate countryside after the cow took over.

RAIL SHIPMENTS BEGIN

Although the first rail shipment of milk had begun in 1842, a decade later distillery milk still made up two-thirds of the city's milk supply. However, the quality of this distillery milk was so poor that it served as a stimulus for development of country milk supplies.

Hardly a great deal more could be said for the purity of country milk. In fact, in those days much of the milk sold in the city was diluted half and half with water. (A quote from "The Milk Trade of New York and Vicinity", a book published in 1853, highlighted the problem of milk quality in that era. "We are certain we do not overestimate the quantity when we say that of the milk consumed by private families one-fourth is water with a mixture of chalk, flour, molasses and other ingredients.")

Although New York State passed legislation in the 1860s prohibiting the sale of milk which had been adulterated by water, it was not until the end of the century that the practice was fully eliminated. (The Babcock test for butterfat ended watering.)

In those early years, dairy farmers either sold their milk directly to consumers or to small milk dealers who purchased milk from only a few farmers. Early rail shipments to NYC came mostly from Orange County, New York, some 40 to 80 miles away, although some arrived from the nearby counties east of the Hudson River.

MILK PRICES

For almost 20 years, from the time farmers first started shipping milk from the country until the time of the Civil War, farmers received, on an annual basis, about 3 cents per quart. The price varied with the season, running about 2 cents in the spring and early summer, when supplies were plentiful, and climbing to 4 cents in the late fall and winter, when the supply was short. In the flush months, prices were only a little better than those paid by creameries and cheese factories, but larger premiums were paid by dealers in the fall and winter months.

Because a personal relationship existed between farmers and the small dealers to whom they sold their milk, and also because the price farmers received was

higher than that paid by creameries and cheese factories, both dairymen and dealers accepted the status quo. Farmers had little incentive to band together to dicker about price or terms of sale.

During the Civil War, the prices that farmers received for milk rose to 5 cents a quart (on an annual basis) and reached an unbelievable 7.5 cents in the winter of 1865.

But when peace came, deflation followed. Farm milk prices skidded and by 1878 had fallen even below their modest prewar levels.

SHIPPING CHARGES

Freight rates, which ran about 30 cents per 40-quart can before the Civil War, doubled during that conflict. Two different charging systems were in use. West of the Hudson River all freight rates were the same, regardless of the distance. However, east of the Hudson three rate zones, based on mileage, were used. All rates declined somewhat after the war but the flat one-rate system was continued throughout much of the production area until almost the turn of the century.

New York City's population continued to explode in the years following the Civil War, reaching nearly 2 million by 1880. This sharp growth, coupled with the phasing out of distillery milk, required a rapid expansion of country milk supplies.

As the market grew, milk dealers also became larger. As the number of farmers supplying milk to the city increased, and as the number of farmers from whom an individual dealer purchased milk grew, the personal one-to-one relationship that had prevailed in earlier years began to break down. In combination with lower milk prices and higher freight rates, this soon caused dissatisfaction among dairymen.

FARMERS UNHAPPY

Right from the start dairymen were dissatisfied with the price they received in years when the weather went against them. Poor pastures cut their milk production and, because no milk price adjustments were made, also cut their income. On the other hand, in years when weather was particularly favorable and production followed suit, farmers often received lower prices for surplus milk. Price adjustments seemed to follow a one-way path--down.

As the city milk market grew, and dealers with it, farmers became more and more concerned with dealer buying practices. While some dealers purchased milk on a 6-month contract basis, with prices spelled out in advance, others didn't and their producers never knew what price they'd receive until after they had shipped their milk.

Farmers were unhappy about some other things. They were unhappy about deductions for spoiled milk, about failure of dealers to return cans on time (or sometimes not at all), about slow pay, and occasionally about the failure of some dealers to pay at all.

In the 1870s they began to react. This reaction took the form of farmer organizations to deal with milk buyers. These early organizations were of limited scale and of short duration.

As more dealers bought more milk from more farmers, pricing became a problem for both dealers and farmers.

A farmer who was paid a lower price than a neighbor received from another dealer naturally became upset. So a good deal of haggling occurred between dairy farmers and dealers. Not only did this burn up more and more of the dealer's time, but usually it wasn't resolved to the satisfaction of either the dealer or the dairyman.

DEALERS ORGANIZE

To correct this milk dealers formed their own organization which had, as one of its purposes, the coordination of prices paid dairy farmers. Three of these dealer organizations were in operation in 1880. The three united to form a joint price committee for arriving at common pay prices to farmers. The continuing need for a basic monthly price quotation was one of the reasons that the Milk Exchange Limited was formed just a couple of years later. The Exchange not only established a basic price quotation, but also made sure that dealers didn't deviate from that price.

Farmers were totally excluded from this price-making process. Naturally they resented that and so renewed efforts to form their own associations to deal with dealers and dealer organizations. Several

of these producer associations sprung up along the rail lines hauling milk to the city. The Orange County Producers Association, the Erie Mutual Milk Producers Association, and the Midland Milk Producers Union were three of the groups formed to deal with the Milk Exchange.

FIRST WITHHOLDING

About the only weapon producer organizations had in their arsenal was milk withholding. In 1883 they used it. This was the first time a milk strike was used in negotiating price. These early producer associations achieved some temporary success, but had little lasting benefit and soon passed from existence. However, new ones continued to take their place as producers vowed to develop a counterforce to the Milk Exchange.

Groups with names long since forgotten, like the Milk Producers Union and the Five States Milk Producers Association, were formed to negotiate milk prices with the Milk Exchange. While these too achieved short-term gains for their members, neither proved an enduring structure for representing producer interests. Like their predecessors, they soon passed from the scene.

SOME ACHIEVEMENTS

Despite the brief existence of these organizations, their efforts were not entirely in vain. One notable success was in bringing about an investigation of freight rates by the Interstate Commerce Commission. From this came an ICC order which ended the simple flat-rate system and substituted a four-zone system. Freight rates in the zones closer to the city market were reduced by this new order. Nearby producers, who had long sought this change, were particularly appreciative.

Another effort of these early dairy farmer organizations led in 1888 to an investigation of the New York Milk Exchange Limited by the New York Senate. The investigation brought about the dissolution of the Exchange in 1895. However, the dealers incorporated a new but remarkably similar organization in New Jersey soon after. The new exchange, named The Consolidated Milk Exchange, took over the price-making function of the earlier one. So the dairy farmers' victory was short-lived.

The population of the city continued to pyramid. In just 30 years, between 1880 and 1910, another 2 million people were added. Adjacent areas in New York and New Jersey increased an additional 1.5 million. To get enough milk, dealers sought out supplies further and further from the city. By 1910 the milk supply area (the milk-shed) for the New York-New Jersey Metropolitan market had reached approximately its present day dimensions. Milk was then being hauled as much as 400 miles.

FACTORS AFFECTING PRICES

Despite this rapid growth in the metropolitan milk market, the prices that farmers were paid declined gradually during most of this period. Two factors contributed to this decline. One was the ready availability of new milk supplies upstate. The supply merely had to be attracted away from that sold to creameries and cheese factories. Export markets for butter and cheese declined after 1880 and this further reduced the price incentive required to attract milk supplies to the city.

The railroads were partly to blame for the poor milk prices. The rail rate structure made milk hauling particularly attractive. Often, in attempts to generate additional hauling revenues, the railroads developed new supplies faster than even the fast-growing market for fluid milk could absorb. This surplus milk, particularly in the flush months of the year, caused downward pressures on milk prices. As a matter of fact, the railroads may have had more to do with holding prices down than did dealer associations.

Many dealer consolidations occurred in this era and some reached substantial size. The two largest firms, the Borden Condensed Milk Company and the Sheffield Farms-Slawson Decker Company never became members of the Milk Exchange. Borden's purchased milk on a 6-month contract basis, announcing its monthly prices at the beginning of each contract period. Both Borden's prices and the Milk Exchange prices (which were announced monthly) were widely publicized throughout the production area and varied little one from another.

Because dealers played such a dominant role in fixing the prices paid producers for milk, dairy farmers continued efforts to develop an organization that could give them a voice in the price-making process.

LEAGUE ORGANIZED

The first successful organization of producers, one with enough collective power to countervail that of the dealers, was born in 1906. This new organization, called the Dairymen's League, was sponsored by the Pomona Grange of Orange County and was incorporated in 1907 under the laws of New Jersey. Membership in the new organization grew slowly but steadily in its early years. In fact, its first efforts were limited pretty much to building membership and to developing a workable organizational structure.

The leaders of this new association recognized that they could never go up against the power of dealers without the kind of strength only numbers could provide. By year-end of 1913, League membership had grown to 8,400. Soon after the League shifted its main push from membership development and began making marketing agreements between the organization and its members. Those agreements gave the League full authority to sell the milk of its members.

By now, World War I was raging in Europe. The inflation that accompanied it played an important part in the successful development of the Dairymen's League. Despite that inflation milk dealers were reluctant to raise retail milk prices, which had been stable for years. Dealers feared consumer reaction to a price increase and the chance of lost sales. So they were reluctant to raise prices paid farmers. In fact, dealers were more afraid of their competitors and their customers than they were of their producers. Farm milk prices were not increased in 1914 and 1915, nor were they changed through the summer of 1916.

However the things which farmers had to buy to produce milk didn't hold the line. They went up as the value of the dollar went down. In that environment, Dairymen's League leadership came under strong pressure to take action for higher prices. However, the League leadership resisted. They wanted to buy time for building membership. When the right time came, they wanted the "clout" to negotiate effectively.

THE CHICAGO MILK STRIKE

Similar situations prevailed in most other fluid milk markets. Producers in many markets had formed associations to negotiate with milk dealers over milk prices. The Chicago Milk Producers Association (formed in 1909) called a milk strike in the spring of 1916. The success of its action was well publicized in the New York Milkshed and gave added impetus to the organizing efforts of the Dairymen's League.

In September 1916, the Dairymen's League announced a 6-month schedule of prices to become effective in October. The prices announced were 45 cents per 100 pounds higher than Borden had paid in the same months a year earlier. About a week after the League's prices came out, the Borden Company announced its own offering price for October.

In announcing a price for a single month, Borden was abandoning its long established practice of announcing prices 6 months in advance. Borden's price was 20 cents higher than that of the previous October, but was 25 cents less than the League's announced price. A few days later, the Sheffield Farms-Slawson Decker Company announced their price, one almost identical to Borden's.

THE LEAGUE STRIKES

The New York State Department of Foods and Markets was designated as the sales agent for the Dairymen's League. However, the milk dealers refused to recognize the League and also refused to recognize the Department as its sales agent. The League was now ready; it retaliated. The strike was on! The city's milk supply began to dry up.

Many dairymen who were not members of the League were in sympathy with its goals and joined the withholding action. Within a week, a number of the independent dealers came to terms with the Dairymen's League. It took two weeks, however, before the major dealers capitulated and reached agreement with the League.

At the start of the strike, the Dairymen's League had about 13,000 members. While this was only about 15 percent of

all the producers in the milkshed, it represented a much higher proportion of those who supplied the metropolitan New York and New Jersey market.

The success of the milk strike gave legitimacy to the Dairymen's League in the eyes of both producers and dealers. During that inflationary wartime period, our nation's wholesale commodity prices had more than doubled. Farm milk prices also doubled. Many dairymen gave the League credit for this sharp jump in milk prices. So a favorable image of the Dairymen's League was created in the eyes of most dairymen and they flocked to the organization in large numbers. By the end of 1916, its membership had reached 30,000 and by 1920, it was reported to have exceeded 80,000.

SUPPLY CONTROLLED

At that point the organization controlled more than 80 percent of the total supply in the New York milkshed. Nor was the League's experience unique. Producer organizations formed in other markets during this period were equally successful. In fact, many of today's major dairy co-ops trace their beginnings to this time.

Several of these producer associations recognized the need for a national organization, one that would represent them in matters of legislation and one that could serve as a clearinghouse for information about milk marketing on a nationwide basis. So, in 1916, eight producer associations (including the Dairymen's League) formed the National Cooperative Milk Producers Federation. This organization was formed in Chicago and was incorporated under the laws of Illinois. Today the Federation is the principal organization representing the interests of dairy cooperatives and their farmer members on a national level. It's now located in Washington, D.C.

COURT SUPPORT

A solid base for the legal status of milk producer organizations also was built during this period. Success is never without risk. So successful was the Dairymen's League (and other milk producer associations) in bargaining with milk dealers for higher prices, that they were indicted under state and federal anti-trust laws. The producer associations defended their actions in the courts and most indictments were dismissed. These court decisions helped establish the legal right of dairy farmers to bargain collectively with milk dealers for price and terms of sale.

In addition to court interpretations, some new laws were passed and some existing laws amended to help clarify the exemption of producer organizations from state and federal anti-trust laws. The Dairymen's League, which at this time was the largest of all producer associations, played a major role in several of these efforts.

When the Dairymen's League was organized there were no cooperative laws. Instead, the League was incorporated under the general business corporations law of the State of New Jersey. By 1918, the need for some state laws which would permit producer organizations to incorporate separately from business corporations had become apparent. The Dairymen's League played an important role in drafting a cooperative corporation law, which was passed by the New York Legislature in that year. The League incorporated under that law soon thereafter.

The Dairymen's League was also charged on several occasions with violating the New York State Anti-trust Law. This law, the Donnelly Act, was amended in 1918. The amendment, which the League helped formulate, made it legal for farmers to organize and sell their products collectively.

CO-OP'S BILL OF RIGHTS

In other parts of the country the rights of dairy farmers to sell their milk collectively through producer associations was also being challenged under federal anti-trust laws.

So, in concert with the National Milk Producers' Federation, these producer associations lobbied for national legislation to clarify the exemption of producer associations under the anti-trust laws.

The Dairymen's League was active in this effort which culminated in the passage of the Capper Volstead Act in 1922. This act, often called "The Cooperative Bill of Rights" did much to clarify

the rights of farmers to buy farm supplies and market their products collectively.

The period during and immediately following the first World War truly marked the beginning of the cooperative movement in the United States. Producers were successful in forming organizations that made collective bargaining with milk dealers more than a hoped-for goal. The legal basis for cooperatives and their activities was fully established. The actions and activities of cooperatives today still rest on these laws and on the way the courts have interpreted them.

PROPORTION OF FEDERAL MILK ORDER PRODUCERS BELONGING TO COOPERATIVE ASSOCIATIONS AND PROPORTION OF PRODUCER DELIVERIES UNDER FEDERAL MILK ORDERS MARKETED BY COOPERATIVE MEMBERS, BY REGIONAL GROUPS OF ORDERS, FOR DECEMBER OF SELECTED YEARS

Region 1/	Producers belonging to cooperatives				Producer deliveries marketed by cooperative members		
	1965	1970	1975	1980	1965	1975	1980
	Percent						
North Atlantic	77.9	77.4	74.2	69.2	78.2	73.5	68.6
South Atlantic	87.1	99.1	94.4	91.4	86.5	94.7	93.2
East North Central	87.9	88.7	91.3	89.6	86.3	91.5	90.5
West North Central	94.9	94.6	93.3	87.3	94.3	93.5	88.3
East South Central	89.5	95.3	87.6	82.8	87.0	85.0	82.1
West South Central	85.3	92.5	91.8	91.5	85.2	88.0	87.0
Mountain	91.5	97.0	94.4	95.7	87.3	90.3	92.0
Pacific	72.4	72.5	81.8	88.9	69.9	77.4	85.3
Total	84.8	86.5	86.4	83.6	84.1	85.9	84.0

1/ Regional totals have not been adjusted over time for marketing area changes.

COOPERATIVE MEMBERSHIP AND PRODUCTION, NEW YORK-NEW JERSEY MILK MARKETING AREA, APRIL 1968-1982

Month of April	Number of producers			Pounds of milk		
	Total	Coop.	% Coop.	Total	Coop	% Coop.
1968	30,305	21,881	72 2	911,995,882	659,003,744	72 3
1969	28,931	20,919	72 3	931,025,095	673,176,371	72 3
1970	27,118	19,255	71 0	930,027,643	662,796,990	71.3
1971	25,332	18,047	71 2	925,969,872	655,756,179	70 8
1972	24,356	17,607	72 3	939,131,606	676,287,339	72.0
1973	22,543	16,162	71.7	863,806,554	615,939,600	71.3
1974	21,207	14,923	70.4	840,140,320	585,151,617	69.6
1975	20,570	13,676	66 5	853,519,037	557,191,131	65 3
1976	19,377	11,666	60 2	854,738,061	500,774,909	58 6
1977	18,997	11,200	59.0	842,820,866	479,902,876	56 9
1978	17,865	10,518	58 9	866,372,570	487,092,123	56.2
1979	17,679	10,251	58.0	897,698,581	490,872,671	54.7
1980	17,622	9,889	56.1	930,493,976	495,295,218	53 2
1981	17,685	10,064	56.9	973,802,229	522,801,006	53.7
1982	17,438	10,362	59 4	966,304,668	540,293,152	55.9

CHAPTER IV. DAIRY COOPERATIVES

PART II - "THEIR DEVELOPMENT AND CURRENT ROLE"

UNITY LACKING

In part because of its size, there has been less unity among dairy farmers in the New York market than in about any other large-city milkshed in the country. A brief time around World War I is the only time that most dairymen in the New York milkshed have united in a single dairy organization. That organization was the Dairymen's League.

However, the success the League enjoyed in attracting dairy farmers during that WWI period was short-lived. Once peace arrived, overseas markets for canned milk collapsed. Many condenseries and creameries in the New York milkshed closed. Thousands of League members faced loss of markets. This forced the reorganization of the League and altered its objectives. Up 'til then it had been a bargaining association. But to maintain outlets for its members' milk, it had to buy milk plants and become a marketing association.

The new reorganized cooperative demanded a greater commitment of its members. After all, buying milk plants took money. Reorganization also brought with it some new arrangements with dairymen, which, in one form or another, still exist today. Among the new items were annual contracts with members and provisions for generating member capital, and also, appearing for the first time, was a new pricing arrangement called a classified pricing and pooling system. Under this system, milk was sold at different prices for different classes of use. The money was "pooled", and a single blended price returned to its members.

Many members of the League did not like these changes and did not join the reorganized cooperative.

SHEFFIELD CO-OP ORGANIZED

Sheffield Farms Company, the market's second largest milk dealer, refused to purchase milk from the new cooperative on a classified price basis. Instead it created its own co-op, the Sheffield Milk Producers Cooperative. This started a division among milkshed producers which was to last for more than half a century.

The Sheffield Company consistently used more of its milk as Class I than did the Dairymen's League. Therefore, the Sheffield Producers Cooperative consistently paid higher prices to its members.

Membership in the Dairymen's League, which was cut in half as a result of its reorganization in 1921, further eroded through the remainder of the 1920s and the early thirties. Several efforts were made during this period to reunite producers in a single organizational structure, but none were successful.

THE GREAT DEPRESSION

When Black Friday signalled the start of the world's worst depression, stock prices were not the only thing that fell. The farm price of milk plummeted to less than half its previous level. Because of the seriousness of the situation, a Joint Legislative Committee was appointed in New York to study the state's ailing dairy industry and recommend legislative action.

The committee's report led to quick passage of the state's first milk control law in 1933.

PUBLIC REGULATION

The New York Milk Control Law created a Milk Control Board and gave it broad powers to regulate and stabilize the state's milk industry. It was given the authority to fix prices dealers paid as well as the prices at which they sold. Selling prices at stores were also fixed.

"Fixing" prices is never as simple as it seems. Right from the start, many recognized that, because of the interstate character of the New York City milk market, a state-imposed pricing system might not work effectively. Arbitrarily established New York prices might get out of "synch" with unregulated out-of-state prices. The state's price-fixing program inadvertently led to the formation of a great number of small producer-cooperatives. These were formed with the help of dealers to "get around" the state's price-fixing program and to stay competitive with out-of-state sources of milk.

Producers who feared losing their market to cheaper out-of-state milk were

willing participants in the effort to lower in-state dealers' costs for milk. In fact, more than 100 different local cooperatives were formed around milk assembly plants during this period. These small co-ops represented the beginnings of a third grouping of producers, which was to become a permanent part of the co-op structure of the New York milkshed.

Failure of the price-fixing mechanism led to overhaul of the state's milk control law in 1937. The revisions permitted the state to join with the federal government in a program to set producer milk prices. It also permitted federation of cooperatives into bargaining agencies.

BARGAINING AGENCY FORMED

This led to a second brief period of producer unity in the New York milkshed. The Dairymen's League, Eastern Milk Producers Cooperative (which had replaced the former Sheffield Cooperative), as well as the many local cooperatives formed in the preceding years, joined together to form the Metropolitan Cooperative Milk Producers Bargaining Agency.

This grouping of co-ops was successful in developing and putting into effect a federal-state milk marketing order in the New York market in the fall of 1938. At that time, Metropolitan Bargaining Agency's member cooperatives represented about 70% of all producers in the New York milkshed. Only once before (following the milk strike of 1916) had the region experienced such a degree of cooperative unity as existed at that time.

Once the marketing order became operative, several cooperatives pulled out of the Bargaining Agency. Eastern Milk Producers was one of the first to withdraw. Several local cooperatives, most of which owned and operated country milk assembly plants, also withdrew. This group was the nucleus of what later became the Mutual Federation of Independent Cooperatives. The Dairymen's League and many of the other local cooperatives continued as members of the Metropolitan Bargaining Agency.

Both the Bargaining Agency and Mutual Federation were loose-knit federations. Many of the Agency's members and some of Mutual's were bargaining cooperatives. The principal function of both organizations was to represent its members in federal-state marketing-order amendment proceedings.

Originally neither of the two sold milk for their member co-ops, but over time both did. First Mutual and later the Bargaining Agency bought manufacturing plants to balance supplies for their co-op members.

THE BIRTH OF NEDCO

The Dairymen's League withdrew from the Metropolitan Bargaining Agency as the latter became more involved in marketing and processing. Soon after Dairymen's League withdrew, the Metropolitan Bargaining Agency joined with Mutual Federation to form Northeast Dairy Cooperatives. Northeast, now known as NEDCO, has continued to the present. NEDCO, Dairylea, and Eastern are "the big three" of the cooperative structure of the NY-NJ order.

Several times two or all three of these organizations have joined together temporarily in a formal organizational structure. On numerous occasions they have worked together informally on specific activities. All three participate in the Northeast Dairy Cooperative Coordinating Committee. The three organizations also joined in forming Empire Bargaining Agency, but Empire never really got off the ground.

CMA FORMED

Dairymen's League and NEDCO have been affiliated in varying degrees over a period of several years. In the early seventies, two organizations formed the Cooperative Marketing Agency (CMA). Within its structure the two cooperatives consolidated milk assembly, balancing plant operations and bulk milk sales. This is the only significant effort by any of the three cooperatives to consolidate physical marketing activities, and this effort was short-lived.

CMA was dissolved after two years. However, Dairylea had continued its affiliation with NEDCO until recently, and the two organizations have formally worked together in carrying out order activities and educational programs. The latter arrangement, in large measure, had been a forced marriage that permitted the two organizations to qualify for cooperative payments.

THE RECENT PAST

Charles Dickens, in opening his "Tale of Two Cities," described an era that was the "best of times and the worst of times". In the past decade, Order II Co-ops must have believed they were living in a similar era. In some ways, they responded splendidly to the times - acting promptly when forced to take over the assembly of more of their members milk; when required to find outlets for milk because of loss of sales to buying handlers; when required to build or buy processing facilities to handle members milk; when balancing "the extra flush" in high production years.

During this period, all three cooperatives took on as new members some producers who lost markets. They also handled milk for nonmembers who had lost markets. In general, the co-ops charged these nonmember producers the costs that were involved in handling the milk.

The residual milk that cooperatives have handled to clear the market and provide outlets for members' milk is highly seasonal in character. What's more, it's often spread over a broad geographic area. This makes it expensive to assemble and process into storable products, particularly in contrast to some of the surrounding markets where the pattern of producer deliveries has been less seasonal.

THE OTHER SIDE

In other ways, some called the past decade "the worst of times". During this period Dairylea experienced large operating losses. This forced it to increase its membership dues and make special assessments of members to cover losses. It also converted the nature of its members' capital contributions. Interest-bearing Certificates of Indebtedness, which had fixed due dates, were exchanged for noninterest-bearing Certificates of Equity, carrying no due dates.

After NEDCO withdrew from CMA, Dairylea closed four of the five balancing plants that CMA had operated. Four of these were sold or leased to other co-ops.

Eastern Milk Producers also experienced sharply increased marketing expenses in handling its members' milk. It, too, was forced to make capital deductions from members to acquire and remodel needed milk plants. As a consequence, Eastern's reblended return to members often fell well below blended price.

While NEDCO's balance sheet in that period often appeared somewhat better than the two other members of "the big three", it too had to call upon its members for capital to purchase and operate marketing facilities.

But, one may ask, what dairyman should expect to invest only in production facilities and not in marketing? Marketing after all, costs money. While co-ops may be exempt from some of the antitrust laws, they're certainly not exempt from the laws of economics.

A CURRENT LOOK

During the seventies, cooperatives in the New York milkshed experienced declining membership. At the end of that decade only about half of all producers in the milkshed are members of, or in any way affiliated with, the three major cooperatives. But after a decade of decline membership swung the other way. At the end of 1982, 55% of all milk receipts in Order II were coming from cooperative producers.

A smaller percentage of dairymen are members of cooperatives in the New York-New Jersey market than in other federal order markets. In other markets, not only are more of the producers cooperative members, but in many cases they're members of a single cooperative. Or if not, the cooperatives themselves affiliate with each other and carry out marketing functions jointly.

REASONS FOR DISUNITY

Why the lack of unity in the New York milkshed? It stems in part from the structure of the cooperatives themselves. The Dairymen's League, ever since its reorganization in 1921, has been extensively involved in the physical marketing of milk, including the operation of milk plants. Though initially involved only in the operation of manufacturing plants, over time it became involved also in operating fluid plants and distributing fluid products. In fact, the League for many years has been one of the market's principal fluid milk processors and distribu-

tors, not only in the metropolitan market, but also in secondary markets throughout the production area.

From its beginning until almost the present time, Eastern Milk Producers has been a bargaining organization. In fact, only in recent years has it been involved in operating milk plants, and only lately has the involvement been on a significant scale. As the years have passed, Eastern has also become more involved in the assembly of its members' milk.

NEDCO differs from both the other cooperatives in that it is a federation. Its member cooperatives are both bargaining- and operating-type organizations. In 1981, NEDCO marketed milk for 38 of its 54 member cooperatives. The remaining 16 marketed their milk directly to buying handlers.

NEDCO has represented all its member cooperatives in market order activities. It markets the milk for some of its co-ops and provides quality control and payroll services for some. It doesn't market milk for its member bargaining cooperatives, and even some of its member operating cooperatives market their own milk. Few marketing functions are fully centralized in the NEDCO organization.

NOT ALIKE

Over the years, the diversity among the three cooperatives has made it difficult for them to define a common purpose. The functional differences among the three have been reflected in their policies. Because of this frequently they have been unable to reach agreement on order amendment proposals.

Competition for membership also has been intense over the years and in this competition each organization has emphasized its differences from the others.

In the last few years, the "big three" have become more alike in the functions they perform. In the future this may make it easier for them to define common goals.

COOPERATIVE CONTRASTS

In most federal milk order markets, cooperatives assemble much of the milk. They supply the dealers and take care of processing any residual in cooperative plants. Some co-ops do operate fluid plants, but usually this has come only after the co-op had the assembly and balancing functions in the market well organized, in other words, after they had gained control of the milk supply.

In contrast to Order 2, the provisions of some federal orders (particularly their shipping requirements) are such that dealers find it more attractive to buy from co-ops than to buy from individual dairymen. This explains in good part why co-ops in some other areas have been so much more successful in assembling the market's milk.

Because our NY-NJ milk supply is so seasonal, "balancing" has been costly to our co-ops. It will continue to be unless and until we level out our seasonal ups and downs.

CO-OP CONSOLIDATIONS

In the late 1950s and early sixties, a merger movement hit the co-ops. Starting in the Midwest, it eventually spread over most of the country. It began with co-ops tying together in federations.

The first of these, the Great Lakes Federation, was formed in 1960 to bargain with milk dealers for Class I prices above federal order minimums. The second federation, Associated Dairymen, was created in 1964 to raise Class I milk prices in federal orders throughout America's midsection.

What began as federations, with limited goals and loose-knit structures, grew eventually to four giant regional co-ops, the last of them born in 1978. All are now centralized marketing organizations. The largest, Associated Milk Producers, Inc., was an offspring of Associated Dairymen. Mid-America Dairymen stemmed from the same parent. A number of additional co-ops merged with these two.

Dairymen, Inc., formed in 1968, now sprawls over much of the southeastern and Gulf Coast states. Milk Marketing, Inc., formed in 1978, includes most of the co-ops that made up the Great Lakes Federation (although a number of them had previously merged with one another).

Merger and federation came more slowly in the Northeast. Yankee Milk, which resulted from a merger of the three major co-ops in New England, was formed in 1972. In 1980, Yankee Milk became the nucleus of a new regional co-op called Agri-Mark. This cooperative was formed as the result

of a joint venture with the Boston-based H. P. Hood Company, the major fluid outlet in New England. The Northeast's largest farm service and supply co-op, Agway, by purchasing the Hood Company, acted as a catalyst to bring about this partnership.

A bit farther south, in the Middle-Atlantic market, the Penn-Marva Federation was formed in 1968 by its three biggest co-ops.

Several co-ops in the western New York State orders joined together to form Upstate Milk Cooperative. The partners were themselves a culmination of several earlier mergers in the Rochester and Niagara-frontier markets.

MERGER HURDLES

This merger movement has not come easily. The co-ops involved had to surmount difficult obstacles. Consider what they faced. They were trying to bring together organizations of widely diverse nature, groups spread over vast geographic areas, co-ops serving scores of different markets, some of them hundreds of miles apart. Yet, they did it. They faced their problems and they resolved them. They created new cooperative structures.

Unfortunately, here in the New York milkshed, co-ops have been unable to overcome similar obstacles. Only in the recent past have their mutual efforts and joint ventures shown any promise of bearing fruit.

Can our New York milkshed co-ops become more united? Admittedly, the job is big, the risks are great, but so are the potential rewards.

Unity could bring many benefits. Co-ops could speak with one voice, both in legislative rolls and in order hearings. They could face up to problems squarely. They could, for instance, address themselves to the problem of seasonality.

Unity could bring sales benefits. No longer would co-ops be competing against each other in the sale of bulk milk (often to a common buyer). Dealers could no longer play one co-op against another.

Unity could bring efficiency. It could save money in assembling milk, in operating plants, in paying producers, in management, financing, and administration.

ARE CO-OPS NECESSARY?

Are co-ops really necessary? For dairymen who lose their market and found one with a co-op the answer should be easy. Their answer should be a resounding yes.

But how about the other 16,000 Order 2 dairymen who didn't lost their market? Or the more than 8,500 Order 2 dairymen who don't belong to a co-op? What are co-ops doing for them? They have an order, why do they need a co-op?

Admittedly, in the short-run some dairymen, good producers selling to financially sound dealers, are able to get along without co-ops. But even these can be affected by the market's instability, by all the extra milk floating around that co-ops take care of.

In the long-run, there's just no question. Co-ops are necessary! In fact, if present co-ops were to fail, probably the first thing that dairymen would have to do would be to organize a new one. Because in the long-run, an order just can't function without a strong cooperative presence. Without continuous adjustment, an order would soon be "out-of-synch" with prevailing market conditions. Perhaps dairymen would become dissatisfied with it and vote it out. Or maybe the Secretary of Agriculture, recognizing its inappropriateness, would withdraw it.

To work properly, an order has to be continuously adjusted. Who will do it? The market administrator can't. He doesn't have the authority. The Secretary of Agriculture can't. That's not his role. Only producers can.

But, individually, never. An individual dairyman has a farm to run, cows to milk. He doesn't have the time, the staff, or the facilities to keep abreast of current marketing conditions. He cannot attend all the lengthy hearings, nor can he by himself provide the supporting data and analysis appropriate to his interests. How can he even hope to stay up on all the changes and complications that "truing up" an order requires?

Individually, no way. Only collectively, as a member of a co-op, can he do it.

Many of today's dairymen, having started in farming only after co-ops had been long on the scene, never personally experienced the tribulations of milk

marketing before co-ops came. Passing years and better times may cloud the recollection of others.

CO-OPS VITAL

The role of co-ops is vital not only to the maintenance of an order, but also to orderly marketing. That role takes many forms, such as:

- guaranteeing markets for members in the sale of milk,
- acting as an agent for members in the sale of milk and in bargaining for its price,
- arranging the efficient assembly of milk,
- providing distributors with their entire fluid requirements (thereby eliminating or reducing their reserve supply needs),
- acquiring and operating facilities to haul, store, and process milk,
- operating these facilities when necessary, even at a loss, to "clear the market".

How much better could this role be carried out if Order 2 dairymen had one co-op that spoke with one voice? Perhaps, if you and your cooperative leadership are ever of that mind, we'll find out.

CHAPTER V. THE MILK DEALER

THE MIDDLEMAN

Once, milk dealers took their products all the way from the farmer to the consumer. But most don't today. Now they're generally the "men in the middle."

Often "cussed," seldom praised, milk dealers, the "men in the middle" between farmers and consumers, have played a vital role in the development of the milk marketing system we have today.

After all, they're the ones who convert most of our milk into the final products that consumers buy. More than anyone else, they've kept those products attuned to the ever-changing tastes of consumers. They've developed new products and improved old ones. Look what happened to yogurt with all those fancy new fruit flavors. Now it's even being frozen. Take ice cream. What food product can you think of that's increased less in price over the last 20 years?

The milk dealer has accomplished all this in a highly competitive environment. It's a "rough and tumble", "winner-take-all" business, and not many have survived the culling process.

IN BETWEEN

At one end of the line, most dealers buy their milk from co-ops, not from individual farmers. Some of these co-ops are giant organizations, which are now performing many of the services that dealers used to perform. Cooperatives carry out these services and, in turn, "sell" them to milk dealers.

Co-ops assemble the milk, balance the supply, carry out the quality control of farm milk supplies, and handle the producer payrolls. And if they're not satisfied with the dealers performance, there's nothing to stop a co-op from getting into the fluid milk business itself.

At the other end of the line, big chain stores have taken over much of the distribution function. Selling to them isn't any picnic either. Milk dealers haven't withdrawn their own brands of milk from dairy cases and substituted chain store labels because they wanted to. They've done it because they've had to. The buying power of chains can be mighty awesome. The loss of a large chain store account can have a devastating impact on the unit costs of even the largest of dealers.

What's more, if the chains aren't satisfied with the dealers' service or price, they can go into the milk processing business themselves. They've got a built-in advantage. They start right out with a market for the product they're going to process. That's one reason why chain stores now process about 20% of all packaged fluid-milk products used for home consumption.

Before you shed too many tears over the plight of milk dealers, perhaps we should look at why they've been cussed out so often. For starters, in days of old, the dealers didn't take kindly to operating in a competitive world. In fact, they got together and "stacked the deck" so they wouldn't have to. And woe to a dealer who got "out-of-line". A "dead wagon" would be sent around to take care of him. Read this testimony recorded in 1910 during an investigation of the milk industry by the attorney general of the State of New York:

> "In reference to the dead wagon, I have heard that if a fellow was cutting in on another man's trade, they would have this man on a dead wagon go around and see if he wouldn't stop it. If he would not stop, they would send this man around to deliver to the customers at a cheaper price....I have heard there have been lots of middlemen's horses poisoned."

NO REGULATIONS

The fluid milk business grew rapidly in New York City after rail shipment of farm milk supplies began in the 1840s. Literally hundreds and hundreds of individuals went into the milk business. After all, it didn't take much capital to acquire a horse and wagon, and that's about all it took to get into the milk business in those days. There was no licensing, no bonding, and no control over sanitary conditions.

So it's not too surprising that under these conditions some unscrupulous

individuals got into the business. Nor is it very surprising that some of these would withhold cans from farmers anytime they had more milk than they needed; or that, from time to time, others would fail to pay their producers, just to gain a competitive edge.

At the turn of the century, an article in the Rural New Yorker reported that there were three organizations of milk dealers in the New York-New Jersey metropolitan area. They were: (1) the Consolidated Milk Exchange "to keep prices down to producers"; (2) the Milk Dealers Protective Association "to keep milk prices up to consumers"; and (3) the Dairymen's Manufacturing Company "to manufacture and supply cans to farmers."

PRICING BY DEALERS

Milk dealers were in almost absolute control of the pricing of milk to farmers from the time when "large" dealers first emerged in the market (about 1880) up until the milk strike of 1916 when farmers, by withholding milk, finally established their authority to bargain collectively with milk dealers for milk prices.

Some of the larger dealers at the time, Beakes, Slawson Brothers, Decker, Sheffield Farms, Rudd, and Seelig, are names few of us recognize today. Most have gone out of business or, through merger into other firms, have lost their identity. Mergers substantially increased the size of several firms. By taking the merger route, Borden Condensed Milk Company and the Sheffield Farms, Slawson-Decker Company ended up as the two largest firms in the market.

These two, particularly Borden, were the price leaders in the market. Borden purchased milk on 6-month contracts with their prices announced in advance. Most of the other firms joined in fixing prices to be paid farmers by participating in the Consolidated Milk Exchange. Exchange prices, which were announced monthly rather than semi-annually, were almost the same as Borden prices. The Milk Exchange, particularly in the early days of its organization, not only established the prices to be paid, but actively enforced those prices on its members. Action by the attorney general of New York later led to dissolution of the Milk Exchange.

MARKETING IMPROVEMENTS

Many of the early advancements in the marketing of milk were made by milk dealers. Not 'til nearly the turn of the century was any particular note taken of the variation in the butterfat content of milk. However, after the invention of the Babcock test in 1890, differences in milk price based on its butterfat content began to appear. Still, this didn't come into general use until 20 years later.

The Borden Company was a leader in the practice of paying for milk on the basis of its butterfat test. Borden's was the first to adopt a complete system of butterfat differentials.

After Pasteur's experiments in the 1880s, which led to an understanding of the germ theory of disease, both the quality of milk and the procedures for handling it greatly improved. Milk dealers, along with public health agencies, played a key role in improving milk quality and its healthfulness. By 1910 the adulteration of milk by watering had ended, and the pasteurization of milk had become almost universal in the New York City market.

After public health agencies had developed official rating codes, some milk dealers began paying farmers bonuses for high quality ratings. One firm paid bonuses to those farmers who maintained low bacteria counts, a practice that was a forerunner of Grade A premiums.

Milk dealers developed the crude beginnings of a classified pricing system when they first started paying farmers lower prices for any milk that exceeded their fluid needs. Larger distributors often paid for this excess milk on the basis of its value for making butter and cheese.

In the early days of the market, much of the milk was "dipped" or poured from the dealer's container into the customer's. Dipped milk was gradually phased out in favor of bottled milk. By 1916, half of the milk was bottled. As this grew in importance, "bottle exchanges" were formed by dealers to facilitate return of lost or stolen bottles.

MILK TRUSTS

At various times in the history of the New York market, consideration was given

to consolidating all or nearly all of the milk business into a single organization. The idea also received a good deal of attention in a number of other northern cities, including Boston and Philadelphia. This was during an era when numerous industrial combinations and trusts were formed.

The New York Tribune supported the idea of a milk trust. The paper editorialized "that a well-managed copper-bottomed trust would give the public better service." However, most plans to consolidate the industry into a single organization, including that proposed by a New York State Commissioner of Foods and Markets, who suggested the State take over all distribution of milk in New York, came to naught.

The Tribune also was enthusiastic about what became known as the Syracuse plan. Shortly after the Civil War, 18 producer-retailers of milk in the Syracuse market consolidated. The price charged consumers was reduced from 8¢ to 5¢ a quart after the association was formed. The Tribune described the association's building and equipment in considerable detail. "To carry on the work of the Association... fifty men and forty horses and wagons are necessary. All men are fed and all horses stabled on the premises. There are both wagon and blacksmith shops where the Association builds and repairs their own wagons and does the horseshoeing...the association owns a large ice-house conveniently located along the Erie Canal where several tons of ice are cut and stored each season."

THE MERGER MOVEMENT

Though syndicates or trusts were never actually successful in completely taking over the milk business in New York, there has been considerable consolidation. Huge national dairy companies came into being as a result of merger and acquisition. This consolidation trend, which began in the 1920s, continued unabated through 1956, when the Federal Trade Commission took action that eventually halted it.

There were nearly 8,000 acquisitions in the dairy industry between 1920 and 1964, and more than 2,300 of these were by 8 national firms. Together, Borden and National Dairy (Kraftco) accounted for more than 60% of all the mergers by national firms during that period. However, the largest number of acquisitions by national firms occurred between 1928 and 1930, when 539 different acquisitions were made by 8 different firms.

