December 2014 **E.B. 2014-10**

New York Economic Handbook 2015

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This material is based upon work supported by Smith Lever funds from the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

Publication Price Per Copy: $10.00

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This publication contains information pertaining to the general economic situation and New York agriculture. It is prepared primarily for use by professional agricultural workers in New York State. USDA reports provide current reference material pertaining to the nation's agricultural situation. Many of these reports are available on the internet. Click on "Newsroom" at the following website: *http://www.usda.gov/wps/portal/usdahome*

The chapters in this handbook are available in PDF format on the Charles H. Dyson School of Applied Economics and Management outreach website: *http://dyson.cornell.edu/outreach/*

Chapter 1. Websites for Economic Information and Commentary

Steven C. Kyle, Associate Professor

1. http://rfe.org *Resources for Economists*
   This American Economics Association website has an encyclopedic list of all sorts of web-based economics sites.

2. http://www.economagic.com/ *Economagic -- Economic Times Series Page*
   Economagic is an excellent site for all kinds of U.S. economic data, including national income accounts, the Federal Reserve, the Bureau of Labor Statistics and more. The site includes a very useful graphing function and allows downloads to excel worksheets as well as simple statistical functions.

3. http://www.econstats.com/ *Economic Statistics*
   EconStats is another site with links to all kinds of US data. It also has links for data for many other Countries.

4. http://research.stlouisfed.org/fred2/ *St. Louis Federal Reserve*
   The Federal Reserve Bank of St. Louis boasts that they track more than 61,000 economic variables. They also have good chart software incorporated in their site.

5. http://www.cbpp.org/index.html *Center on Budget and Policy Priorities*
   The Center on Budget and Policy Priorities is a non-partisan web site that focuses on economic policies related to the budget and their effects on low- and moderate-income people.

6. http://www.calculatedriskblog.com/ *Calculated Risk Blog*
   Calculated Risk has commentary on financial markets and is especially good on national real estate trends.

7. http://www.econlib.org/ *Library of Economics and Liberty*
   The Library of Economics and Liberty web site features articles and links to many books and other economics related resources.

8. http://www.heritage.org/ *Heritage Foundation*
   The Heritage Foundation comments on economic policy from a conservative viewpoint. This link takes you to a very useful federal budget calculator that will help you understand what the federal government spends its money on and where they get the money from.

9. http://www.kowaldesign.com/budget/ *Budget Explorer*
   This site contains a budget explorer which I like because it allows you not only to calculate your own budget but also links to the various executive branch departments with spending authority, so you can see exactly where the money is going.

10. http://www.concordcoalition.org/ *The Concord Coalition*
    The Concord Coalition is a non-partisan group advocating a balanced budget. Their site contains very useful graphs and projections showing what current taxing and spending proposals mean for the federal budget in the years ahead.

11. http://www.economy.com/dismal/ *The Dismal Scientist*
    This is a very good web site for evaluations of current statistics and policy.

12. http://www.federalbudget.com/ *National Debt Awareness Center*
The National Debt Awareness Center has a useful graph providing up to date information on the size of the national debt and what the Federal Government is spending money on.

13. http://www.ombwatch.org/ *OMB Watch*
OMB Watch is another web site devoted to information on what is happening to the federal budget.

14. http://www.brookings.edu/ *The Brookings Institution*
The Brookings Institution publishes lots of good articles on current economic and political policy.

15. http://www.realtor.org *National Assoc. of Realtors*
Check this site if you want information on real estate.

16. http://www.census.gov/ *U.S. Census Bureau*
The U.S. Census Bureau web site provides demographic and population numbers.

17. http://briefing.com/investor/learning-center/analysis/ *Briefing.com*
For a more in-depth analysis of stock and bond markets and the factors that influence them, check out Briefing.com.

18. http://www.imf.org/ *International Monetary Fund*
The International Monetary Fund is an excellent site for data on all member countries, with a particular emphasis on balance of payments, exchange rate and financial/monetary data.