Between 1951 and 1956, National Dairy Products (later renamed Kraftco) registered 39 acquisitions, and Borden, 110. Beatrice Foods was particularly active with 175 mergers between 1950 and 1957. Foremost Dairy Products, originally organized by Guernsey enthusiast J.C. Penney (of retailing fame), acquired 52 firms between 1951 and 1955, in the process boosting its annual sales almost tenfold.

Both Borden and National Dairy made many acquisitions in New York. Sheffield Farms was one of the larger acquisitions National Dairy made here.

The Federal Trade Commission put the brakes on the merger movement. Beginning in 1956, it aimed its big guns at some of the dairy industry's largest corporations. After years of litigation, FTC won its case. FTC not only demanded that the companies divest themselves of "illegal" acquisitions, but also issued a 10-year moratorium requiring that these corporations get FTC approval before additional mergers. This didn't stop growth of the corporations. It simply changed the pattern of their growth, diverting it to areas outside the dairy industry. The firms merely turned to other industrial endeavors in search of expansion opportunities.

MARKET CONCENTRATION

Merger, acquisition and consolidation has sharply reduced the number of firms in most fluid milk markets. At the same time, it has increased the market share of the larger firms that remained. In a 1964 study, the four largest firms accounted for 73% of all the fluid milk business in 69 different federal milk order markets. However, the larger the market, the smaller the market share the four largest firms enjoyed. But in the big markets, more often than not, the four firms that had the largest share were national or regional firms.

The principal goal of dairy firms when they merge or make acquisitions is to improve efficiency and lower unit costs. Just as in dairy farming, most advances in

technology steadily increase the size of operation required to achieve optimum efficiency. Large size also makes it possible for a firm to produce a broad range of products. This alone gives a big firm a selling advantage. Size also increases a firm's advantage in research and development and in advertising. Bigness gives market power. This has been reason enough for many to merge.

When considered in light of the degree of concentration that some dairy firms have achieved in many fluid milk markets and in the sale of manufactured dairy products, the formation of large dairy cooperatives and the buying power of food chains appear less threatening. At least, it does from a public point of view.

There is less concentration in the fluid milk business in the New York-New Jersey market than in other big city markets, but the degree of concentration has increased markedly over the years. The big national firms have opted out of the fluid milk business in "the Big Apple." Both Borden and Sealtest, which were the two largest firms in the market, pulled out entirely from the metropolitan area. Both firms, however, continue to operate major milk manufacturing operations in the New York milkshed.

MARKET DIFFERENCES

Today, almost all the dealers who process milk for the New York-New Jersey metropolitan area are independent firms. Queens Farms, Deltown Foods, Elmhurst, and Queensboro are some key names now in the New York City market. Most of them also process milk for other distributors. Today there are many more firms involved in distribution in the city than there are in processing.

In metropolitan New Jersey, names like Tuscan, Farmland, and Johanna Farms dominate the fluid milk business.

No chain stores operate plants in the New York-New Jersey metropolitan area at the present time.

Store distribution of milk became popular in the New York market before it did in most other fluid milk markets, and it also represents a greater part of the total sales. An explanation for this may go back to earlier days when most of the "dipped" milk was sold through stores (and at a lower price). Bottled milk was sold on the home delivery routes.

The New York market differs in other ways. For instance, more milk is sold in small containers than is the case in most other markets. When the half-gallon and gallon containers came along, many New York City shoppers stuck by the quart. It was a convenient size for the city's apartment dwellers.

DEALER CONTRIBUTIONS

Though milk dealers can't take pride in all that they have done over the years, credit for many of the innovations in milk processing and distribution must go to them.

To gain or maintain a competitive advantage, milk dealers have always been on the cutting edge of change. For instance they've always tried to improve the shelf life of their milk. The start of precooling began when a buyer of milk poured it through a lead coil buried in a hogshed packed with ice, before shipping it on to the market.

The dealer has also helped to make our nation's milk supply the safest in the world. H.P. Hood and Sons, for instance, the largest distributor of milk in New England, began supplying the Boston market with pasteurized milk far in advance of public demand for it and well ahead of health department regulations.

Dealer impetus has brought into use much of the new technology and mechanization our dairy industry now employs. Some of the big names in the industry got their start through the invention of new processes or equipment. Eli Borden, who developed a vacuum system for condensing milk is but one example.

Dealers have long been involved in educational and promotional campaigns stressing the nutritional and dietary values of milk and dairy products. They have added vitamins to milk to make it more nutritious. They have actively promoted new product development. They helped make America ice cream crazy. The current popularity of yogurt and various cheeses owes much to dealer promotion.

In all facets of our industry, assembly, transportation, processing, quality control, packaging, and distribution, milk dealers have played an important part.

They have been part and parcel of the evolution of the industry. They were there when filtering began, when steam sterilization was adopted, when the use of stainless steel equipment was inaugurated.

They have strived always to bring milk to their customers in the most effective and efficient way possible. They have delivered milk in glass bottles - first with glass caps, then metal caps, then paper disc caps; in cream-line bottles (until homogenization); in amber bottles (to protect the vitamin D); in cylinder cones, in waxed-paper cartons, in plastic-coated cartons, in plastic bottles and bags.

Yes, in their more than 150-year history, milk dealers have done much. But many may ask, "what have they done for me lately?"

Good question? Let's look at the role the proprietary handler plays today in our milk marketing system.

THE DEALER TODAY

The kind of environment in which dealers operate varies greatly from one market to another. It varies according to whether the market is growing or is stable or is declining. In a stable or declining market, dealers can grow only at the expense of other dealers. Since many of the costs of processing and distributing milk are fixed, any loss in sales means higher costs per unit. Price wars are more likely to develop in this kind of environment. When a dealer's faced with the loss of a chain store account, he's apt to retaliate by cutting prices to hold the account, so he may gain other business to offset what he's lost. Otherwise, he faces higher unit costs, and then he's no longer competitive.

It's tough to apply new technology in a "no-grow" market. Just about any new technology that comes along increases the capacity of a milk plant to process milk. So, unless a dealer can increase his sales, he ends up with excess plant capacity. And the only way he can increase sales is by getting business away from another dealer, and that's another good way to start a price war.

Remember we said earlier that demand for milk is relatively inelastic - that consumers don't increase their purchases very much in response to lower price. So when price cutting occurs and price wars develop, the market's total revenue is reduced and dealer profits are squeezed.

Most northeastern fluid milk markets (including New York) have been stable or even declining in recent years. Consequently, this hasn't been the best of times for milk dealers. Any time the excess plant capacity of a market reaches the boiling point, periods of intense price competition are likely to occur. The withdrawal of the Borden Company and Sealtest from the New York City market is a reflection of this kind of market environment. This is also the reason that many milk dealers have gone out of the fluid processing business in New York City and have had their milk processed by other dealers.

DEALER ADVERTISING

In the recent past, milk dealers haven't been able to create much differentiation among brands of milk by means of advertising and promotion. Milk is so alike in appearance, and its quality so taken for granted, that consumers show little brand allegiance. The proliferation of chain brands has also made it difficult for dealers to maintain brand identification at the consumer level.

In many markets, nonbrand advertising of fluid milk by dairy farmers through the American Dairy Association has now become more important than brand advertising by milk dealers.

Many dealers concentrate their advertising on new dairy products, particularly those which because of some distinction in flavor, taste, or other characteristic, their competitors can't match. Sometimes advertising is used by dealers to train their customers to recognize their products when they're in vacation areas. Walk into a strange market and see a familiar brand; it's a bit of home away from home - and probably it's a sale.

In most northeastern markets, the margins that fluid milk dealers can obtain are pretty narrow. This is due in part to the structural characteristics of these markets. Return on invested capital is not great enough to be attractive to many national firms and food chains, except when state agencies fix dealer margins at levels higher than would otherwise prevail.

Raw milk costs are fixed by federal milk orders, and wage rates are fixed by union contracts. Utility rates also are fixed by public agencies. Though prices of milk containers are not fixed, they're certainly highly standardized. So a dealer has very little control over the cost of many of his inputs. It leaves him few prerogatives as a manager in trying to control his costs.

Labor contracts vary among milk markets, as do utility rates and taxes. Factors such as these make a decision as to where to locate a plant an important one. They measurably affect the ability of milk dealers in one market to compete with dealers in another.

WHERE CREDIT IS DUE

Looking back over their long history, milk dealers don't deserve good conduct medals for everything they've done. But they do deserve a few bouquets. Certainly, credit for many of the innovations in milk processing and distribution must go to them.

Like them or not, dairymen just can't get along without milk dealers. These proprietary handlers process and distribute a good share of the milk that farmers sell. They make most of the investment in processing and distribution facilities, and they provide most of the management that's involved. Though dairy cooperatives and chain food stores do some processing of fluid milk, milk dealers do the bulk of it.

An old Indian adage admonishes us to "judge no man 'til you've walked two moons in his moccasins". Dairymen would be well advised upon occasion to try to put themselves in the shoes of the milk dealer.

There have been times when dairymen lost their market, when they were "dropped" by the dealer. It could very well be that the dealer had no other choice. He is in a highly competitive business, one which has little sympathy for those who can't compete. Take a look at the record. You'll find the field of battle strewn with the bodies of those who couldn't make it. Dealer after dealer has fallen by the wayside. Only the fittest remain.

In business decisions, a dealer has few alternatives. He must pay the class prices that the order establishes. He's not permitted to "assess" his producers to cover his losses. He must get enough margin to meet his costs, earn his living, and pay his stockholders. He must make hard-nosed decisions. If some milk is "cheaper" than other milk, he better buy that which "costs" him less. And he better buy only as much as he can make a dollar on. Otherwise, he'll lose his competitive edge. If he does, he won't be around very long.

CHAPTER VI. OUR MILK PRICING SYSTEM

PART I - "PRICE SUPPORTS AND PARITY"

Recent price support legislation has removed the parity concept from consideration in determining price support levels. The following discussion reviews the parity concept as it existed prior to 1981.

THE CONCEPT

Do you know how much your granddad got for milk back at the start of World War I? Or how much he had to pay for feed?

Maybe you don't, more likely you don't care. But you should, because the relationship between prices your granddad and his fellow farmers received and the prices they paid back in those days affect the price you get for milk. That's because the years from 1910 to 1914 are the base years for a concept known as parity.

The word parity means equality. Parity implies par, or some degree of fairness and equity. This concept of parity came to agriculture during the 20s and 30s, when farm leaders recognized that high or low farm prices by themselves do not tell much about how well farmers are doing financially. They realized that of far greater importance was what farm products would purchase in the way of machinery, fertilizer, feed, food, clothing, or any of the other things that farmers need to live and run their farms.

BASE PERIODS

To have a parity situation, a unit of farm produce (a bushel of potatoes or a cwt. of milk) should have the same purchasing power as it had during a time when the relationship between farm prices and farm costs was considered fair. That period of time is called the base period.

When the concept of parity was first incorporated into legislation (with the passage of the Agricultural Adjustment Act back in 1933) Congress selected the years 1910-1914 as the base period. Congress deemed this 5-year span as one in which a balanced relationship existed between farm prices and costs, or a time when things were "fair."

Parity is usually expressed as the ratio between the prices that farmers receive and the prices they pay. 100% parity implies that the prices farmers get for things they sell are in the same ratio to the prices they pay as in 1910-14. A 75% parity ratio indicates that farmers receive only 3/4 as much relative to the prices they pay as they did in the base period.

PARITY'S BEGINNING

Spurred by the depression, low farm prices, and by the spectre of farm failures and foreclosures, Congress rushed through legislation in 1933 to help improve farm income. Of course, city people were having their problems too. Money was tight; unemployment was rampant. Consumer purchasing power was seriously impaired. So, Congress didn't establish 100% parity levels immediately. Instead, it looked upon "complete" parity (100%) as a goal to be reached just as soon as practical under existing conditions.

This legislation - the Agricultural Act of 1933 - was intended to boost the price of several farm commodities, not just milk. But milk was one of the commodities to be "supported." Beginning in that year, public funds were used to remove dairy products from the market to help increase farm milk prices. The amounts purchased were geared to the amounts that could be used in food relief and school feeding programs. Purchases of dairy products under this program were made each year from 1933 to 1941.

RETOOLED

As the decade of the 40's began, war clouds began to roll across the continent of Europe. Food became a weapon of war. American farmers were asked to go "all out" for production. So the legislation originally created as an income support program, was remodeled and became instead a program to stimulate production.

To that end, Congress in 1941 fixed support prices at 85% of parity and the next year it bumped them up to 90%. However, market prices climbed even more rapidly in that war era, and exceeded

support levels in all but two of the years between 1941 and 1947.

The war over, America converted its plant again to peace time needs. Farm equipment and supplies, scarce as hen's teeth in the war years, once again became readily available.

However, once geared up, farmers didn't readily slow down. Congress soon realized that if they were to maintain dairy price equipment and supplies, scarce as hen's teeth in the war years, once again became readily available.

However, once geared up, farmers didn't readily slow down. Congress soon realized that if they were to maintain dairy price supports at 90% of parity, they'd end up buying a huge surplus of farm products.

FLEXIBLE SUPPORTS

So the legislation was again modified in 1949. The new revisions brought into being the concept of flexible price supports. The 1949 Act directed the Secretary of Agriculture to set support levels at not less than 75% nor more than 90% of parity.

A couple of times since then Congress has narrowed this parity range. In the Food and Agriculture Act of 1977, it squeezed the range down from 15 to only 10 percentage points, directing the Secretary to set it somewhere between 80-90% of parity.

Congress established the range, and the Secretary of Agriculture chose the level. In doing so, the Secretary was directed to choose one which insured the public an adequate supply of milk and dairy products.

If our national milk supply was short, the Secretary was to set the support level close to the maximum. If the supply was excessive, he was to set the level at or close to the minimum. Once the support percentage was established at the beginning of each marketing year, it could not be lowered. But it could be raised. The support price was raised in only three years between 1949 and 1972, but between 1972 and 1981 it was raised every single year and sometimes twice.

PARITY LEVELS

Looking back over the years since Congress first directed that flexible supports undergird the price of manufacturing milk, the level of parity has been set at 85% or higher 8 years, between 80-84% 9 years, and between 74-79% 14 years. Checking further, you'll find that the high support years (years in which parity has been set in the upper part of the range) were years in which our national milk supply was pretty much in line with commercial needs. Support purchases in those years were pretty modest.

Conversely, support purchases were large in those years when the parity level chosen fell in the lower part of the range. That's the reason the Secretary chose the lower level. Milk production in those years ran far ahead of commercial use.

The Food and Agriculture Act of 1977, which narrowed the range for manufacturing milk supports to between 80-90%, also directed the Secretary to adjust the support price semi-annually to reflect changes as they occurred in the parity index. The parity index is an index that reflects changes in the cost of things farmers buy. The adjustment was to be made on the basis of the percentage change in prices farmers pay over the 6 months. The adjustment could be either up or down, depending on the trend in prices farmers pay, but the latter situation was unlikely, given the inflation rate at the time.

In the spring of 1981, when record breaking CCC purchases appeared certain, the semiannual adjustment provision was eliminated in a bill that set the tone for additional budget cutting by Congress.

'81-'81 POLICY REVIEW

In 1981, Congress, spurred by the spectre of owning more than 2 billion dollars worth of surplus dairy products, disconnected the direct linkage between parity and price supports. Instead, in its '81 Farm Bill, in an attempt to cap spending, it established "fixed dollar" supports. The 1981 bill directed that the minimum price support for manufacturing milk should be $13.10 per cwt. through September '82, move to $13.25 for 1983, $14.00 for 1984, and $14.60 for 1985.

But Congress mapped out an escape route from those fixed dollar caps. If support purchase quantities or expenditures fell to certain levels, a "trigger" would establish higher prices - prices based on 70 or 75 percent of parity.

But alas, that quick escape was not to be! The triggers were set so low as to be obviously ineffective in 1982, and for that matter, for the forseeable future.

Almost from the start it was clear that this new program would neither discourage production nor reduce USDA price support expenses. So in March, the Secretary of Agriculture sponsored a national symposium to consider alternative support policies. But a consensus could not be reached. The Secretary, the National Milk Producers Federation, as well as other prominent groups and individuals were all backing specific but widely different proposals.

So in late August, Congress once again passed legislation changing support policy. Unable to reconcile the differences between advocates of a simple cut in the support price (like the Administration) and those favoring a more complex plan involving a two-tiered base-excess type pricing scheme (like the National Milk Producers Federation), Congress steered its own course. It froze the support price at $13.10 through September 1984 and gave the Secretary authority to assess producers up to $1.00 per hundredweight (in two 50-cent increments), unless price support purchases fell below certain levels.

If the dairy industry was united on nothing else, it soon became united on this! But not in support of it - in opposition! Despite the fact that this program would actually reduce the farmer's effective price less than most of those the industry had sought, a loud outcry arose from all segments of the industry and from all parts of the country.

Although the first increment was to have been put into effect in December 1982, court challenges soon sent that into a legal limbo. However, the assessment, after bouncing in and out of various courts for about six months, started appearing on dairymen's ledgers in the summer of '83.

However, at this time it is not clear whether the second assessment will be collected or whether the assessment plan will be replaced with yet another program.

MANUFACTURING MILK ONLY

Whatever support level is chosen, it's put into effect by supporting the price of manufacturing milk. The government does not actually buy milk, but rather three storable products of milk; butter, nonfat dry milk, and cheese. These three products represent about two-thirds of all milk used in manufactured products. The government (in practice, the Commodity Credit Corporation or CCC) offers to purchase these products at buying prices it announces, if the products meet their size and quality specifications. The buying prices are announced by the Secretary of Agriculture at the start of each marketing year (October 1). Whenever support levels change, new buying prices are announced.

Current specifications call for butter, (Grade A or higher) in 64-lb. and 68-lb. containers, nonfat dry milk (extra grade) in 50-lb. bags, and cheese (Grade A or higher) in either 40-lb. blocks or 500-lb. barrels.

An obvious question when you have a program like this is "how much does CCC end up buying?" Well, CCC purchases ranged from a miniscule one-half of 1% of total U.S. milk production, all the way up to 10.7%. In some years government butter purchases have run as high as 28.2% of all the butter made.

Cheese purchases have been negligible some years, but in others have climbed as high as 36.5%.

Nonfat dry milk has been the big ticket item. Since 1949 the CCC has never purchased less than 4% of total U.S. yearly production. But in some years it ended up buying more than half of all that was manufactured.

While the government has purchased a great many dairy products in many years, until recently most of their purchases have occurred during only a few months of the year, a consequence of clearing the market of the excess created by the "spring flush." The reason they have not bought more is that in most years the market price has been above support levels.

PRODUCT PRICES

Before supports were "fixed", any time support prices changed, buying prices also changed. The Secretary has the option to decide how he translates a change in support levels into new product buying prices. He can split the amount of change between the two portions of milk, butterfat and solids-not-fat, as he deems

appropriate. Consequently, the new buying prices for different dairy products may not all change by the same percentage. For example, the Secretary may increase the butterfat portion of the milk less than he does the nonfat solids portion. When he does this, the buying price for butter changes less than it does for cheese or nonfat dry milk. He is favoring one portion of the milk against the other.

Sometimes the Secretary goes beyond favoring one portion of the milk over the other and favors one product over the others. When he does this, it's called a "tilt." For example, he may arbitrarily increase the price of cheese more than prices for butter and powder. This is intended to encourage manufacturers to use more milk for cheese and less for butter and powder. This may be done because stocks of cheese are not as high as those of butter or powder, or because the cheese can be disposed of more readily.

However the splits are made, the government buys only when products are offered for sale and that's usually when market prices for any of the three products (butter, nonfat dry milk, and cheese) are at or fall below the government's announced buying prices. Nobody's going to sell products at the government's buying prices if they can be sold for a higher price in the commercial market.

MAKE ALLOWANCES

In arriving at its announced buying prices, the CCC takes into account manufacturing margins (often called "make allowances") as well as the yield of each product. 100 lbs. of milk (3.67% butterfat) can be expected to yield 4.48 lbs. of butter and 8.13 lbs. of nonfat dry milk, or 10.1 lbs. of cheese.

Make allowances represent the margin between the price of 100 lbs. of milk and the wholesale value of the products that can be made from 100 lbs. of milk. Thus, the make allowance should reflect what is actually happening in the marketplace. It represents competitively determined margins rather than actual cost. In this real-world situation the more efficient manufacturers end up enjoying higher margins than do the less efficient ones.

In recent years, with rapid inflation, CCC make allowances have sometimes lagged behind actual margins. In 1981 and '82, the make allowances (or manufacturing margins) were allowed to lag substantially behind actual cost. As a consequence, farm milk prices in that period ran well below the established support levels.

The areas used to establish support buying prices are those intensive milk producing areas of Minnesota and Wisconsin. Margins are typically lower in these areas than in other parts of the country. Plants in this area operate near or at capacity levels year round, and usually have lower unit costs than do plants here in the Northeast. Plants that have wide seasonal variation in the volume of milk processed usually have higher operating costs and therefore need wider margins to break even. This is particularly true of those plants in the Northeast which move into production primarily to clear the seasonal flush. This kind of plant finds it difficult to break even on the make allowance built into the support buying prices.

LEVEL IS A TARGET

The announced support level for manufacturing milk is not a guaranteed price for all dairymen. It's a target price. Since the benefits to dairymen are fed through processors, not all dairymen receive that announced support price. Factors such as plant location, the local competitive situation, the operating efficiency of the plant - all can affect the price which a particular manufacturing plant pays for milk.

The prices which the Secretary announces are designed to produce an average milk price for the period that is approximately equal to the support level.

Sometimes lags occur between the time a new support level is put into effect and the time the market prices catch up. This happened in 1977. Supports were increased in April, but prices paid for manufacturing milk did not increase by the full amount of the increase for several months. The deficit ranged from 28¢ per cwt. in April to 6¢ in November.

DISPOSAL PROGRAMS

Since the start of the price support program the government has purchased butter, nonfat dry milk and cheese to

achieve the support levels the Secretary has established.

Obviously a program like this couldn't exist unless there was also a way to use the products purchased. Otherwise the stocks would just keep building up and eventually spoil.

A variety of programs have been used since the start of the program in 1949 to distribute what has been acquired. The CCC has disposed of U.S. inventories in several ways. Some have been sold back to domestic buyers - and will continue to be whenever the market climbs high enough (CCC sells back to the trade at 10% above its purchase price).

In the 1950s, under what became known as Public Law 480, huge quantities were distributed to foreign outlets. Under this program, products were donated, bartered, sold for foreign currency, and sold for dollars. Dollar sales were made under long-term loan arrangements.

Large quantities were also used domestically in the school lunch program and in distribution to the needy. The actual amount which the CCC had to buy under the price support program was reduced further by several other government programs. One of these - the special school milk program - makes milk available to school children either without cost or at nominal cost. Another provided fluid milk to the military, to the Veterans' Administration, and to penal institutions. The subsidy for these programs was related to the amount of money the CCC would have had to spend if it had actually purchased the amount of milk used.

In the 1960s considerable quantities were moved into foreign markets under payment-in-kind programs. These programs subsidized our U.S. dairy product exporters, paying them an amount equal to the difference between the U.S. dairy product price and what the product could be sold for in a foreign outlet. The exporter's subsidy was paid with any surplus farm products that the government owned, such as wheat or dry milk.

Disposal of surplus dairy products acquired under the price support program has become more difficult over time. Many of the outlets previously used are no longer available. Foreign donations are limited both by lack of outlets and by our own budgetary restraints. The Food Stamp Program has replaced the direct distribution program for the poor and needy of our own country. In 1982 a program which allocated dairy products to individual states was begun. The states established their own guidelines for distributing dairy products to their needy citizens. In 1983, alarmed by constantly increasing CCC stocks, Congress appropriated still more funds for butter and cheese giveaways.

EXPORT POTENTIAL

Over the last decade we have not been able to sell many dairy products on the world market. EEC (European Economic Community) countries are loaded with their own products. The developing nations could use some, but they need a dependable supply from year to year, not just when we happen to have a surplus.

What's more New Zealand, which produces about as much milk annually as Wisconsin, is also hard pressed for markets. Traditionally New Zealand looked to Britain to market its butter and cheese. But when Britain entered the European Economic Community, quotas were established reducing the amount the Zealanders could ship in. The EEC didn't want low-priced New Zealand dairy products competing in the British market with butter and cheese from EEC member countries. All in all, the developed countries have more than adequate dairy stocks.

Recently, with limited outlets and excess production, our dairy stocks have pyramided. Disposition has become a serious problem. Both in Europe and the United States, some milk powder has been resold for animal feed use. The U.S. has resold powder that has deteriorated in storage for this purpose.

IMPORT RESTRICTIONS

Agricultural import legislation (Section 22 of the Agricultural Act of 1949) specifically directs that imports not jeopardize our price support program. Imports could increase the amount of butter, nonfat dry milk, or American cheese our government must buy in supporting farm prices of milk. To avoid this additional cost of support operations, quotas are used to restrict imports.

Not all dairy products are subject to import quotas. The test is whether or not they compete with domestic dairy products. For instance, quotas apply to certain

types of cheeses sold in this country only if the cheese enters the country at prices lower than our equivalent support price.

The level of the price break is raised each time support levels are raised.

Two dairy products, casein and lactose, are not subject to import quotas. Because casein is the raw material for making imitation cheese (no casein is produced domestically) our U.S. dairy industry has been striving to have import levels established for it.

IMPACT OF PRICE SUPPORT PROGRAM

In general, how well has our support program worked and what has it meant to dairymen?

Certainly without a support program, surplus production would be of short duration, since the price of milk would drop to levels required to clear the market. Ups and downs in our national milk production would cause prices and incomes in dairy farming to fluctuate much more than they have under a price support system. The boom and bust cycles which characterized dairy farming before it was stabilized by the support program and some other institutional arrangements, would reappear. In this climate, profit rates would have to be higher to keep a sufficient number of dairy farmers in business.

Few could argue that the program has not successfully accomplished its intent - that of providing American consumers an adequate supply of milk at reasonable prices. Certainly while without it consumers might have enjoyed some short-run price benefit during periods of flush milk supplies, they would just as certainly have suffered high milk prices during periods of short milk supplies. Nor has the stabilizing influence of the program been limited to farm milk prices. It has extended right down to the price of a quart of milk at the grocery store.

The support program has neither precluded nor unduly delayed the adoption of new technology in dairying. Nor has it stood in the way of the economic or social adjustments which inevitably follow. However, it may have given individual dairymen additional time to adjust to those changes.

From the end of World War II, until the present, a veritable technological revolution has occurred on the dairy farm. To remain competitive, farm operators have had to grow larger, with many more acres and many more animals, or have had to discontinue. Two thirds of all dairy farm units in operation at the end of WWII have been forced to take the latter course. The price support program may have helped ease this adjustment. Without the stability which it provided, the transition of more than 30,000 dairymen out of dairy farming would have been much harsher. By stretching out the adjustment period, by giving individual dairymen time to seek alternative employment, a lot of human misery was avoided.

There have been times when, because of errors in judgment, because of the supply uncertainties inherent in any biological business, or because of just plain old politics, that support levels have been over generous and excessive milk production has been the consequence.

Most would agree, however, that the support program has kept prices to farmers and consumers more stable than they otherwise would have been. More money has been placed in the hands of dairymen in amount of purchases which CCC has made. Conversely, in times of shortage, prices have been capped by the inventories which CCC held and then sold back to commercial buyers (as well as by increased dairy product imports).

The price support program has both its adherents and detractors. Most thoughtful observers of the industry believe that the price stability which it has produced has helped provide an adequate supply of milk at prices which have been generally acceptable to both producers and consumers.

Manufacturing milk: Comparisons of announced support prices and U.S. average market prices paid to producers, marketing years, 1974-82[1]

Marketing year[2]	Date	Support level		Average market level		
		Price per	Percentage equivalent[3]	Price per	As a percentage of parity equivalent	
					In month prior to marketing year year	Average during marketing year
		Percent	*Dollars*		*Percent*	
1974	4/01/74	81	6.57			
	1/04/75	89	7.24	6.87	85	78
1975	4/01/75	79	7.24			
	10/02/75	84	7.71	8.12	89	84
1976	4/01/76	80	8.13			
	10/01/76	81	8.26	8.52	84	82
1977[4]	4/01/77	82	9.00	[5]8.77	80	80
1977	10/01/77	82	9.00			
	4/1/78	86	9.43	9.30	85	79
1978	10/01/78	80	9.87			
	4/01/79	87	10.76	10.86	88	80
1979	10/01/79	80	11.49			
	4/1/80	87	12.36	11.75	82	76
1980	10/01/80	80	13.10	12.71	78	73
1981	10/01/81	75	13.49			
	10/21/81	72.9	13.10	12.67	70	68
1982	10/01/82	69.1	13.10			

[1]See DS-387, December 1981, table 2 for earlier data. [2]Start of marketing year was April 1 during 1974-77; was October 1 for 1977 to present. [3]Except as noted, this is the actual percentage of the parity equivalent price published in month before the marketing year. In some cases, the announced percentages, based on forward estimates of parity, were slightly different. Parity equivalent is based on prices for all manufacturing grade milk. [4]April-September transition period. [5]Average for the transition period, adjusted to annual average fat test.

USDA purchase prices under dairy price support programs, 1974-82 1/

Effective date of change	Butter		Nonfat dry milk, extra grade	Natural cheddar cheese, Grade A or higher
	Grade A or higher		Spray	
	Chicago	New York		
	Cents per pound			
4/01/74	60.570	62.00	56.60	70.75
1/04/75	68.070	69.50	60.60	77.25
4/01/75	69.193	70.75	60.60	79.25
10/02/75	79.693	81.25	62.40	85.00
4/01/76	85.817	87.75	62.40	90.50
10/01/76	90.817	92.75	62.40	92.50
4/01/77	100.710	102.75	68.00	98.00
10/01/77	100.710	102.75	68.00	98.00
4/01/78	106.710	108.75	71.00	103.25
10/01/78	111.300	113.50	73.75	106.00
4/01/79	121.800	124.00	79.00	116.00
10/01/79	131.330	134.00	84.00	124.00
4/01/80	140.580	143.25	89.50	132.50
10/01/80	149.000	152.00	94.00	139.50
10/01/81	153.000	156.00	96.50	143.25
10/21/81	149.000	152.00	94.00	139.50
10/01/82	149.000	152.00	94.00	139.50

1/ Prices for bulk containers--butter, 64- and 68-pound packages; nonfat dry milk, nonfortified in 50-pounds bags; and cheese, 40- or 60-pound blocks. See DS-387, December 1981, table 3 for earlier data.

Dairy products removed from the commercial market by programs of the USDA, 1975-83

Year and month	Removals[1]							As a percentage of marketings	
	Butter[2]	American cheese[3]	Evaporated milk[4]	Nonfat dry milk[5]	Milk equivalent	Milkfat	Solids-not-fat	Milkfat	Solids-not-fat
	Million pounds							*Percent*	
1975	63.4	68.2	24.5	394.5	2,036	77.7	405.6	1.9	4.2
1976	39.4	38.0	21.8	157.1	1,236	46.8	167.2	1.1	1.7
1977	221.8	148.2	15.9	461.7	6,080	230.8	494.9	5.3	4.8
1978	112.0	39.7	17.6	285.0	2,743	106.3	290.7	2.4	2.8
1979	81.6	40.2	16.4	255.3	2,119	81.7	261.8	1.8	2.5
1980	257.0	349.7	17.5	634.3	8,800	325.3	723.6	6.9	6.7
1981[6]									
January	51.6	31.9	1.8	55.4	1,385	52.3	64.0		
February	49.3	43.5	1.8	60.7	1,451	54.3	72.6		
March	42.5	57.5	1.5	73.5	1,449	53.4	89.1		
April	46.7	70.1	1.1	87.4	1,660	60.9	106.3		
May	48.9	70.2	1.2	97.5	1,706	62.7	116.1		
June	31.4	79.5	2.6	102.4	1,439	51.8	123.8		
July	17.7	75.2	1.6	75.7	1,113	39.1	96.4		
August	12.1	33.3	1.5	70.0	581	21.1	78.0		
September	6.9	28.6	1.6	54.0	429	15.3	61.1		
October	23.5	27.2	1.2	65.3	756	28.2	71.6		
November	3.0	18.1	1.7	45.0	245	8.7	49.2		
December	17.9	28.0	1.2	64.3	648	24.0	70.9		
Total[7]	351.5	563.0	18.6	851.3	12,861	471.7	999.2	9.7	8.7
1982[6]									
January	55.1	32.9	.8	71.1	1,464	55.5	79.2		
February	56.7	38.3	1.5	71.9	1,553	58.6	81.8		
March	52.2	56.7	1.6	92.0	1,643	61.0	106.8		
April	44.5	69.6	1.4	95.0	1,609	59.0	113.5		
May	46.3	70.3	1.4	93.6	1,653	60.7	112.4		
June	39.9	80.2	2.7	120.7	1,623	59.0	141.7		
July	18.1	68.6	1.9	98.3	1,056	37.5	116.2		
August	12.5	59.2	1.9	72.6	848	29.8	88.5		
September	12.2	49.5	2.2	63.9	746	26.4	77.2		
October	21.3	38.1	2.0	53.4	820	29.9	63.7		
November	7.8	35.4	1.5	51.7	513	18.2	61.0		
December	15.5	43.7	1.8	68.7	756	27.2	80.0		
Total[7]	382.3	642.5	20.8	952.9	14,287	522.9	1,122.1	10.6	9.6
1983[6]									
January	66.6	60.1	2.1	81.8	1,973	73.7	98.2		
February	59.2	66.8	1.4	93.9	1,886	69.9	102.1		

[1]Delivery basis, after unrestricted domestic sales. [2]Includes butter-equivalent of anhydrous milkfat, PIK, and purchases under Sec. 709, and 4a. [3]Includes purchases under Sec. 709 and 4a. [4]Includes purchases under 4a. [5]Includes PIK certificates, and purchases under Sec. 709 and 4a. [6]Preliminary. [7]Totals may not add because of rounding.

CHAPTER VI. OUR MILK PRICING SYSTEM

PART II - "FEDERAL MILK MARKETING ORDERS"

A LEGISLATIVE REMEDY

Chances are you market your milk under the terms and conditions spelled out by a marketing order. In New York, about 98 out of every 100 dairymen do.

The first marketing orders came into being in the 1930s in an attempt to correct some of the chaotic conditions then existing. With the nation deep in the worst depression in its history, Congress searched for corrective measures. It passed a host of new laws and created a host of new agencies to administer them. These were sometimes referred to as "the alphabet soup" agencies.

One of the new laws, the Agricultural Adjustment Act of 1933, authorized the use of marketing agreements to help correct the depression-born disorder in agricultural product markets.

Marketing orders came along a couple of years later when the original act was revised. Two years later, the marketing agreement and order provisions of the 1935 Act, with modifications and additions, became the Agricultural Marketing Agreement Act of 1937. This new act provided legislative guidelines lacking in earlier laws and for the first time spelled out the provisions that orders were to contain.

FORTY YEARS OLD

About now, maybe you're thinking, "why that was more than 40 years ago. It's ancient history. Why bring it up now?"

We bring it up because this law, together with its interpretation by the courts, provides the statutory authority and the legal base on which the entire federal milk market order system rests. Despite court challenges, depressions, wars, and changing political administrations, federal milk marketing orders have continued to operate, and operate successfully, for more than four decades.

The success of the order program in adjusting to changing technological, marketing, and economic conditions over a 40-year period, with few changes in the basic legislation, is a tribute to the writers of the 1937 Act.

Right from the beginning, the legislation that authorized marketing agreements and orders made their use permissible. It never mandated they had to be used. But the procedures that had to be followed to put a marketing order into effect were carefully spelled out, both in the legislation and in the rules for administering them.

Some marketing agreements were developed under the 1933 legislation. However, the first marketing order didn't go into effect until 1936 in the St. Louis market.

By 1962, the number of federal milk orders had risen to an all time high of 83. By 1981, because of merger and consolidations, that number had declined to 48. However, both the volume of milk subject to order regulation and the population of areas they covered were greater than ever. In 1982, 170 million people lived within areas covered by federal orders.

Several states also have legislation which authorizes the use of state milk orders to regulate milk prices. The marketing orders in the Rochester and Niagara Frontier markets are authorized under our New York Agriculture and Markets Law.

PURPOSES

The major purpose of a milk marketing order is not, as some believe, to guarantee good prices to dairymen. Rather, federal orders have two specific objectives; first, to insure consumers adequate supplies of pure and wholesome milk, and secondly, to promote and maintain orderly marketing conditions. It seeks to achieve these in two ways. The first way is to establish minimum prices that milk buyers must pay for milk purchased from dairy farmers. These prices have to be high enough to ensure the public an adequate supply. The second way is by spelling out the terms and conditions of those transactions so they're known in advance by both buyer and seller.

There are many misconceptions about what orders do and don't do. Do orders control production? Do they limit marketing by farmers? Do they establish

sanitary or quality standards? Do they guarantee "good" farm prices? Do they establish retail prices? No, orders don't do any of these things.

An order does simply this. It establishes minimum prices and defines the terms of sale which buyers must comply with when they purchase milk from dairy farmers.

Orders do not regulate dairymen. They regulate only the buyer of milk who is defined as a handler. Handlers are persons, individual or corporate, proprietary or cooperative, who buy milk from dairy farmers or who distribute fluid milk products in a defined market.

ORDER PROVISIONS

An order carefully defines what handlers and what milk supplies are subject to its regulation. It does this by definition of its marketing area. A marketing area is a distribution area in which the same milk dealers compete with one another. A marketing area is not the same as a production area.

Since all handlers who distribute milk within an order area are subject to regulation by that order, it's important that the boundaries of that area be drawn so that as few distribution routes as possible cross over those boundaries. Over time, as milk has been distributed over greater and greater distances, this has become ever more difficult. In fact, it's one of the major reasons why marketing areas have been expanded and why orders have merged. Orders frequently provide for the partial regulation of some handlers whose distribution routes do cross marketing area boundaries.

POOL PLANTS

Marketing orders not only regulate handlers who distribute fluid milk products in the marketing area, but sometimes they regulate others who do not. They do this by defining what an order plant is and by setting performance standards that an order plant must meet. Plants that meet these definitions and performance standards are called pool plants.

The standards are supposed to ensure that the regulated handlers give priority to supplying fluid milk to that market. This is to ensure consumers fluid milk at all times. To be in the pool, a plant has to maintain health approvals so that all its milk may be called upon for fluid use whenever needed.

Most orders define and establish standards for three types of pool plants - pool distribution plants, pool supply plants, and cooperative plants. Normally a distribution plant must dispose of at least half of its milk on wholesale and retail routes and some of it within the marketing area. A supply plant must ship about half the milk it receives from farmers to a pool distribution plant. Cooperatives get off a bit easier. All they have to do is deliver a certain specified proportion of their members' milk to pool plants. Most orders also limit the amount of milk that a handler can divert to nonpool plants for manufacturing use.

ORDER REQUIREMENTS

Not all orders require that pool plants meet distribution or shipping requirements. And some orders are more stringent than others. In fact, one reason that we may not have as many co-op members in the NY-NJ order area is because we do not have stiff requirements. Consequently, handlers aren't as likely to buy from our co-ops. In some other orders, where shipping requirements are harder to meet and diversion privileges more limited, dealers prefer to buy from co-ops. In this way they avoid meeting shipping requirements themselves.

The New York-New Jersey milk order differs from other federal orders in another way. Milk becomes order milk when it's picked up at the farm rather than when it's delivered to a plant. To accomplish this, the order defines pool bulk tank units. Only handlers who operate pool plants can operate pool bulk tank units.

A pool bulk tank unit, like a pool plant is, from an administrator's standpoint, a list of producers. This defines for the market administrator the milk supply for which a handler is accountable. In contrast to other orders, NY-NJ milk is priced at the pick-up point rather than at the plant where it's delivered. With this farm-point pricing, milk doesn't have to be delivered to a pool plant for pricing and pooling.

CLASSIFIED PRICING AND POOLING

All federal orders provide for a system of classified pricing and pooling. Under this system, milk is classified on the basis of its use. There are two basic use classifications. One includes milk used for fluid products; the other includes milk used for manufactured products. In all federal orders, milk used for fluid products in Class I. Orders differ in the way fluid cream is classified. In some it receives the highest classification; in others a lower one.

Most federal orders further separate milk used for manufacturing into two classes. In these orders, milk used for the more perishable manufactured products such as cottage cheese, yogurt, and sour cream, is Class II. Milk used for all other manufactured products is Class III.

However, in the three federal orders in the Northeast, all milk used for manufacturing is Class II.

All federal orders establish minimum class prices that handlers must pay for milk they buy. They must pay the Class I price for all milk used as Class I and the Class II price for all milk used as Class II.