19. http://worldbank.org/ *The World Bank Group*
The World Bank has cross country data on a wide variety of subjects.

20. http://www.undp.org/ *United Nations Development Program*
The UNDP has cross country data with a particular focus on measures of human welfare and poverty.

21. http://www.fao.org/ *Food and Agriculture Organization of the UN*
The Food and Agriculture Organization of the UN has cross country information on food and agriculture.

22. http://datacentre2.chass.utoronto.ca/pwt/ *Penn World Tables*
The Penn World Tables are a useful source for a variety of economic data series not available from other sources.

23. http://www.bls.gov/fls/ *U.S. Department of Labor, Foreign Labor Statistics*
The Foreign Labor Statistics program provides international comparisons of hourly compensation costs; productivity and unit labor costs; labor force, employment and unemployment rates; and consumer prices. The comparisons relate primarily to the major industrial countries, but other countries are included in certain measures.

24. http://www.kyle.aem.cornell.edu/ *Professor Kyle's Web Site*
Visit my web site for information about me, material contained in this chapter, and my work in the area of economic policy.

Chapter 2. The Marketing System

Kristen S. Park, Extension Associate

Special Topic – A Perspective on Current and Evolving Marketing Channels

The U.S. food marketing system moves food produced from farms through a variety of marketing channels to the end consumer. Changes in the internal and external environment exert forces and pressures on this system. The size, complexity, and reactive nature of the system allow it to flex but not break with these pressures. When it flexes, the marketing channels in the system respond like water channels in a delta. Some channels thrive and grow larger while bending through different courses, others might diminish and dry up, and others arise in areas in which they never before occurred.

Researchers try to capture and summarize some of the changes in the marketing channels to provide strategic information to companies and consumers in the food system. The section below suggests some channels that may be developing for Northeast producers.

Direct marketing. The volume of product and sales moving through direct marketing channels is difficult to measure but is frequently cited as being about 1 percent of the total food sales. In the 2012 U.S. Ag Census, farmers reported $1.3 billion in direct marketing sales to individuals (USDA, 2012). It is a modest increase of only 8 percent from the previous Census 5 years ago. It does not include sales by farms to restaurants, schools, hospitals, etc. although these sales are often called "direct marketing" sales by the industry.

Direct marketing moves product through farm stands and stores, farmers markets, CSAs, and online shopping. For many producers, farmers markets have been extremely successful. Recently, however, new farmers markets openings have slowed and many of those that open fail and close. Farmers stands and stores and farmers markets have also not shown much evolution or development. They may be operated better or worse than others, but the basic premise of a farmers market has not changed. Farmers bring product to the market, consumers travel to the market to select what they want.

However, Community Supported Agriculture (CSA) has evolved and is continuing to evolve in ways that may allow broader consumer appeal, greater sales, and increased profits. CSAs have evolved more highly assorted baskets, more pricing options, and more distribution methods that make it easier and more convenient for customers to use. Increased product assortment in some CSAs can include artisan cheeses, berries, bread, prepared foods, fresh cut flowers, herbal products, fruit, apple cider (fresh and hard), mushrooms, animal fiber, and even art (Miner, 2013). Co-marketing and collaborations among farms have developed combined pick-up locations, aggregated product from several farms, and expanded pick-up locations. CSAs have also started experimenting with promotions and alternative payment systems (Miner, 2013). Some of these include a pre-paid loyalty discount program that can provide farm store credit or can be a mobile payment device. Orders for CSAs are also being offered on-line through farm-owned websites and through virtual farmers market websites.

Direct shopping online has had many challenges in product assembly, payment, and distribution. But farm and consumer geeks have been working on online platforms that offer virtual farmers markets that can be coordinated with food distribution hubs as well as second- and third-party distributors. Many of them allow consumers to click and order from one or multiple farms or assemble their CSA. However, this link into product assembly and distribution is vital if online direct marketing is to succeed. Experiments in streamlining

ordering and assembly and distribution are especially found in metro areas, such as San Francisco and New York City. Some of these include Good Egg and Greenmarket Co. (part of GrowNYC). Metro areas are hard for small growers to penetrate independently. Farmers markets are the most frequently used channel. However, the consumer market in metro areas greatly exceeds the capacity of farmers markets. Therefore, online shopping and food hub assembly and distribution allows "local" to penetrate cities.