Class I prices are higher than Class II prices. Class prices are determined by formulas specified in each order. However, most orders now use the same basic formulas.

POOLING

If you read most any milk marketing article, you'll find reference to the terms pool or pooling. Both terms relate to the procedure by which minimum prices to milk producers are determined and paid.

The word pool (used either as a noun or a verb) does not mean pooling of the milk. It means to put into a pool or common fund to be shared by agreement. The pool is money, not milk.

All federal orders provide for pooling and payment of a uniform or blended price to dairy farmers.

Before the blend can be determined, however, all the milk must be classified on the basis of its use. Then the class prices are applied to the volume of milk in each class. The proceeds from all the milk is totaled and this money is the pool.

Each producer then is paid the appropriate share of that pool. This share represents a weighted average of the class prices involved applied to the amount of milk which each has contributed. This weighted average price is called the uniform or blend price. Sometimes it's referred to as the farm price.

Since handlers have to pay more for milk used as Class I or II, the average price they pay depends upon how they use the milk. Obviously, some have to pay more than others, because they use the milk differently. Yet, all handlers must pay the farmer the same. So, how does the system even the score among different handlers?

Very simply. Any inequity which handlers experience is corrected by a process called equalization. Handlers whose use of milk in Class I is above the marketwide average owe more than the uniform price for the milk they buy. They must pay that excess (representing the difference between what they owe and the uniform price) into the equalization fund.

This money is then redistributed to those handlers whose obligation for milk is less than they are required to pay their producers. They receive from the fund an amount representing the difference between what they owe for milk and the uniform price.

The dollars paid into the equalization fund and the dollars paid out are always equal.

REPORTING AND AUDITING

At the end of every month, all handlers regulated by the marketing order are required to report how much milk they received from dairymen and its butterfat test. They're also required to report the quantity of any other milk or milk product they received during the month and the appropriate butterfat tests.

They must report separately the quantity of butterfat and the quantity of skim milk that they have used in each classification. This is called butterfat - skim milk accounting. Marketing orders are quite specific in spelling out the steps that handlers have to follow in allocating the butterfat and skim milk into the different classes of use.

The monthly reports which handlers make are later audited to verify their

accuracy. The burden of proof is on the handler to show by appropriate records that all the butterfat and skim milk received is not used as Class I. Otherwise, it's automatically assigned to Class I. If audits reveal an overpayment by a handler, he receives a refund. If there is an underpayment, the handler is required to pay in the additional amount.

THE MARKET ADMINISTRATOR

The person who's responsible for all this, for seeing that all the provisions of a marketing order are carried out, is the market administrator. It's the administrator's job to see that the minimum prices which the order establishes are in fact paid (and received), and that the terms of sale for all the milk are in accordance with the order provisions.

The administrators of federal milk market orders are appointed by and act as agents of the Secretary of Agriculture.

The New York-New Jersey milk order is something of an exception because it's a joint federal/state order. However, New York and New Jersey issue concurrent state orders that are essentially identical to the federal order. The Market Administrator is appointed by the Secretary of Agriculture with the concurrence of the two states. So he acts as a representative of both the two states and the Secretary of Agriculture.

SEASONAL PLANS

Eighteen of the 48 federal orders (including all our northeastern orders) employ seasonal incentive plans designed to encourage more even production throughout the year. Two types of plans are used: Louisville plans (takeout-payback plans) and seasonal-base plans.

With a Louisville plan, money is withheld from the dairymen's blend in each of the spring flush months and deposited in a special interest-bearing fund. Then, in each of the late summer and/or fall months, a specified proportion of the fund is added back to the uniform price. The balance in the fund, plus the accumulated interest, is added to the uniform price in the final payback month.

With seasonal-base plans, a base is assigned to each producer. A producer's base is determined from his average daily deliveries during certain specified fall months (when production is lowest). The bases are used in determining the price producers receive. In some orders, they are in effect only in the flush months; in others, on a year-around basis. Whichever is used, producers receive a higher price for the milk they ship that is within their established base. For any milk in excess of the base, however, they receive only the lowest class price.

CO-OPS AND ORDERS

Cooperatives are important in the federal milk order program. Normally, they play a major role in proposing and amending federal orders. In many markets they assemble much of the milk. They supply milk to other handlers and turn residual milk others don't need into storable products. In most markets, co-ops are vital to the maintenance of orderly marketing conditions. They also provide marketing services to their own members, checking weights and tests and providing market information.

All federal orders except New York-New Jersey make market service deductions from producers who are not cooperative members. In these orders, the money deducted is paid to the market administrator, who uses it to provide marketing services to the non-co-op producers. These orders specify the maximum amount that can be deducted for that purpose.

The New York-New Jersey order does the job another way. Here, payments are made to cooperatives who in turn must carry out services of benefit not only to their own members but to all other producers in the market. These include helping to keep the market order updated to changing market conditions as well as providing market information to all producers. The order specifies the amount of the payments as well as the requirements that cooperatives have to meet in order to qualify for them.

The expenses involved in administering federal milk orders are paid, not by farmers, but by the handlers who are regulated. Operators of plants that are only partially regulated pay the administrator's assessment only on that part of their milk that is regulated.

AMENDING AN ORDER

Even though marketing orders do not regulate farmers, they can come into being only with the support of producers and can be amended or changed only if the amended order is approved by producers. Additionally, the law requires the Secretary of Agriculture to terminate an order any time more than one-half the producers involved request it. In other words, when it comes to having or not having a marketing order, it's the producer who's calling the shots.

Anyone who's been in the dairy business a while knows it's anything but static. Everything keeps changing - changes in consumer tastes, changes in both the technology and the geography of production, changes in the assembly, transportation, processing, and delivery of milk. Just about any change you name requires corresponding adjustments in a market order.

Fortunately, the federal market order program is flexible enough that changes can be made readily. Any producer who markets milk under a market order ought to be informed, not only about the way market order regulations come into being, but how they can be changed. In fact, understanding how an order comes into being is probably the key to understanding how it can be changed.

PROCEDURAL STEPS

There are some one-two-three procedures that have to be followed in either proposing an order or amending an existing one. These steps include a notice of a hearing, the public hearing itself, and a referendum at which producers can cast their yea or nay. When a proposed order or an amended order is being considered, public notice must be given of what is pending.

Anyone who would be affected by the adoption or amendment of an order has to be given due notice of the pending proceedings. The formal notice of hearing must spell out the provisions of the proposed order. A public hearing must be held on the provisions as they are proposed and interested parties given an opportunity to be heard.

Consumers, handlers, or producers who might be affected by the proposed order or order amendment can present testimony. They also can file written briefs following the hearing. The Secretary of Agriculture must base his decision only on the testimony presented at the public hearing.

After the hearing process is completed, a recommended decision is issued that includes a tentative order. Interested parties then have an opportunity to file written exceptions to that tentative order. After the exceptions have been considered, a final decision is rendered.

THE FINAL DECISION

The final decision includes a statement of findings and conclusions, including reasons why particular proposals were accepted or rejected. The order provisions contained in a final decision represent the order or amended order that producers vote on.

Handlers are given an opportunity to sign a marketing agreement that contains the same terms and conditions as the proposed or amended order. Even if they do not sign the marketing agreement, the marketing order can be issued if approved by producers. Approval of either a new order or an amended order requires a yes vote from two-thirds of the producers voting. With a couple of exceptions, producers vote on whether to accept or reject the amended order and not on the amendments themselves. In other words, they either accept the order as amended or they kick the whole thing out. The two exceptions are promotion deductions and Class I base plans. In producer referendums, a cooperative can vote for its entire membership (referred to as bloc voting).

If an order is issued by the Secretary of Agriculture, it is a legal document with the full force of law. However, the Secretary doesn't have authority to enforce the order. Instead, he calls on the Department of Justice and federal district courts for enforcement.

A handler may challenge any provision of an order before the Secretary of Agriculture as not being in accordance with the law. He does it filing a written petition and asking to have the order modified or asking to be exempted from it.

The handler must be given a hearing before the Secretary of Agriculture on his

petition. This ruling is final. But still the handler has recourse. He can challenge the Secretary's ruling in the federal district court. However, he must exhaust all the administrative remedies that are provided in the Marketing Agreement Act before obtaining a review of the issue by a district court.

MEASURES OF GROWTH IN FEDERAL MILK ORDER MARKETS, SELECTED YEARS, 1947-82

Year	Number of markets 1/	Population: of Federal milk marketing areas 2/	Number of handlers 1/	Number of producers 3/	Producer deliveries	Producer deliveries used in Class I	Percentage of producer deliveries used in Class I	Prices at 3.5% butterfat content 4/		Receipts as percentage of milk sold to plants and dealers		Daily deliveries per producer	Gross value at blend price adjusted for butterfat content	
								Class I	Blend	Fluid grade	All milk		Per producer	All producers
	Number	1,000	Number	Number	Million pounds		Percent	Dol. per 100 lb.		Percent		Pounds	Dollars	1,000 dol.
1947	29	*	991	135,830	14,980	9,808	65.5	4.65	4.34	*	21	302	5,024	682,407
1950	39	*	1,101	156,584	18,660	11,000	58.9	4.51	3.93	41	25	326	4,914	769,442
1955	63	46,963	1,483	188,611	28,948	18,032	62.3	4.67	4.08	51	32	420	6,510	1,227,815
1956	68	48,575	1,486	183,830	31,380	19,615	62.5	4.90	4.24	51	33	466	7,534	1,384,995
1957	68	57,297	1,889	182,551	33,455	21,339	63.8	4.87	4.51	53	34	502	8,147	1,487,153
1958	74	60,717	1,962	186,155	36,356	23,309	64.1	4.72	4.40	56	36	535	8,500	1,582,310
1959	77	67,720	2,197	187,576	40,149	26,250	65.4	4.79	4.43	60	40	586	9,466	1,775,583
1960	80	88,818	2,259	189,816	44,812	28,758	64.2	4.88	4.47	64	43	648	10,482	1,989,615
1961	81	93,727	2,314	192,947	48,803	29,859	61.2	4.91	4.45	67	45	704	11,131	2,147,656
1962	83	97,353	2,258	186,468	51,648	31,606	61.2	4.80	4.14	70	47	761	11,854	2,210,330
1963	82	100,083	2,144	176,477	52,860	32,964	62.4	4.78	4.15	70	48	821	12,814	2,261,437
1964	77	99,333	2,010	167,503	54,447	33,965	62.4	4.87	4.23	70	48	888	14,174	2,374,137
1965	73	102,351	1,891	158,077	54,444	34,561	63.5	4.93	4.31	70	48	944	15,300	2,418,526
1966	71	98,307	1,724	145,964	53,012	34,805	65.7	5.55	4.95	70	48	994	18,526	2,630,908
1967	74	103,566	1,650	140,657	53,761	34,412	64.0	5.85	5.17	71	49	1,056	20,321	2,858,351
1968	67	117,013	1,637	141,623	56,444	36,490	64.6	6.23	5.53	74	52	1,089	22,561	3,195,087
1969	67	122,319	1,628	144,275	61,026	39,219	64.3	6.50	5.74	77	56	1,164	24,892	3,591,293
1970	62	125,721	1,588	143,411	66,104	40,063	61.5	6.74	5.95	79	59	1,244	27,636	3,963,311
1971	62	142,934	1,529	141,347	67,872	40,268	59.3	6.90	6.08	80	60	1,316	29,893	4,225,340
1972	62	142,934	1,487	136,881	68,719	40,938	59.6	7.10	6.31	78	60	1,372	32,439	4,440,288
1973	61	141,472	1,355	131,565	66,229	40,519	61.2	8.03	7.31	78	60	1,386	37,461	4,928,514
1974	61	141,546	1,312	126,805	67,778	39,293	58.0	9.35	8.36	78	61	1,464	45,376	5,753,852
1975	56	144,467	1,315	123,855	69,249	40,106	57.9	9.36	8.64	78	63	1,532	49,233	6,097,768
1976	50	149,493	1,305	122,675	74,586	40,985	54.9	10.70	9.75	79	65	1,661	60,277	7,394,486
1977	47	150,093	1,260	122,755	77,947	41,125	52.8	10.59	9.69	80	66	1,740	62,692	7,695,764
1978	47	150,131	1,189	119,326	78,091	41,143	52.7	11.40	10.57	80	67	1,793	70,528	8,415,787
1979	47	150,131	1,127	116,447	79,436	41,011	51.6	12.88	11.97	80	67	1,870	83,262	9,696,637
1980	47	164,908	1,091	117,490	83,998	41,034	48.9	13.77	12.86	80	67	1,954	93,685	11,007,001
1981	48	165,459	1,058	119,323	87,989	40,746	46.3	14.69	13.63	80	68	2,021	102,354	12,213,199
1982	49	169,770	1,012	120,751	91,611	40,802	44.5	14.63	13.53	81	69	2,079	104,569	12,626,800

* Data not available.
1/ End of year. (Date on which pricing provisions became effective.)
2/ End of year. 1951-59, 1960-70, 1971-79, 1980 -1982 according to 1950, 1960, 1970, and 1980 U.S. census, respectively.
3/ Average for year.
4/ Prices are simple averages for 1947-61 and weighted averages for 1962-82.

CHAPTER VI. OUR MILK PRICING SYSTEM

PART III - "HOW YOUR MILK IS PRICED"

THE M-W SERIES

The M-W series? No, it's not an initialized abbreviation for a man-woman relationship, nor is it a Midwest football play, and it's certainly not the name of an upcoming TV series.

M-W stands for Minnesota-Wisconsin. Though the initials themselves may not be particularly important to you, what they refer to certainly should be. That's because the Minnesota-Wisconsin price series (the M-W price) is the base on which your own milk is priced. So let's take a look at what this M-W price is and see how it comes to be.

Each month an arm of the USDA, the Statistical Reporting Service, publishes an estimate of the average milk price received by Minnesota-Wisconsin farmers for manufacturing grade milk they shipped the previous month. The butterfat test of the milk also is published. Note that this price is for manufacturing grade milk only (Grade B). The estimate does not include prices received for Grade A milk diverted to manufacturing use.

This published price is referred to as the M-W price or the Minnesota-Wisconsin price series. It's an average price paid for milk delivered to plants in both bulk and cans before hauling costs are deducted. It includes premiums paid, but does not include hauling subsidies.

Why use the price from just Minnesota and Wisconsin? Well, for one thing, a large share of the nation's supply of manufacturing grade milk (as well as the plants that process it) is concentrated in these two states. Also, this is one of the few places where prices are not regulated by any public agency. Prices here are extremely "sensitive," responding quickly to changes in national supply or demand for milk.

Since this price is used as a basis for pricing milk over most of the country, milk prices elsewhere move up and down with changes in the prices paid to dairy farmers by these Minnesota and Wisconsin processing plants.

DETERMINING THE M-W

How does the USDA get the information to develop the estimated price it publishes? It starts with data collected from 119 plants in Minnesota and Wisconsin. These plants report the price they pay for milk and its butterfat test. USDA receives this information as soon as the month is over and announces its estimated price by the 5th of the following month.

Prices obtained in the 119-plant sample are not used directly in computing the estimated price. Instead, they are used to update the final M-W price for the previous month. This final price is based on a much larger sample of plants, representing about half the manufacturing-grade milk in the two states.

The update procedure is used to increase accuracy, and it certainly must help. Because the estimate is nearly "on the nose" with the final price, which comes out later. The estimate and the final price are announced for both milk of average butterfat test and for 3.5% milk.

It sounds complicated, and perhaps it is; but at least it's not too involved for the statisticians. By the fifth of each month, they issue the M-W price for the month previous. So the M-W price for this month will be issued the fifth of next month.

Because it's the base from which milk prices in all federal order markets are determined, the M-W price is sometimes referred to as "a price mover."

Obviously, anything that affects milk prices throughout the country to the extent that the M-W does is always subject to critical examination. And just as obviously it has both its "boosters" and "boo'ers."

ADVANTAGES

Its proponents justify it on several grounds. They argue that it's a good indicator of the economic value of manufacturing-grade milk. Although 80% of the nation's milk supply is Grade A, they point out that 30% of Wisconsin's and 60% of Minnesota's are still manufacturing grade. So the economic value of manufacturing-grade milk is reflected in the prices that cheese and butter-powder plants pay.

The M-W price, they continue, is determined in a market that is highly

competitive, where a relatively large number of plants are competing in the same area for the supply of milk available. Several studies support the validity of their argument. Some show that prices paid in this region react more quickly to changing market conditions than do prices in other regions. Other studies have shown the estimated M-W price to be almost identical with the actual final price reported a month later.

Not only is a large share of the nation's manufacturing milk processed in the states of Minnesota and Wisconsin, but these states also have a large amount of Grade A milk that is used to make manufactured products. So when fluid milk supplies get tight in other markets, handlers in those markets naturally look to Minnesota and Wisconsin for an additional Grade A supply. And they have to compete with the local buyers to get what they need. Their purchases reduce what's left for the local manufacturers to use. So the local buyers "up" their price to keep their own needs from being siphoned away. As a result, both the amount of milk available and the prices paid for it in these two states quickly reflect changes that occur in national milk supply.

DISADVANTAGES

However, the use of the M-W price to determine the class prices in federal order markets is not universally acclaimed. Some experts question whether it is any longer the best way to arrive at class prices. They submit that as more and more of the nation's milk supply becomes Grade A (as it is continuing to do), the volume of manufacturing-grade milk left becomes smaller. Fewer dairymen produce it, fewer plants process it, and fewer buyers buy it.

This erosion of Grade B, they contend, will eventually undermine the competitive structure of the market to the point where it will become totally unsatisfactory as a basis for pricing milk in federal orders.

Others contend that the M-W is weighted in favor of cheese prices. When cheese prices are high relative to butter-powder, it's almost impossible to break even running the churns. Consequently, those who have "cleared the market" by turning excess milk into butter-powder have done so at a loss.

Those who support some other basis for milk pricing also point out that M-W plant reports (which provide the data on which the M-W price is based) are not subject to audit, as are plants under federal orders. Therefore, reporting errors or inaccuracies could occur.

Until 1982, when U.S.D.A. began announcing an anticipated price, milk buyers in federal order markets also had a bone to pick. Since the M-W price was not reported until the fifth of the following month, they didn't know how much they would have to pay for milk they used for manufacturing until after they had already processed it and, maybe, even sold the products they made from it. The anticipated price announcement alleviated this.

Cooperatives in the NY-NJ federal order also have a gripe. They contend that primarily they are in the fluid milk and soft product business and only process residual milk not needed for fluid use or for perishable manufactured products. To clear the market, they turn this residual milk into butter and powder. The amount of the residual supplies they have to handle varies greatly from day to day, season to season, and year to year. How, they ask, can we operate our plants as efficiently as those in the Minnesota-Wisconsin area that enjoy a more stable and uniform supply? How can we pay as much for our milk? What's more, they add, our residual surplus is spread "all over the map," and our costs in getting this milk into our plants is greater than in Minnesota and Wisconsin.

Whatever the pros and cons of using the M-W price, its likely that it will continue to be used, at least for the foreseeable future, as the basis for pricing milk under federal milk orders.

SETTING YOUR PRICE

Who "sets" the price I got for my milk last month? Where did that figure come from? Did "they" pull it out of the blue?

Good questions all, because sometimes milk pricing does seem so complicated that we are discouraged from trying to understand it.

But it's really not all that bad, certainly not as bad as it used to be.

The "blend" price (or uniform price), the price you get, the one printed on your milk check stub, is arrived at by

determining the amount of milk used over the whole market in each class (Class I and II), then multiplying those amounts by the appropriate class prices. The handlers and the market administrator do all the figuring.

Fine! But where do they get those class prices?

Let's start with the Class I price. In this market, as in all other federal order markets, the Class I price is based on the Minnesota-Wisconsin price we just discussed.

DETERMINING CLASS I PRICE

However, in arriving at the Class I price, the market administrator doesn't use the M-W for the current month. Instead, he uses the M-W for the second preceding month. Why use the M-W price for the second previous month? Why not use the price for the current month? Good question. Easy answer. When it's announced on the fifth of each month, the latest M-W price available is that of the second preceding month. Milk dealers thus know in advance what they will have to pay for Class I milk and, therefore, what they will have to charge their customers.

The M-W 3.5% price is called the basic formula price. Once it's known, even a fourth grader could figure the Class I price. Just add $2.25 to it, and you have the NY-NJ Class I price, 201-210 mile zone, for the second following month.

The Class I price is announced on the fifth of each month, the same day the estimated M-W price is announced.

Note also that you can always predict with unerring accuracy what the Class I price will be a month hence. That's because to get it, you always use the 3.5% M-W price of 2 months earlier!

This $2.25 that we add to the M-W is called a fluid differential. Every federal order uses one. When first established, the differentials were supposed to reflect the amount of money it took to obtain a supply of Grade A milk in the Minnesota-Wisconsin area and transport it "back home." The Upper Midwest was looked upon as a reserve supply area - a place where large amounts of milk were available and could always be obtained, providing of course that enough money was offered to pull it away from manufacturing plants.

Smaller differentials are used in orders close to the Upper Midwest and larger ones in orders further away. In 1982, fluid milk differentials ranged from a low of $1.12 in the Upper Midwest order to $3.15 in Southeastern Florida.

Today, because of sharply higher transportation costs, fluid differentials do not fully reflect the cost of obtaining alternative milk supplies.

Let's recap. To get the Class I price in the NY-NJ market, we take the M-W 3.5% price for the second preceding month and add the $2.25 differential to it. Not very hard, is it?

Now that we have the Class I price figured out, how do we go about figuring the Class II?

FARM OR PLANT POINT PRICING

The Class I prices reported by different orders may not totally reflect what handlers pay or producers receive, because the point where milk is priced varies among orders. Is the price quoted one that applies where the milk is delivered or where the milk is picked up? In other words, who's paying the hauling?

Most orders price milk f.o.b. its delivery point. The New York-New Jersey order, however, uses what is termed farm point pricing. Here, the Class I price quoted is for milk f.o.b. the township in which it is produced, rather than f.o.b. its point of delivery. The base zone for which prices are quoted is the 201-210-mile zone. This zone is used because it better reflects the average price paid to farmers. The 201-210-mile zone is approximately the geographic center of the production area.

DETERMINING CLASS II PRICE

In most federal orders the M-W 3.5% price is used in calculating the Class II price. In the three Northeast orders, a seasonal adjustment is applied to the M-W 3.5% price to arrive at the Class II price. The seasonal adjustment is designed to lower the price in months when production is highest and thus encourage handlers to process additional milk when the most milk is around, that is, in the flush. On an annual basis, it's a "washout," with the minus differentials in the high production months offset by the plus

differentials in the lower production months. This Class II seasonal adjustment should not be confused with the seasonal takeout-payback provision (the Louisville Plan) which is applied to the blend price, not to class prices, and whose objective is more uniform seasonal production, not clearing the market.

Once you know the seasonal adjustment, just add or subtract it from the M-W 3.5%, and you end up with the Class II price for the 201-210 mile zone.

CLASS PRICES ANNOUNCED

Now, what could be simpler? Lots of things, you say? Well, if you don't like arithmetic, be of good cheer; you really don't have to do all this figuring because the market administrator announces the Class I and II prices on the fifth of each month. Remember the Class II price announced on the fifth is for the previous month, and the Class I price, for the following month. The Administrator uses the same prices later to calculate how much money goes in "the pool."

"THE POOL"

Now that we have the class prices (adjusted for location), we can begin to figure "the pool." If you like, you can call it by its formal name, the producer settlement fund. First we have to determine what flows into the pool, in other words, just how much money handlers are obligated to pay.

There are three major variables that affect what dealers pay. We've been talking about two of them, the Class I price and the Class II price. The third variable is fluid utilization. Fluid utilization is the term used to describe the percentage of the total milk supply used in Class I, in other words, the amount sold for bottling purposes.

Obviously, since Class I prices are higher than Class II prices, the more a handler sells as Class I, the higher that handler's pool obligation will be.

The volumes of Class I and II milk and the payments due for the milk are determined by the market administrator from reports that all regulated handlers are required to make. Even if he's a trusting soul, the Administrator doesn't take them on faith. Later he audits all handler reports to verify their accuracy.

POOL ADJUSTMENTS

Once the market administrator has determined just how much money will flow into the pool, what the total handlers' obligation will be, it's time to start thinking about how it will be distributed.

First, however, some pool adjustments must be made. A major adjustment, one that occurs in 8 months of the year and one that affects the blend in many Federal orders, including NY-NJ, is a seasonal incentive plan. This takeout-payback adjustment is commonly called the Louisville plan. It's intended to discourage production in flush months and encourage it in slack months. In other words, it's designed to level out seasonal up and downs.

The market administrator (as the order directs) deducts money from the pool in the spring flush months, deposits it in a bank, and pays it back into the pool with interest in the fall.

Each take-out from the pool decreases the blend price, and each payback increases the blend price.

There are some other pool adjustments. They include the money needed for the farm bulk pick-up credits, for payments to cooperatives and for a reserve fund. Let's consider them one by one:

TRANSPORTATION CREDIT

In Order 2, handlers receive a credit from the pool of 15¢ per cwt. for all milk they pick up at the farm. This partially compensates handlers for farm pick up of milk, but doesn't fully cover their costs. The order permits handlers to recover their actual hauling cost, less any credits provided under the order. These include the 15¢ credit mentioned above, plus zone and fixed transportation differentials.

COOPERATIVE PAYMENTS

In Order 2, payments are made from the pool to cooperatives (who qualify) for providing marketwide services that benefit all dairymen. These include such things as analyzing market problems, proposing order changes, participating in hearings, and voting on amendments. Among other items, a cooperative, if it is to receive co-op payments, must conduct a market information program and make it available to all producers.

Currently three cooperatives (or co-op federations) in New York State qualify for such payments. These organizations currently are reimbursed from the pool 4¢ per cwt on all milk delivered by their members. In recent years, the cost of these payments to the pool has amounted to less than 2¢ per cwt. This has reduced the blend price by that amount.

RESERVE FUND

In Order 2, a reserve fund equal to 8 to 9¢ per cwt is maintained month by month. The main reason for the fund is to provide enough money to complete the administration of the order in the event it's ever terminated.

THE BLEND PRICE

Up to now, we've determined the class prices, calculated the handler's obligations to the pool, and made our pool adjustments. Now let's get down to the real nitty-gritty, the price you're interested in, the uniform or blend price (sometimes called the farm price).

How do we figure it? Easy! Just take what's left in the pool and divide those total dollars by the total volume of producer milk. The answer you get (if your arithmetic is right) will be the blend (or uniform) price for milk of 3.5% butterfat in the 201-210 mile zone.

Obviously, not all farmers get the announced blend. In fact most of them don't. They receive a blend price either higher or lower than this depending on their butterfat test and the township zone where their farm is located. (Dairymen within the 70-mile zone near New York City also pick up an additional 15¢ per cwt. fixed differential.)

Except for differences due to location, hauling charges, and butterfat, individual producers must be paid the blend price unless they authorize deductions in writing. Hauling deductions out of a producers check are limited to the actual cost of hauling incurred by his handler less any credit his handler received from the pool. In the NY-NJ order, handlers currently receive a 15¢ transportation credit from the pool.

MINIMUM, NOT MAXIMUM

Producers may authorize handlers to deduct money from their milk checks and make specified payments to third parties. Except for these written authorizations (and the deduction for promotion authorized by a producer referendum), all proprietary handlers must pay each dairyman the appropriate uniform price. Handlers may pay producers more than this amount, but they cannot pay less.

Cooperatives are treated somewhat differently. The Marketing Agreement Act, which originally authorized federal orders, also authorized co-ops to pay their members according to the terms of the contract that the member signed with them.

The NY-NJ marketing order does not permit co-ops to sell milk to buyers at less than the applicable class prices. However, co-ops may deduct marketing costs from the proceeds of the sale of their members' milk and return the balance.

If you don't like figures, be glad you're not the market administrator, who keeps track of all the numbers. Fortunately, he has a staff of auditors, accountants, and statisticians to help. The results of all their calculations, class prices, pool adjustments, blend prices are publicly announced, each and every month.

SUPPORTS, ORDERS, AND PRICES

Price supports, market orders, and the money you got for the milk you pumped out of your tank this morning are inevitably interrelated. Support prices, at least during times of excessive milk supplies, affect the prices that unregulated (non-pool) manufacturing plants pay. What they pay establishes the M-W price. In turn, the M-W price establishes your class prices. Class prices establish your farm price. Simple, isn't it?

PRICES USED IN FEDERAL MILK ORDER FORMULAS TO DETERMINE MONTHLY CLASS PRICES AND BUTTERFAT DIFFERENTIALS, 1981-1982

Year and month	Minnesota-Wisconsin manufacturing grade milk 1/	Butter-powder snubber 2/	Butter, Chicago Grade A 3/	Nonfat dry milk, Chicago area plants spray process 4/	Tentative Class II pricing factors: 5/ Applicable Minnesota-Wisconsin price 6/	Weighted change in gross values 7/	Basic Cl. II formula price	Cl. II differential	Tentative Class II price 8/
	Dol. per cwt.		---Dol. per pound ---		----------Dollars per 100 pounds----------				
1981									
January	12.64	13.39	1.4725	.9373					
February	12.66	13.37	1.4725	.9350					
March	12.67	13.37	1.4725	.9344					
April	12.64	13.37	1.4725	.9348					
May	12.61	13.38	1.4731	.9362					
June	12.59	13.39	1.4750	.9355					
July	12.53	13.41	1.4794	.9362					
August	12.47	13.41	1.4803	.9351					
September	12.46	13.43	1.4854	.9360					
October	12.52	13.53	1.5057	.9369	12.47	0.13	12.60	0.15	12.75
November	12.52	13.47	1.4888	.9391	12.46	.07	12.53	.13	12.66
December	12.56	13.41	1.4812	.9349	12.52	.00	12.52	.10	12.62
Average	12.57	13.41	1.4799	.9360					

Year and month	Minnesota-Wisconsin manufacturing grade milk 1/	Butter-powder snubber 2/	Butter, Chicago Grade A 3/	Nonfat dry milk, Chicago area plants spray process 4/	Tentative Class II pricing factors: 5/ Applicable Minnesota-Wisconsin price 6/	Weighted change in gross values 7/	Basic Cl. II formula price	Cl. II differential	Tentative Class II price 8/
	Dol. per cwt.		---Dol. per pound ---		----------Dollars per 100 pounds----------				
1982									
January	12.55	13.36	1.4753	.9323	12.52	- .30	12.22	.12	12.34
February	12.46	13.39	1.4747	.9361	12.56	- .06	12.50	.11	12.61
March	12.45	13.39	1.4778	.9349	12.55	.00	12.55	.13	12.68
April	12.45	13.37	1.4735	.9344	12.46	.01	12.47	.12	12.59
May	12.43	13.36	1.4725	.9341	12.45	.03	12.48	.09	12.57
June	12.42	13.37	1.4729	.9343	12.45	- .05	12.40	.08	12.48
July	12.42	13.38	1.4759	.9342	12.43	.07	12.50	.08	12.58
August	12.44	13.40	1.4807	.9346	12.42	.06	12.48	.07	12.55
September	12.46	13.42	1.4835	.9347	12.42	.05	12.47	.08	12.55
October	12.56	13.40	1.4744	.9369	12.44	.02	12.46	.08	12.54
November	12.56	13.43	1.4818	.9374	12.46	.07	12.53	.09	12.62
December	12.62	13.41	1.4794	.9366	12.56	- .03	12.53	.12	12.65
Average	12.48	13.39	1.4769	.9350	12.47				

1/ Converted to a 3.5 percent butterfat content using Chicago Grade A butter price times 0.120. This price series is the "basic formula price" that is used to determine class prices under Federal milk orders.

2/ Price at 3.5 percent butterfat test resulting from: (Chicago Grade A butter price times 4.2) plus (Chicago area, spray process, nonfat dry milk price times 8.2) less 48 cents. This price is used to determine Class II and Class III prices in five Federal milk orders only when it is lower than the Minnesota-Wisconsin price.

3/ This price is a simple average of all the prices reported during the month by "Dairy Market News". It is used to determine class, base-excess, and producer butterfat differentials. In addition, it is used in the butter-powder snubber formula.

4/ This price is for the 26th of the preceding month through the 25th of the current month, as reported by the Statistical Reporting Service. It is used in the butter-powder snubber formula.

5/ This pricing provision first became effective with the October 1981 price in 29 Federal milk orders. Effective with the December 1982 price, this provision was added to 14 additional orders. See major order actions on page 136.

6/ Price at 3.5 percent butterfat content for the second preceding month.

7/ Total weighted change in gross values of milk used to produce Cheddar cheese and butter/nonfat dry milk.

8/ As announced on the 15th of the preceding month. The final (effective) Class II price is announced on the 5th of the following month.

CHAPTER VI. OUR MILK PRICING SYSTEM

PART IV - "COMPONENT PRICING"

COMPONENT PRICING OF MILK

Should you wander into the showroom of your friendly neighborhood auto dealer, even if you're not psyched up to buy the latest version of Detroit's dream machine, cast a glance at the price sticker on its side window. You'll soon notice that the sticker carries a basic price for the car and then lists a group of "options", each carrying its own additional price. The basic price covers such things as engine and chassis, wheels and tires, steering wheel and seats, lights and horn. This basic price covers enough of the car's components--gears and sprockets and springs and things--to make the car go. This basic price might be called a "flat price" or a "package price".

However, should you want air-conditioning or power brakes or racing stripes or any one of a hundred and one other things that auto manufactures dream up to help divest us of our money, you'll find you have to pay for each one of these additional components separately. This procedure might be called component pricing. It establishes a price based on the number and value of the components the product contains.

The auto industry, in other words, is using a combination of flat pricing and component pricing. In some ways, the dairy industry does the very same thing in pricing milk at the farm. It establishes a flat price for the basic model--one hundred pounds of milk containing three and a half pounds of butterfat. Then, the price is adjusted as the milk varies up or down in butterfat content from that three and a half percent level. So, in a way, the dairy industry is already using component pricing. It's pricing farm milk according to the value of its milkfat plus the basic value of its skim milk components.

COMPONENTS CURRENTLY RECOGNIZED

Looked at this way, we might say that if milk (3.5% fat) is priced at $15 per hundredweight with a butterfat differential of 18 cents per tenth of a point, then its butterfat component is actually being valued at $6.30 (3.5 x .18 x 10). The rest of the milk, all the other components (the skim milk carrying all the nonfat solids), is worth $8.70 ($15 - $6.30 = $8.70).

That's why many say we are already pricing milk on a component basis. Were we to adopt a more complete component pricing system, however, we'd first have to identify all the components of milk and then determine a value for each. An average hundredweight of milk contains 87.4 pounds of water, 4.9 pounds of lactose, 3.8 pounds of milkfat, 2.7 pounds of casein, 0.5 pounds of albumin, 0.7 pounds of minerals and small traces of vitamins and other substances. Of course, this is only an average. Additionally, if we were to utilize this kind of component pricing, we'd have to agree on what each of those components--water, lactose, milkfat, casein, albumin and the minerals was worth, and we'd also have to be able to test the milk so that the precise quantity of each component could be established.

In actual practice, whenever most of us refer to component pricing for milk, we don't really mean recognizing all of these pricing components. Rather we mean recognizing some values other than the two recognized in our current pricing system --butterfat and skim milk.

GROUPING COMPONENTS?

If we're not going to identify and value each of milk's components, are there other ways that some of them might be grouped and given consideration under a new pricing scheme? Let's go back to that average 100 pounds of milk mentioned earlier and re-evaluate it. Looked at one way, we could say that that 100 pounds really consists of 12.6 pounds of solids and 87.4 pounds of water. By grouping our components differently, we could describe the 100 pounds of milk as being 3.8 pounds of fat, 8.7 pounds of nonfat-solids and the balance water. Were we to pull the proteins (casein and albumin) away from the other solids and group them separately, we could make a case that our hundred pounds of milk actually consisted of 3.2 pounds of protein, 3.8 pounds of fat and 93 pounds of everything else. In

practice, when people speak of component pricing, they're usually suggesting a recognition in our pricing system of the variation in the quantity of either the protein or else all the nonfat-solids (which includes the protein) and then assigning a value to reflect that variation.

A BIT OF HISTORY

At one time milk was sold by volume alone. Anything that was white and could pass for milk received a single price, whatever its content. Butterfat, protein, and other milk components carried no separate, identifiable market value. Then shortly before the turn of the century, a former New York State farmboy turned professor developed a method of testing for butterfat. The advent of the Babcock test quickly shifted milk pricing from consideration of volume alone to a direct-ratio or fat-only system. This system assigned the entire value of the milk to the butterfat it contained. Milk was priced at so much per pound of fat. So no longer was there any incentive for watering or skimming milk shipped to the creamery. At that particular time fat pricing of milk made good sense because butter was the dominant dairy product and butterfat the most valued fraction of the milk.

As fluid markets developed and the market for other dairy products became more diverse, recognition developed that milk components other than the fat deserved an independent value. So a two-component pricing system came into being. This system assigned part of the value to the skim component and then established a butterfat differential (based on the value of the butterfat in the price of a pound of butter). This has remained the basis of our pricing system for more than half a century. For much of that time there was little choice! After all, why bother putting a value on a component if the capacity to measure it is lacking?

Besides, even as late as the 1940s, skim milk was considered worthless and at butter plants was in fact frequently flushed down the drain. But those times have gone! Fat (particularly butterfat) has fallen from favor with many consumers and protein (particularly high quality milk protein) now wears the white hat. Cheese has become the majorette of the dairy product parade, while butter has become a residual product. Consumption of lowfat products has nearly tripled in the last decade. As a consequence, where not many years ago fat represented about two-thirds of the value of milk, today it represents only one-third. The other two-thirds is allocated to the skim portion. Yet all skim milk is not created equal. One lot differs from another and one will yield more of some dairy products than another.

THE CASE FOR MULTIPLE COMPONENT PRICING

That's why many believe that our milk pricing structure needs revamping--that inequities exist in the current model that fairness and justice demand be addressed. Those of this turn of mind hold that skim milk should be priced on the amount of its components and their value, based on product yield. They are quick to point out that currently if the butterfat is removed from one hundred pounds of 3.5 percent milk, the 96-½ pounds of skim that remains is valued the same whether it contains 3-½ pounds of protein or only 3 pounds.

It's quite a different story with the butterfat, they add. Two handlers, both selling whole milk, can each put out 3.5 percent fat milk, although one may receive a 3.8 percent fat product and the other only a 3.5 percent. All the handler has to do is standardize it--just remove some of its fat! The same's not true with protein or nonfat-solids. Skim milk cannot be standardized down except by adding water--and that's illegal. (It can be standardized up by fortifying it with nonfat milk or condensed skim milk.)

If their arguments are valid, then why haven't we gone to component pricing already? After all, the idea of multiple component pricing is hardly new; it's been around for a quarter-century or more. In several places it's already in use. The Dutch test for protein as well as fat, and both are used in most of their pricing formulas. California has operated a multiple component testing and pricing system since the early 1960s, with both fat and nonfat-solids in their pricing formula. The Golden Guernsey Co-op in Milwaukee has paid a protein premium for nearly two decades. The Cabot Creamery in Vermont started a protein pricing program in mid-1977.

Nevertheless, adding them all together, you'll still find that multiple component pricing systems probably affect fewer than 10 percent of all the dairymen in the nation. In other words, component pricing can hardly be described as having swept the country by storm!

THE CASE AGAINST MULTIPLE COMPONENT PRICING

Why hasn't component pricing taken hold? Part of the reason may be that under our present system of pricing on a "butterfat basis", consideration is already given to components other than butterfat. Defenders of the status quo point out that even though our basic pricing system has not changed in years, the relative values assigned by that system to butterfat and solids-nonfat have changed substantially. What's more, they continue, fat and nonfat solids in milk are directly correlated. So the cows that produce the high-fat milk are also the cows that produce the high-solids milk.

So any pricing system that recognizes and rewards high-fat milk is, at the same time, giving a higher value to high-solids milk. (Some research shows that as fat test goes up 1/10 of one percent (0.1%), SNF, on the average, climbs 4/100 of one percent (0.04%)). However, individual cows with the same fat test may differ markedly in their protein or nonfat solids test.

Another reason that component pricing has been slow to arrive may be plain old apathy. Generally, most dairymen have not seen fit to push for it. While a few economists, some nutritionists, and quite a number of cheesemakers may argue the virtues of component pricing, most dairymen plain don't care. The owners of high-fat, high-protein cows, of course, are more likely to favor such a plan. But these represent a small part of all herd owners. Owners of Holsteins, on the other hand, may be more reluctant to adopt a change. Any dollar redistribution occurring from a component pricing system would most likely result in lower prices for their milk.

A Pennsylvania study indicated, not unexpectedly, that under a protein pricing plan, Jerseys would have the most to gain, with more moderate returns to Brown Swiss and Guernseys, small gains to Ayrshires and a slight dip in the price to Holstein dairymen. The losses to Holsteins were less dramatic than the gains to other breeds because Holsteins were so numerous relative to the other breeds. Many dairymen feel that multiple component pricing would simply redistribute prices, not improve them, with a large number of dairy farmers giving up small slices of pie to a small number of farmers who would gain a lot.

VARIATIONS EXIST

However, there were always some Holstein herds receiving higher prices and some colored breed herds receiving lower. That's because cows vary not only in butterfat, but in protein and solids-nonfat as well. Variation occurs at different times from the same cow, between cows, within a herd, between herds, between breeds, and even between states. Protein varies more among cows within the same breed than it does among breeds. A USDA study in 1977 found Holsteins averaging 3.21 percent protein, 8.54 percent SNF; Ayrshires 3.36 protein and 8.62 percent SNF; Brown Swiss 3.53 percent protein and 9.04 percent SNF; Guernseys 3.63 percent protein and 9.13 percent SNF, and Jerseys 3.87 percent protein and 9.36 percent SNF. Most of the variation in the total nonfat-solids was due to variation in its protein content (which is also the most valuable portion of the SNF). Lactose and mineral content was fairly constant between herds, breeds, and geographic areas.

However, while both the percentage and the actual poundage of nonfat-solids in milk climbed as fat test increased, the ratio of fat to nonfat-solids did not! In fact, it went the other way. Lower-testing, higher-milk producing cows had the narrowest ratio of fat to nonfat-solids. In other words, the lower the fat test, the higher the proportion solids-nonfat were to fat. The common belief that the butterfat differential also pays for extra protein can be misleading. The correlation between butterfat and protein is not perfect. Moreover, while milk testing 5 percent fat has about 9.07 percent pounds SNF, and milk testing 3 percent fat has only 8.27 pounds of SNF, that 5 percent milk contains only 1.81 pounds of SNF per pound of fat, while the 3 percent milk carries 2.76 pounds of SNF per

pound of fat. As a consequence, yields of cheese per pound of fat actually decrease as fat test goes up.

And, of course, it's important to recognize that percentages are not the same as pounds. The future of high producing breeds is assured under any likely protein pricing plan. While on a percentage basis Jerseys led the list in percentage of fat, protein and other nonfat-solids, when it came to total yield of solids, fat and protein, Holsteins were number one. Even though we pay for higher butterfat content now, the breed with the lowest butterfat average is far and away the most popular.

A TWO COMPONENT PRICE?

An average relationship between fat test and solids-nonfat or protein does not assure equitable payment for the individual dairyman who produces a higher or lower protein than the average. Ideally, milk used for making cheese or butter and powder should reflect the yields of the final product. Obviously, high solids milk has a greater value for manufacturing than low solids milk. (For example, 100 pounds of milk that tests 3.3% protein will yield about 10 pounds of cheddar, while 100 pounds of milk that tests 3.5% protein will produce about 10.7 pounds of cheddar.)

Since fat and protein are the only components of milk that show much variation (lactose remains fairly constant at about 5 percent while protein content varies between 2.8 and 4 percent), a pricing system based on fat and protein differentials is most often suggested. Cheesemakers are apt to go one step further and ask that the protein content be corrected to reflect actual casein value. Casein is the only part of the milk's protein that is valuable to them. The rest of the protein (called the whey fraction) does not add to their product yield. (Mastitis can change the protein content of milk. High cell counts cut casein and increase the percentage of whey protein. So when protein pricing is used for milk to be made into cheese, some plants insist upon cell count standards as a qualification for premiums.)

POINTS TO PONDER

Any time a change in the method of pricing milk is considered, some important questions must first be addressed. Some come easily to mind. Like, "what problems would a different system solve" and "how about the logistics?" Are any tests that may be required quick, simple, and inexpensive? Will any added returns be offset by added costs? Does the new system give dairymen a clear economic signal as to what the market wants and is willing to pay for? Will it respond readily to changing market conditions? Does it really reflect market values? Does the system provide handlers equal raw product costs for comparable uses? Is the pricing system administratively manageable? Is it understandable? Are the components tested and paid for controllable by producers? Will the new pricing system encourage or discourage sales?

Let's take a look at some of these questions. First one first! For starters, modern technology has made it possible to test, at reasonable cost, for components other than fat in milk. Reliable protein tests are now available. These protein tests are "better" (that is, quicker and less expensive) than the ones for total solids or SNF.

Actually, these protein tests are not true protein tests at all. Rather, they test for nitrogen-containing compounds, of which protein is one. (Sometimes stuff in milk that isn't protein contains nitrogen. Mastitis infected milk is a case in point.) However, the test does get you in the ball park. Research also indicates that bi-monthly testing is nearly as accurate as monthly testing and most protein testing is done on that basis. New York State DHIC tests all their samples for milk protein.

Both feeding and management can influence the composition of milk. But it's important to recognize a couple of realities. First, management affects fat percent more than it does protein. Next, changes in management can affect total yield more than they can affect either fat or protein percentages. Also, it's much easier through management to decrease fat test than it is to increase it. Feeding practices that decrease fat percent, such as increasing the energy and decreasing the fiber in a ration, tend to increase protein percent, but only modestly.

Season of the year can also affect the composition of milk. Percent of protein and fat in milk is highest right after calving, drops as the cow's production

peaks, then slowly turns upward. Milk yield increases and both fat and protein test decrease as a cow matures. After six years of age, both fat and protein tests drop; the former more markedly than the latter.

GENETIC POTENTIAL?

How about breeding for higher protein? As stated earlier, high-fat breeds also test highest in protein. But differences among breeds are less with protein than with fat. While percent fat and percent protein tend to vary in the same direction, by no means are they tied to each other. Both are inherited and each can be changed. Opportunities to select for protein test are more limited because fewer cows are tested for protein than for fat. And only fragmentary protein data on individual sires now exists. (With the New York DHI laboratory now calculating protein on all samples, a data base is rapidly being developed.)

The heritability of protein content is about as high as that of butterfat, but the range among cows is smaller. Any genetic progress is possible only when genetic variance exists. The wider the variance, the greater the chance for progress. So while genetic selection is possible, change may come more slowly.

Unfortunately, selection for one trait tends to select against others, so ideally, selection should consider all traits. The simplest goal to achieve has always been (and will continue to be) selecting for high milk production. Admittedly, cows have not been selected and crossed over many generations in a search for high protein as they have for high fat or milk. However, in California, where component pricing has been used for almost 20 years, no notable changes in the component characteristics of fluid milk has been observed.

MULTIPLE PRODUCTS - MULTIPLE MARKETS

"What does the market want and what is it willing to pay for?" Another of the questions in our listing above. Perhaps the most important question; maybe it's the reason a component pricing plan has not already been adopted. Most component pricing plans fail to recognize that there is really more than one product and more than one market! Certainly the ultimate market is always the consumer. But consumers don't buy units of fat or protein or milk solids. They buy beverages or they buy dairy products--butter, cheese and ice cream. It's a given that whatever they want to buy--a glass of milk or a dairy product, it must be fresh, attractive and palatable.

There's a whale of a difference between milk as a beverage and milk converted to a dairy product. Will a consumer pay more for a glass of milk that's higher in protein and solids? While there's some evidence that consumers do prefer a higher than average SNF content at all fat levels, there is very little evidence they will pay extra to get it. At any rate, few handlers have been willing to challenge the market on that score--moving into the market with a fully priced, high solids, fluid milk product.

Milk consumption trends have not really led towards products high in protein. Rather, they've gone in the direction of low-fat. So, does extra protein or solids in beverage milk really deserve any extra premium? Components in milk should be used in pricing only if they have extra value, a value for which the market will pay, a value no less than the cost of identifying and marketing that component.

AVERAGE MILK EXCEEDS MINIMUMS

One suggested way to obtain market returns for extra protein or solids in beverage milk is to increase the minimum component standards for nonfat-solids. Most states follow the Federal Food and Drug Administration standards which require a minimum of 8.25 percent nonfat-solids in all fluid milk products. However, this level is well below the level which already exists in average milk as it comes from the farm (which runs around 8.6 or 8.7 percent solids). Giving all fluid milk processors an equal incentive, California requires a SNF test of 8.7 percent in whole milk, 9.0 percent in skim milk and 10.0 percent in low-fat milk.

If producers are to be compensated for the cost of extra solids which processors must add to standardize their product upward to meet new regulations, consumers in turn will have to pay more. If the price increases, what will happen to consumption? A thumb rule sometimes used

is that for each 1 percent change in price, the quantity of milk consumed would change 3/10 of 1 percent in the opposite direction.

Governmental edicts of any kind are palatable to few and more regulations on milk marketing would turn some people purple. Forget that mandatory "force feeding", these people insist. If extra protein is indeed meaningful and contributes towards flavor and nutrition in the milk market, then allow it to establish its own value. Establish and enforce nutritional labeling standards and let the consumer opt for the product desired at the price required. Forcing additional protein standards on all milks and milk products, they submit, would be the same as forcing high fat and fat standards on all milk and milk products. It would be like eliminating the 1 percent and 2 percent fat milks. In either case, the consumer loses the option to choose a lower solids milk at a lower price.

YIELD VALUE FOR MANUFACTURING

Those who favor raising protein or SNF standards argue that it is the only way to get fluid processors to go along with multiple component pricing. Because beverage milk yield is unaffected by its protein content and because consumers seem unwilling or unlikely to pay a premium for high protein milk, fluid processors have no reason to pay more for higher protein milk, unless they are forced to in order to meet a regulated standard. The regulation makes it fair for everybody. A curious twist to this argument is that all dairy processors pay extra for butterfat but very few processors actually need all the butterfat they buy, yet we do not have unduly high standards for the fat composition of dairy products. If we don't have to do it for butterfat, why do we have to do it for protein? If it is unfair to force a fluid processor to pay for protein, is it fair to force a cheesemaker to pay for butterfat? It should be noted that with current production and marketing practices, it is easier to produce and sell surplus butterfat than protein, but that need not be the case.

As far as manufacturing milk is concerned, few would argue that component pricing would be other than a fair, just, and efficient approach to establishing price. This is often referred to as "end product" pricing--pricing milk on the sales value or yield of the products that can be made from it. Ten points of fat on a hundredweight are equivalent to 1.25 pounds of butter; an extra point of protein equals roughly an extra pound of nonfat dry milk. A difference of about 1 pound of cheese per hundredweight of milk results from a difference of just ¼ of 1 percent protein between two different milks.

DIFFERENT USES - DIFFERENT VALUES

There are some problems with "end use" pricing, or identifying components by their worth, in that the same component has different values when used in different products. Milk proteins as such, for instance, have a limited and underdeveloped market. When protein is part of skim milk powder its worth is no more than the price of the powder itself. In cheddar cheese making, its value may be much greater. And its value is almost zero in fluid milk processing.

Proponents of a new pricing system argue that if each unit of protein and butterfat had a separate value, handlers would utilize milk components more efficiently, probably by diverting high protein milk into manufacturing and satisfying the fluid milk market with lower protein milk. Using high-test milk for manufacturing, they continue, would require less energy in processing and hauling, and in the case of cheese there would be less whey to dispose of. Some milk, they add, is so low in protein (particularly in the springtime) that it's unprofitable to turn it into cheese.

PREMIUM OR PENALTY

Producers of high protein test milk look to component pricing as a way to get more for their milk. Without additional funds coming from the market, the only way more can be paid to one group of producers is to withhold it from another group. Unless fluid milk handlers are charged more for extra protein, there is no extra money to pay a premium to producers, and if handlers have to pay more for that extra protein, they won't want any milk that runs above the minimum standards.

Some have suggested that, instead of paying a premium for extra protein or solids in milk sold in fluid markets--where that extra protein brings no extra return --it might be more appropriate to apply a penalty or discount for low protein milk. The penalty or discount should equal the cost of fortifying that milk to bring it up to minimum standards.

Of course, proprietary handlers operating in federal order areas can't charge penalties for low protein or solids content unless order regulations are changed to permit it. They are legally required to pay the minimum order prices. Cooperatives and non-regulated handlers, on the other hand, not locked into the order price, can utilize both plus and minus differentials for protein, just as they do for butterfat. One co-op which is now using both butterfat and protein differentials, deducts the same amount for low protein milk as they add for high protein milk. The protein base they use is 3.1 percent and the premium or penalty above or below that base is calculated on a percentage of the current nonfat dry milk support price.

ORDER REVISIONS REQUIRED

In order to fully utilize component pricing, our federal milk marketing orders would have to be modified. Any pricing system that now exists or any that might be developed inevitably will have strong points and weak points. Producers produce milk that comes with "fixed" bundles of characteristics. Processors, on the other hand, have preferences for different components. So it's difficult to come up with a pricing system that works equally well for producers and processors. Unless ultrafiltration develops to the point where we can separate out individual components right on the farm and establish a market for each, some inequity will always exist.

A PROVOCATIVE PROPOSAL

One possible revision to marketing orders might be to pool both butterfat and protein differentials. Determine values for butterfat and protein based on their use in various milk products, then let each processor pay the appropriate differential according to how he used his milk--on its value to him rather than to some marketwide use-value. Producers then would be paid a marketwide differential based on the value to the pool, just as they are now with Class I prices.

Obviously pooling would cloud the economic signals sent back to the dairymen. If you want to signal a dairy farmer, letting him know that butterfat is worth this much and protein is worth that much, it's best to give him that message directly. Pooling is like sending the economic signal through cheesecloth - it arrives a bit blurry. But that's true of our federal order system right now. Blend prices don't communicate Class I values to dairymen directly. Because they're pooled, the dairymen get to see only part of the Class I differential. The equity argument overrides the efficiency argument in this case.

SO WHERE ARE WE?

Certainly the pricing system we use today may not be the best one for tomorrow. Times have changed. Butterfat is viewed negatively by many consumers and high quality milk proteins are viewed favorably. Cheese is becoming the dominant dairy product, with butter virtually a residual product. New York, just like Wisconsin, is becoming a significant manufacturing state--producing sizeable quantities of cheddar, mozzarella, ricotta, cottage, and cream cheese as well as many other dairy products. Quick, accurate and inexpensive tests for butterfat and nonfat-solids are a fact of life. Protein can be approximated by a test for nitrogen carrying compounds (although the presence of non-protein nitrogen in varying amounts may prevent absolute accuracy). Accurate casein tests are available, but expensive.

Part of the dairy industry is currently giving explicit recognition to the nonfat components of milk in their pricing system. Both California, which has a State rather than a Federal marketing order, and the Canadian Province of Ontario have added differentials based on nonfat-solids to their pricing program. In the Northeast, others are experimenting or gathering data about it.

DIFFERENCE NOT GREAT

For most producers the difference between being paid on a butterfat-basis, as they are now, or being paid on the basis of fat and protein (or fat and SNF) may only amount to a few cents per hundredweight. If little can be done to change the levels and ratio of protein and butterfat in milk, incorporating protein into our pricing system is only going to change the distribution of returns--change the way the pie is sliced. It isn't going to have the long-run benefits some advocates suggest it will. However, if long-run gains in protein content of milk can be obtained, then justification for a new protein pricing scheme exists. We worry about fat test to three decimal points. We rarely think about protein or SNF test, because these don't carry explicit values. Any change in the system inevitably will alter returns to individual processors and to individual producers. The transition may be difficult for some. But in the long run, any pricing system which more accurately reflects value in processing and consumer demand will ultimately benefit the producer, the processor and the consumer.

CHAPTER VII. PROCESSING AND MARKETING MILK

PART I - "THE FLUID MILK INDUSTRY"

Why do we always talk about fluid milk? Nobody ever talks about fluid water or fluid orange juice or fluid coffee! We know and take for granted these are fluids. So why the unneeded adjective?

Is there really any good reason for calling it fluid milk? Everybody knows milk's a fluid. Dairy industry people know it too. But, then they're not really talking about whether milk is a liquid or a solid. Rather, when they speak of fluid milk, what they're really talking about is handling, pricing, processing and marketing milk as a beverage. They designate this kind of milk as Class I milk. That Class I designation distinguishes it from the rest of our milk supply--that part which moves from producer to consumer in the form of hundreds of dairy products which, depending upon the particular marketing order involved, are designated as having been made from Class II or Class III milk.

Whatever we call it - fluid milk, Class I milk or beverage milk, no one will dispute that the industry which handles it has come a mighty long way from the days when a milkman dipped the milk a customer wanted out of a can on the back of his wagon and then poured it directly into the purchaser's container. Naturally, since this pre-dated refrigeration, the milkman's wagon had to come by the house every day.

BORN WITH THE BOTTLE

The start of the fluid industry as we now know it dates back to just after the Civil War. Fluid milk factories developed after commercial introduction of glass milk containers. Actually, the first milk bottle wasn't a bottle at all, but a "jar". The bottle featured a metal device with rubber gasket and thumb screws for holding down its glass cover. A different kind of design, patented by a Potsdam, New York druggist, Dr. Hervey D. Thatcher in 1884, was the first to gain nationwide popularity and undoubtedly served to establish the glass bottle as the uncontested package for milk for almost half a century.

At the start, particularly in the larger cities, vigorous opposition arose to the use of glass containers, not only because of breakage but because of extra cost. Despite this, by 1895, hardly more than a quarter century after Mrs. O'Leary's cow allegedly started that devastating Chicago fire, glass bottles had moved as far west as "the windy city".

QUALITY - WHAT'S THAT?

In those early days, milk certainly didn't enjoy the uniform quality we now take for granted. In fact, more than likely much of it was watered out of the nearest river. (A fact not easy to prove.) Which perhaps led to Henry David Thoreau's oft-repeated remark "that some circumstantial evidence is very strong, as when you find a trout in milk".

Pasteurization didn't arrive 'til almost the 1900's. Before that, those few dairymen and dealers who were really quality conscious kept their morning and evening's milk separate, bottling only the morning milk for market "as new milk". A device called a lactometer, designed to measure the specific gravity of milk, was sometimes employed to discourage the addition of water. This device quickly became outmoded when a New York farm boy turned college professor invented a simple, foolproof method for measuring the butterfat content of milk.

THE BABCOCK TEST

Professor Babcock discovered that when he added sulphuric acid to milk, the acid digested all its solids except fat. If this mixture was heated to melt the fat and was then subjected to moderate centrifugal force, its fat would gather in the neck of a bottle where its quantity might be "read". Upon this simple test the 20th Century structure of our dairy industry was built. The Babcock test not only eliminated watering, but became the basis for paying for milk and a principal criteria used in the selection of breed-improving animals.

Today's modern fluid milk plant is certainly a far cry from those early milk bottling factories. Visit a bottling plant today and, at first glance, it'll look like nothing more than an indecipherable maze of stainless steel pipes and plates and equipment scattered all over the place. But spend a little time there, and almost before you know it, you'll be distinguishing between things like pasteurizers and clarifiers.

FLUID PROCESSING

Processing of fluid milk begins when those big bulk tankers first back into the unloading bay at a bottling plant. This milk receiving area must be under roof and certainly, at least in this climate, should be enclosed. Electric, air and hot and cold water connections are required. Here, as everywhere else in the plant, sanitation is paramount. Once the temperature of the tanker load of milk has been taken, and various quality checks (such as for bacteria and antibiotics) have been run, the milk is pumped into storage silos and the empty tanker then washed and sanitized. This alone requires 2 or 3 water solution tanks, plus a jet or ball cleaning system, and an electronic programmer to control the sequence of flushing, washing, and sanitizing the tanker.

As the milk continues through the bottling plant, it will be subject to clarification, standardization, pasteurization, and homogenization before moving to a filling machine for packaging. Let's follow a load as it flows through those separate steps:

CLARIFICATION

Clarification removes any particles of sediment that are suspended in the milk. A clarifier machine accomplishes this by use of centrifugal force. The milk is pumped through rapidly spinning cone-shaped discs which force any sediment to the exterior where it's removed. Usually, newly-arrived milk passes through a clarifier on its way to storage. However, if the temperature of the tanker load of milk is higher than desirable the milk is passed over a plate cooler enroute. The insulated tanks in which the milk's stored are equipped with agitators and recording thermometers so that the milk's temperature can be easily monitored.

Practices used in modern milk production have reduced sediment to the point where sediment tests have lost much of their value as an index of sanitary milk production. Unfortunately, sometimes the sediment test at a receiving plant may indicate a producer's ability to remove sediment on the farm as much as it indicates the quality of his production practices.

STANDARDIZATION

Depending on the use to which the milk will be put (whole milk, lowfat milk, or skim milk), all or part of its cream is separated from the skim during the standardization process. A separator can be adjusted to remove as much fat as desired and yield standardized milk of a specific fat content (such as 3.5%, 2% or 1%). (Sometimes, of course, fresh cream will be added to a quantity of milk to bring it up to the fat percentage desired.) Separation is accomplished in much the same manner as clarification. In fact, often the two processes are combined in a single piece of equipment called a standardizer-clarifier. Centrifugal pressure forces heavier skim to the outside, while lighter fat remains in the middle of the machine.

PASTEURIZATION

The next stop fluid milk takes on its path to the bottle is at a pasteurizer. Some small bottling plants still use batch-holding pasteurizers in which vats of milk are heated to 145°F, then held at that temperature for half an hour. Most larger plants, however, use high-temperature, short-time pasteurization (HSTS). In this process, milk is heated to 161°F, but only held there for 15 seconds. To heat it to this temperature, the raw milk is passed over a series of vertical plates. Hot water, flowing in the opposite direction on the reverse side of the same plates, raises the milk to the required 161°F. Pasteurization destroys all disease-producing bacteria and, ever since its discovery, has made milk among the safest of all foods.

HOMOGENIZATION

Homogenization reduces the size of the fat globules in milk and, in doing so, produces a stable emulsion that does not separate on standing. Homogenization involves pumping milk under great pressure (2,000-2,500 psi) through tiny openings. In the process, the fat globules in the milk are sheared apart, and their diameter reduced. But their number is increased a hundred times and their surface area by more than 6 times. These small fat globules will remain in suspension rather than separate out to form a cream layer. Many times the machine which does this job, called, not surprisingly, a homogenizer, is incorporated right into the HTST pasteurization equipment.

BOTTLING

Our load of milk is now ready for bottling. But maybe we should find a word other than "bottling". After all, in many markets less than 1% of all the fluid milk continues to be sold in glass bottles. Packaging has come a long way since our Potsdam pharmacist started marketing his first glass bottle. Remember the cream-line bottle? It went out when homogenization came in. Other styles have also had their day. Do you recall the brown milk bottles? They were designed to prevent oxidation of milk exposed to light. They first came out way back in the 20's. However, "brownies" hardly swept the country by storm. Most people, it seemed, liked to see the milk they bought. And how about those pyramid-shaped tetra-pak cartons? Those too had their fling, but never won any popularity contests. While they were economical and could be formed and filled in a continuous process, they had one particular weakness. It took an expert to open one without spilling some milk. Like the bottle itself, bottle caps and covers experienced their own evolutionary cycle.

NEW PACKAGING

Today, most milk is packaged in paper or plastic. Fiber wax-coated cartons started coming into popular use about 25 or 30 years ago. Sometimes, these are formed from blanks right at the bottling plant, but more often the waxed paper cartons arrive flat from the factory where they were printed. Before use, they are stacked in a machine which forms the carton and seals its edges preparatory to filling.

The most recent development in fluid milk packaging is a container made of high density polyethylene by a process called blow-molding. Pellets of plastic resin are piped into the blow-molding machine where they're heated until molten. Hot sheets of this molten plastic are then extruded into a mold. Air pumped into the center of the mold forces the plastic to expand outward and form the bottle. Air pressure is also used to check the bottles for leaks.

Institutional and restaurant buyers often have their milk packaged in larger containers, such as 5 gallon plastic bags in corrugated cardboard cartons.

FILLING

Whatever the container of choice, it will be conveyed automatically onto the filling machine. Under the watchful eye of a plant worker, push-button controls direct the bottle's movement through these machines. Human hands touch neither the milk nor the bottles throughout the entire process. Even screwing milk bottle caps into place is now done automatically. Paper cartons also are automatically filled and sealed by heat and pressure. Whatever the container, by the time it makes one complete rotation below the filling spout, the calibrated filler has been filled with a precise portion of milk.

In most modern milk plants, the cartons or jugs are placed in cases and the cases stacked and conveyed to a cooler automatically. Here they await shipment by refrigerated trucks to the supermarkets, schools, restaurants, stores and other institutions which furnish consumers with that wholesome beverage called milk.

Usually, milk doesn't flow in an uninterrupted pattern from the unloading tanker truck directly through the five-step process we've just described to end up in a bottle. Instead, it may be shuttled back and forth, in and out of refrigerated storage tanks in order to optimize use of labor and equipment. Since these storage tanks are agitator equipped, they may also be used as blending tanks,

mixing milk of varying fat levels to accomplish standardization.

ADD THE A & D

For many years it was known that sunshine and cod liver oil were helpful in the prevention or treatment of rickets, at one time a common disease of children. Scientists discovered that Vitamin D was a preventive factor and suggested that a food regularly consumed by the public be used to convey added Vitamin D to the populace. Milk, the best single food source of calcium and phosphorous, was almost universally recognized as the best and most logical choice for that purpose. So today, 400 USP units of Vitamin D concentrate are added per quart of milk. Nonfat or lowfat milk is often fortified with Vitamin A (at 2,000-5,000 IU per quart) in addition to the Vitamin D. This vitamin fortification takes place before the milk is pasteurized.

Handlers regulated by Federal Orders process about three-quarters of all the fluid milk products sold in the U.S. Over the past couple of decades these handlers have witnessed a shift from glass containers to paper and plastic, a shift from small to large container size and a shift from home delivery to wholesale delivery.

MARKET SURVEY

A 1981 survey (taken in the month of November of that year), produced the following information about packaged fluid milk sales in the 48 Federal Order markets then existent:

1. More fluid milk was sold in plastic than in paper (57% plastic, 42% paper, and 1% glass).
2. 57% of total fluid sales were made in gallons, 24% in half gallons, 10% in half pints (half pints might not have been so popular if the survey had been taken during school vacation), and 5% in quarts, with the remaining 5% bulk and other sizes. (The NY-NJ market sells more of its milk supply in half gallons than gallons, and also sells more in quarts than do the other Federal market orders. This is probably the result of the large number of apartment dwellers in New York City's huge Metropolitan area.)
3. Wholesale sales accounted for 98% of total fluid milk sales; home deliveries only 2% (and there would be even less home delivery in our NY-NJ market).
4. 60% of all the fluid sales were made through chain stores (a chain was defined as having 11 or more individual stores), 10% through dairy and convenience stores, 8% through institutional outlets (military and schools) and all other wholesale outlets (such as non-chain food stores, nonfood stores, restaurants, hospitals and vending machines) represented the other 30%.
5. In all cases, regional differences were common.

MARKETING COSTS

It will come as a surprise to no one that marketing costs money, whatever is being marketed. Fluid milk is no exception. For starters, consider all the costs involved in getting milk from the dairymen who produce it to the plant where its bottled. Some of these costs, like transportation, are obvious. That's a big ticket item - accounting for 79% of all the costs involved in moving milk to the plant. But there are plenty of other, less obvious, costs. Things like any reloading that's involved, or the quality control work which has to be done. And what's sometimes not recognized is that anytime you move milk, you lose some of it. This is called stickage and is a product loss in bringing milk from the farm tank to the processing plant. Additionally, there's a cost for writing checks, for paying the market administrator's assessment, and for balancing a supply. These costs might be referred to as "up country costs" and amounted to about $.06 per half gallon in 1979.

But that milk's still up country. Now we have to move it to market. If we use the midpoint of the NY-NJ production area as an example, when we haul milk to a New York City bottling plant from this point (the 200-210 mile zone) we have to add 2.2 cents per 10-mile zone, which for 200 miles adds up to about $.44 per hundred-

weight. This comes out to about 1¢ per quart just for this over-the-road hauling.

PROCESSING COSTS

After the milk arrives at a bottling plant, it incurs still more costs. Obviously not every plant has identical costs. In fact, these costs vary widely from one plant to another. So, using average costs to describe a specific marketing operation is hardly the height of accuracy. However, estimates of average costs do provide some insight into the existing cost structure in the industry.

Labor costs represent from 40 to 60 percent of all fluid milk processing costs, exclusive of the cost of containers and raw product. The cost of a plant worker in a New York City plant in May 1979 for an average eight-hour day, including wages and fringe benefits, was $112. Fringe benefits amounted to approximately 40% of this total labor cost. Obviously these costs have increased substantially since then.

Differences in labor productivity are responsible for some of the wide variability in processing cost. Labor productivity is measured in pounds of milk processed per man hour and ranged from 920 to 1866 pounds per man hour, averaging about 1200 pounds/man hour in 1978.

Other costs associated with fluid processing at city plants include product loss which is the result of stickage in the plant as well as enroute. Product losses range from 0.8 to 1.6% of the volume handled. In July 1979 this cost averaged about 0.4¢ per ½ gallon. A paper container (½ gallon size) costs 4.7¢ per ½ gallon.

Another cost (and also a major problem) is the purchase of cases. These cases have many other uses and tend to get scattered far and wide at great expense to the milk industry. This cost averages about 0.5¢ per ½ gallon. A deposit law now in effect on cases in New York City has helped cut these losses 20 to 30%.

COST SUMMARY

A summary of the total estimated fluid processing and raw product costs for New York City plants is shown in the following table:

Summary		July 1976 Estimated Average Cost (dollars/ ½ gallon)
Cost at City Plant.....		$ .615
Container and case.....	$ .052	
Processing.....	.06	
Direct Delivery.....	.075	
General Administration & Sales.....	.035	
Reasonable return before taxes.....	.035	
	.257	
In store handling.....	.08	
		.337
TOTAL COST		$ .952

These costs will vary widely from one plant to another due to differences in labor productivity and to other factors such as management, number of container sizes and types, number of different products processed, percent of output packaged in various sizes, evenness of production, technology and capital investment, number of different labels, percent of full loads, delivery truck size, and volume of production. Declining consumption and the loss of Class I sales to outside handlers have resulted in reduced volume of Class I milk being processed in New York City plants. This, of course, tends to reduce productivity and to increase unit processing costs.

A few years ago a Cornell University economist estimated that just the direct cost of having one wholesale route on the street in the Metropolitan New York City area ran from $210 to $240 per delivery day, or $50,000 to $70,000 per year. In his estimates, he included wages and fringe benefits of a regular routeman and a relief driver, as well as vehicle costs. He didn't include some of the other administrative and sales costs associated with a route.

MARKET STRUCTURE

Included in the jargon of every economist worth his salt is the phrase "economy of scale". Roughly translated, it means that as a business grows larger, more efficient use of resources should reduce

unit cost. This principle has been hard at work in the fluid milk processing business. Growing economies of scale have placed small firms at an increasing cost disadvantage. The consequence has been an enormous decline in the number of fluid milk processors.

Thirty years ago, more than 8,000 processors bottled our nation's milk supply. Ten years later only a bit more than 5,000 of those were left. Another ten years and their number had dropped to just a little over 2,000. Today, our best guess is that less than half of these remain. Economy of scale has been at work. Changing technology and changing markets dictated that thousands of fluid milk processing plants became obsolete. Not only the number of processors, but the total number of milk processing plants shrank.

Our fluid milk processing industry has experienced drastic changes in structure and organization in recent decades. Until the middle of this century, there were almost no public policy restraints against mergers in the fluid milk industry. In that unrestrained era, thousands of independent fluid milk (and ice cream) firms were acquired by a few corporations that grew into giants and won commanding positions in the market via the merger route.

MERGER MADNESS

Between 1920 and 1950, the eight largest dairy processors acquired about 1800 other dairy concerns. Merger activity on the dairy industry front paralleled the pattern that existed then in other industries. The great merger movement of the 20's reached a frenzied peak in 1929, slowed during the Great Depression, but accelerated again during the latter years of World War II.

Three of the four largest dairy corporations of today achieved their relative positions of size during those three decades from 1920 to 1950. Up to 1948, according to one study, National Dairy (Kraftco) grew 64% by acquisitions, Borden 75%, and Beatrice Foods 63%. Foremost Dairies, currently the fourth largest dairy product corporation in the country, was born late in the great merger wave of the 20's and didn't attain big business status until it began an enormous merger spree after World War II.

(Foremost-McKesson, Inc., the parent company of Foremost Dairies, has recently agreed to sell its Dairies Division to a group of investors for about $65 million, reportedly, so it could increase emphasis on other product lines. Last year [1981-82], that Dairy Division had sales of $689.4 million. Its parent, Foremost-McKesson, reported total revenue of $452 billion. Quite a change from the days when all you needed to get in the milk business was a horse, a buggy, a tin can and dipper.)

The merger movement continued almost unabated during the first part of the 50's. Foremost Dairies, Inc was the leader, acquiring companies with sales of about $342 million; Beatrice Foods, the second most active, made 175 acquisitions; while National Dairy Products acquired 39 companies with $95 million in sales, and Borden made 110 acquisitions with combined sales of $102 million.

In earlier days of the 20th Century, it wasn't very hard to enter the dairy business. Consequently, there were numerous milk sellers in nearly all markets. But as each succeeding decade came along, it became more and more difficult for very small companies to either enter or to survive in the industry. Technical improvements in plant equipment and design dictated increasing scale of operation. For example, a 1962 study showed that a fluid milk plant required a volume of at least 1500 gallons a day in order to fully utilize the capacity of even the smallest, most minimally efficient size paper packaging machine. While this didn't require an enormous plant, it was bigger than 70% of the fluid plants in operation that year.

FTC APPLIES THE BRAKES

Technological developments such as these caused an enormous erosion in the number of independent companies and made inevitable the demise of others. But while these forces were dictating a fundamental reorganization of the fluid milk business, the Federal Trade Commission was of the opinion that they would not be party to the rise, via merger, of any more large, national, multi-market dairy enterprises. So, they requested and obtained, by legislation, closure of some legal

loopholes in the Clayton Act. Armed with their new powers, the FTC put the brakes on any further mergers in the dairy industry that they thought might "unduly enhance a firm's market concentration, might limit competition or impair the entry of new competitors."

More recent studies indicate that economies of scale come at much higher levels than they did in the early 60's, and that total cost per unit can be cut sharply by increasing volume up to 40,000 to 50,000 quarts per day. Moreover, costs continue to decline (but at a much lesser rate) when volume is increased up to 120,000 quarts per day. Not surprisingly, a highly specialized plant can be smaller than a diversified plant. For example, a plant that packages only in paper, and puts out only a half dozen products, can be efficient with a much smaller volume than one that packages in paper, plastic and glass and puts out a couple dozen products.

PLANT SIZE GROWS

In a study of all the processing plants operated by regulated handlers in the Federal market orders in 1979, the average volume per month was 4.5 million pounds; the smallest 10,000 pounds and the largest more than 35 million pounds. Twelve firms accounted for 35% of all the fluid milk sales in all federal market areas, with the four largest accounting for nearly 18% of total sales. On an individual market basis, the market share of the four largest handlers ranged from about 35% right up to 100%. In our NY-NJ area the four largest firms enjoy a 37% market share (December 1979). Both number of plants and average volume per plant varies significantly among regions. As one measure of the rate of change occurring in this industry, note that average volume per plant in 1979 was 24 percent greater than it was just four years earlier.

PLANT NUMBERS DROP

A previous study of the organization and structure of the fluid milk industry was made three years earlier, in December, 1976. At that time, 1156 fluid milk processors were operating 1388 plants in the Federal order areas. 1105 of these were local, single plant firms, 12 were regional firms (operating 80 plants), and 6 were national firms. The six national firms operated 119 plants, or an average of 20 plants per firm. (If you're the kind that adds up and checks out numbers, you'll have to include 33 other multi plant firms that were defined as neither regional nor national. Collectively these operated 84 plants.)

Although local firms in that study represented about 95% of all firms, their market share was only 50%. On the other hand, just six national firms accounted for more than 20% of the total sales. In every single one of the Federal order marketing areas, at least one of the six national firms sold milk. Vertically integrated firms were also a market force. (A vertically-integrated firm might be defined as one that owns both processing and marketing facilities, such as a supermarket chain that builds a bottling plant and then contracts directly with producers to supply it milk.) The ninety-eight firms that met that definition operated 143 processing plants and controlled 20% of the total in-area sales.

MILK PROMOTION

The Fresher Refresher - A recent advertising campaign for milk focused on milk's good taste and refreshment. It attempted to link milk to the countryside and to fresh images of country sunshine.

Listen in as an ADA executive describes how they went about it:

> "In our commercials, a beautiful shot of milk pouring is the key that unlocks a fresh, refreshing visit to the country. In each commercial, people communicate the need for milk's refreshing qualities and the satisfaction that it brings.
>
> The commercials will work this way: We'll see a target person, a man or a pair of teens, in a place where milk could be chosen - a cafeteria or fast food place. As they make their beverage decision, we'll see that delicious milk pour, and see them transported from the busy, noisy atmosphere they're in, to the freshness and serenity of the country, with a tall, cold glass of milk that they immediately drink down with great pleasure. But that's not all. We'll show one more image of milk pouring, one that tops even what has

gone before. This milk shot will fill the screen, to leave the consumer with nothing on his mind but milk...and a new milk advertising theme line - 'Milk, the Fresher Refresher'.

DOES IT PAY?

Sounds great, but doesn't it beg the most important question? After all, what most dairymen really want to know is "does it pay to advertise milk?".

Researchers from the Department of Agricultural Economics at Cornell answer yes! In a study of four markets: New York City, Rochester, Syracuse and Albany, they found that even though the amount expended for media advertising was less than optimum, "the affect of generic milk advertising was found to be positive and statistically significant". In other words, media advertising returned producers more money than they had to contribute.

Maybe producers haven't been contributing enough, however! Per capita sales of whole milk has been declining for years, falling more than 100 pounds per capita in the span of just two decades (from 250 pounds per person in 1960 to 140 pounds per person in 1980). Fortunately, during the same period, lowfat milk found increased favor with consumers and helped take up some of that slack. During that same 20-year period (1960-80), sales of lowfat milk climbed from just over 2 pounds per person all the way up to 72 pounds per person. Other beverage milks (skim, cream, half and half, buttermilk and chocolate milk) experienced various changes in popularity, some up, some down, but none were of the magnitude nor had the impact of the change in sales of whole and lowfat milk.

It doesn't seem like price is the reason behind the decline. At least you wouldn't gather that by comparing milk use with soft drinks. Consumption of the latter tripled during that same 20-year period, and yet their prices increased more than did the price of milk. (Using 1967 as an index of 100, the price of cola drinks rose 2.69 times, while whole milk rose only 2.08 times. During the same period, coffee prices climbed 4.26 times, but beer rose only 1.87 times, and whiskey just 1.35 times).

ADA - NDC - DRINC

The history of our milk promotional efforts dates back more than half a century. Way back in 1915, leaders of both producer and dealer groups came together to form the National Dairy Council. Its major thrust was then, as it continues to be, one of emphasizing a need for milk and dairy products in a healthy diet. NDC's program has two parts - nutrition education, aimed mainly at children in school, and nutrition research to back up those teaching efforts.

Later, Dairy Council units were established in many of the states. In 1940, twenty-five years after the founding of the National Dairy Council, the American Dairy Association was formed to carry out other forms of dairy promotion, such as advertising and merchandising.

For many years, support of milk promotion programs in most areas of the country was on a strictly voluntary basis. Which had a couple of obvious drawbacks! To start with, it could hardly be considered equitable, since those who didn't contribute stood to gain just as much from any promotional effort as those who did. Next, too much of the money that was raised had to be consumed by the expense of raising it.

FUNDING

So a procedure to raise funds for promotion was established in connection with Federal milk marketing orders. This procedure has come to be known as the Positive Letter. Basically, it involves notifying a producer that a specified deduction will be made for ADA, DC or some other promotional organization unless the producer objects. This new practice by no means guaranteed a high rate of participation. So many states, in order to assure full producer participation in the promotional efforts, levied an assessment on all milk marketed.

Some have advocated that Federal marketing orders should be used as an instrument to collect promotional funds. However, legislation under which these orders were issued has been interpreted as not authorizing mandatory deductions.

ADA and NDC, both dependent upon the nation's dairy farmers for financial

support, often found themselves in competition with each other as they solicited funds. So an umbrella organization UDIA (The United Dairy Industry Association) was created. It's purpose, as spelled out in its bylaws, was "to eliminate duplication of promotional efforts and fund-raising efforts, to coordinate diverse educational research and promotional programs, and to concentrate dollars to achieve the greatest market impact." More recently, organized Dairy Research Incorporated (DRINC), a product research group, has come under that same umbrella.

IS THERE A FLUID IN YOUR FUTURE?