Wholesale & intermediated marketing. Many farms that started by selling through direct marketing channels have saturated these markets, expanded production and need additional sales outlets. Wholesale, or what is now more commonly called intermediated, channels provide many more sales volume but with smaller sales margins. Intermediated channels that appear to be growing including those that maintain farm or locale identity. While direct market supply chains consistently offer consumers detailed information about where, by whom, and how the product was produced, the addition of intermediaries to the supply chain makes it more difficult to convey this information. Intermediaries are assembling, packing, and distributing from a number of farms. Keeping product from farms separate and identified does not often make financial sense.

Food hubs provide the same functions as wholesalers, but they identify with the local producers and work to preserve that local identity. Many food hubs have been founded and supported with public monies and their long-term viability has yet to be seen.

A series of case studies by USDA and several researchers across the U.S. (King et al., 2010) looked at five intermediated supply chains for a variety of local products. The supply chains included: farm-to-wholesaler-to-school; farm-to-retail; farm-to-co-operative grocer; farm-to-supermarket. In each case, the identity of the farm and/or identity of local was maintained through the intermediary to the consumer. Also, while the farm margin was lower than farm margin of similar products direct marketed, it was consistently decoupled from the commodity price reports, and they received a larger share of the retail price than the mainstream channel.

Some producers and hospitals have been developing a farm-to-hospital channel. The benefit to farmers is an additional market channel for their production. According to a Cornell survey of 100 hospitals in the Northeast, hospitals indicated that the leading benefits to hospitals include (Smith, 2013):

- Food safety
- Support of local economic environment
- Quality of food (freshness)
- Environmental sustainability

Hospitals, however, incur higher transaction costs when using local farms. The same survey revealed the following disadvantages to using a farm-to-hospital program:

- Supply reliability and local product seasonality
- Cost, price of local foods
- Lack of access to local food and time required to research farms and build a consistent relationship with the farm, no direct relationship with farmers, rely heavily on local purveyors
- Initial resistance from senior hospital management
- Changing preparation techniques and the lack of education in regard to local foods
- The diversification of patient meals due to dietary guidelines

In addition, many farms have found difficulties in accessing the channel as their transactions costs are higher and margins lower than direct markets. The higher transaction costs include difficulty in finding and accessing hospital food directors and understanding the bidding process and contract terms. Some other findings from the survey could help farms interested in pursuing a farm-to-hospital program. These include:

- 36% of the hospitals signed the "Healthy Food in Health Care" pledge which is a nationally recognized initiative of the health care industry
- 58% of the hospitals surveyed have adopted a farm-to-hospital program
- 63% have a self-operated foodservice program, as opposed to a third-party operated program
- The average number of meals is 498 per day
- Hospitals that signed the pledge are more likely to have a farm-to-hospital program
- Larger hospitals are much likely to run successful farm-to-hospital programs
- Hospitals located in counties with strong direct marketing channels (e.g., more farms running CSAs) are more likely to have successful farm-to-hospital programs
- Neither type of foodservice management nor being located in rural counties influences a hospital's decision to adopt a farm-to-hospital program

Mainstream retail channel. The largest volume of food by far travels through the retail channel. This channel is generally the lowest margin market as well. Producers who are able to access and sell to this channel are usually the largest producers with their own sales staff and/or brokers. Smaller producers can and do access this channel as well, however, these are market savvy operators with at least some packing and distribution capabilities.