Inevitably, a museum devoted to a display of milk containers, would, in turn, record the story of the evolution of the fluid milk industry. Such a museum would probably include some of tin milk cans milkmen used to load on the back of their carts before heading out on their routes. Naturally, there would be a large collection of milk jars, and an assortment of glass milk bottles of every size, shape and description, including, most likely, some of those molded with indented necks for emphasizing creamlines. Next might be displayed a whole line of containers in a wide variety of sizes and made of many different materials which at one time or another had been in popular demand.

UHT

But how much space should our dairy museum director reserve for containers yet to come? And what might they look like? Some contend that a milk called UHT is the wave of the future. UHT stands for ultra high temperature. UHT milk is sterile - pasteurized by a process that kills all bacteria and allows the milk to enjoy long shelf life without refrigeration.

UHT milk is not just a researcher's dream - it's already left the laboratory and has moved into the field. Two UHT plants have been built on the West Coast and are already distributing their product. Right now, that is mostly to ships and military installations, and to islands of the Pacific. But moving a little closer to home, H.P. Hood is planning the construction of an asceptic milk shake operation in Connecticut. This plant would use UHT sterilization procedures to produce milk shake mixes needing no refrigeration.

UHT vs. CLASS I PRICES

Some have speculated that the advent of UHT fluid milk may threaten the classified pricing provisions of Federal milk marketing orders, under which fluid milk returns higher prices than Class II milk. However, in a recent decision, USDA has approved an amendment to the Georgia Federal Milk Marketing order providing that "a plant which primarily processes and distributes asceptically processed fluid milk products (UHT) and is located in the marketing area, will be regulated exclusively under that Georgia milk order." A plant meeting this description has been built in Savannah.

If he is wise, our museum director will limit his exhibit to displays of things past and not try to predict what the future may bring. For who knows what lies ahead? Who knows what forms milk will assume? Only one thing seems certain. In all the history of man, no one has yet come up with a better product than milk - nature's most nearly perfect food.

Fluid Milk Processing Costs in the Northeast, 1980.[a]

Monthly Volume of Milk Processed	Cost Per Cwt.	Monthly Volume of Milk Processed	Cost Per Cwt.
(pounds)	(cents)	(pounds)	(cents)
250,000	487	20,000,000	253
500,000	418	25,000,000	249
1,000,000	364	30,000,000	246
2,500,000	313	35,000,000	244
5,000,000	286	40,000,000	243
10,000,000	267	45,000,000	241
15,000,000	258	50,000,000	240

[a] B. J. Smith. Unpublished report. The Pennsylvania State University. 1982. The costs shown here are based on the following functional relation:

CHAPTER VII. PROCESSING AND MARKETING MILK

PART II - "THE MANUFACTURING MILK INDUSTRY"

Every American small town had one. The corner soda fountain. Do you remember those tall frosty milk shakes we used to get? The clerk behind the soda fountain poured in good cold milk right from the bottle, added a few generous scoops of ice cream, squirted in the chocolate or strawberry sauce and slipped the whole works right on the mixer. Ah, how good it tasted!

Well, we have some good news and some bad news! The bad news is that the milk shake went away with the soda fountain. But the good news is that it came back again with the fast food counter! Today we're selling more milk shakes than ever before. In fact, many companies have developed a lively trade just specializing in the manufacture of milk shake mix. While nostalgia buffs and milk shake enthusiasts may deplore the disappearance of the old "hand-made" milk shake, few in the dairy business would argue against the development of a lively new market for milk.

SOMETHING NEW IN CLASS II

The now-you-see-it now-you-don't milk shake is but a single example of a veritable revolution which has occurred in making and marketing products from milk. Used to be, back in those olden days, that there were only one or two dairy products of any consequence. Most milk not sold as a beverage was skimmed and made into butter. The skim which remained was fed to the hogs. Or perhaps some milk might be turned into cheese.

First call on the milk supply then as now, was of course, fluid milk for the bottle. The same holds true today, but there's a big difference! Today, Northeast dairymen are producing milk, not just for Class I, with the surplus disposed of elsewhere, but are producing directly for the Class II market. Check the record and you'll find that for the last several years, well over half the milk produced in the New York-New Jersey area has been used to supply our growing dairy manufacturing trade.

Certainly the primary mission of many manufacturing plants is still to process milk in excess of that required for fluid needs. However, many other manufacturing plants have been built specifically to make and market Class II products. Most of these plants are new, large and efficient. Some of the new proprietary plants have been built as a result of supply contracts signed with producer co-ops.

Producer pricing formulas reflect the changing importance of Class II milk. The Class I differential has not increased in the past 15 years. In fact it's 15¢ less now in (1982) when the M-W is $12.45, than it was back in 1968, when the M-W was $4.17. This Class I differential is no longer equal to the transportation cost of bringing milk from the upper midwest to supply our fluid markets. (Nor for that matter does it represent our current supply-demand situation).

Because manufacturing is such an important outlet for milk from Northeastern dairy farms, it should follow that those who produce for that outlet need to become well acquainted with some of the major manufactured products and learn as much as they can about how they're made. With that in mind, we present this report on making and marketing some of our principal dairy products.

BUTTER

While no one is still around who can personally verify it, butter was supposedly discovered by accident. Some cream being carried in an animal skin was, so the story goes, found churned. Throughout much of history, butter-making was to remain an individual activity. In fact, the first creamery for manufacturing butter was probably not built until around 1856. However a creamery which opened in Walkill, New York (Orange Co.) in 1861 became more of a pattern for those which were to follow.

Up until the middle fifties, butter was our chief table fat. But in 1957 it lost that title when, for the first time in their history, Americans ate more margarine than butter. Butter has never been able to reclaim its old number one status. Historically, butter was also the biggest single outlet for all U.S. milk not

consumed as fluid. Cheese took away that distinction by a narrow margin in 1972 and has been widening the gap ever since. Per capita consumption of butter, which had run as high as 18.5 pounds per person in 1926, declined to about 4.3 pounds per person in 1982.

BUTTER THE BALANCER

Butter has often been called the balance wheel of the dairy industry, because it has served as the residual outlet for butterfat not used in fluid milk or other manufactured products. When milk is plentiful, a lot of butterfat is diverted into butter. When milk supply is short, butter production drops. This feast-and-famine pattern applies when comparing different years as well as when comparing different seasons of the same year (remember that old bogey man the spring flush?)

The butter industry has undergone some dramatic changes in recent years. Perhaps most striking is that manufacturers of butter - mostly cooperatives - have consolidated into larger units - procuring their milk from larger areas. But the number of butter plants has fallen even faster than butter production. Technology is responsible. The advent of the continuous butter churn and soft butter printer made it possible to manufacture, form and package butter in one continuous operation. As a consequence, many smaller butter plants have been closed and production has been concentrated in the larger more efficient ones. Those of our Northeastern butter plants which are primarily seasonal balancing plants find it difficult to compete with these highly efficient, specialized plants. Our three major butter-producing states, Wisconsin, Minnesota and California, account for more than half of all U.S. butter output.

MAKING BUTTER

Want to make some butter? Then do as the buttermakers do! They take milk, pass it through a separator, and get cream - which they then standardize to about 40% butterfat. They pasteurize this by heating it to a minimum of 185 degrees for 20 seconds, then cool it quickly to 40 degrees. After storing it below 40 degrees for about 24 hours, they "temper" the cream by heating it to 50 degrees F and holding it there for four to seven hours.

If they're using a batch churn, they half-fill it with this tempered cream. The churn, an elongated drum shaped device, (in older days often made of wood, but now of stainless steel), is rotated for about 45 minutes until the butter "breaks". "Breaking" refers to the formation of small granules which separate out and adhere to each other. The fluid which remains is called buttermilk. This is drained off and the butter granules are then washed to help remove any residual buttermilk.

WORKING AWAY

Agitation during churning breaks the outer membrane of the fat globules in the cream and permits them to adhere to each other and form the butter granules. Once the buttermilk has been drained away these granules are "worked". Working is basically a kneading process which forces the butter granules into a compact mass. At the end of churning, the granules are largely separate globules of fat. By "working" them, the globules are crushed and their liquid fat is released to produce the continuous fat phase that's typical of butter.

During working, excess water or buttermilk is removed or, should testing show too much already removed, some may be added back. If salted butter is desired, it's added at this point. The working process will distribute it evenly through the mass. The worked butter is removed manually with a large wooden paddle, or may be dumped into a large metal tray (called a butter-boat) by rotating the churn. It's then packaged into 68-pound boxes or may be sent to a machine called a printer where its packaged in one pound units or one-quarter pound sticks.

A continuous churn operates on the same principal as a batch churn. Tempered cream is pumped into the rear of the churn where a beater turning at about 2,220 rpm strikes and breaks the outer membranes of the fat globules. Adhering to each other, these granules move toward the front of the churn, coalescing as they do to form clumps of butter. Buttermilk is continually drained away. The clumps drop into an auger that squeezes out remaining buttermilk and forces the butter through a

series of screens where the butter is salted and moisture added as needed. The butter then continues to the neck of the churn where it's drawn off.

COLOR ME YELLOW

Coloring is often added to butter during manufacturing. The natural color of butter is due to its carotene. Carotene is a yellow pigment found in many feeds consumed by cows, such as corn and alfalfa. Guernseys and Jerseys transfer more carotene from their feed into their milk than do other breeds. Additionally, fresh spring pasture contains more carotene than does many stored feeds. So coloring is frequently added to butter to keep its color uniform throughout the year. (Since carotene is converted by the body into Vitamin A, butter is an excellent source of that vitamin).

By law, butter must contain at least 80% butterfat by weight. The weight of butter obtained from cream exceeds the amount of fat in the cream (about 1.2 pounds of butter can be made from 1 pound of cream). The rest is water, salt and curd.

WHIPPED, SWEET AND WHEY

Other kinds of butter are also produced and placed on the market. Whipped butter has its volume increased by the incorporation of air or of an inert gas like nitrogen. This process increases the butter to about one and one-half times its original volume. Sweet butter is regular butter with no salt added. Whey butter is the end product of churning the whey cream fat which is recovered when liquid whey, freshly drained from a cheese vat, is run through a separator.

"Everythings better with butter on it," according to the jingle - but Americans apparently aren't getting the message. Butter eating fell 42 percent between 1950 and 1970 (from 9.1 pounds per capita to 5.3 pounds), and has since declined to about 4.3 pounds per person. Most of these losses were replacements by lower cost margarine.

NONFAT DRY MILK

When milk is run through a separator and its fat removed for buttermaking, the skim milk remains. Some of this may find a market in fluid form, either as fresh skim milk or condensed skim milk. Most of it, however, is dried.

Nonfat dried milk powder is one of three products purchased by the CCC under the dairy price support program. In fact, it's usually been the largest component of purchases made under that program.

In 1981, CCC purchases of NFDM totaled 851 million pounds compared to 352 million pounds for butter and 563 million pounds for cheddar cheese.

THE DRYDOWN

Several different processes are used in making nonfat dry milk powder. Most of it however, is produced by what is called the spray process. Fluid skim milk is fed into an evaporator where heaters remove much of its water, increasing its solids content from approximately 8.75% up to about 44%. This condensed skim milk is then heated and sprayed under pressure into the top of a drying chamber. Hot filtered air, running about 350 degrees, is injected into the chamber and pulls much of the remaining moisture from the nonfat milk as it falls down through the chamber. The water vapor is exhausted at the top of the drying chamber as the dry powder drops to its floor. An automatic arm, continually sweeping across the floor of that chamber, dumps the dried powder into a conveyor which, in turn, moves it into a pipeline from where it is conveyed by forced filtered air to the bagging room. Automatic fillers, scales and bag-sewing machines make easy its packaging into 50 pound paper bags.

HIGH OR LOW

Two varieties of nonfat dry milk can be produced - high heat or low heat. High heat powder reacts with protein constituents during baking and gives crusts a desirable, uniformly brown color.

Low heat powder results when the condensed skim is heated to only 160 - 170 degrees F before being sprayed. This powder is used in making ice cream and cottage cheese and is sold at retail for household use. Until the advent of instant nonfat dry milk, these sales were very limited because consumers had difficulty dissolving the powder in water. This difficulty was remedied by the

introduction of the instant kind. To produce this, most manufacturers make a slurry of powder and water, re-drying this under controlled conditions so that the particles agglomerate or form clusters. These easily disperse in water.

NFDM has scores of uses in the food trade. Its water absorptive capacity makes it a useful addition in meat products such as sausages or franks. Instant foods, cocoa or chocolate drinks, ice cream and frozen desserts, bakery products, even cat and dog foods, often contain nonfat milk solids. Because the milk protein, casein, has some of the same characteristics that make NFDM desirable for both food and industrial use (but is much less expensive), many fear its unlimited importation will seriously damage our domestic NFDM market. We produce no casein domestically - all is imported.

Nonfat dry milk is not the only milk powder produced. (Nor for that matter, is all nonfat milk dried. It's frequently used in both fluid and condensed form for beverage and food purposes). Whole milk, buttermilk and whey are also dried. But NFDM heavily outweight all other categories of dry milk products.

CHEESE

Cheeses are almost infinite in variety. Cheddar cheese was named after a town in England. Limburger cheese was first made in Limburg, Belgium. Brie originated in the Pays de Brie, a dairy region just south and east of Paris, France. Edam cheese got it's name from a little village in Holland. (Edam is the only spherical cheese in the world. It is made in balls weighing about four pounds each. Sometimes named the "cannon-ball" cheese, tradition has it that Edams first were made round so their thirteenth century Dutch exporters could roll the cheese down the streets to the wharves).

Gouda (pronounced Khow-da by the Dutch) is made from whole milk. Old-time cheese makers found that when Gouda curds were removed from their round molds, they weren't firm enough to stay round and so collapsed into the familiar convex wheel shape. Today Gouda is sold in wheels weighing up to 12 pounds, and as Baby Goudas, weighing as little as 10 ounces.

EATING HER CURDS AND WHEY

Whatever its name or shape, cheese is the solid part of milk, called "curd," which is separated from the liquid part called "whey," by heat, microorganisms, enzymes or any combination thereof. From this basic process come all the varied and delicious cheeses of the world.

All cheese-making begins with a large vat of warmed milk to which beneficial, acid-producing bacteria, and rennet, an enzyme, are added. These two substances curdle the milk, causing the milk solids, the curd, to coagulate and separate from the liquid, or whey. Curd is the basic stuff of cheese, whether it's cottage, Colby or Camembert. The different ways in which curd is coagulated and is treated after it forms, as well as the type of milk used, create the unique tastes, texture and aromas of different cheeses.

The first cheese probably was similar to what we know today as cottage cheese. It may have been discovered as much as 9,000 years ago when one of the first humans to domesticate mammals left a bowl of milk in the sun. It turned sour and thickened, and then the liquid evaporated, leaving the curd behind.

Cottage cheese is a "fresh" cheese that's not aged or cured and is highly perishable. Aged cheese developed when ancient peoples began storing drained and pressed curds in cool caves. They found that the flavor improved, and the cheese kept much longer.

Names that distinguish aged cheeses are often the names of places where they were first made: Colby, a type of Cheddar, from Colby Township, Wisconsin; Parmesan, a hard cheese for grating and cooking, from the area around the city of Parma in northern Italy; Swiss, from Switzerland, obviously. But Swiss is called Emmentaler by the natives, from the valley of the Emme River where that cheese was first developed. The first cheese factory in the United States was established in Rome, New York in 1851. But, alas, who ever heard of Rome cheese?

CLASSIFICATION

There are so many varieties of cheese, each with its distinctive flavor, body and

texture, that it's difficult to categorize them neatly. However, certain varieties of natural cheese might be placed in group headings like these:

American - This group includes the specific varieties, Cheddar, Colby, granular, stirred curd, washed curd, Monterey (Jack), and accounts for more than one half of all U.S. production. Cheddar cheese is the single most heavily consumed variety of cheese in the nation.

Italian - The group includes the varieties mozzarella, Ricotta, Provolone, Parmesan and Romano. Mozzarella is far and away the leader of this group. (Pizza eaters make it so).

Other - Swiss Cheese, Cream Cheese, Blue, Brick, Limberger, Muenster, Neufchatel. Swiss and Cream Cheese are the class leaders here. (Almost a "new kid on the block", but a close cousin of mozzarella, is string cheese. It takes its name from the cobweb-like texture it assumes when peeled from a larger chunk. The unusual texture results when mozzarella curds are machine stretched, extruded into long ropes and dropped into salt brine. Its growing popularity reflects its adaptability; kids like it, and like peanuts or pretzels, it seems to go with a cold drink.)

A great deal of natural cheese is of course further "manufactured" into pasteurized and processed cheese products, such as cheese foods, cheese spreads and cold pack. (It takes about 9/10 of a pound of natural cheese to produce a pound of processed cheese. To produce a pound of processed cheese food spread, or a cold packed cheese food, only about 0.65 pounds of natural cheese is required.)

Cheese production is widespread throughout all the dairy states, but is heavily concentrated in the North Central area (Minnesota, Wisconsin). Cheese is packed several ways, including 40 pound blocks. A great deal of it is in bulk (500 pound barrels and 640 pound blocks) and goes elsewhere for re-packaging. A recent study showed American cheese was aged at the plant an average of 20 to 50 days, with an average of 180 days for hard Italian-type and 60 days for Swiss.

CHEDDAR MAKING

It would be impossible to describe here the manufacture of all the hundreds of different kinds of cheese. Instead we will focus on Cheddar, the most important of all the American type cheeses. Cheddar cheese alone makes up 45% of total United States cheese production. Other American cheese are made with modifications of the process we describe here.

Like many other varieties, Cheddar cheese received its name from the place where it originated: The word "cheddaring" is used to describe a step in the cheesemaking process which involved turning and piling blocks of the warm curd in the cheese vat.

SETTING - The first step in cheddar production is to "set" the milk. The equipment involved is a large stainless steel vat with an agitator. Warm milk is pumped in and agitated. A starter culture (of lactic acid-producing bacteria) is added, initiating a fermenting process which, in turn, converts part of the lactose in the milk into lactic acid. This ripening process continues for 30 minutes to an hour, with heat supplied by steam passing through the jacket of the vat. When the acidity reaches a certain level, the cheesemaker adds an enzyme called rennet, which can be found naturally in the stomach of calves. The rennet, assisted by the lactic acid, coagulates the milk into a homogenous mass of curd. About 3 ounces of rennet will coagulate 1,000 pounds of milk in about 20 minutes.

CUTTING AND COOKING - The curd is next cut with curd knives. These consist of a series of vertical or horizontal wires fixed at regular intervals into a frame. Pulling both vertical and horizontal wire knives through the vat, from one end to another, and then across from side to side, cuts the curd into uniformly sized cubes. This greatly increases its surface area and allows uniform cooking. In traditional Swiss cheese production, the curd is cut with a "Swiss harp" - a wire device that looks like a large egg slicer.

The curd is "cooked" to contract the curd particles and enable them to attain proper body and acidity. Cooking is accomplished by heating the curds and whey

to about 100 degrees F. During cooking the particles of curd are kept floating in the whey by gentle stirring with mechanical agitators and hand-held stainless steel rakes.

TRENCHING AND STACKING - After the cooking is completed, a valve in the vat is opened and the curds and whey are pumped into a draining and finishing vat. After most of the whey has drained off, the curds are trenched" or pushed to either side of the vat, so that the particles of curd mat and adhere to each other. Trenching turns the curd into a cohesive, spongy mass and releases still more whey which drains through the trench in the middle of the finishing vat.

CHEDDARING - The curd bed is then cut into blocks 7-10 inches wide. These slabs or blocks of cheese are turned at 10-15 minute intervals for 2 hours, and are next stacked and restacked on top of each other. The pressure of stacking causes still more matting of the cheese and expels still more whey. This is the process called cheddaring.

MILLING AND PRESSING - After the blocks have reached the desired consistency and moisture level, they are "milled" by feeding them through a device that cuts them into small cubes. The cheese is now ready for salting. Salting cheese improves its flavor, texture, and appearance; but more importantly, stops lactic acid fermentation after an optimum level has been reached. It also suppresses the growth of certain organisms which can spoil cheese. Two to three pounds of salt are added for each 100 pounds of curd. An agitator stirs the curd to distribute it evenly.

The cheddar is now ready for pressing. The milled and salted curds are placed in round hoops or blocks, or in 500-pound barrels, to be pressed. The hoops are lined with a cheesecloth called "the bandage." This remains on the cheese. Commonly the cheese remains in the press under a constant pressure of 40 to 60 p.s.i. for anywhere from 6 to 24 hours. This force drives any remaining whey out of the cheese.

After leaving the press, the hoops are removed and the wheels of Cheddar are placed on shelves or on stainless steel drying carts for 24-48 hours to allow their surface to dry. The wheels are then lowered into a vat of hot pliable wax. The bandage impregnated wax cover provides a good protective coating for the cheddar wheel. Blocks are not dipped but are packaged in material such as "cello-foil" wrapper (cellophane and foil laminated together) or are vacuum-packed in polyethylene bags.

CURING - The final step in the Cheddar making process is curing. The cheddar is aged or ripened by placing it in a temperature and moisture controlled storage for anywhere from a couple of months up to 2 years, depending on the degree of sharpness desired. Vigilance is required to assure that the cheese is sold at the peak of flavor before any deterioration sets in.

While mechanization and automation have been incorporated into cheese manufacturing as they have into the production of most every other product, all cheesemaking methods, even those utilizing a continuous process, employ the same basic steps described here.

Cheddar making is an exacting process. But it must be worth it. Americans are eating more and more of it. In fact, in 1979, cheddar made up 75% of the 9.6 pounds of American-type cheese the average person consumed in the U.S. that year. In the single decade from '69 to '79, our national cheese consumption jumped 60%. Recent consumption of natural cheese (1981) has run about 18 pounds per person.

DRIED WHEY

By any of several measures, cheese is our number one manufactured dairy product. For every 10 pounds of cheese we make, we start with 100 pounds of milk. So where did all the rest of that milk go? After all, 100 minus 10 still leaves 90! Well, it went out the bottom of the cheese vat - as a greenish yellow liquid called whey.

Although whey isn't likely to be found on the grocer's shelf or to be purchased for household consumption, it is used as an ingredient in many formulated foods. Dried whey is often used in ice cream, in processed cheese foods and spreads, in the fortification of fluid milk products and in the baking, candy and meat processing industries.

SOME LIKE IT SWEET

Whey is categorized as "acid" or "sweet" depending on the amount of lactic acid in the product as its dried. Whey of relatively low acidity is derived mainly from Cheddar, Swiss and Mozarella cheeses. It's called "sweet-type" whey. Whey derived from cottage cheese has a high acidity and is called "acid-type" whey. Some Italian-type cheeses yield whey with an acidity between the two extremes.

Although some whey is condensed and sold, drying it into a powder is the most common processing method today and is the process we will describe here. Increasing prices for dried skim milk have improved the relative marketing position of dry whey. Additionally, dried whey by-products, such as delactosed, demineralized or deproteinated whey, are also on the market, as is lactose derived from whey.

THE FIRST STEPS

Often whey is dried at the cheese plant where it was produced; but sometimes it's sent on to a specialized drying plant. In either case, the whey handling process begins at the cheese plant. As the whey is drained from the cheese vat, it passes through a "fines saver" to save any small particles of curd that might drain out with the whey. It's then sent through a fat separator to collect any butterfat that didn't go into the cheese. (This whey cream can be churned to produce whey butter).

So we've taken out the curd, we've taken out the fat. Now we have to take out the water. We do that by evaporation. Incoming whey has a solids content of about 6.5% (The liquid whey, in holding or in transit, must be protected from bacterial growth by either heating or refrigeration).

FROM WET TO DRY

Commercial whey drying involves several steps. The incoming whey (6.5% solids) is often passed through a primary evaporator which removes enough water to bump its solids content up to 40 - 42%. This solution is then sent on to a secondary or "finishing" evaporator which produces a condensed whey that runs about 52-53% solids.

Next this high solid solution is pumped into a crystallization vat where it's held for about 8 hours to permit its lactose to crystalize. Crystallization produces a non-hygroscopic product, so called because it won't absorb water. After crystallization, the whey concentrate is sprayed into a dryer to remove its remaining moisture (down to about 5%).

To effect drying, the whey concentrate is atomized as it's sprayed into the top of an inverted conical dryer. Heated air moving past the falling whey particles suck out their moisture. The dried particles fall to the bottom of the dryer and are conveyed by jets of air to the powder-bagging room. Any very fine particles that may separate out from the air exhaust are pumped back and blown in at the top of the dryer where they adhere to other particles. Saving these fine particles not only increases total yield, but also gives the whey powder some instantizing ability.

COTTAGE CHEESE

Its been called the food of a thousand uses. If you wonder why, just thumb through the pages of the next homemakers magazine you come across. Look at the pictures, check out the menu suggestions. Dimes to donuts, I'll bet you'll find cottage cheese there - used in any of a thousand ways - perhaps combined with all kinds of fruits and vegetables in refreshing salads that can be either main dishes or desserts. In an age of diet consciousness, here's a dairy product that's a dieter's delight - easy to fix, tasty, nutritious, readily digested, high in protein, but surprisingly low in calories. Maybe that's why cottage cheese consumption has risen substantially in the United States since the end of World War II.

Cottage cheese, occasionally called pot cheese or Dutch cheese, is a soft uncured cheese made from skim milk (or from reconstituted nonfat dry milk solids). It contains about 20% milk solids.

In olden times, cottage cheese was most often made by farmers (which included almost everybody in those days) and in fact, takes its name from the simple cottages in which they lived. The milk was heated in large pots which lent their name to cottage cheese's slightly drier and more acidic cousin, farmer's or pot cheese.

SIZING IT UP

Two types of cottage cheese can usually be found in the supermarket dairy cooler - large-curd and small-curd. The more popular large-curd type is made by adding rennet to skim milk, cutting the curds into large cubes and washing the curd thoroughly to reduce its acid flavor. The rennet speeds curdling, keeps the curd from breaking up easily, and shortens the cheese-making process. Because these large particles of curd resemble kernels of popped corn, in some parts of the country this type of cottage cheese is occasionally called popcorn cheese.

Small-curd cottage cheese is also called country-style or farm style cheese. This is a more acid product. Small-curd cottage cheese is especially good for salads since it holds its shape so well. Although the method of making small-curd differs from that of large-curd, to some extent, it's the size of the curd knives that determines the size of curds which result. For fine curd, ¼ inch knives are usually used.

PASS THE CREAM, PLEASE

Usually some cream is mixed with the cheese curd before its marketed to give it additional moisture and flavor. (It also gives it more calories). Federal labeling standards say to be called creamed cottage cheese, a product must contain 4 percent or more of butterfat. Flavoring materials such as pimentos, peppers, or olives are also often added before marketing.

Cottage cheese can be made in the home as well as the factory. In home production, about 1 pound of cheese can be made from 1 gallon of skim milk; at the plant 12 to 15 pounds of curd is obtained from 100 pounds of milk. "Creaming" it moves those yield figures up, with 14 to 18 pounds of creamed cottage cheese the result.

THE LONG AND SHORT OF IT

Cottage cheese is made by both "short-setting" and "long-setting" techniques, depending on the amount of lactic acid used, the temperature levels involved and the coagulation time allowed. In both methods, milk is pasteurized and cooled to the setting temperature. Lactic starter is added; rennet may be added; and the milk is held at the setting temperature until it curdles.

The curd is ready to cut when it's firm but not hard or brittle. It's cut into cubes and the curd is then heated, with careful stirring. The temperature to which the curd is heated and the length of the heating period depend on the characteristics of the curd and the acidity of the whey. When the curd has attained the proper firmness, the whey is drained off and the curd washed, first with cool tap water, then with ice water. The water is drained off and when the curd is firm and dry, it's salted.

COTTAGE IS DIFFERENT

From both a production and a marketing standpoint, cottage cheese differs substantially from most "hard" manufactured dairy products. For that matter, it's quite unlike most soft products too. In many ways it most resembles fluid milk. In comparison to cured cheeses, it is quite perishable, and from a marketing standpoint is produced only as the market can absorb it. Cottage cheese production is closely related to sales, not only because of its relatively short shelf life, but also because of the small number of wholesale outlets for the product. It cannot be used, as can butter or cheese, on "the balancing wheel". The product is not suitable as a means of absorbing irregular, seasonal or weekend supplies. In fact, just the opposite! A firm specializing in cottage cheese usually needs to find an outlet for extra skim milk.

Because of both its bulk and its perishability, most cottage cheese is manufactured, as most fluid milk is processed, in plants which are regional in nature. In fact, the majority of cottage cheese production takes place in fluid milk plants. Not surprisingly, most U.S. cottage cheese is made from milk, the cost of which to the manufacturer who made it, was established by a federal milk order.

GEOGRAPHY AND ECONOMICS

Although cottage cheese sales have risen substantially in the last 40 years, wide variations in use exist both geographically and between different income and socioeconomic groups. For example, a

USDA study indicated a 1% increase in cottage cheese consumption for each 10% increase in consumer income.

New York is the nation's leading cottage cheese producing state (it also leads in the production of its first cousin - cream cheese, another uncured, unripened cheese.

YOGURT

Name your flavor! Chances are it will be strawberry, raspberry or blueberry. At least these have proven to be the three top sellers in the flavored yogurt line. But it might be any one of a countless number of more exotic flavors on the market today - like banana, strawberry, peach melba or spiced apple. At any rate, here's a product that's come a good way from that time way back in ancient history when some brave soul first ventured a taste of the curds which developed in goats milk after it had been stored warm in some gourds.

That "brave soul" found its tart taste pleasing, and thus yogurt was born! The new product was to become an important part of the diet of Southeastern Asia tribes. Today it's merits have been widely recognized and it now contributes to the dietary well-being of people in every corner of the globe.

ITS GOOD FOR YOU

In Armenia, they call it matzoon; in Iraq, roba; in Saudi Arabia, laben raib. Whatever they call it...it's an excellent source of calcium, phosphorous, protein and vitamins and is a superb cooking ingredient. It owes its unique flavor and its nutritional properties to the fermentation of the lactic acid in the milk. In many parts of the world, sheep, goat, camel and yak milk yogurt are highly prized.

YOGURT IS IN

Although yogurt production accounts for but a small part of total Class II use in the U.S., the product has made giant strides, considering it was not produced commercially in this country until the 1940s (in Massachusetts). As must be the case in the production of all dairy products, the yogurt production process is interlaced with strict quality control tests of ingredient and finished product quality, flavor, bacteria counts and weights. That process begins when the fresh milk is received at the plant and is tested for milk solids and fat content, bacterial count and antibiotics.

If the milk is acceptable, the yogurt production process begins. Before it's completed, the milk will have been standardized to 3.5% butterfat, its solids content increased, it will have been pasteurized, then superheated; flavors, fruits and sugar, if any, will be added, and it will be cooled, innoculated, packaged, incubated and cooled again.

FROM MILK TO YOGURT

Let's follow a shipment of milk as it flows along the production line, to end up in a cup or a pint or a quart container as yogurt. After testing the newly received milk, a yogurt maker first standardizes it to approximately 3.5% butterfat, then fortifies it with nonfat dry milk solids up to about a 15-16% solids content. The milk is then homogenized, pasteurized and superheated at 190°F for 10 minutes.

Unless plain yogurt is desired, the milk is pumped into vats and any flavorings and sugar are added to the product at this point. The mixture is then cooled to 120°F and held in the vats at that temperature for up to 15 minutes. The yogurt maker then carefully innoculates the warm milk with two strains of active bacteria culture. After innoculation, the mix is quickly pumped into the mechanical filling machines which automatically fill and cap the containers of yogurt. A fruit base is added, when desired, by the same machine.

After packaging, the product is moved to an incubation room (held at a toasty 110-120°F and a not too moist 30-35% humidity). Two and a half to three hours in there and the yogurt will "set" to its familiar consistency. After setting, the yogurt is moved to the refrigerator room where it must stay for at least 12 hours.

The fermentation which occurred in the production process gives yogurt its keeping quality. Most yogurt enjoys a three week shelf life. If preservatives are added and the product refrigerated below 40°F, shelf life is extended to 30 to 60 days.

CHAPTER VIII. CHANGES IN MARKETS AND MARKETING

PART I - "ASSEMBLY"

OUR ASSEMBLY "LINE"

More than a half century ago, a young inventor and mechanic shook the very foundations of the industrial world by introducing a revolutionary new concept he called "an assembly line." as Henry Ford's Model T's came rolling by the thousands from his assembly line (they came in every color as long as it was black), it signaled the start of a new age. America had begun its love affair with the motorcar.

In some ways our milk assembly system is almost as unique to the market place as Henry Ford's assembly line was to the factory. The same components are involved - roads, trucks, refrigeration - as are involved with many other products. But because milk is perishable, because it's produced daily and is also used daily, its assembly system is peculiarly its own.

Our pattern of milk assembly has been a constantly evolving one. In earlier days, the pattern was shaped by, and limited to, the range of horse and wagon hauling. Later patterns followed the rail lines feeding out from big-city markets. As trucks took over and roads improved, the pattern changed again. The new configuration permitted dairymen to choose from a far wider choice of outlets, while milk buyers, no longer tied to the path of the railroads, could select from a much larger number of producers. As a result, many country plants which served only as collection points for transshipment of milk to city buyers, closed down.

BULK TANKS BRING CHANGE

The advent of the farm bulk tank signaled still another era in milk assembly and brought further shrinkage in the number of country receiving stations.

The rate of changeover from cans to bulk tank was influenced by the number and ownership of country plants. Some dealers were reluctant to liquidate country plants in which they had large investments. Other milk buyers encouraged the shift to bulk, many times subsidizing it by paying premiums to dairymen.

Now that the shift to bulk is essentially complete, have we finally arrived at a pattern that will last, one that will be with us for years to come?

Not likely, because evolution never stops. In fact, in just the past couple of years, we've experienced some major changes in the structure of milk assembly in Order 2. In that short time, we've moved from having a very small proportion of milk direct-hauled to city markets to a much larger proportion. Reload stations, where milk is transferred from farm-tankers to over-the-road tankers, have closed up all over the place. Big semi's, tankers holding as much as 6,000 gallons, are picking up milk right at the milkhouse and delivering it directly to New York City.

Still other milk is now pumped directly from farm tankers into over-the-road tankers. All this eliminates the need for many handling facilities. Just a few years ago there were several reload plants within 100 miles of New York City. Now there are only a few in the whole milkshed. Some processing plants now do double duty - reloading as well as bottling and manufacturing.

IMPLICATIONS FOR DAIRYMEN

This change in our assembly pattern and the economics that brought it about should not be ignored by a dairyman, because it directly affects him.

Let's look at some of the implications. To begin with, bigger trucks mean heavier loads. Heavier loads require better roads, better bridges, and better driveways too. Will all milk move from farms in big tankers a few years hence? If so, does your farm fit into this assembly pattern?

Any truck costs more nowadays, but the big ones cost a bundle. So their owners like to run them more hours per day to cut their fixed costs per hours. It's hard to justify an investment of $100,000 for a 6,000-gallon tanker if you're only going to use it 8 hours a day. So it's probable that in the future your milk may be picked up at any hour, nighttime as well as daytime.

Scheduling of farm milk pickups will become tighter. Trucks arrive closer to

milking times. Keeping a big tanker waiting until milking is finished costs somebody more than it did when the milk was collected in a smaller farm bulk-milk truck.

Scheduling pickups closer to milking hours, even interrupting milking to unload the farm tank, has some quality implications, too. That milk may not have had a chance to cool down to the required 45 degrees or less. This didn't matter quite as much when the milk was picked up by farm tankers traveling relatively short distances to upstate plants where the milk was immediately recooled. But when it's loaded into an over-the-road tanker, additional cooling may be 200 or more miles away.

FUTURE SHOCK

The future may bring even more striking changes in milk assembly, changes in both its structure and its operation. In recent years many of the big commercial trucking outfits have backed out of the milk hauling business. After pumping out their load in the city, milk tankers have to deadhead back up-country, no two-way hauls. No two-way payloads. In recent times other alternatives have appeared more attractive to some of the big truckers. As their milk tankers wore out, they did not buy more. "Gypsies," nonunion independents who can operate their trucks more hours and at lower costs, have been replacing them. This may not be so bad; at least its net effect has been to moderate increasing hauling costs.

Order 2 has more competing components in its assembly system than exist in most other market order areas. In some markets, a majority of milk is assembled by a single unit, usually the cooperative. In fact, in most markets, that's one of the principal functions of a co-op - to coordinate the milk assembly system. In contrast, Order 2 has nearly 100 handlers, approximately 25% of which are co-ops, buying milk from individual farmers and involved in its assembly system.

How much overlap could be avoided, how much efficiency could be gained if all milk was assembled by one unit?

CHAPTER VIII. CHANGES IN MARKETS AND MARKETING

PART II - "CHANGING PRODUCT USE"

CHANGING PRODUCT USE

When Satchel Paige, the renown baseball player, still actively participating in the game at the half-century mark, was queried as to how he had been able to maintain his considerable pitching skills at such an advanced age, he responded with this philosophy, "Never look back; someone may be gaining on you."

Though we may not at all times agree with Satchel's advice, it does have merit for those of us in the milk business. Though looking backward at "what will be." It may be better for us to look at "what is" and then scan the horizon to see what may emerge.

All kinds of things produce change, and many kinds of change can start a trend. New technology, new information, new attitudes, new conditions, like pebbles in a pool, ripple through our economy, bringing waves, large or small, to everything they reach. So let's take a look at one new thing in the dairy business and try to figure how big a wave it may produce.

FAT CONSCIOUS CONSUMERS

That "new thing" is the changing pattern of product use. In the marketplace, the seller who hopes to stay in the business of selling, had better provide what the buyer wants.

A dairyman, whether he recognizes it or not, is selling, not to just a single party, but to millions upon millions of different parties. What he is able to sell is no more than the sum of the collective choices of all those different buyers. Its a wise seller who recognizes that those choices are influenced by many things - not just obvious kinds of things like advertising or price or alternative products for sale, but also by fads and fashions, by cultural changes and social trends.

Dairymen need to be alert to those influences and their implications. Sometimes they have been! They quickly recognized for example, that consumers were becoming fat conscious. That they were buying less whole milk and low-fat milk. They noted that Class I sales in Order 2 were slipping a bit.

But did they look at these changes close enough? Did they break the surface to see what lay below? Did they look beyond Class I sales to study what's been happening with Class II milk that goes into manufactured products?

If they did, they would have found that here in New York over the past few years we've been manufacturing dairy products at record-breaking rates. Class II use has been climbing briskly upward.

Is this only a by-product of the sharply increased production we've experienced? Or of the weakness in our Class I sales? Obviously, any milk produced in excess of Class I requirements has to go into Class II and be turned into some less perishable product, something that can be stored awhile, like butter and powder or hard cheese. After all, that's what "balancing" is all about!

But is that what's really going on? Let's take a closer look. Where's the Class II milk in this market really going? Check with the people who tally the numbers and they can tell you where it's going. It's going into cheese! Sure, some of the increase has been in hard cheese, but the biggest jump has come in the production of soft cheeses.

In the last decade ('71-'81) the production of New York State Cheddar shot up 38%. but what really ran wild was New York production of Italian and other soft cheeses, climbing 120% and 250% respectively. And we looked at the figures for the last 3 or 4 years, a period during which some new soft cheese plants opened in New York State, the figures might be even more dramatic. That's where a lot of our Class II milk has been going!

Low-fat cottage cheese also became a big favorite. From 1971 to 1981, New Yorkers increased their use of this product by 162%. (For reasons, some of them conjectural, New York and other parts of the Northeast are much stronger users of both cottage cheese and sour cream than is the rest of the country).

How about other Class II products? During the same time span, the production of canned milk and nonfat dry milk in New York State slipped a bit, while butter and ice cream production were lucky to hold their own.

So what? What difference does it make what Class II products we make as long as we can market that Class II? Why do we care what the consumer buys or what we manufacture?

Well, we should care. Today we are using a much greater amount of our Class II milk for perishable and semi-perishable products. The marketing of these "soft" or "hard" products. The way we utilize our Class II milk, the products we manufacture, also has implications for dairymen.

WHY US?

But first, why has this change occurred? Most likely it's part of a trend, one brought about by changing cultural patterns and changing social conditions. Yogurt, sour cream, cottage cheese are "in". Cheeseburgers, pizza, cheese casseroles, cheese party dips, are all "in."

But isn't this trend countrywide? Sure! All over America we're eating more of the products mentioned. So that's only part of the answer. The other reason we in Order 2 are using so much of our Class II milk to make these products is because we have a lot of specialized manufacturing plants located here that can make them. They're here because we also have a lot of Class II milk here.

These plants are modern, efficient, and competitive. They are market-oriented. They buy more only when and if they can sell more. They're not in the business of producing for storage. (In other market order areas, more of the Class II milk is processed in city processing plants rather than in specialized plants.)