Those interested in selling to retailers should keep the following information in mind (Gómez, 2014):

- Retail price premiums are difficult to maintain when "local" is the only differentiating characteristic. Therefore, information about your farm, product attributes, production methods, etc. should be clearly stated on your label or package and transmitted to consumers
- Interviews with retailers have shown that local products are not any more profitable for the retailer than products from the major production regions
- Aggregation is necessary to offer appropriate volumes at competitive prices
- Pricing strategies for local foods is challenging
- Growing demand for local/regional foods in mainstream channels may be challenging due to seasonality
- Seasonality requires flexible procurement practices
- Food safety is a **major** concern for most retailers

U.S. Food Prices

The 2015 GDP forecast is looking better than it has for several years, and the positive effects from this are stronger personal income and unemployment numbers (Table 2 – 1). Real disposable personal income in 2014 is finally looking up after a dismal 2013. The forecast for real disposable personal income in 2015 also looks positive and on pace with the consumer price index.

TABLE 2 – 1. ECONOMIC SNAPSHOT

Economic Measure	2011	2012	2013	2014 (forecast)	2015 (forecast)
Real GDP (annual % chg)[1]	1.6%	2.3%	2.2%	2.3%	2.7%
Real Disposable Personal Income (% chg)[1]	2.5%	3.0%	-0.2%	2.6%	2.7%
Consumer Price Index (% chg)[1]	3.2%	2.3%	2.3%	2.3%	2.4%
Consumer Price Index, All Food & Bev. (% chg) [2]	3.6%	2.5%	1.4%	2.5 – 3.5%	2.0 – 3.0%

[1] Historical data from Bureau of Economic Analysis; forecasts from U.S. Energy Information Administration.
[2] Historical data from Bureau of Labor Statistics; forecasts by USDA-Economic Research Service.

The Consumer Price Index for food in 2014 is expected to increase more than the overall CPI for all goods and more than the 25-year historical average CPI for food of 2.8. High meat, eggs, and dairy prices are pushing up the CPI for food as well as high fruit prices (Table 2 – 2). Higher meat prices are starting to affect poultry prices as more consumers are substituting cheaper poultry for higher priced beef. Fresh fruit prices surged in 2014 due primarily to lower citrus supplies from citrus greening problems in Florida and a freeze in southern California in late 2013 which affected 2014 production.

The average increases in fresh vegetables prices in 2014 are on top of large price swings between 2012 and 2013. Processed fruit and vegetable prices showed tepid increases in 2014.

Consumer prices for food in 2015 are expected to remain strong and steady even on top of the large increases in some categories this year (Table 2 – 2). Meat prices in 2015 are still expected to increase 3 to 4 percent above this year's increases. Fortunately, larger layer numbers are expected to increase the egg supply and egg prices should only increase a modest 1 to 2 percent.

TABLE 2 – 2. CHANGES IN CONSUMER PRICE INDEXES FOR VARIOUS FOODS, 2012 THROUGH 2015

	2012[1]	2013[1]	2014 forecast[2]	2015 forecast[2]
	% change	*% change*	*% change*	
All food	2.6	1.4	2.5 to 3.5	2.0 to 3.0
Food away from home	2.8	2.1	2.5 to 3.5	2.0 to 3.0
Food at home	2.5	0.9	2.5 to 3.5	2.0 to 3.0
Meats, poultry, and fish	3.6	2.1	5.0 to 6.0	3.0 to 4.0
Meats	3.4	1.2	6.0 to 7.0	3.0 to 4.0
Beef and Veal	6.4	2.0	10.5 to 11.5	3.0 to 4.0
Pork	0.3	0.9	7.5 to 8.5	3.0 to 4.0
Poultry	5.5	4.7	2.0 to 3.0	2.5 to 3.5
Fish and seafood	2.4	2.5	3.5 to 4.5	2.5 to 3.5
Eggs	3.2	3.3	5.0 to 6.0	1.0 to 2.0
Dairy products	2.1	0.1	3.0 to 4.0	2.5 to 3.5
Fats and oils	6.1	-1.4	0.0 to 1.0	0.5 to 1.5
Fruits and vegetables	-0.6	2.5	2.5 to 3.5	2.5 to 3.5
Fresh fruits & vegetables	-2.0	3.3	3.0 to 4.0	2.5 to 3.5
Fresh fruits	1.0	2.0	4.5 to 5.5	2.5 to 3.5
Fresh vegetables	-5.1	4.7	2.0 to 3.0	2.0 to 3.0
Processed fruits & vegs.	3.8	0.3	0.5 to 1.5	2.5 to 3.5
Sugar and sweets	3.3	-1.7	1.0 to 2.0	1.5 to 2.5
Cereals and bakery products	2.8	1.0	1.5 to 2.5	0.5 to 1.5
Non-alcoholic beverages	1.1	-1.0	1.5 to 2.5	2.0 to 3.0

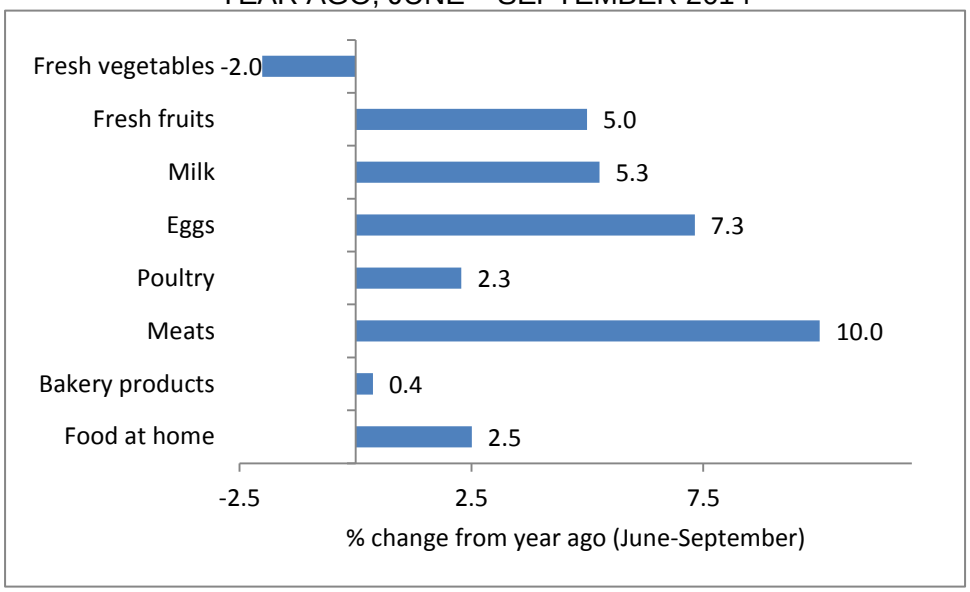
[1] Bureau of Labor Statistics, Inflation and Prices, historical data at http://www.bls.gov/data/#prices.

[2] USDA-ERS, Food Price Outlook, http://www.ers.usda.gov/data-products/food-price-outlook.aspx#26630

A sample of retail prices from June through September illustrates price changes in selected items over the same time a year ago (Figure 2 – 1). The CPI for fresh vegetable prices started declining to lower than a year ago starting in July and averaged -2.0 percent less than 2013 prices for June through September. Counter to the Economic Research 2014 forecast indicated in Table 2 – 2, the drop has been significant enough that fresh vegetables prices for 2014 overall will be lower than 2013. The CPI for fresh vegetables includes potatoes.

The rest of the major fresh food categories showed significantly higher retail prices than a year ago during June-September with the exception of bakery products.

FIGURE 2 – 1. CHANGE IN GROCERY STORE PRICES OF SELECTED FOOD ITEMS FROM YEAR AGO, JUNE – SEPTEMBER 2014



Source: compiled using data from the Bureau of Labor Statistics.