In contrast to our special product plants, our Order 2 butter-powder plants are not as competitive as those of Minnesota and Wisconsin (with exceptions, of course). They could be, but many of them are highly seasonal operations, producing 10 times as much in the flush as in the short season. It's hard to be competitive in the butter-powder business (and compete with plants in other orders). Unless we can avoid that seasonal variation. (It's like buying a 10-ton truck when most of the time all we need is a wheelbarrow.) And because most of our butter-powder plants are not profitable, we haven't kept any more of them around than we had to.

CHANGE IN CLASS II USE

We in Order 2 have changed the way we use our Class II milk, moving it out of butter-powder and into "soft" products and cheese. A higher part of our Class II milk is now being used for products that are almost totally market oriented, that in the long run will be purchased by handlers only in relation to handlers' product sales. (In the short run, during "the flush," when their "raw material" is less expensive, handlers may build up their inventory considerably. In doing so, they help balance the market.)

Milk purchased for perishable product manufacturing is much like milk purchased for fluid use. Its storage period is short, and consumption doesn't vary markedly in the short run. With around 40% of our milk going into fluid use and 90% of the balance going to these other market-oriented products, we end up with an industry that is selling products, 95% of which are market-oriented. Only 5% of our total milk supply is now in butter-powder.

This is different from what it was back before we were making so much yogurt, cottage cheese, sour cream, and cheddar. Our sales of cream cheese and Neufchatel (a soft, high-moisture cheese of French origin) nearly doubled in just the last 10 years.

Such a trend makes one wonder how a sudden glut of extra milk would be handled in a market like ours. It also makes you hope that the changing whims of the American consumer don't suddenly shift away from the newfound favorites.

CHAPTER VIII. CHANGES IN MARKETS AND MARKETING

PART III - "A FUTURE LOOK"

A LOOK FORWARD

Get in on a growth industry! That's good advice for anyone starting a business or investing in the future of one already established. In our lifetime we've witnessed some real growth industries develop, computers and electronics, for instance. In that same period other industries stabilized, and some declined. Which way is the dairy industry going?

Probably most analysts would classify the dairy industry as "a mature industry with a relatively stable demand." But within that framework of stability, dramatic changes have occurred and are now occurring, with others yet to come.

For instance, milk used to make cheese has doubled in the last 16 years because of all those cheeseburgers and pizzas the kids are eating and all those cottage cheese lunches weight-conscious Americans fancy. Among those dairy products that have become "in" foods, that have found special favor with health-conscious Americans, yogurt deserves special mention.

CHANGING USE

But during our lifetime, we've also seen sales of other dairy products slip. We've watched the substitution of margarine for butter. Opponents of the margarine fought the good fight, but lost it anyway.

Low-fat milk replaced regular milk on many American tables. In fact, with all the substitutions of low-fat for high-fat products, some now argue that we should use both butterfat and nonfat solids (protein) to measure our sales.

However it is measured, what's important - the bottom line - is that over the long haul we've increased sales of total dairy products. But this increase has been sustained by an increasing population, not by any ability to sell more to each person. We've sold more of certain dairy products, mostly low-fat items and cheeses. But it's the 63 million people who have been added to our population, not any increase in per capita sales, that has bailed out our industry. In the last quarter century, while per capita consumption dropped 25%, our total market increased 22%.

So, the burning question for the future is whether population growth will continue and whether it can offset any further decline in per capita consumption. The U.S. birth rate has dropped from a postwar high of 27 births per 1,000 population to a current rate of only 14.8 per 1,000.

POPULATION CHANGES

Population changes affect our milk market in two ways. First, of course, is the total number of people available to drink milk or to eat ice cream. Equally important is the changing age distribution of that number. With a stagnant birth rate, the part of our population that is young declines. And the young are the backbone of the fluid milk market. The older we get the less milk we drink. (A shifting age distribution impacts on others besides the dairy industry. Just ask college admissions officers or Social Security administrators.)

On the positive side, if today's young families decide to have three children, instead of the two that they have been having, our birth rate and total number of births could rise dramatically, because all those children born in the post-war "baby boom" are now in their prime childbearing years.

Analysts who issue stock reports on industries try to look across the entire spectrum of things that might impact on the health of that industry. Our population and food preferences (demand) are only a small part of that spectrum. We also need to look at the supply and the system that moves that supply to market.

THE FUTURE SUPPLY

Let's take supply first. The number of dairy farms in this country has decreased dramatically. In the last 25 years we've dropped from 602,000 dairy farms to 300,000 farms. However, during the same period we've doubled both individual herd size and production per cow. And with a national average of only 12,316 pounds of milk per cow, we've still a ways to go.

Dairymen have had front row seats for witnessing the change that has occurred in milk production. In fact, they've been right in the middle of the game. But sometimes they fail to appreciate the extent to which the rest of the milk marketing system has also undergone change. Dairy co-ops, for example, have dropped from more than 2,000 in 1950 to only 631 in 1975. (During that period, however, they increased the total amount of milk they marketed.)

Like farms, firms that are "in the milk business" are fewer and larger. If you read the papers, you know that some big names in business have dropped out. In fact, during the last 30 years, the number of fluid processing plants has dropped from 8,200 to 1,100. It's tough for a fluid plant to stay competitive today if it doesn't process a pretty good volume. In fact, processing cost per quart is sliced in half in the larger plants. Here in the Northeast, 15 to 20 million pounds of milk per month seems to be about the minimum for achieving good economy of scale.

NUMBERS DOWN, SIZE UP

Those fluid plants that remain, particularly here in the Northeast, represent the survival of the fittest. They are aggressive, well-managed, and competitive. In upstate New York just 8 firms account for 60 percent of all the fluid milk processed. Ten plants in New York City process most of the milk there. And, unless the anti-trust people object, this trend hasn't ended yet.

Other kinds of dairy product plants have followed suit. Butter sales have dropped, of course, but butter plants have dropped out even faster. Today we have only a third the number of butter plants we had 10 years ago. Cheese plants are fewer, but fortunately they're a lot bigger. .(In the past decade, total cheese production increased one-third. Here in the Northeast, it doubled. We make really good cheese!)

Change has occurred all through the marketing chain. Changes occurring at the point of purchase are equal to any of those back up the line. Would you believe that today one-fifth of all the fluid milk in this country is processed by food chains? And even if they don't process their own, supermarkets are still buyers who can "wag the dog," because they control the shelf space and they set the prices. They often use their own private labels. Quite a contrast to the days when milk was home delivered.

CHANGE IN COSTS

We've looked at some trends occurring in the marketing chain. Trend is kind of a harmless sounding word. So let's talk cost. Cost is the kind of word that can get your attention. As costs for trucks, labor, and fuel continue to climb, transportation costs become more important than ever. Transportation costs have been particularly burdensome to those co-ops here in New York who took responsibility for the cost of hauling their members' milk.

Intermarket transportation differentials, which were established 10 years ago, also no longer reflect current costs.

Transportation is but a single cost, albeit a most important one in a fuel-short world. All costs will increase in years to come - we take that for granted. But what we have to watch is the changing relationship between costs. Who would have believed a few years ago that what happened in Saudi Arabia would affect the price of milk in New York?

If a security analyst had studied this business as we have done, he might be ready to issue an analysis. Here is how it might read:

Whole milk and fat consumption per person is trending downward. Low-fat items and cheeses will continue to increase. Food stores will capture most of the fluid milk sales, use more private labels, and do more of their own processing. Total numbers of processors will decrease. Health and legal restrictions to the flow of bulk and packaged milk from region to region will decrease, and greater movement will occur. Higher labor and utility costs may force processors out of New York City. Federal orders will continue to consolidate and may drop to only 35 by 1995. Co-ops, though plagued currently by financial difficulties, will continue as an important segment of the marketing system. They will decline in number, but increase in size. Dairy farms will do likewise.

Tell me, would you buy some stock in this industry?

CHAPTER IX. IMPROVING THE MARKETABILITY OF YOUR MILK

PRICE VS. COST

How much do you get for your milk? Not enough, I'll bet you'll answer.

How much does your neighbor get for his milk? The same price you get? How come? Is his milk worth exactly the same as yours?

Or put the question another way. Can a milk buyer afford to pay the same for your milk as for your neighbor's? Is every dairyman's milk worth the same amount? Or can a dealer buy some milk "cheaper" than other milk?

Both dealers and dairymen, buyers and sellers, know that dealers don't have any choice as to how much they pay. Federal market orders establish minimum prices, which must be paid for all milk. And when there's plenty of milk around, dealers know that they're not likely to have to pay, and dairymen know that they're not likely to receive, any premium above that minimum.

So all milk's worth the same. Right? Wrong. All milk's not worth the same. Some milk is "a better buy" than other milk. We have to recognize that sometimes there's a difference between "price" and "cost". And since there's nothing in the market order "reg's" that says dealers have to buy anybody's milk (only that if they do buy it, they have to pay the minimum price), isn't it to be expected that milk buyers should try to buy milk where they can get it at the lowest cost? That's just good business. You do the same thing on your farm - you try to get the best return for every dollar you spend.

COST CONSIDERATIONS

What are some of the things that can make one dairyman's milk a better buy than another dairyman's?

1. Volume

More milk per pickup means lower pickup cost. The lower its pickup cost the "better buy" the milk becomes. Sure, it takes a little longer to pump 10,000 pounds than it does to pump 1,000. But that little bit of difference in pumping time is small. All other chores are the same. Large or small, it costs about the same to agitate, to sample, to connect, to disconnect. These costs are "fixed".

Stop charges compensate for part of these costs. The greatest variable of all, however, is that it takes 10 times as many stops to pick up the same amount of milk. More stops means more miles to drive, more hours of labor, more wages to pay, more checks to write, more tests to be made, more records to keep, more farms for the sanitarian to visit. And when large volume stops permit a farm tanker to pick up two loads per day instead of one, the fixed costs of running that tanker are cut in half.

2. Location of Farm

A preferred location is on a good road near other high-volume producers. Less accessible farms, those on poor or unpaved roads with steep or difficult hills, isolated from other producers, are apt to mean higher cost milk.

3. Quality of Milk

Every milk buyer wants to put out the best product he can. Buyers are in a tough competitive business. Nor can they afford to keep sending their field inspectors back to a farm to ensure that they get that top product - milk with minimum bacteria counts, low sediment tests, low leucocyte readings, no off-flavors; milk that's absolutely free of antibiotics and is produced on farms with no problem making a high IMS rating. Poor quality producers are producers of higher cost milk. And when milk's plentiful (as it is now), who needs that kind of milk?

A little bit of antibiotic can raise havoc with a tankload (or a silo) of milk. It can kill the bacteria and destroy the fermentation that turns milk into cheese. When milk is "concentrated," (as in milk powder manufacturing), antibiotics are also "concentrated," and the end product may be rejected. No milk buyer can afford that.

Nor can they afford to lose their IMS (Interstate Milk Shippers) rating. They have too much riding on it.

IMS ratings are published several times a year. this publication lists dealers in this country who have rated supplies, in other words, who have IMS's "seal of approval". If a dealer's name is not in the book, it means he hasn't made the rating, and it means he's become ineligible for some markets, markets that he may not be able to replace even at a lower price. So dairy farms that don't score 90 are considered by dealers as sources of high cost milk. What dealer needs the hassle of trying to shape up producers who consistently pull down his rating? He can buy his milk at less cost from high-scoring farmers.

4. Convenience

Time is money and always has been. But it seems to be getting more so all the time. A milkhouse at the end of a long or tortuous driveway, difficult of access, requiring the maneuvering skill of a Richard Petty, may take more time (wages aren't getting any lower) than a dealer considers justified. And a soft-bottom driveway that hangs up a tanker for a couple of hours may convince the dealer that milk from that farm costs altogether too much.

5. Seasonality

Every dealer would like a producer who makes the most milk when milk is short and the least when milk is plentiful. In the best of all worlds, a dealer would ask for a uniform year-round supply. The closer dealers can tailor supply to needs, the lower will be their cost. A producer whose seasonal pattern is such that it fits into the pattern of the dealers' needs will be an attractive source of milk and a lower cost one, too.

6. Composition of Milk

Not all milk's the same. Different lots of milk contain varying amounts of butterfat and varying amounts of solids other than fat, namely, protein and minerals. You've probably heard mention of component pricing. Many milk buyers, whose in the manufacturing business, have more than a passing interest in the components of the milk they buy, because its composition affects their profit and loss. They are interested in product yields, how many pounds of salable products (like cheese) they can get out of water, they're not interested in buying any of that.) They can afford to pay more for milk that yields more. (Did you know that 100 pounds of Wisconsin-Minnesota milk will produce a greater yield of cheddar than an equal amount of New York milk? All the reasons for this higher product yield are not totally understood but are being studied. Fortunately, New York cheddar is good "goods" and commands a price premium, which compensates for the difference in yield.)

7. Area

The area where a farm is located affects the value of the milk it produces. If your dairy is located in an area where there's not other dairy farms, who's going to have the facilities to handle your milk? Or if you're located in a one-outlet area, your milk had better conform to what that outlet wants. If you're in an area where all the milk is picked up by one hauler, you'd better be selling to an outlet where that hauler hauls.

8. The Absence of "Hassle"

Do you buy your farm supplies or equipment from someone who's hard to deal with, who's uncooperative, who just loves to give you a hard time? I doubt it. You buy from a supplier who's friendly, cooperative, helpful, who tries to understand your problems, and, if he can't help solve them, at least tries to not make them any worse. Milk buyers are a lot like you. Their problems may be different, but you can bet they have some. And dimes to donuts, I'll bet they appreciate the guy who doesn't make any any worse. One way or another, they'll end up believing that such a dairyman supplies "less expensive" milk. And undoubtedly they'll be right.

SOME MILK WORTH MORE

So how about it? Is your milk, which is priced the same as your neighbors, worth just the same, is it worth more, or is it worth less? Is your milk "a good buy" or is it expensive?

Like it or not, as far as a buyer is concerned, some producers are more desirable than others. Some milk is worth more than other milk. The criteria we've just discussed make it so. On the basis of those criteria, some dairymen have lost

their markets. Others may lose markets in the future.

Sure, other things can cause loss of a market outlet. When a dealer loses some of his outlets, chances are good that some of his producers will lose theirs. And sometimes dealers go under.

But these are conditions beyond your control. But many of the others are not! So occasionally ask yourself, am I a desirable producer? Is my milk low-cost milk? If not, how can I help make it so?

QUALITY COUNTS

Everyone likes quality products. Nobody likes shoddy goods. Any manufacturer or merchandiser stresses the quality of the product sold because consumers are interested in quality, and, if the quality of the product is really good, repeat sales are more frequent.

It's certainly no different with milk. The higher the quality of milk, the more will be sold. Quality assurance is a vital key in successful milk marketing.

There's no middle ground with milk. It either tastes good or it doesn't. Sell some milk that's sour or rancid or off-flavor, and chances are, you'll end up kissing that customer goodbye.

Certainly not all quality breakdowns occur on the farm. They can happen at any point between you and the consumer - in the bottling plant, on the truck, in the store, at the school.

But everything starts at the farm. If we're going to sell a good product, a quality product, it has to begin with you. Milk can never be improved after it leaves your farm. The best that can be hoped for is to maintain the milk as good as you produced it.

MILK REGULATION

In earlier days, quality, as far as milk was concerned, was simply a question of preventing the transmission of disease-producing organisms. That's why, very early in the game, local, state and federal governments began surveillance of sanitary conditions in the milk industry. In fact, way back in 1856, the state of Massachusetts passed a law concerning the sale of adulterated milk. Congress got into the act in 1893 with legislation designed to help prevent communicable diseases. New York City developed a set of milk regulations in 1896. The result of this vigilance has been a continued decline in the occurrence of milk-borne diseases. In fact, there has been no known case of pasteurized milk-borne diseases of any consequence for years.

Despite this, the dairy industry has tended to rely in great part on bacteria counts, sediment tests and environment inspections to measure quality. Consumers, on the other hand, aren't at all concerned about these. They're already satisfied that the milk they buy is safe. Their only concerns are: How does the milk taste? How long will it keep?

A while back a Cornell food scientist checked the milk and milk drinking habits of children in over 1,000 New York schools. When milk tasted good, 90% of the kids drank it. When it was off-flavor, only 60% of them did. Nutritional considerations aside, that 30% loss adds up to a whale of a lot of milk not going to market.

TRADE-OFFS INVOLVED

It seems somewhat incongruous that in an era when we're making great strides in our cooling and milk handling equipment, we may in fact be falling backward in meeting the consumer's definition of quality. What's happening is that we have ended up trading one problem for another. Rapid cooling, closed systems, pipelines and bulk tanks have given us lower bacteria counts. But the mechanical handling of the milk has resulted in milk much more likely to become rancid. By one estimate, nearly 50% of all the milk in New York City had a rancid taste.

A rancid flavor is characterized by a sharp, unclean, astringent taste that lingers in the mouth after the milk is drunk. It's caused primarily by the breakdown of the membranes that surround the fat globules in milk. Mechanical handling of the raw milk is the single most important factor in breaking apart these membranes. Pasteurization will halt it but can't eliminate off-flavor already there.

AGITATION A PROBLEM

Any time milk is excessively agitated, it's ripe for rancidity. High-level

pipelines, lines with obstruction or risers in them, lines with improper slopes, air leaks that occur in a line or in its valves or inlet ports, "milk-starved" centrifugal pumps, over-agitation in the tank, all these contribute to the problem.

The problem is certainly not limited to the farm. Milk sloshing back and forth in a pickup tanker, pump-overs that occur in the assembly process, excessive agitation in plant pipelines or equipment, delayed pasteurization, these too are culprits.

Another trade-off we picked up with our highly efficient, modern milking systems involves the complexity of keeping them clean. Often the more sophisticated the system, the harder the job. CIP (Clean in Place) systems have taken away the daily drudgery of cleaning, but they've introduced some other problems. Much of this CIP equipment can't be completely cleaned in place. Pumps and gasketed lines need periodic cleaning. How often? It depends on the conditions, the water quality, and the cleaners. Perhaps twice a year is enough. Maybe once a week is needed. But whatever, we know that some systems have never been apart since installation.

LONG SHELF LIFE NEEDED

No longer can we expect milk to be consumed the same week it's produced. Most dairies are looking for a 14-day shelf life. Some say they need 21 days under today's marketing conditions. At any rate, shelf life that was OK in the past is not OK today. It follows then that bacteria counts that were acceptable in the past are also not good enough today. With the quick cooling we have nowadays, there's no reason anyone can't produce raw milk with a plate count of less than 10,000; yet many aren't. Some farms without CIP are washing their utensils only once a day, trying to slip by with just a rinse between. Many of the high counts that occur can be traced to practices like this.

There's a trade-off with bulk cooling, too. Certainly, it's a great advancement, head and shoulders above our old can cooling. But it's encouraged a whole new type of bacteria, some cold-loving "critters". They are now able to grow because others, the warm-loving kind, aren't around to compete with them. Unfortunately, where it took several million of "the warm ones" to produce an off-flavor in milk, just a few thousand of "the cold ones" can do that dirty deed. It could be that we'll have to develop a whole new set of bacterial standards.

Still other quality problems cry for attention. Problems that occur when milk from mastitis-treated cows is not excluded for a sufficient time should be obvious to all. But obvious or not, it still occurs. And sometimes cleaning residues in wash water become incorporated in the milk supply. Improperly installed or improperly maintained pipelines may be part of the reason. CIP systems that do not completely rid themselves of cleaning and sanitizing solutions don't help, either.

IF NOT, WHY NOT?

Why, when so much is known about milk quality, isn't it better? Perhaps it's because historically there have been few incentives for improving the quality of milk. Every producer has been paid the same, irrespective of the quality of the particular supply. What's more, farm inspection has never really been performance oriented. Sometimes it's even penalized a person who is producing the best product. And during milk short periods, competition for the available supply was such that poor quality milk was seldom excluded. Admittedly, the effect of quality on milk consumption has always been difficult to measure. Many other things, calories, cholesterol, competition from soft drinks, can be used to explain away a 20% decline in per capita fluid milk consumption in 20 years.

QUALITY ASSURANCE

But anyway you slice it, poor quality is bound to be a factor. Its causes are known. Its correction is possible. Quality control is not enough. Quality assurance is what is needed. Otherwise, per capita consumption will continue to slip. We may end up rearing a nation of nonmilk drinkers. And any way you slice it, that's not good milk marketing!

CHAPTER X. OUR U.S. DAIRY INDUSTRY AND WORLD TRADE

OUR U.S. DAIRY INDUSTRY AND WORLD TRADE!

At first glance, the concept of free trade sounds great! You produce what you're able to more efficiently than I, and in turn I'll produce those items I turn out more efficiently than you. Then we'll get together and trade 'em!

Great idea, isn't it? Production of goods will shift to areas where they can be produced more efficiently - and everyone benefits. Right?

Well, it sounds good - but it "taint necessarily so!" For instance, suppose your country becomes totally dependent on me for bread. What's to keep me from raising my price? After all, you've gone out of the business of growing wheat! You've lost the know-how it takes! You don't have the farm equipment to plant or harvest it, or the mills to mill the flour or the bakeries to bake the bread! So when it comes to your daily bread, I've got you over a barrel!

An exaggeration, obviously! But the example does serve to point out that international trade is never quite as simple as it sounds! It is, instead, a highly-complex, multi-faceted set of practices which have impacts and implications not always apparent to the casual viewer.

RULES GOVERN TRADE!

A look at U.S. trade in dairy products may demonstrate why certain "ground rules" that establish and control trading arrangements have developed over time and undoubtedly, in one form or another, will continue to exist. In fact, the first such "ground rule" was authorized by Congress back in the 1790's, when a duty of 4 cents per pound was levied on imported cheese. Perhaps the levy was designed more to raise funds for an infant nation than to protect its fledgling dairy industry. Be that as it may, this piece of legislation was the first of many directed towards establishing the rules by which we engaged with others in trading dairy products.

Currently, the major legislative "ground rule" affecting the importation of dairy products into this country is Section 22 of the Agricultural Adjustment Act (amended 1948). This section directs that our import policies must not jeopardize the operations of our dairy price support program. Stop and think about it - if there were no quotas to limit the amount of dairy products coming into this country, might not our government end up supporting - not only U.S. milk prices - but world dairy product prices?

SURPLUSES CREATE PRESSURES

Milk production has been climbing around the world and in many countries surpluses exist. The continent of Europe is the world's leading milk producer. In fact, her dairy farmers have produced nearly three times as much milk as we do. In the process they account for more than 40 percent of all the milk produced on this planet!

The ten countries that are members of the European Economic Community produce nearly two-thirds of the European total.

Price support incentives in the EEC have been high enough to stimulate milk production far above domestic needs. In fact, Europe has been making much more milk than she uses. Her price support program, which is in good part responsible for the surplus, has cost the EEC about 4 billion dollars a year, an amount equal to about 20 percent of the value of all the milk produced.

Not only here and in Europe, but in most important dairy countries, price supports are used to put a floor under farm milk prices. Often, countries export their surplus dairy products at prices lower than those which prevail domestically. In other words, the exports are subsidized. Australia and New Zealand are exceptions - they have no dairy price supports. Of course they do have a few other things going for them! With pasture-based milk production, with low overhead and low production costs, and with relatively low milk prices, these countries are able to pay heavy transportation costs and still compete even-steven in world markets!

Some countries have paid subsidies directly to their exporters. With this advantage, the exporter may be able to undersell U.S. domestic manufacturers. Our United States Treasury Department is

responsible for guarding against dairy products shipped here under subsidies which permit them to be sold at prices below our own. When and if these direct subsidies are discovered, the President is supposed to impose "countervailing duties" to offset that unfair advantage. Countervailing duties have never been applied, but the threat of their use has often forced the removal of export subsidies!

Without subsidies, few countries (except for New Zealand and Australia) can compete in our U.S. dairy product markets. It should be noted, however, that even if direct subsidies can be prevented indirect subsidies to a country's dairy industry are mighty difficult to identify and almost impossible to quantify!

Oceania (Australia and New Zealand) can compete effectively in most world markets without subsidies. New Zealand, in particular, relies on her exports of dairy products as a source of foreign exchange. Fortunately for us, both of these countries have limited potential for expansion - at least under current price relationships. Expansion would require the abandonment of extensive low-cost milk production based on grass and movement to more intensive, higher cost production based on concentrates! This would change their relative competitive status. So, unless present price relationships change, it's likely that any increase in production Australia and New Zealand experience will be utilized by internal population growth.

EFFECTS OF PRICE SUPPORTS

While our nation is committed to encouraging all kinds of international trade, we cannot - at least during periods when our government is buying butter, nonfat dry milk or American-type cheese at price support levels above world prices for these products - avoid sharp restrictions on imports! These restrictions take the form of quotas, tariffs and duties.

Since only three kinds of dairy products are purchased under our United States price support program, what about other dairy products the U.S. government doesn't support? Should these be subject to import quotas? The answer hinges on the extent to which the product can be substituted for one that is being purchased under the price support program. Can one replace the other?

The same criterion applies when comparing imports of different quality. For example, we have imposed no quotas on certain high quality or unusual cheese products delivered here at prices high enough that they were not competitive with or substitutable for our own. Above an established price the product was exempt from quota! Called "price break" quotas, these were first applied in 1968 to prevent the importation of lower quality products for use in making processed cheese, which in turn displaced outlets for domestically produced Swiss and Swiss-type cheeses.

EVOLUTION

The history of our dairy quota program is replete with change! The items subject to quota, as well as the amounts permitted under each quota, have varied from time to time. The total determined quota is prorated among eligible applicants. Any amounts not utilized by a country cannot be filled by another country. Strangely, when the first quotas were established in the early 40's, they were intended, not so much to shut out imports, as to aid the war effort by limiting imports from countries that were themselves short of dairy products. In those war years, butter and butteroil were the principle items subject to the embargo.

However in 1951, when support purchases jumped, other items came under control - Cheddar, Italian, Edam, Gouda and Blue Mold cheese, for example. In 1953, dried cream, dried whole milk, dried skim milk, dried buttermilk and malted milk came under the gun. In 1957, butteroil, which had earlier been removed from the list, was added back.

EVADING QUOTAS

Those who administer the quota programs (Section 22) have had to guard against evasions. By altering the composition of a product, exporters have been able to evade its legal definition and, in the process, escape its quota limitations. In 1966 for instance, at a time when EEC milk production and surpluses climbed sharply, our dairy product imports also rose significantly. Exporters were sending us a number of products that, while not legally subject to quota, could be substituted for

those that were! These included Colby cheese, which was substituted for Cheddar in the production of processed American cheese. butterfat-sugar mixtures, frozen cream and chocolate crumb, all non-quota, were being imported for use in manufacturing ice cream. As a result the Commodity Credit Corporation ended up buying more and more dairy products under the price support program! So once again, the list of quota items had to be changed.

"New" dairy products are constantly being created - so "new" quotas have had to be established. For instance, a new product identified as "ice cream" entered the United States for the first time in 1970. However it wasn't the kind of ice cream we know and like - the kind we enjoy in ice cream cones. It was instead a product loaded with milk solids, but carrying less than so percent butterfat. Therefore it was not subject to the existing quotas.

In 1979 also, "animal feed" was imported for the first time. This product contained 65 to 90 percent milk solids-not-fat derived from dried casein and dried whey and also included animal fats such as tallow, lard and milkfat. Because of its casein derivation, it was classified as a "chemical" product rather than a dairy product and was not subject to quota. (While casein has been subject to quota for short periods, currently it is not and thus may enter this country free of duty or limit! It does so, however, accompanied by strenuous protests from our U.S. dairy industry.)

Occasionally, quota limits have been evaded by "transshipping". For example the EEC pays a subsidy on butter and cheese shipped to Canada. Suppose a Canadian importer-exporter bought some of these subsidized European products, repacked them, and shipped them into the United States under the Canadian quota rather than the quota of the country of original origin. This would be a transshipment.

ESTABLISHING QUOTAS

Quotas, tariffs, and duties on dairy products coming into this country are established by a procedure which starts with a recommendation by the Secretary of Agriculture to the President, who in turn directs the International Trade Commission to conduct hearings. Additionally, the recommendations of an Advisory Council for trade negotiations may be brought into the policymaking process. Ultimately, the President calls the shots, as long as they fall within the framework of existing trade legislation.

The authority vested in the President was dramatically illustrated in 1973 and 1974, when, for the first time, imports were used to lower domestic prices of milk and dairy products. Some may recall this period as one in which U.S. milk supplies were inadequate to meet consumer needs, while at the same time EEC and other dairy-producing countries were reeling under the weight of large excess stocks. If you check the record, you'll note that in 1973 U.S. milk production had fallen 4.5 billion pounds from a year earlier. In response, temporary increases in quota were made by presidential proclamation on eight different occasions over a 15-month period.

During the latter part of that period, under the spur of rapidly accelerating prices, U.S. dairymen started pouring more milk into the market. An increase in cheese imports inearly '74, coming at a time when our own production was not only on the rise, but was hitting its seasonal peak, proved to be the proverbial "extra straw"! Crash! From their peak in March, cheese prices plummeted 20 cents a pound by the end of June! Milk prices fell nearly $2.00 per hundredweight during the same period. Conclusion - not only the amount, but the timing of imports can be critical!

U.S. COMMITMENT

For the past 25 years the United States has pursued a policy of encouraging greater freedom of trade in agricultural products. This has not always been without some concerns voiced by the farm segment of our dairy industry.

When the domestic milk supply is excessive, our dairy industry doesn't need a lot more coming in. Even when supply is more in balance with demand, additional imports may still be at the expense of domestic production. That's why dairy leaders objected mightily to a proposal presented to the Senate Agriculture Committee a few years ago. This proposal suggested that the U.S. would benefit greatly from free trade in agricultural

products. In particular it argued that we would gain greatly from liberalization of trade in feed grains and livestock because of the comparative advantage we enjoy in the production of both.

It's authors suggested that with free trade, U.S. exports would soar billions of dollars and our net trade balance would gain almost in lock step. The report also assumed that free trade would result in billions of pounds increase in dairy imports, much of it from Oceania and the EEC, that U.S. milk prices would fall and that U.S. milk production would be discouraged.

U.S. dairy industry leaders took vigorous exception to that report. They held that when it came to milk production, the EEC did not enjoy a competitive advantage over the U.S. - and that their exporters could not profitably market additional dairy products here without subsidy! They also argued that once U.S. production had declined to the point where we became dependent on Europe for imports, European subsidies would disappear. This, over time, would result in higher rather than lower consumer prices! (In passing, many dairy farm leaders also pointed out that not every dairy farm could be changed over to the production of feed grains, oil crops or meat animals!)

U.S.D.A. TRADE STUDY

Well, who was right? Perhaps a 1974 USDA trade study may provide some clues. The study analyzed the impact of three possible courses of action - first, continuation of our current practice on imports (operating under Section 22); second, opening up U.S. markets and permitting unlimited imports (despite what other countries might or might not do in exchange); and finally, negotiating worldwide free trade in dairy products. (The study assumed that with free trade, price supports would cost too much and would have to be abandoned.)

The conclusions reached by USDA agreed with those who held that Australia and New Zealand had a comparative advantage over us and could profitably supply our U.S. markets with butter, nonfat dry milk and cheese. However, the USDA researchers saw limited potential for expansion at expected price relationships and pointed out that most expansion would be consumed by increasing population on those countries.

However, the Common Market was a different story. The USDA concluded that the EEC could not compete in our markets without subsidies.

Even when milk production is on the short side, the question of whether additional imports might be in the national interest is not a clearcut one. Many trade-offs are involved - trade-offs among dairy farmers, among other farmers, among processors and consumers! Our dairy import quotas exist primarily to protect our price support program. If we eliminated quotas, chances are climbing costs would dictate that we limit or eliminate our own price supports. Consumers might enjoy lower dairy product prices but would do so only at the expense of some rather harsh adjustments by U.S. farmers and dairy processors. Using imports to gain a drop in consumer prices which might be short-lived would in turn make us more dependent on foreign supplies. This would open us up to the risk and uncertainty associated with the questionable dependability of these sources.

GATT

Within the context of the legislative "ground rules" which control trade our government has sought (at least it has since the mid-thirties) to expand exports by establishing trading arrangements with many countries. In earlier times these arrangements were two-way trade agreements - made on an individual country-to-country basis (called reciprocal or bilateral trade agreements). Sometimes these were then extended to the two participants' other trading partners.

Following World War II, however, our trade expansion efforts moved from bilateral to multilateral negotiations. In 1947 we were one of 22 nations who gathered in Geneva, Switzerland and subscribed to a code of conduct in trade matters called GATT (General Agreement on Tariffs and Trade). GATT has since become a permanent international agency responsible for implementing that code of conduct.

In 1947, in the first multilateral trade negotiations, an extensive series of tariff reductions were carried out. Though some of the bargaining was bilateral, all of the results were made

multilateral by extending the trading concessions to all other members under a "most favored nation" clause that is a central feature of GATT.

SIX SESSIONS

Six GATT negotiating sessions have occurred since that 1947 beginning. Each of these has attempted to promote expanded international commerce by negotiating mutually advantageous reductions in trade barriers. The sixth in the series of negotiations - referred to as the Kennedy round - stands out as one involving the deepest tariff cuts.

Durings its 35-year life, the number of countries participating in GATT has more than quadrupled. In fact, ninety nations participated in the last GATT negotiation which was convened in Tokyo and brought forth an agreement initialed in Geneva in 1979.

Besides elimination of tariff barriers, negotiators attempt to eliminate other forms of trade restrictions. Agricultural products are especially vulnerable to these non-tariff barriers - things such as quotas, export subsidies, packaging and labeling standards, government procurement practices, import licensing requirements and excessive sanitary regulations. Because of the success of previous negotiations in reducing tariffs, those non-tariff barriers to trade took on greater importance in the last bargaining session.

U.S. AND ITS FARMERS BENEFIT

The U.S. policy of trade expansion, inaugurated in the thirties with reciprocal trade agreements and continued since World War II in the multilateral framework of GATT, has been good for both America and American agriculture.

Today agriculture accounts for more than one dollar out of every five we earn in exports. In fact, we export the harvest of one out of every three of our American acres. U.S. agriculture is, in large measure, export dependent. For several commodities the proportion of our domestic production that is exported exceeds twenty or thirty percent. With wheat, it's in excess of fifty percent!

American agriculture will also benefit in the future from expansion of exports. The foreign market, unlike our domestic one, shows potential for significant growth. Rapid population growth, coupled with a rather limited capacity for increasing food supply, makes many of these foreign markets look particularly attractive in the years ahead.

The nation as a whole also benefits from a policy of expanding agricultural exports. U.S. agricultural exports pay over half our bill for imported oil. Agricultural exports help keep our dollar strong.

Conversely, trade restrictions can be injurious both to American agriculture and to the nation as a whole. History has shown that restrictions we've imposed have produced retaliation, loss of export opportunities and higher costs to domestic buyers.

It was this kind of awareness that our trade representatives carried with them into the last GATT negotiations. While the U.S. is not without its trade restrictions, it does maintain a relatively low level of tariff protection against farm imports. Therefore it had less to offer in exchange for concessions by others. Within the agricultural sector, our Geneva negotiators sought concessions on our feed grains, oilseeds, poultry, tobacco, cotton and citrus. In exchange they made some concessions on dairy imports.

THE 1979 TRADE AGREEMENT

In the spring of 1979, after six years of bargaining, our U.S. trade representatives checked out of their Geneva lodgings, wrapped up the new trade package they had negotiated and brought it home for our inspection.

They presented it first to Congress, which had a ninety-day legislative period during which it could exercise its veto power. Congress passed it with flying colors and sent it on to the executive branch. In the oval office, on July 26 of that year, President Carter signed into law the Multilateral Trade Agreement Act of 1979. Provisions of that act became effective January 1, 1980.

What was in it anyhow? Well, some things which modestly enhanced the favorable trade system which U.S. agriculture already enjoyed.

It was estimated that the 1979 agreements negotiated with Japan, the EEC and Canada added about 439 million dollars to

our agricultural export income. Agreements signed with 30 other countries tallied another 24 million, for a grand total of 463 million dollars.

There were other pluses in that package. For instance, tariff levels on some of our major agricultural exports were "bound" against future increases. Additionally, some improvements negotiated in regards to non-tariff trade barriers established valuable precedents for the future.

TRADE-OFFS

Naturally in order to get, our negotiators had to give. The value of the concessions they made (in quota and tariff reductions) were estimated to run about $106 million. Stacking the value of increased imports they gave against the value of increased exports we received, we came out ahead to the tune of about 400 million 1979 dollars.

O.K., that's great! But what was the package on dairy products? That's what we're most interested in.

So let's look at that 1979 package - particularly the dairy part of it. At first glance it would scare the hide right off you! Because the new agreement established a quota on cheese almost twice as large as the one previously in effect. The new quota ceiling was 245 million pounds - 117 million pounds larger than the previous treaty. If you like percentages, that was an increase of 91 percent over the old quota ceiling of 128 million.

But hold on a minute. Look a little deeper! When you do, maybe you'll conclude it was not quite as drastic as it first appeared. That's because "price break" imports were totally eliminated. The cheeses which previously came in under those provisions now had to be included as part of the quota count. In 1978, 108 million pounds arrived in our market under that price break umbrella. So when this was subtracted, the net effect of the new quota was not 108 million pounds, but only 9 million - or an increase of 4 percent, not 91 percent.

But "wait", said the pact's opponents. Figures can be deceiving! We maintain that the 9 million pound figure you used understates the impact of the new arrangement. After all, how can you assume that the 108 million pounds of non-quota cheese (that price break kind) will continue to come in each year? Suppose we suffer a recession. Money may be tight. American consumers may not be willing to pay enough for those products to bid them above their price break limits. So there could be a reversal in the growth trend those price break products have experienced in recent years.

However, now that they've been put under quota, they no longer have to meet those price floors that were established under the old system. So maybe we better go back to that 128 million pound base and assume that the true impact of the new treaty can fall anywhere from the 9 million pound figure all the way up to the 117 million pounds actual quota increase.

PROS AND CONS

The treaty's proponents, on the other hand, countered that in the future "price break" products would be under quota, and therefore "capped". In other words, under the new treaty the amounts which could be imported were established and could not expand without limit, as they could under the previous treaty (whenever prices warranted).

Opponents, on the other hand, argued that price break cheeses only came in when U.S. prices were high and U.S. dairymen didn't need to be protected. Put those under quota, they said, and it would also allow them in when U.S. prices were low and protection from imports was needed.

Certainly the kind of cheese that was imported was a factor. There's a market here for certain cheeses we don't even produce - or that we turn out in inadequate amounts to meet market demand. Obviously imports of those types weren't much of a problem. However, when American-type cheese was imported, it was in direct competition with that made by our producers. (About 2 billion pounds of American cheese was produced in the U.S. in 1978, of which three-fourths was cheddar.)

Those who favored the pact said - "Look, with this package we'll know exactly where we stand - exactly what our quotas will be! No more of those unknowns. Don't forget those increased cheese imports we've been getting the last few years have been mostly price-break products. They're under quota now! So

we're establishing an absolute ceiling on imports - except for maybe a little specialized sheep and goat milk cheese, which doesn't amount to much anyway. And that ceiling can't be changed over the next three years unless it gets Congressional approval. The President himself can't even use his Section 22 emergency powers to bring in more cheese during that period!"

Another major argument was that the price impact was small and well worth the concessions it bought.

And so it went - pro and con! Few deny that increased quotas would cut milk prices. The argument was only over how much!

SAFEGUARDS

Our dairy leaders, mindful of the damage which could be wrought by unfair competition, were successful in including a number of safeguards in the new trade act. In contrast to the countervailing duty law which was the exclusive protective device in the old act, (the implementation of which was often extremely time consuming) a new protective process used a maximum of 65 days. Violators had only 15 days in which to end any illegal pricing practice. If they did not cease and desist within that time, either their product would be banned from the U.S. or countervailing duties would be assessed against it. With those new procedures presumably the door could be closed before all the damage was done.

The legislation provided that the subsidy practices of foreign countries and the prices established here by foreign cheese exporters were to be continuously monitored by the Secretary of Agriculture. He was to assure that the price of our domestically-produced cheese was not unfairly undercut.

INTERPRETATION

What did all this mean to U.S. dairymen? The answer you got depended on who you were talking to! Certainly, increasing cheese quotas (by 9 million or 108 million pounds - or any other amount for that matter) was bound to have some effect on U.S. cheese prices. And since cheese prices affect prices paid for manufacturing milk in the Minnesota-Wisconsin area, they also affect the M-W price. The M-W price in turn affects Class I and II prices all over the country. Everyone agreed on that! The only point where they differed was the extent to which prices would be affected.

Some USDA economists estimated that the potential increase in imports could depress farm milk prices about 5.4 cents per cwt. They assumed the cheddar price would be far enough above the support level so that a downward adjustment would occur. Using 1978 milk production as a basis, the cost of those trade concessions to U.S. dairy farmers was estimated at about $66 million. This represented about ½ of 1 percent of the farm value of the milk produced in that year.

And so it went with the 1979 GATT agreement, the pros and cons, this reaction and that, illustrating once again how very complex can be the consequences of what at first glance appears to be relatively minor adjustments in the trade arrangements of but a single commodity. It illustrates that the achievement of a more "liberal" system of international trade in agricultural products is beset by many problems. And the benefits of freer trade are often unevenly distributed throughout the agricultural sector.

Our negotiators made concessions on dairy product imports in exchange for concessions other countries made to them. While primarily citrus, grains and oilseed exports were what the commodities favored, the impact was felt throughout the total export package.

TRADE IS A TWO-WAY STREET!

Both the common market and the market of Japan are among the most protected in the world. To get any concessions, our negotiators had to give some. But then trade is always a two-way street! If Americans are to arise to the sounds of SONY alarms, put on suits cut from British woolens by Hong Kong tailors, drive to work in VW Rabbits fueled by petroleum from Arabian wells, drink Brazilian coffee during morning breaks and stop for luncheon sandwiches made from Danish ham when the hands of their Swiss watches point to 12 - then obviously we'd better sell some American products overseas!

And if we don't sell enough, as was the case too often in recent years, we wind up with a negative trade balance! Anytime

what we buy in foreign markets exceeds what we sell, our balance of payments is negative, and our dollar tends to weaken.

Our trade representatives, bargaining with their counterparts around the tables in Geneva, undoubtedly held out for the best deal they could negotiate. At the same time, they recognized that not everyone could get everything they'd like! Our country's economy is made up of many diverse, and often conflicting interests.

In 1978, mostly for the benefit of citrus, feed grain and oilseed producers, and to benefit the overall agricultural trade picture, dairymen had to live with larger shipments of other country's cheese.

In the final analysis, trade packages are always the end product of many different trade-offs. How any particular package is viewed depends in good part on who is doing the viewing. Eventually it seems to come down to a matter of whose ox is gored. The last time the dairyman's ox took a few bruises! Just how badly they hurt or even if they hurt at all, was not easy to measure. Too many other variables existed that clouded the picture.

U.S. dairy trade, milk-equivalent, fat-solids basis

Year and quarters	Imports		Exports	Shipments[1]
	Cheese	Other		
	Million pounds			
1980				
1st	224	142	108	135
2nd	321	36	88	139
3rd	489	18	75	142
4th	832	47	99	146
Year[2]	1,866	243	370	562
1981				
1st	306	98	85	162
2nd	393	77	528	138
3rd	451	127	706	155
4th	809	68	1,777	131
Year[2]	1,960	370	3,096	586
1982				
1st	359	62	1,558	153
2nd	439	126	938	157
3rd	538	43	592	129
4th	792	117	846	163
Year[2]	2,128	348	3,935	602
1983				
1st	512	121	500	137

[1]To U.S. territories. [2]May not add because of rounding.

Imports, exports, and shipments of dairy products, 1975-82[1]

Year	Imports		Exports		Shipments[2]	
	Quantity	Percent of production	Quantity	Percent of production	Quantity	Percent of production
	Million pounds	*Percent*	*Million pounds*	*Percent*	*Million pounds*	*Percent*
1975	1,669	1.4	550	.5	496	.4
1976	1,943	1.6	502	.4	520	.4
1977	1,968	1.6	459	.4	527	.4
1978	2,310	1.9	368	.3	602	.5
1979	2,305	1.9	362	.3	620	.5
1980[3]	2,109	1.6	370	.3	562	.4
1981[3]	2,329	1.8	3,096	2.3	586	.4
1982[3]	2,477	1.8	3,935	2.9	602	.4

[1]Milk-equivalent, fat-solids basis. [2]To U.S. territories. [3]Preliminary.

CHAPTER XI. INDUSTRY CHALLENGES

PART I - "THE PROBLEM OF SEASONALITY"

NOT A ROYAL FLUSH

In some parts of this state, people claim they have only two seasons - winter and August.

Those involved in the milk marketing business are apt to reply they also have but two seasons - the spring "flush" and the rest of the year.

They're talking about seasonality, referring to the great variations that occur in our milk supply. The spring flush comes to market in April, May, and June. More often than not, it's followed by tight supplies in the fall.

The basic problem is that the amount of milk produced isn't in step with the amount consumed. The amount of milk we drink runs nearly even year-round. And when variations do occur, when school's out, for instance, they usually counter those that occur in production - all of which makes the problem even worse.

However, the real problems of seasonality are not with fluid milk (Class I). We can handle those, because, comparatively speaking, Class I use is pretty constant. Nor can we blame it on all of the Class II milk supply, because a good many of the products we make from Class II milk, particularly the more perishable products like cottage cheese, yogurt, and Italian cheese, have consumption patterns much like that of fluid milk. Most of these perishable dairy products are produced to meet specific month-to-month demands. Like fluid products, these don't vary much from one month to another. (Probably our good New York cheddar falls in that same category.)

But the rest of our Class II, the part that's left over after both fluid and perishable product needs have been met, that's the heart of the problem. And that's what we really mean when we talk about the problem of seasonality. We mean the big job that's involved in taking all that excess milk that's produced in April, May, and June and converting it into some kind of storable dairy product so that it won't be wasted.

Obviously the job gets done. But at what cost? Cost is what seasonality is really all about.

EXCESS THE PROBLEM

Suppose you had to build a barn, buy the equipment, and hire the men to take care of ten times as many cows in April, May, and June as you could keep the rest of the year. You wouldn't be very happy about it.

Yet, that's what we're asking our dairy industry to do. Because the great bulk of our seasonal excess has to be converted into butter and powder. Many years, butter-powder production in Order 2 in the flush months runs ten times that of the short season.

Obviously such a "feast or famine" production pattern creates all kinds of problems. Our marketing system has to maintain excess capacity in trucks, storage facilities, and plants for 9 or 10 months a year, just to have enough capacity for 2 or 3 months in the spring. These facilities are mostly underutilized the rest of the year.

A COSTLY PROPOSITION

Obviously, this costs money, plenty of it. Some studies have shown that unit operating costs for butter-powder plants have varied by 100% or more from the high-volume to the low-volume months. In other words, it costs twice as much to make a pound of butter when a plant is underutilized. (Sometimes, even three times as much.)

How in the world can a butter-powder plant here in the Northeast operating under conditions like this, ever compete with a midwestern plant, operating near capacity? The answer is simple. It can't. As a consequence, a financial burden falls on those cooperatives and other handlers who help to clear this milk from the market by making it into butter-powder.

The seasonality of milk production is responsible for the widely fluctuating market conditions from flush season to short season. The headaches it creates for those involved in scurrying around trying to find some place to put homeless milk require several king-sized aspirins to relieve. Milk often has to be sent

long distances to available outlets, always at considerable cost, sometimes at substantial loss.

And overtime wages have to be paid, keeping overtaxed facilities running round the clock.

One of the unrealized costs of seasonality is that in some years, a shortage of milk in the short season may limit both the production of perishable manufactured products and development of new markets for them in this area.

NY-NJ SEASONALITY

When it comes to seasonality, the producers in the NY-NJ order have it in spaces. Among the Northeast orders, NY-NJ is the leader of the costly seasonality parade. New England and our two western New York State orders come next in line. Order 4 (Philadelphia-Washington) beats them both. But even their god showing can't compare with the Southern Michigan Order where producers have been successful in holding their seasonality variation to about 2%. When you can cut it that close, it's not very hard to keep your plants running full capacity year-round. You don't have to have standby facilities just to handle the flush. Think what a difference that would make in New York.

But why are we still talking about seasonality? We've had a seasonal incentive program in our order for years. Hasn't that corrected the problem?

No, it hasn't. Admittedly, our seasonality is better than it used to be. Back in "the good old days", seasonality wasn't one of the things that was so good. In fact, many farms didn't produce any milk at all in the winter. All the cows were dried off. (That's why winter milk prices were sometimes double those of the spring.)

PROGRESSING

We've made a lot of progress since those "good old days." But seasonality is far from corrected. Those seasonal price incentives in our Northeast orders - the Louisville takeouts and paybacks - haven't been sufficient to encourage more rapid adjustment in production patterns. And the way inflation has been, the fixed incentive amounts spelled out in the order don't mean as much as they used to. When milk was $4.00, 40¢ represented 10% of the entire milk check. Today it's less than a third of that.

What's more, some producers don't even know they are operating under a seasonal price incentive program nor understand the reason for it. Maybe it's because the two-month lag in our Class I price formula has masked the incentive itself. Often the change-in-price signals that producers have received just haven't been great enough to encourage more often production patterns.

Furthermore, up until the time when the start of the marketing year for the price support program was changed from April 1 to October 1, if supports were "raised," they were always raised on April 1. This price jump right at the beginning of the flush season didn't do anything to discourage flush season producers. It served as a signal to "go," when what really was needed was a signal to "slow."

All these have acted as disincentives, encouraging responses to counter to the ones desired. Sometimes, in fact, the Class I price has been over the M-W price by 90¢ more in the flush months than in the short months. So producers have not been acting irrationally as far as the price signals they've received.

Certainly in the past, producers with highly seasonal production patterns have not had any problem maintaining a market. Co-ops have assured their members an outlet, irrespective of what their seasonal production pattern might be. In the past, at any rate, co-ops continually sought new members. Handlers, too, searched for additional producers as their plants increased in capacity.

VARIABLES INVOLVED

When it comes to seasonality, though collectively all of us are probably guilty, some of us are a lot more guilty than others. Seasonality varies among producers, and it varies among regions. As a group, producers with large herds are less seasonal than those with small ones. Producers whose cows are in free stalls are less seasonal than those who use stanchion barns. Producers who feed year-round from out of storage are less seasonal than those who use pasture.

Northern New York has a higher seasonality than central New York; central New

York more than western New York or the Mohawk Valley. All of them are more seasonal than southeastern Pennsylvania.

But, though there is variation occurring between one group of producers and another, the greatest variation occurs not between groups, but between individuals. It's the same old story - 20% of the farmers causing 80% of the problem.

Some dairymen have fairly uniform production patterns. They produce about as much in the spring as they do in the fall. Others may show only a modest increase in the flush. But a few send 2 to 2½ times as much milk to market March through June as they do August through September.

The seasonality figures we hear tend to mask the true extent of the problem. Perhaps the 18 to 20% seasonal production increase we experience in Order 2 sounds rather modest. But when you translate that into its effect upon the residual milk supply, that is, milk left over after fluid, soft, and semiperishable product needs have been met, the percentages are quite different. As far as the residual milk is concerned, the ratio between the flush season supply and that of the short months may be as much as 5 to 1. This is the real crux of the problem.

INCENTIVE PROGRAMS

You may ask, if seasonality causes so much trouble, what can be done about it?

Several different approaches have been used at different times and in different places in an attempt to flatten out production patterns, in other words, to do something about it. One of the earliest plans was to pay less for Class I milk during the flush months. Though it was a simple program to administer, this approach has been discarded by all orders. The reason was that each time Class I prices changed, dealers had to change their wholesale and retail prices. Consequently store prices went down in the spring, up in the fall. Consumers were annoyed everytime they went up, but didn't seem to notice when they went down.

The Louisville plan (it takes its name from the order in which it originated) is now used in all 7 federal orders, including the New York-New Jersey and New England orders, as well as both New York State orders (Rochester and Niagara frontier). In all these northeastern orders, the take-out from the pool (as well as the take-out from the blend) is 20¢ in March, 30¢ in April, and 40¢ in May and June. Twenty-five percent of money is paid back in August, 30% in September and October, and 15% plus accumulated interest in November. This kind of takeout-payback program is sometimes called a fall premium plan.

LOUISVILLE DEFENDED

Even though the Louisville plan has not brought our northeastern production patterns fully into line with the pattern of our Class I and soft product sales, it still has many defenders.

Most of them contend that the Louisville plan can work and will work if the amount of the Louisville incentive is great enough. They argue that inflation, the two-month lag in the M-W prices, and its corresponding effect on Class I prices, as well as the timing of price support increases, have so masked the incentive that producers have been totally insulated from the effects of it.

Make the incentive big enough, they say, and then you'll see some results. Some have suggested that the amount of the takeout be increased. Others would like to see the takeouts put on a percentage basis so that they'd automatically change each time milk prices changed.

BASE-EXCESS PLAN

A third type of seasonal incentive system used to encourage farmers to tailor their production more closely to Class I needs is known as the base-excess plan. Its title is unfortunate. Because of the similarity of words, too many producers confuse it with the Class I base plan. The Class I base plan is a quota program. It's not a seasonal incentive plan, but rather a supply-control program. It's designed to limit how much total milk is made, and not just when it's made.

Base-excess plans on the other hand, like all other seasonal incentive programs, don't try to control how much is produced; they only attempt to alter <u>when</u> it's produced.

Base-excess plans have been around quite awhile. They were used in Baltimore as early as 1919 and Philadelphia a year later. Eight federal orders now use them.

One of our northeastern orders, the Middle Atlantic Order 4 (Philadelphia-Baltimore-Washington), is among the eight.

Like the Louisville plan, base-excess plans affect neither the prices handlers pay or the retail price of a bottle of milk. They affect only the return to individual producers. It's a two-price system. Producers receive one price for all milk that does not exceed their base. They receive a lower price for all milk they ship in excess of their base.

The amount of base each producer is allotted is determined by his or her shipments during a specified delivery period. The delivery period chosen falls in to late summer and fall months, when production is lowest. This is called the base-forming period.

TWO PRICES

The earned base is then applied to all or only a part of the subsequent 12 months. In the months during which it is in effect, producers receive a higher price for all the milk up to their base and the lower excess price for all their deliveries that are over base. The lower excess price in orders with two classes of milk is the Class II price. In orders that have three categories of classification, the excess price is the Class III price.

Dairymen who ship a greater percentage of their milk in the fall base-forming months are establishing a greater claim on the market's Class I sales than those dairymen who ship a greater percentage in the spring flush months.

Base-excess plans relate an individual producer's price directly to his production pattern. So the price received is tied to one's own efforts! This rewards those dairymen who deliver about as much milk in the fall as they do in subsequent months. It penalizes spring producers, giving them the excess Class II (or Class III) price on a larger percentage of their annual production.

However, there's not much incentive for a producer to adjust beyond the point of even production. delivering more milk in the fall than in the following spring simply results in earning base that's never used. So there's no added payoff in acting as a counterbalance for other dairymen's spring-time deficiencies. (In contrast, the Louisville plan pays producers extra for all their fall production and penalizes them for all their spring production.)

The amount of the incentive under a base-excess program is limited to the difference between Class I and Class II prices (or Class III where applicable). Over time, this margin has narrowed, thus reducing the amount of the incentive. Inflation has had a similar impact on the Louisville plan. However, in contrast to base-excess plans, this can be corrected by amending the order to increase the amount of the takeouts.

EFFECT ON DAIRYMEN

The impact of both the Louisville plan and the base-excess plan on an individual dairyman depends on how he performs in relation to all other producers. Under the base-excess plan, those who ship the same proportion of base and excess milk as the whole market does aren't affected at all. They will receive the same annual return as if no plan had been in effect. But the more a producer deviates from the marketwide average, the more he's going to be affected. Producers who ship less excess milk than the marketwide average will gain. Those who ship more excess milk than the marketwide average will lose. The greater the deviation, the greater the gain or loss.

Neither the Louisville nor the base-excess plan changes the total money in the pool (except as over time it may bring about shifts in seasonal production patterns). The plans only change how it's distributed to individual dairymen.

The base-excess plan, like the Louisville plan, does not limit the amount of milk a producer can ship. But it does penalize him for producing contrary to market needs.

PROS AND CONS

Base-excess plans are more difficult to administer, requiring more elaborate record keeping and accounting systems than takeout-payback plans. They may also be more restrictive in regard to new producers entering a market, and expansion or production adjustments by present producers, and in intermarket responses to price differences. On the other hand,

since under a base-excess plan producers receive two different prices for the milk they sell, they are more aware that a seasonal incentive exists and may try to get their own production in tune with market needs.

A weakness of the base-excess program can show up in those years in which Mother Nature has been particularly bountiful. Outstanding crop conditions resulting in high quality forage and heavily loaded grain bins, can stimulate fall production above "the norm." This, in turn, increases earned base for the following year. Producers then may produce up to the higher base. The result is increased production which the market must absorb.

CAUSES OF PROBLEM

The reasons for seasonality are well known. Blame it all on Mother Nature. There's just a natural tendency for a cow to freshen in the spring, produce the most when pastures are green and lush, than taper off in the hot summer months as flies become pesky, pastures dry up, and her lactation progresses. In generations past, dairy herds were all "dried-up" come winter.

Only to the degree that we have been able to depart from Mother Nature's schedule have we been successful in attaining uniform year-round production. Obviously this required a bit of doing - more labor and management skill, more planning and supervision, more knowledge of breeding and feeding, as well as procuring the physical plant, the feed storages, and the housing and equipment to permit it. (But Mother Nature's pretty sneaky. We start with those fall freshening heifers; and before you know it, she has them turned back into spring freshening cows.)

However, despite Mother Nature, many dairymen have been successful in leveling out seasonality - more and more all the time - as they've moved to year-round, out-of-storage feeding and have de-emphasized the use of pasture.

Over time, the degree of seasonality in most markets has declined, both in those markets with seasonal incentive programs and in those without them. But the shift has been greater where plans have been in use.

It's hard to tell which plan is best. Some markets with Louisville plans are more seasonal than other markets with base-excess plans, and vice versa. Not many, but a few markets with no plans are less seasonal than others that have them.

Obviously, local production conditions and management practices have as much effect on seasonality as anything else. In southern markets, for instance, fall and winter milk production may be "easier" to attain than spring and summer production. In northern markets, just the opposite holds.

BENEFITS OF CHANGE

Certainly, though, if the economic incentives (or the penalties) are great enough, New York dairymen will figure out a way to get the job done.

The benefits will be substantial. The risk of lost markets in the high production months will be reduced. Handlers will be better able to compete for outlets with those handlers in less seasonal markets. Cooperatives will have lower costs in "clearing" markets and providing outlets for producers' milk. Except in "over-production" periods, when there's plenty of milk around at all times, handlers will be better able to develop new markets for perishable manufactured products, markets that could not previously be developed because of a shortage of milk in the fall months.

Producers will be the ultimate winners. They'll get more money for their milk when the pattern of their sales more nearly coincides with the pattern of demand.

Of course, even "perfection" has it's problems (remember the serpent in the Garden of Eden). Even if we did attain "perfect" seasonality within a 12-month period, with each month's needs, we'd still have problems from one year to another. "Good" years and "bad" years, given the unpredictability of Mother Nature, are almost inevitable. So in low production years, we'd be short of milk. And since our manufacturing plants would already be operating at full capacity, what would we do with the excess milk when a high production year came along?

Now that's the kind of problem we'd like to have to worry about!

CHAPTER XI. INDUSTRY CHALLENGES

PART II - "THE CASEIN CASE"

"A LOOK AT SOME CLUES IN THE CASEIN CASE"

Milk is a remarkable product. It can assume many forms. Some forms we drink - whole milk, skim milk, buttermilk. Some forms we eat - ice cream, yogurt, cheese.

But oftimes milk, or at least some of the components of milk, take on forms we'd never ever recognize. Who, for instance would expect to find milk in a comb, or a button or a billiard ball? But one might - because one of the components of milk (called casein) is often used in the manufacture of a hard ivory-like product called casein plastic. In fact, casein (or a modified casein product) is used in scores of industries, in the cosmetic, paint, paper, pharmaceutical, printing, lumber, textile, wine and wax industries, among others. The major uses of casein are: 1) paper coating, 2) adhesives, 3) plastics, 4) man-made fibers, and 5) food.

Hold on there! How about that number five, food? Yes, casein has many food uses. It's used in filled milk, imitation cheese, coffee whiteners, instant breakfasts, cereals, sausages, whipped toppings, and ice ream mixes, to name just a few.

In fact most of the current concerns in "the casein case" arise in great part due to its importation for food. Because while industrial use of casein is declining, its use in human foods is increasing. A half dozen years ago, USDA estimated that 36 percent of the casein in the U.S. was used in human foods, 35 percent in animal feeds and the rest, 29 percent in industrial use. Today, many believe that 50 percent is a more realistic figure for human food use.

NO U.S. CASEIN INDUSTRY

Most, if not all, casein in the United States is imported. Virtually none is manufactured domestically. Prior to World War II, the U.S. was among the world's largest producers of casein. But what a turn-around only a few decades can bring. Today we have become the world's largest importer of casein. Economic incentives for manufacturing it domestically have been allowed to wither. USDA does not support the price of casein (nor does it limit its importation).

Rather it supports the price of nonfat dry milk. Milk protein values, therefore, have become "tied to" the support level for nonfat dry milk. Mostly because of the influence of this support system, milk protein converted to nonfat dry milk has yielded its manufacturers more than it would were it made into nonprice-supported casein. As a result, our domestic casein industry has fallen by the way.

The casein case cannot be based, as some of the more emotional rhetoric might suggest, on the premise that casein is a "bad" product and that we should therefore stop importing it. Casein is a good product; maybe its only our emphasis that's wrong! Perhaps we should direct it towards building a domestic casein industry.

But hold up a minute! Aren't we getting ahead of ourselves? If we're going to discuss "the casein case" intelligently, hadn't we better define what casein is and discuss how it comes to be.

CASEIN COMES FROM MILK

Perhaps the best way to describe it is to start with its source - the milk itself. As every dairyman knows, milk consists of both solids and water. Part of the solids is butterfat. When the fat is separated out, the skim (or fat-free) milk which remains will typically contain about 90.5 percent water, 9.5 percent solids. The solids include carbohydrates, proteins, minerals and a trace of the fat (about ½ of one percent) which was not removed.

The carbohydrate of milk (milk sugar) is called lactose and amounts to 5.1 percent of the fat-free fluid. Minerals, several in number, the most important from a dietary standpoint being calcium, constitute 0.7 percent of the skim milk. The rest of the solids, representing about 3.6 percent of the whole, are the milk proteins. Casein represents about 75 percent of the milk proteins, with most of the balance being whey protein (albumin).

(Milk proteins account for about 25 percent of the total protein in our American diet.) As used in the food industry, casein is nearly always converted to a form called sodium caseinate.

CASEIN DEFINED

If we were to look up a dictionary definition, we would find casein defined as a group of at least three milk proteins which comprises up to 3 percent of normal cow's milk. These proteins can be found in about every dairy product. (Butter has very small amounts.) This group of proteins (casein) is the chief constituent of cheese. The proteins are coagulated for cheesemaking by acid or rennet, or they can be precipitated from the milk by heating with an acid and by the natural action of lactic acid which develops as milk sours.

If we were to use a chemists dictionary, we'd also discover that casein exists in milk as a calcium caseinate - calcium phosphate complex - one which can be disassociated by the addition of acid to produce a watery gel-like curd. This curd is casein. The curd is "finished" by pressing, drying and grinding.

CASEIN IMPORTS CLIMB

Although the U.S. is not involved in casein production, many other countries are. And to an ever-increasing extent they've been looking to the States for a market. As Al Smith often suggested, let's "look at the record." Casein imports increased an average of only 16 percent between the decade of the '60s and '70s, but they have jumped dramatically in the years since. Unlike every other dairy product except lactose, casein imports are not subject to quota! The Food and Drug Administration, in fact, considers casein (sodium caseinate) a chemical derived from milk rather than a dairy product. The chemical definition may be due to the fact that, at least until recent years, casein's primary use was industrial. (Because it's considered a chemical, control of it falls under the jurisdiction of the Department of Commerce rather than the Department of Agriculture.)

Of even greater concern than the actual level of imports is the change in the pattern of their use - the switch from industrial use to food use. As this change has occurred, dairy producers have viewed it with alarm. The reason is twofold. First, foreign casein displaces domestic nonfat dry milk (of which we have plenty) in many foods; and second, casein is the basic building block for making many so-called non-dairy or imitation dairy products. (In a strict sense, the term "non-dairy" applied to many of these products may be a misnomer. For example, sodium caseinate, derived from milk, is used in such "non-dairy" products as imitation sour cream, coffee whitener, imitation eggnog, chocolate drink, frozen desserts and whipped topping.)

ELIMINATED DOMESTIC MANUFACTURE

In a 1981 hearing, the U.S. House Subcommittee on Dairy and Poultry heard testimony on "The Casein Case". Dairy leaders testified that casein imports had cut markets for nonfat milk and had almost eliminated the potential for developing a casein industry of our own. One hundred pounds of fluid skim milk, they stated, can be used to manufacture about three pounds of dried casein, or if processed in another way, about nine pounds of nonfat dry milk. (During 1980, 150 million pounds of casein were imported. That doesn't mean we actually lost a market for 450 million pounds of nonfat milk. Most likely, nonfat dry milk would not have been used in most of the industrial products currently using casein. Nonfat dry milk lacks some important properties which permit casein to be used in many industrial products.)

However, when it comes to food and feed it's another story. Casein can be used to replace nonfat dry milk in many foods, including soups, processed meats and bakery products. Casein is particularly attractive because it contains 85 percent protein compared to 36 percent protein in nonfat dry milk.

A QUESTION OF COST

Since casein's available at favorable prices, many of the nation's feed manufacturers import it for use in calf milk replacers and other animal feeds. Again, if prices were comparable (which they're not), nonfat dry milk and whey powder, both domestically produced, might be

interchanged for some of this imported casein.

(Like casein, dried whey can frequently be used as a substitute for nonfat dry milk. And again like casein, dried whey is available at a much lower price - currently [1982] about 18¢ per pound for whey in comparison to 94¢ per pound for nonfat dried milk. But dried whey is a story in itself - one we'll get to later. Right now, let's go back to casein.)

The crux of the crisis in the "Casein Case" - the reason for all the attention it's getting - lies with its use in cheese analogues, commonly referred to as imitation cheese. U.S. production of cheese analogues is increasing by leaps and bounds. Some reports indicate that already it may equal 5 percent of U.S. natural cheese production. The makers of cheese analogues used imported casein because it's a good source of cheesemaking protein and it's lower in cost. Since almost one quarter of all U.S. milk is used in cheese, anything which jeopardizes that market threatens the entire U.S. dairy industry. The fundamental issue is one of economics! Imported casein is available at about one third the price of domestic fresh milk components. This means possible price savings of 25 to 50 percent.

IMITATIONS MASKED

If you compare real cheese and imitation cheese you'd find they look alike - but there's a difference in taste. But mix the imitation with real cheese, or put it in well-flavored foods like pizza, ravioli, macaroni and cheese, or a casserole - and its not only tough, it's almost impossible to tell the difference!

So it's not surprising that U.S. dairy farm leaders are concerned! They fear further rapid increases in production of imitation cheese may occur because of the potential for cost savings. As imitation cheese sales displace natural cheese sales, markets for domestically-produced milk are lost!

Logically, one might ask "since we do not make any casein and since we're losing markets to imported casein, why not get back in the casein-making business? Again, the answer is one of economics. Not only is it more profitable to import casein than to use domestic nonfat dry milk, but in the present situation, it's also more profitable to import casein than it is to manufacture it ourselves.

Much of the reason for this lies with the huge dairy surpluses which exist in many countries. The European Economic Community has had a dairy surplus running over 15 percent, costing them over $4 billion each year - an amount equal to about 20 percent of the total farm milk income in those countries. The EEC Commission has accumulated a "dairy glut" of billions of pounds. Casein imports to the U.S., not limited by any quota restrictions, are a logical avenue for unloading some of those surpluses.

N.Z. BIG EXPORTER

New Zealand, which historically has looked to Britain to find a home for its butter and cheese, lost much of that market when England joined the common market alliance. Dependent upon the dairy industry for much of its overseas income, New Zealand processes some 85 percent of the milk it produces for export. Two strengths of the New Zealand dairy industry are its ability to manufacture a diverse range of products and the flexibility to quickly modify the mix of its products as changing conditions warrant. There are over a hundred processing factories in New Zealand operated by about 70 cooperatives. Seventy-five percent of all the milk produced in that country is received by cooperatives which have a capacity to manufacture casein or its derivatives. So, when markets for cheese and powder are not available, or when the prices are unfavorable, New Zealand can (and does) shift to production of a high quality casein, much of which ends up in the U.S.

IMPORTS THREATEN PRICE SUPPORTS

Since it's currently more profitable to import casein than to make it, and since it's more profitable to import casein than to use domestic nonfat dry milk, it follows then, that in times of surplus, USDA has to purchase additional dairy products under its dairy price support program because of the increased use of imported casein. That's why U.S. dairy farm leaders argue that unrestricted imports jeopardize our price support system and

insist that casein should be made subject to quota.

Critics of quotas, on the other hand, argue that the problem is not low prices for imported casein, but rather unrealistically high support prices for nonfat dry milk. They contend that, were the price of nonfat dry milk lowered to a competitive level, its use would increase and price support purchases of "displaced" nonfat dry milk would no longer be burdensome.

The problem with that argument, dairymen counter, is that if we were to lower support prices for nonfat dry milk enough to compete with casein, to compensate we'd have to raise the support price of butterfat so high we'd end up pricing ourselves out of that market (and the government would end up buying virtually all of it) - or else we'd have to drop the support price for farm milk so low that it would be ruinous to many inflation-squeezed dairy farmers.

ALTERNATE SOLUTIONS PROPOSED

Dairy leaders themselves don't agree on just what to do about casein. Some call for a zero quota on all casein imported in the U.S. for food or animal feed use. Others, cognizant of long-established precedents and certain political realities, contend this is unrealistic. If a quota were to be established on casein for food and animal feed, but no quota was placed on casein for industrial use, what, they ask, would prevent the so-called industrial casein from finding its way into food and feed markets? Furthermore, they continue, how will dairymen themselves react to the higher cost of calf milk replaces which will result if we totally shut the door on feed-use casein? Those of the latter persuasions suggest that a lid be put on casein imports equivalent to some average of recent years, rather than having a zero quota established.

UNANIMITY ON OBJECTIVE

There are no easy answers. But, there's one thing you can bet on! While different dairymen may disagree on the best approach to take, they all agree on the objective itself.

It's finding a solution to the problem posed by imported casein. Because, until they find that solution, they can't close the book on "The Casein Case".

CHAPTER XI. INDUSTRY CHALLENGES

PART III - "IMITATIONS, SUBSTITUTES AND LABELS"

Say cheese! Go a step further - say four billion pounds of cheese. When you do, you'll be quoting our annual United States cheese production - give or take a few hundred thousand pounds.

Anyway you slice it (or even if you don't) that's a whale of a lot of cheese. In fact, it requires one-fourth of all the milk produced in this country to make it!

So anything which threatens our cheese market cuts at the very core of our dairy industry. Unfortunately, such a threat is already here. It takes the form of imitation cheese. Make no mistake about it - this is a real challenge to our U.S. dairy industry.

Most observers agree that cheese made from casein, technically referred to as cheese analogue, but more commonly called imitation cheese, can't compare with "the real McCoy" in taste. But it sure can in price! Using imported casein, which costs only a third as much as the fresh milk components, manufacturers of imitations turn them out at 20 to 50 percent savings over the natural products.

ESTIMATES ONLY

Unfortunately, there's no completely accurate way to measure the amount of cheese products being made from imported casein. Manufacturers of these products don't have to report how many pounds they make, as natural cheese manufacturers must. However, dairy economists generally agree that the imitations have captured in the range of 2 to 5 percent of United States natural cheese production. That translates into 80 to 200 million pounds of cheese annually. And unless imports of casein are limited, or its price increases, further rapid expansion can be expected in the quantity of cheese made from imported ingredients.

Casein-based imitation products are most often used as a component part of prepared foods, both in the home and in restaurants. Blended half-and-half with natural cheese, they have been used frequently in institutional cookery. The imitations received a quick boost in 1974 when USDA approved the use of "cheese alternate" products in school lunch programs.

MOZZARELLA SALES AFFECTED

Cheese is produced in some 18 different natural types. (Variations of these natural types due to differences in styles, shapes, sizes and added flavors or ingredients can be almost infinite in number). The single type of cheese which is receiving the strongest competition from imitation products is mozzarella. Many pizza manufacturers are now using up to 50 percent imitation mozzarella. Some manufacturers of pizza (and other Mexican and Italian foods) use 100 percent imitation cheese. These manufacturers recognize that cheese loses its identity in many strongly flavored foods, and that they can "get by" with an imitation product costing much less than the natural product.

The purchase or consumption of an imitation cheese product is not really a matter of consumer choice. Order a cheeseburger at a fast food restaurant, choose the macaroni and cheese special in your college dining hall, or pick a pepperoni pizza out of the frozen food case of your neighborhood supermarket, and chances are - unless you happen to be in the dairy business - the question of imitations will never come to mind.

While mozzarella and other Italian-type cheeses are under the heaviest fire, other types of cheese also face competition. Today some major national cheese firms are pumping a pile of research dollars into the development of cheese substitutes.

FOOD FABRICATORS

Cheese is not the only food product subject to imitation. In fact, fabrication of foods is a mighty big business in these United States. But perhaps to an extent greater than with any other class of food, dairy products have been subject to replacement efforts by food development groups. Dollars, diets, convenience, shelf life - all have been cited as cause for the scientific search for dairy substitutes. The search has not been in

vain! Out of the fabricated food laboratories have come some notable successes. Fat (butterfat) was the first in the fire, when oleo sliced into our butter market. Next ersatz cream products came along. By 1975, coffee whiteners and vegetable-fat whipped toppings had attained 50 percent of the half-and-half, coffee cream and whipping cream market.

Right now, cheese is receiving the heaviest fire. Will milk be next! There have been several attempts to market imitation or filled milk in the past. In fact, there are at present. (Currently, a filled milk product - a product containing sodium caseinate and coconut fat [labeled Dairy Bell] is being marketed in several Southern cities. Another "manufactured" milk called Meadow Gold is being merchandized here in the Northeast.

SUBSTITUTE FAT AND PROTEIN

The whole concept of simulated dairy products hinges on replacing butterfat with inexpensive vegetable fat, and/or replacing expensive milk protein with some less expensive substitute. So far, there has been no wholly adequate substitute for butterfat in making a good tasting filled milk. To date, the simulated milks using vegetable fat have been deficient in flavor, although their structural characteristics resemble the actual product. In selecting a replacement fat, manufacturers look for one that is inexpensive, milk in flavor and one which possesses the physical attributes of butter.

Just as there is no fully adequate substitute for milk fat, so also is there no satisfactory substitute for the protein fraction of the nonfat milk solids. The lactose in milk can be replaced by corn syrup; a nutritionally satisfactory mineral mix can be compounded; and vitamins can be added. But the only completely satisfactory protein to use in constructing a simulated dairy product is milk protein.

Fresh skim milk is the best source of milk protein for the production of imitation milk, but it offers no cost savings. So manufacturers are limited to either whey protein or casein. Whey protein, because it has been less available, has cost more, and has lacked certain desirable physical qualities, has not often been used. Instead, casein (in the form of sodium caseinate) has been the protein of choice for "building" most any imitation dairy product which required a protein component. It has a pleasing milk flavor and is readily available at a reasonable price. (Sodium caseinate tends to acquire an old or gluey flavor when held in storage over time. So the sodium caseinate is usually prepared from casein shortly before it is to be used in the substitute product.) As most dairymen know, casein is being imported into this country in ever-increasing quantities - free of both duty and quota.

CHEESE MARKET THREATENED

Sodium caseinate, a product derived from milk, has been used for several years in such "non-dairy" products as imitation or sour cream, coffee whitener, imitation eggnog, chocolate drink, whipped toppings and frozen desserts. But today, it's threatening the very heartbeat of our dairy product industry. When substitutes cut into cheese sales, they're going for the jugular. Cheese after all, is our number one manufactured dairy product - a product which provides a home for one-quarter of all United States milk production. In times of surplus (like right now), anything which thins the market for milk increases, in turn, the amount which the government must buy.

Cheese is the major component undergirding the Minnesota-Wisconsin price series. When milk is displaced from the natural cheese market, the Minnesota-Wisconsin price falls. Since prices in Federal Orders all across the country are based on that Minnesota-Wisconsin price, a drop in the M-W lowers, in turn, Class I prices all across the country.

DAIRY INDUSTRY RESPONSE

What can and what should the dairy industry do to counter the economic threat which imitations pose? Certainly they can't wish them away! Nor can they engage in restrictive trade practices or ban them legislatively. After all, manufacturing imitation products is not illegal, immoral or dishonest. Many in the dairy industry remember how "The Battle of Oleo" was fought (and lost). The battle plan was to try and legislate the problem away. Margarine had to be colored or carry a color

other than yellow and was not allowed to be called imitation butter. But the days of the "Oleo War" are past. Hopefully we learned something from it - learned something that can help today's dairy industry meet the challenge of the marketplace.

We must meet the threat of imitations. How can we do it? In several ways: 1) by limiting imports, 2) by accurate labeling, 3) by consistently producing and marketing high-quality products, 4) by skillfully merchandising and aggressively promoting our products; and 5) finally, by pricing our products competitively.

1. Limiting Imports

Dairy industry leaders are pressing for the imposition of import quotas on casein under authority of Section 22 of the Agricultural Act of 1933. Based on current law, they argue, unrestricted importation of casein is clearly illegal! Casein imports, at a fraction of U.S. domestic prices, either reduce U.S. farm milk prices because of substitution of the imported casein for domestic solids-not-fat; or else they increase government dairy price support costs to maintain farm milk prices. Either one, industry leaders contend mandates import restrictions under Section 22.

2. Accurate Labeling

What should a fabricated dairy food like imitation cheese be called? Some of the more emotional detractors of dairy substitutes suggest that these products be labeled as phony, artificial, chemical imitations of the real thing. Others in the industry, in a less strident manner, propose that manufacturers of substitutes for milk, cream and cheese be permitted to label their products with any name they choose, provided no reference is made to the dairy product being simulated, and provided no descriptions are used that imply a dairy product origin. The American Cheese Institute has recommended that a single name be established so that uniformity is provided among states and, in that vein, has suggested that imitation cheese be labeled "emerine".

All they're asking for, dairy leaders contend, is enforcement of the current law! This law, the Federal Food, Drug and Cosmetic Act, states that food products are considered adulterated when any valuable substance has been removed and replaced by another ingredient. Further, the Act deems a product misbranded if it is offered for sale under another food's name, and holds that such a product is misleadingly presented unless wording indicating "imitation" is present next to the food product.

However, since 1973 FDA (The Food and Drug Administration), which is the agency within the Health and Human Resources Department with the legal responsibility for defining and setting food product identities and standards, has taken the position that only foods "nutritionally inferior" to the products they allege to be must be labeled "imitations". So if the FDA considered products likening themselves to natural cheeses to be "nutritional equivalent," they have accepted the word "substitute". Frequently, this has been their practice with fabricated cheeses.

THE OTHER SIDE

Dairy leaders strenuously object to FDA's position! They contend that imitation cheese products are, by current statutes, adulterated and therefore are misbranded. What's more, they add, were substitute products branded "adulterated" or "imitation," as FDA rules seem to stipulate, there would be a more negative attitude toward those products by individual consumers. A survey sponsored by the Wisconsin ADA determined that the word "imitation" used on a cheese label, cut in half a consumers' willingness to purchase the product.

The National Milk Producers Federation went to court to compel the FDA to comply with its own existing regulations and enforce the current law vis-a-vis fabricated cheeses. FDA, meanwhile, proposed standards of identity for 13 milk and cream substitutes and 12 cheese substitutes. If adopted, these would, in effect, authorize the manufacture and sale of fabricated substitutes for milk, cream and cheese formulated to be as similar to the real dairy product as chemically possible.

Further, these would sanction the use of the name of the product being imitated in the label of the substitute. (For example, a fabricated cheddar cheese could be called "Cheddar Cheese Substitute".) Additionally, the proposal would establish compositional requirements for meeting "nutritional equivalency" with the product simulated. A U.S. District Court recently

ruled that FDA has the discretionary power to implement such labeling.

Most everyone agrees that the purpose of a label should be to describe a product accurately enough so that prospective purchasers can discriminate among alternate items. Right now, labels don't always tell a complete story. For instance, a consumer may not know whether she is buying a product containing real or artificial cheese.

Take a look at the frozen pizzas in your supermarket. If they're labeled "pepperoni pizza" or "sausage pizza," the chances are good they contain artificial cheese. The manufacturer is by-passing labeling requirements by identifying them as meat products.

To counter the threat of substitutes, California milk producers developed a logo to identify products which contain real milk. It pictured a symbolic drop of milk surrounding the word "Real". They made it available for use on natural dairy products countrywide and this "Real Seal" is now actively promoted by the American Dairy Association.

3. Producing and Marketing Quality

If the dairy industry is to meet the challenge - if they are to fight off the influx of substitutes - they must consistently produce a quality product. What's more, they'd better ensure that it holds its original quality as it moves down the food marketing chain. Too often, it fails in this task. There's altogether too much cheese on the market that isn't top quality! The dairy industry also needs to destroy the myth that imported cheese is better than the made-in-America kind.

4. Merchandizing and Promotion

Cheese has been the glamour girl in the dairy product parade. Certainly, some of the credit is due industry giants like Kraft and Borden who went out, and to a large extent, created a market for cheese. In the years to come, these food companies and others like them, may diversify their product line and may place less emphasis on natural cheese alone.

Some in the dairy industry, recognizing that imitations just aren't going to fade away, believe the dairy industry should get in the business itself. "Isn't it better", they ask, "for our industry to reap the benefits rather than let outsiders have that market?"

There will always be a good market for natural cheese if it's a quality product, aggressively merchandized. Dairymen have a stake in seeing that job get done. And while we've come a long way (from 7.3 pounds cheese consumption per person in 1954 up to 20 pounds per person in 1982), we still have plenty of room for improvement.

If you don't believe it, look at France. The French eat an average of 39 pounds of cheese each year!

5. Competitive Pricing

The greater the spread between the price of real dairy products and the price of their substitutes, the more attractive the production of imitations becomes.

If the economic incentive is great enough and the chance of a payback good enough to research and develop some new products, you can bet that some company's going to put up the money.

Like it or not, and most dairymen don't, imitations and substitutes are a fact of life. So we better learn to live with them. The questions we should ask are; "who's going to produce them," "how much will be produced" and "who's going to benefit from them?"

CHAPTER XI. INDUSTRY CHALLENGES

PART IV - "WHICH WAY FOR WHEY"

WHEY - WHAT, WHEN, WHERE AND WHY?

Let's start with the "what"! Probably most of us first heard of whey at our mother's knee as she read us the nursery rhyme "Little Miss Muffet sat on her tuffet, eating her curds and whey." Probably back then most of us didn't have the foggiest notion what whey was. Could be, in fact, that most of us aren't all that sure today. So let's try and define it.

One definition of whey is that it's what's left over after making cheese. And that you can bank on! Where there's cheese, there's whey! In fact, about 90 pounds for every10 pounds of cheese produced! In the cheese-making process, practically all of the casein and much of the fat in the milk ends up in the cheese. The yellowish-green liquid which remains after the cheese curd has formed is whey. It's a product rich in lactose (or milk sugar), in minerals and in a milk protein called albumin. It also contains a little fat, the amount varying according to the type of cheese made (whey from Swiss cheese manufacture contains more fat than does that from cheddar). Whey is frequently run through a separator before disposal to reclaim any fat.

If you like to throw figures around (the arithmetical kind), probably these are as good as any to use as an average analysis of whey - lactose (5.1%), protein (albumin) (0.9%), minerals (0.5%) and fat (0.3%). Nor should we forget the major component of whey - water. On the average, whey is 93% water.

SWEET OR SOUR?

Whey can be (and is) further classified as <u>acid</u> or <u>sweet</u>. Acid whey is the by-product of manufacturing cultured cheeses, such as cottage, cream cheese and Neufchatel. However, cheeses which come into being as a result of the action of rennet-type enzymes (rather than through the action of acids) leave a by-product liquid with a higher pH called sweet whey. Cheddar and Italian type cheese-making produce sweet whey. Nationally, the production of sweet to acid whey enjoys a ratio of better than 5 to 1.

All in all, some 30 billion pounds of whey are produced in this country each year. This whey contains 2 billion pounds of what should be looked upon as valuable solids. After all, they contain about 70% lactose and about 10% protein - pretty fair nutrients in a food-short world.

However, making effective use of these nutrients has not proved quite that simple. Maybe not even as simple as it once was. For times do change! Used to be, back in the days when milk went to the cheese factory in 10-gallon cans, producers would keep two sets, one for hauling the milk to the plant and a second set, usually old, rusty discards, for hauling the whey back home to feed the pigs! The pigs didn't mind. In fact, they liked whey, and did well on it, providing a little grain was added to their diet.

But soon milk sanitarians, not without some justification, began insisting that milk and whey not be hauled on the same truck. At the same time the hog business was undergoing change. Pork production began to concentrate in the corn belt. But the dairy cows remained in the Northeast and the lake states. Naturally, the cheese plants stayed near the dairy cows. And the whey? Well, the changing pork production pattern produced a mighty long haul for a product that's 93% water. Additionally, those modern pork factories, with their sophisticated hog rations, didn't always lend themselves to effective use of a liquid product that sometimes was available only during the spring flush.

WHERE THEY WENT!

So, despite all the nutritional goodies whey contained, it began to be looked upon as a waste product - one to be rid of with a minimum of fuss and bother. As a consequence, the whey often flowed out the back door of the cheese factory into the nearest stream. Occasionally, small amounts were used as fertilizer. Some larger cheese plants started drying or condensing their whey and were able to pay for the investment required. But the required equipment was often too expensive for smaller plants.

Then came the era of the environmentalist. Society was alerted to the dangers of polluted air and polluted water. In the late '60s, a Federal mandate came down - "no more whey in streams." About the same time, municipalities began issuing stricter regulations about putting whey into sewer systems.

Quickly, alternative disposal methods were studied. Some suggested that the best approach was to spread the whey on the land. After all, the nutrients in whey do have some fertilizer value. However, this path was not without problems. For one thing, the greatest amount of whey is produced in the spring time when weather and planting schedules interfere with getting it on fields. Also, environmentalists, concerned about run-off, began looking at that practice with an increasingly critical eye.

RECYCLE IT?

Other people suggested that whey be fed back to dairy cows. They pointed out that, although the percentage of solids in whey is low, they're very digestible. What's more, they added, dairy cows need a lot of water and are usually located reasonably close to cheese plants. So research along this line began.

Sure enough, the studies showed that dairy cows can indeed consume large amounts of liquid whey. In fact, one cow can consume all the whey resulting from her own production and that of three or four of her sisters. For feeding, whey's greatest value is as a source of energy - a replacement for part of the grain. (100 pounds of whey are about equal to 7 pounds of corn.)

But feeding dairy cows whey is not all peaches and cream. To begin with, cows have to be trained to drink it. Often, their drinking water has to be removed. What's more, once started, whey has to be kept in front of the animals at all times. Thirsty animals can't be allowed to gorge themselves, particularly younger animals. In fact, too much whey at one feeding can become a killer. Whey is a laxative and animals not accustomed to it often experience diarrhea. So it's necessary to limit animals first started on whey. Additionally, liquid whey is a laxative and animals not accustomed to it often experience diarrhea. Additionally, liquid whey is not unattractive to flies. And even sweet whey will become acid after a couple of days and can erode metal storage tanks and feeding equipment (and even the cow's teeth). So adding up all the pluses and minuses, recycling whey back through dairy cows, while it might make sense for an individual dairyman, didn't appear like a final industry solution.

THE DRY LOOK

While smaller cheese plants had to close because they were unable to find a whey disposal solution that was both economically feasible and satisfactory to EPA, many larger manufacturers were able to justify the installation of drying equipment. Still other cheesemakers began sending their fluid whey to specialized whey drying plants to be processed into dry whey powder and whey butter. Currently, although some liquid whey is condensed and sold commercially, drying has become the most common method of processing.

The drying process begins at the cheese vat. As the whey is drained out, it passes through a "fines saver" which collects and saves any curd draining out with the whey. Next, the whey is pumped through a separator to remove any fat. (The whey cream can be used to make whey butter.) Then the whey is either heated or cooled (to prevent bacterial growth) and is stored until ready for the evaporation process which removes the water and turns the liquid product into a powder.

MANY USES

Dried whey has found many uses in both human and animal feeds. It's used as an ingredient in a number of foods - in ice cream, in processed cheese foods and spreads, in fortifying fluid milk products, in baking, in meat processing and in other food products. In addition to powdered and condensed whey, many other products made from whey have come into being. Food scientists have learned how to delactose, demineralize and deproteinate whey - and scores of new products have resulted. (Even as long as thirty years ago, a USDA report listed 28 different methods of utilizing whey.)

Nevertheless, despite all its many uses, whey continued to be looked upon as the problem child of the dairy industry. Because of its low concentration, recovering the small amount of protein in whey proved expensive. The removal techniques, most of which involved vacuum concentration and heat denaturation, used up considerable power and required expensive, highly-skilled labor.

Removing the lactose from whey was a similar story. Traditionally, lactose has been recovered by crystallization. This required extensive vacuum evaporation of the whey - also a highly energy consumptive process. As a consequence, up to now, only 56% of the two billion pounds of whey solid produced annually in the U.S. have been utilized. The other 44% represents both a substantial disposal problem as well as an economic loss.

SUPPLIES ZOOM

But that's just part of the story. What's even worse than not recovering the whey solids, was not being able to sell those that were recovered. More whey was being produced than commercial markets could absorb. Ironically, dried whey has been one of the major consumption bright spots in our entire dairy industry. Over the past couple of decades, per capita consumption of dried whey has increased manyfold. But despite this increased demand, the supply of whey has been growing even faster. (It more than doubled in just a decade.) Why? Because, as we said before "where there's cheese, there's whey." As U.S. cheese production - fueled by ever climbing consumer demand - skyrocketed, whey production followed suit. Tied as it is directly to cheese production, it follows it in lockstep. Supply, not demand, has caused our whey problem. We've been running faster, but staying in the same place!

PRICE A PROBLEM

While cheese consumption (and cheese production) has been climbing, so have cheese prices. But unfortunately, while cheese was enjoying some pretty hefty price jumps, the same wasn't true of whey solids. Dried whey prices have lagged far behind comparable products. In fact, the spread between whey powder prices and the prices of nonfat dry milk has not only been great, but getting greater, climbing from 43¢ in 1975 to 73¢ in January 1981. An obvious reason, of course, is that prices of nonfat dried milk are "supported" while whey powder prices are not. (USDA did support whey for a brief period in 1951, but hasn't since.) Frequently food grade whey powder prices have fallen to the level of feed grade whey powder - into which human grade powder often "backs," if it can't be sold for food.

Depressed whey prices are the direct consequence of excessive supplies of unused whey hanging over the market. Sometimes drying costs for nonhygroscopic whey (nonhygroscopic whey is the kind that won't attract water, and is therefore easier to handle and store) have been equal to or greater than the value of the dried whey itself. When this occurs, the cheese has to carry the extra cost of drying the whey - either as an adjunct of cheesemaking, if the cheese plant does its own drying, or if it doesn't, in payments to the specialized whey drying operations which handle its liquid whey.

A BRIGHTER FUTURE?

A sad story isn't it? Well, it would be except for some exciting technological breakthroughs now on the horizon. These have the potential to turn our whey situation from a total negative to a complete positive. For instance, consider one process called "ultrafiltration." What's ultrafiltration? Perhaps the best way to explain it is to compare it to netting fish. When a net is thrown into a school of fish and then drawn back towards the boat, little fish escape through the holes in the net while larger fish are collected inside it. In the ultrafiltration process, the openings in the "net" are microscopic in size. Nevertheless, it works much the same. Little particles go through, larger ones are held back.

Ultrafiltration makes possible separation of whey into its component parts. In ultrafiltration, whey is forced at low pressure and high volume through a membrane. Now, obviously, this membrane isn't just any old strainer pad. These membranes are engineered so that they permit the small-sized components of whey - the little fish, the lactose and the

minerals - to pass through, while holding back the proteins - which are larger in size. A second type of membrane processing known as "reverse osmosis" can be used to concentrate whatever component has been ultrafiltrated.

ULTRAFILTRATION

Membrane processing has been around for awhile. But its use in the dairy industry has grown dramatically in just the past few years. In large part, this growth is due to the development of improved or "second generation" membranes. With only modest outlays of energy, these readily separate whey into its component parts.

Ultrafiltration, or membrane separation of milk into its various fractions, is also a first step towards making a lactose-free milk product. A logical next step is to replace the lactose with some other sugar, such as glucose. Why bother? Well, because some people lack adequate levels of one of the digestive enzymes that break down lactose in the small intestine. As a consequence, they can experience abdominal pain or diarrhea after drinking large quantities of milk. Milk containing glucose instead of lactose eliminates this problem, and if properly formulated has the same sweetness as regular milk.

By the use of ultrafiltration, University of Wisconsin scientists have developed a process for making a frozen milk concentrate which might be marketed and stored much like frozen orange juice. Normally, lactose crystals in milk destabilize the milk protein when milk is frozen. Ultrafiltration has proved an acceptable way to prevent this. In the Wisconsin process, milk is separated into two parts, one part containing the lactose and calcium (as well as the other minerals); the second part containing the proteins. The two parts are then concentrated and frozen separately before being placed together in a can. When the milk is thawed for use, the milk constituents mix in their original proportions. This process is still in a research and development state. As yet, no frozen milk concentrate is available commercially.

WHEY PROTEIN, ANYONE?

Membrane processing has different goals today than it had originally. It was developed in an attempt to desalt sea water and brackish water and make them available for human use. And although membrane processing technology is still in its infancy in the dairy industry, its future looks bright! For if we have the ability to separate out the albumin in whey, there's no reason we cannot develop a milk protein industry.

Markets for milk protein are a good deal broader than those for skim milk powder. Because of certain functional advantages which whey protein enjoys, we may be able to tailor-make whey protein products to enhance the nutrition, the flavor, the whipability or the waterbinding stability of other foods.

Certainly, nutritionists look upon whey protein with favor. The same can't be said for dried whey, which they criticize because of its high lactose (sugar) content. However, nutritionists strongly support upgrading otherwise empty-calorie, junk "snack" foods by adding whey protein to them. Whey proteins can be used to nutritionally fortify beverages, bakery products, cereals, sausages and ice cream mixes.

Ironically, all this new technology which will permit us to develop a milk protein industry will come to naught unless we take some other steps. What steps are these? First, will we have to close the door on unlimited importations of casein, since casein and whey protein (albumin) are substitutable, one for another, in many food products (in fact, in almost everything except cheese)? Next, will we need to add milk protein to the list of those dairy products supported under our USDA price support program? (It's pretty difficult to encourage production of a milk protein product for sale in a free market, one without price support props, at a fraction of the government guarantee price for a competitive product.) Finally, must we, at least over time, gradually "tilt" our price support formula away from nonfat dried milk powder towards other milk protein products which do not contain lactose?

WHEY'S IMAGE

Another problem we must face is the current image of whey as a "waste" or by-product. This must change if whey proteins are to take their rightful place

shoulder-to-shoulder with other dairy products. Whey protein must be looked upon as a wholesome, nutritious food ingredient which has some other special attributes useful to food processors.

Despite whey's promising future, there are plenty of rocks in the road ahead! For one thing, we have huge stocks of dried skim milk in storage. So do the European common market countries. (In fact, their stocks are so large that, in order to reduce them, they have tied their price support funds to a complicated program for forcing use of nonfat dry milk in animal feeds.) But despite these roadblocks, whatever form they take, with skim milk powder currently selling for about 94¢ per pound and dried whey bringing only about 24¢ per pound, there are powerful incentives, in addition to the special physical properties which whey protein enjoys, for food manufacturers to turn to the whey products.

AND HOW ABOUT LACTOSE?

Of course, if we pull all the protein out of the whey and find a use for that, what will we do with all the lactose which remains? Here again some exciting potentials appear. Lactose is now being looked at in a fresh light. For one thing, lactose can be fermented to produce alcohol for an energy short world. Wouldn't it be interesting if someday you were fueling your cars with a product that came from your cows?

There's no question that alcohol can be produced from whey. It certainly can! Every ton of whey contains 100 pounds of lactose, and under optimum conditions, this lactose can be converted to 5.8 gallons of alcohol. The question, rather, is whether it can be produced economically. Right now there are plants in operation, both in this country and abroad, producing alcohol by fermenting whey. However, most of these plants utilize the ethanol they produce for beverage rather than energy purposes. (In addition to ethanol, the beverages include lactic acid, wine and vinegar.) This would suggest that beverage use produces a superior economic return.

Currently, while the production of ethanol from deproteined whey may make a contribution as an energy source, it is obviously less a solution to our energy problem than it is to our whey disposal problem.

A recent Cornell study which examined the commercial feasibility of ethanol conversion facilities in Northern New York provides cause for optimism. The study concluded that the development of such facilities using locally produced whey and/or imported corn would be highly profitable under a broad range of potential economic and technical considerations. It determined that under most conditions, federal energy subsidies are not a factor in ensuring the economic feasibility of such facilities, and that the production of a valuable animal feed by-product and the elimination of costly waste disposal problems further enhanced the value of such a project.

SCIENTIFIC BREAKTHROUGHS

Perhaps of greater relevance in the long run, though, are some exciting technological advances now under scientific scrutiny in laboratories and pilot plants across our nation. These may cut substantially the energy required to produce a gallon of alcohol.

WHAT'S AHEAD?

The future, as always, hides behind an impenetrable curtain. But, as always, exciting and unknown things await! For instance, will ultrafiltration systems be mounted on over-the-road bulk tankers, to separate milk proteins and fat from the lactose, water and minerals right at the farm, and leave the less valuable portions to be fed back to livestock? Will opportunities arise to develop still more valuable by-products from undervalued milk components?

Will the dairy industry be reluctant to manufacture so-called "non-dairy" food products, such as cheese substitutes (actually made from casein, a protein of milk)? Will others do that job?

Will the dairy industry recognize marketing opportunities when they appear? Consider for example an item sometimes called "cow's water". Of the approximately 120 billion pounds of milk produced and marketed in this country each year, approximately 105 billion pounds is water. Cornell's Dr. Robert Zall suggests that "milk water" might be separated from milk

by reverse osmosis and sold as a beverage or beverage ingredient. He believes the state of the art is sufficiently well developed in membrane technology that milk water can be produced with varying amounts of milk-mineral content. Isn't this, he asks, a good way to get milk minerals into geriatric food products?

Right now, mineral waters are being packaged and shipped all over the globe by expensive air freight. French-packaged mineral water can even be purchased in the remote jungles of central Africa. The mineral content profile of the reverse osmosis permeate originating from whey systems compares very favorably with commercially marketed mineral waters. So why should it not be carbonated and marketed as a valuable food fluid?

THE WHEY TO GO!

And how about whey? Will our dairy industry be alert to all the exciting new possibilities awaiting what was once considered a "waste" product. We hope so! Because in the vernacular of the "now" generation, that's sure the whey to go!

CHAPTER XII. DAIRY FARM LEGISLATION - THE PROCESS AND THE POLITICS

UNDERSTANDING THE POLITICAL PROCESS

Politics has been defined as "the art and science of government." Any dairyman who will accept that definition as valid should never consider himself "too busy" to get involved in politics. Because his individual welfare, as well as the economic well-being of the industry with which he is involved, is inexorably intertwined with government. Directly or indirectly, the overall health of our dairy industry is influenced by scores of governmental programs ranging from food stamps to forestry. Of the many, four stand out as affecting the profitability of dairy farming just as certainly and directly as does a feeding or breeding program. these four are the programs concerned with milk marketing orders, dairy price supports, dairy imports, and cooperatives.

PRICE SUPPORT DEBATE

All four of these federal programs have been under fire at one time or another, but their critics have been especially numerous and particularly vocal during the last decade. During the '70s, debate on federal marketing orders and dairy cooperatives was intense. Right now, most of the attention is focused on the dairy price support system.

Given the current and prospective costs of that program, it's not hard to understand why it remains the centerpiece of dairy policy debate. Dairymen have a vital stake in the outcome of that debate. What goes on in Washington, in the halls of Congress and in the Oval Office, affect how much money a dairyman makes (or loses) as certainly as what's going on inside his farm fences.

Political savvy is probably more important to dairymen than it used to be. In contrast to earlier days, today's dairy farm requires a huge capital investment. A dairyman better be able to assess just how any made-in-Washington decision is likely to affect that investment. Better still, he should know how he can influence what that made-in-Washington decision will be! Before he can ever hope to do that, he needs to acquire some political know-how.

THE WHY

That's the purpose of this chapter. Call it, if you will, a primer on politics. "Politics" isn't just for politicians; dairymen also better learn how government operates. If we who are involved in dairying are to have the slightest hope of maintaining effective dairy legislation, we jolly well better learn something about how it's developed and how it gets put into effect - who's involved, what's involved, where decisions are made, who calls the shots. We'd better get to know something about how the whole system works, in other words - something about "politics".

BACKGROUND BRIEFING

If we're to study politics, we must begin with a bit of background. Let's use the dairy provisions of the 1981 farm bill as our case study. The dairy provisions of that bill were part of a total federal farm, food, and agricultural policy concerned with many things. "Farm policy" is, after all, a wide-ranging creature, and a constantly evolving one - with multiple objectives, which often conflict one with another (i.e., simultaneously encouraging land retirement and land reclamation) and which also change over time. Farm policy, "the farm bill," is at best a compromise - one reflecting the different desires of many groups - farmers, consumers, Congress, the Administration. It's the end-product of a whole series of tradeoffs, an attempt to accommodate varying voices - rural and urban; producer, industry, and environmental groups; the interests of one commodity group versus those of another.

Despite great divergence among the individual parts of a farm bill, the way the parts come into being, the process by which they're developed and put into effect, is much the same. So, while we're primarily concerned with the dairy provisions of any new farm bill, it's well to remember that the legislative process by

which these are developed applies across the board.

EVERYBODY INTO THE ACT

In times past, the forces with the greatest influence on farm policy were few in number and easy to identify. They included the farm organizations and a bipartisan group of Congressmen, mostly from the Midwest and South, with a smattering from other specialized commodity areas (examples - the Wisconsin dairy area and the Florida Citrus Belt). But today, new voices challenge this once comfortable alliance between Congress, the USDA, and agricultural interest groups.

Agriculture today is more than just a local concern. Over the past few decades it has been transformed radically and irreversibly. Today agriculture is an integral, highly visible part of the total U.S. economy. So nowadays, it seems, almost everybody wants to get into the act of making farm and food policy. No longer just traditional participants, but other widely diverse groups - such as foreign policy specialists, consumer activists, and organized labor, want to have their say.

Even when these new interests are well-intentioned, intending only to bring forth a policy in keeping with the "public interest," it's important to remember that their conception of what's in the "public interest" may not be the same as that held by farmers.

In learning the "game" of politics, one of the first things we should remember is that less than 3 percent of our population farm, and only a few of that 3 percent are dairy farmers. A head count like that doesn't represent a very strong voting bloc. We must also recognize that changes within Congress during the past decade have created a new and less friendly atmosphere for agriculture. Procedural reforms in the mid-seventies affected the distribution of power. More important still was the replacement of rural southern representatives who once dominated committee chairmanships by urban northerners. (However, in 1982 the Agricultural Committees were still chaired by Southerners.)

AGRICULTURE'S CLOUT

Fortunately, even now, farmers are able to exert influence beyond their numbers. Perhaps because of tradition, or maybe because of plain old inertia, certain structural changes that could have diluted agriculture's influence have not been implemented. Also, most Congressmen recognize that city folk or country dweller, everyone has a stake in agriculture.

Congress is also aware that agriculture's paltry numbers belie its economic impact. They know it accounts for one-fifth of our gross national product and also one-fifth of our total exports. In 1980, $41 billion of farm exports helped mightily in paying for imported oil. So even if the "farm bloc" no longer exists, there remains a power base from which coalitions can be formed and negotiations made.

In learning about politics we must recognize certain realities of the political process. One reality is that some basic differences exist between the House and Senate in the way each looks at agricultural legislation. Every one of the one hundred Senators have agricultural constituents in their states. However, fewer than one-fourth of the 435 members of the House represent a district with 20 percent or more of the voting population made up of farm families. Given their urban constituency, House members are apt to be more concerned about retail food prices, food quality, or food stamps, than they are about farm prices or income. As a consequence, the Senate sometimes passes more "liberal" bills favoring farm producers, knowing full well that the House, with its more urban influence, will later alter them.

CONGRESSIONAL HORSETRADING

To achieve any legislation, differences among the participants in the legislative process must be reconciled. Obviously, farmers and consumers may be in conflict, but even among agricultural producers there are different views and policy positions. For example, high grain prices, welcomed by grain producers, may not be greeted with equal enthusiasm by dairymen or cattle feeders; and growers of export crops (such as rice) may have policy differences with growers of products mostly sold domestically (such as milk).

Farmers also differ in their attitude towards particular farm policies and

programs, sometimes based on their own economic position, sometimes based on their own political philosophy. For example, farmers who have already paid for their farms may be less willing to support easy-money, low-interest farm loan programs than those heavily in debt. Farm organizations, too, demonstrate divergent policy positions. For example, contrast the American Farm Bureau's position on many issues with that of the American Agricultural Movement (the sponsor of the Washington "tractor blockade").

Trade-offs among members of Congress are frequent. For example, in recent years cotton state representatives opposed a ban on food stamps for strikers in exchange for organized labor's support of legislation favorable to cotton growers. Rural Congressmen representing wheat and feed grain producers have gained the votes of urban representatives in exchange for supporting minimum wage legislation. Both the administration and party leadership often try to influence the legislative positions of Congressmen using "a carrot or a stick".

THE LINEUP

Policymaking involves many different people and groups. It's almost a truism that "you can't tell the players without a program". So you need to get a "program" and study the lineup - who's involved, where he's coming from, where he stands on the issue, and how he'll affect the outcome. Let's open our program and study the "lineup" as it existed when discussions on the 1981 Farm Bill got underway.

When the 97th Congress convened in January of that year, some long-familiar faces were missing. Among them were several prominent members of the Senate Agriculture Committee, including its former chairman, Herman Talmadge of Georgia. In the rubble of its defeat the previous November, the Democratic party could look to the House of Representatives as its only major surviving seat of power. As the 96th Congress passed into oblivion, control of the Senate Agriculture Committee (as well as all other Senate committees) passed from Democratic to Republican hands for the first time since the 1952 elections. As a consequence, a number of Democratic staffers, some of whom had been in place for nearly a quarter-century, were replaced.

Even though the Democrats retained control of the House, changes in the make-up and operation of the House Agriculture Committee had also occurred. For one thing, several subcommittee chairmen were no longer around. Among them was the chairman of the subcommittee on Dairy and Poultry (Alvin Baldus, D-Wisconsin), who had lost out in an election eve squeaker. (Another Wisconsinite, Senator Gaylord Nelson, an equally strong supporter of dairy interests, also was defeated.)

The changes in both houses were extensive and significant, and Agriculture did not escape them. When the Agriculture Committees in both houses began fashioning their new farm bill to replace the Food and Agriculture Act of 1977, they began with new leadership, new members, and (at least on the Senate side) a new staff. Senator Jesse Helms (R-N.C.) became the new chairman of the Senate Agricultural Committee and Representative Kika de la Garza (D-Texas), the new chairman of the House Agricultural Committee.

WHAT'S UP, DOC?

The period preceding Congressional redrafting of the farm bill is always willed with debate and discussion on farm policy among farm groups, commodity organizations, industry, and Congress. The sweeping political changes of 1981 fueled that process, adding a large element of uncertainty concerning the political intents of the new Administration and a significantly altered Congress.

Farm bills typically reflect both current conditions and the political philosophies of key policymakers. So how about those new policymakers? What changes would the Reagan administration and its new Agriculture Secretary, former Illinois grain farmer John Block, seek to include in that new bill? How about the Administration's new Budget Director, David A. Stockman, who had once termed the dairy support program "a scandal"? What would he recommend? How did the new Senate Agriculture Chairman, Jesse Helms, and the new House Chairman, Kika de la Garza, feel about the farm bill and what it should include? Where were the power points in this new set-up? Who would be calling the shots?

THE RESPONSE

Answers to these questions weren't long in coming. The Administration soon made its position known. The President submitted an austerity budget which signaled the start of a cut-and-slash assault on Federal spending programs, including those for Agriculture. Budgetary restraints were to be priority considerations in all 1981 Farm Bill deliberations. When the Administration's first big gun in its war against inflation was fired in March, it was aimed directly at the dairy price support program!

The first salvo was Senate Bill 509. That measure called for cancellation of the semi-annual adjustment in dairy price supports which were scheduled for April 1, 1981. Hearings were held on the bill in February, and it was reported out of committee (by a lopsided 14 to 2 vote) in early March. An attempt to tack on an amendment to limit casein imports was quickly shot down! The Senate and the House overwhelmingly approved it, and on March 31, 1981, the day following an attempt on his life, President Reagan signed it into law from his hospital bed. The signing occurred just hours before the scheduled increase was due to go into effect. As a consequence, the support level continued for the remainder of that year at the same level established at the beginning of the year.

THE COMBATANTS

Cancellation of that April 1 adjustment set the tone for battles yet to come. The 1981 Farm Bill was coming up and the dairy price support program would be a prime target. The battle participants were several - on one side the Administration, a Congress with a new attitude about spending (an attitude reinforced by voters the previous November 4) and other allies. Among the latter were consumer groups, such as The Community Nutrition Institute, Common Cause, and Ralph Nader's Congress Watch. Additionally, a coalition of "milk users" - food processors, restaurant and chain store operators and others, had been organized. This industry group - called the Industrial Milk Users Group - said its members "recognized the need for a strong domestic dairy industry, but can't live with the current situation."

On the other side of the battle line, the dairy farmers' forces were arrayed. Their troops were principally the National Milk Producers Federation and its member cooperatives. Some individual cooperatives and farm organizations (such as the National Farmers Union) were also on the scene. The dairy farm forces did have a few friends in Congress.

Perhaps "battle" is too strong a metaphor to use to describe the situation vis-a-vis that farm bill. However, it does serve to emphasize that various forces with widely divergent views were at work, each trying to influence the shape of the new dairy provisions. Among them were some who believed that the dairy price support program as it then existed should be completely revamped or else totally scrapped. Even many dairy leaders believed it needed substantial retooling.

MULTIFACETED SITUATION

It would be misleading were we to leave the impression that the dairy price support part of that new Farm Bill was the only issue of importance. Other issues were equally vital; the politics of imports, for instance. Imported casein used to make dairy imitations or substitutes had increasingly displaced domestic products. Because of this, dairymen were asking for imposition of Section 22 import restraints. (Section 22 was enacted to prevent imports of a commodity from interfering with the operation of domestic price supports.) Also, Congress and the Executive Branch's position vis-a-vis marketing orders and cooperatives was not to be ignored. But in the shaping of the 1981 legislation, dairy price supports were getting most of the attention. Should you wonder why, read on!

THE SURPLUS SCENARIO

As the new dairy bill took shape, mountains of butter, cheese, and dried skim milk were piling up. Those stockpiles, the biggest dairy surplus in almost 20 years, were constantly growing. In 1980, the CCC had purchased 6.5 percent of all the milk produced in the country, spending $1.3 billion in the process. In '81, they expected it might cost $2 billion or more. As of June 1 of that year, the government stockpile of dairy products included 411

million pounds of butter, 439 million pounds of American cheese, and 651 million pounds of dried milk.

What's worse, the situation wasn't improving. In fact, in each of the previous 25 months, national milk production had exceeded that of the corresponding month of the previous year. In March of that year, every state in the Union (except Alabama) increased milk production. With weekly government purchases in the spring of '81 accounting for around 40 percent of total butter production, 20 percent of American cheese production, and 60 percent of nonfat dry milk production, the situation seemed almost out of control! That was the climate which existed as legislators and policymakers hammered out a 1981 Farm Bill to replace the Food and Agriculture Act of 1977 (which was to expire on September 30, 1981).

A LOOK AT THE PROCESS

In our study of politics, now that we've checked who's involved, let's look at the process that's involved. The process starts when we voters decide who will represent us in Congress and serve as our President. Presidents and their executive agencies vary in the degree of initiative they exercise in proposing legislation for new or amended agricultural and food policies. Sometimes the Secretary of Agriculture and his USDA research staff take the lead in proposing or drafting new legislation. Often they seek ideas from individuals or organizations, sometimes establishing advisory groups.

Not surprisingly, any legislation that involves money is closely scrutinized by the Office of Management and Budget. Ultimately, once the Administration's decisions have been made, its proposals are sent to Congress as part of the President's message or they may appear as a specific proposal for legislation.

In Congress, any legislation affecting agricultural or food policy is referred to the House Committee on Agriculture and to the Senate Committee on Agriculture, Nutrition and Forestry. In recent years, major farm bills have been introduced first by the Senate Committee. Its chairman, since he bosses the staff who do the actual bill drafting, can strongly influence the provisions of a bill. The Senate Committee has traditionally been "pro-farmer" (for example, raising the price support floor) leaving it to the House Committee to later develop a bill acceptable to the Executive Branch. The House Agriculture Committee has to be more "realistic," taking nonfarmer views into account as it plays the role of compromiser.

THE WHEN AND WHERE OF A BILL

Any member of the House or Senate can introduce a bill. Hundreds are introduced every year. But if it's going to be considered seriously, the bill had better be introduced by a member of the appropriate committee, and endorsed by its chairman. Oftentimes, seeking additional support, a bill's sponsor will ask other members of the House or Senate to add their names as co-sponsors. Merely having a large number of co-sponsors, however, is no guarantee of passage.

Once introduced, a bill is referred to the appropriate committee for study and a recommendation. Each committee (the Senate Agriculture Committee and the House Agriculture Committee) have subcommittees to which the bill may be referred by the chairman. A subcommittee can kill, amend, or rewrite a bill or may combine it with other legislation. Subcommittees usually hold hearings at which witnesses may be invited to testify, or may ask to be heard. These provide a public forum where witnesses can support, criticize, or suggest changes in order to avoid problems later. (Those testifying sometimes are more knowledgeable about a subject than those responsible for drafting the bill.)

Agency representatives i.e., USDA), who have to administer a bill if it becomes law, may offer views about whether they can do so effectively, and about the potential costs and consequences of it should it become law. Hearings seldom kill a bill, but they may modify it and perhaps, in the process, improve its chances of passage.

THE MARKUP

After the hearings comes what is called the "markup" process. At "markup" sessions, committee members review each section of a bill, debate its merits and consider its effects. They may change wording or add amendments. Most markup

sessions are open to the public. Once a subcommittee has completed its work, preparing or considering separate parts of a major bill, these parts are combined into a single bill by the full committee.

Differences are reconciled, hassles wrung out, coalitions formed and trade-offs agreed upon when the work of each separate subcommittee comes back to be combined into a single bill. Although some members may not like all sections of a bill, most likely they respect the work of the other subcommittees and may accept their proposals in order to get some of their own recommendations included in the final version. (For example, in the previous "Farm Bill," the Food and Agricultural Act of 1977, trade-offs occurred between the proponents of price supports and the proponents of food stamps.)

Next, somebody decides when and if the committee's bill will come to the floor. In the House that "somebody" is the Rules Committee: in the Senate, it's the majority leader. A committee can hold a bill in committee, never releasing it, thereby effectively killing it. Once a bill reaches the House or Senate floor, amendments can be added. Any member can attempt it, but "it ain't easy" because most amendments not previously approved in committee fail. A member wishing to amend a bill must first be recognized by the Speaker of the House or by the presiding officer of the Senate. If recognized, he better have some pretty strong support for his particular amendment, or else have lined up some pretty strong opposition to that particular bill - or the chances of his amendment passing are pretty slim.

MONEY MATTERS

Of course there's always a little thing called money. The President has an Office of Management and Budget. Earlier in 1981, the OMB's program budget (at close to $700 billion) had gained overwhelming approval by both houses of Congress. It swept through the House 253 to 176, with more than one-fourth of the House Democrats climbing aboard the bandwagon for the President's frugality plan. Congress has its own budget office, which it created a while back to keep score on spending. While the House and Senate Agriculture committees may authorize spending of certain amounts, the actual appropriations originate in the Appropriations Committees of the House and Senate. And you sure can't spend what they won't give you.

COMPROMISING

Once a bill passes both the House and Senate, it must be made identical before going to the President for signature. If differences exist, a Conference Committee, made up of selected members of the House and Senate Agriculture Committees, works them out. The resulting compromise bill goes back to each of their respective bodies for final passage before going on to the President. If the President signs the legislation, it becomes the law of the land; if he vetoes it, a two-thirds majority of both houses of Congress are required to override the veto.

The 1977 Farm Bill was to expire October 1. If a new Farm Bill was not passed, the dairy support program would revert back to that existing in the permanent legislation established by the Agricultural Act of 1949 (75 to 90 percent of parity, no mid-year adjustment).

THE 1982 PROPOSALS

All parties to the legislative process we've been describing were hard at work - studying, dickering, dealing, designing a new Farm Bill. The Administration began it all by submitting its dairy price support proposals. They included no fancy new ideas - just a good, quick, clean whack at the parity level, trimming dollars in the process. It proposed dropping "the floor" from 75 percent of parity to 70 percent. However, it also proposed including "a hole" in the floor which, under heavy supply conditions, would drop parity even lower. The President, who was playing hardball in his attempts to pare spending, had indicated he would veto bills that exceeded budget targets. He had been quoted as saying he intended to stick to his spending plan in total, and "my pen is ready". Whether that was rhetoric or reality, only time would tell!

The Senate and House Committees also had their ideas about price supports. Those ideas became somewhat less liberal as time went on. The House's proposal incorporated a much talked about "trigger" to establish support levels consistent

with a predetermined schedule. Parity level would drop as CCC purchases climbed. (At various times, the National Milk Producers' Federation, the American Farm Bureau and USDA each had made proposals of that kind.)

The Senate committee debated several different proposals. Both Houses, however, soon recognized the realities. As far as the support program was concerned, it could no longer be "business as usual". It was all too apparent that in 1981 "business as usual" might end up drawing more than $2 billion out of the U.S. Treasury. So it was "back to the drawing board" for more cutting and paring.

That's the way things stood. The Administration had a plan, the Senate had a plan, the House had a plan. But under the pressure of the budget guidelines, they brought their plans closer together. A Conference Committee was put to work on those dairy legislative proposals. The resulting legislation, passed by both houses and signed by the President, became effective December 1, 1981. Not surprisingly, it was quite different than the original proposal. It established fixed dollar "support levels" for the next 3 years.

INTERPRETING

If one of the reasons for studying the politics of farm legislation is to be able to make wise business management decisions, we also need to be able to interpret the meaning of politics. We need to ask ourselves, "how will the legislation affect my dairy farm business?" We need to interpret how legislation passed today will affect the price of milk or the cost of producing it, and plan to implement the appropriate adjustments.

LONG RUN/SHORT RUN

A dairyman doesn't have to be very old to remember when he faced a situation akin to that he faces today. Mountains of dairy surpluses had accumulated. Then something came along - a poor crop year or huge foreign grain shipments, higher grain prices or higher beef prices, a drought or disastrous crop conditions in some parts of the world, and before you knew it, the mountains of dairy surpluses had eroded away. So, when it comes to something like price supports, it's important that we examine them not just in the short run, but also take a look and see how well they have worked over time. Dairymen should involve themselves in that "look" and any decisions based on it.

THE LONG HAUL

In the long run, dairymen must be represented in the political process if they are to maintain a measure of stability in their industry. The power structure constantly changes. Even if politically successful today, they have to stay "on the job" or they may suffer the consequences tomorrow.

Because the question is not really today's question. It's not just today's farm bill! Legislative decisions affecting dairymen are not just a "one-time" thing. Such decisions will continue to be made as long as "the cows come home."

COLLECTIVE ACTION

That's why dairymen must band together. Individually they can do little; collectively they can do many things. For example, they can employ a lobbyist to influence legislation on their behalf. To some, "lobbyist" may seem like a dirty word. But Congressmen consider most lobbyists to be well-informed, reliable sources of information. Certainly, lobbyists are biased towards their particular interest, but most are subject to certain constraints and are careful not to overplay their hand, lest they lose their credibility, and with it, their future effectiveness.

In contrast to general farm organizations, single commodity organizations often find it easier to agree on a position which their lobbyist can promote, than can a farm organization representing producers of several commodities. There are several single-commodity organizations working for dairy-related groups. Among them are: the National Milk Producers' Federation (dairy co-op financed), the Milk Industry Foundation (handler financed), the American Butter Institute, the National Cheese Institute, the American Dry Milk Institute and the Whey Products Institute (all jointly financed by co-ops and proprietary handlers).

In addition to membership in the National Milk Producers' Federation, several individual dairy co-ops actively involve themselves in the political game, not only making their individual positions known but also, through Political Action Committees (PAC's), financially supporting those who support them "on the hill". As long as dairymen and dairymen's organizations play by the rules, they have just as much right as anyone else to play that game.

DECISION DAY

Your elected representative has but a single vote to cast. He may not always cast it as you would like, or as you ask him. On many issues, there are people with strong feelings on both sides. Your representative must weight the views of all these constituencies and use his judgement as to the consequences of the choices he makes. So you may not always win. But if you don't ever try, you haven't even been in the game!