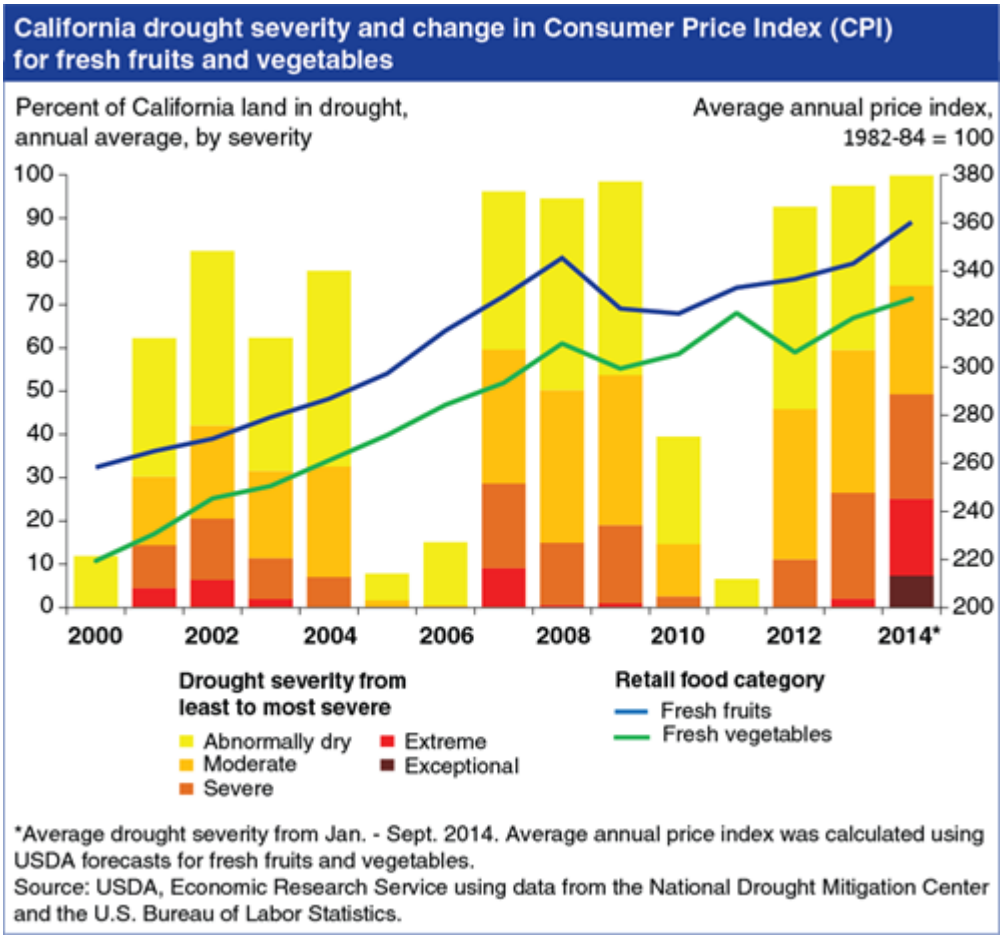
The story behind the 2014 and 2015 CPIs for food is complicated due to pressures resulting from the continuing drought. In Texas and Oklahoma, the drought is keeping cattle stocks low and feed prices high. This has had a large impact on beef prices.

According to a recent report by the USDA-Economic Research Service, although the California drought has had a slight impact on retail food prices, most of the effect will be on farm or prices. The impact of these higher farm prices is often mitigated by the additional marketing costs post farm, and retail prices will not rise as much and will likely lag the changes on productivity.

California produces roughly 50 percent of the U.S. fresh fruits and vegetables. Despite this, average retail prices for fresh produce have not increased yet due to the drought. The growing season in other production areas in the U.S. provided adequate supplies and more locally sourced products that helped to lower transportation costs.

Figure 2 – 2 shows the relationship between previous California droughts and changes in CPI for fresh fruits and vegetables. One can see that while prices generally increased throughout 2000 – 2013, the droughts did not have an impact on the general retail price trend for fresh produce.

FIGURE 2 – 2. HISTORICAL IMPACTS OF CALIFORNIA DROUGHTS ON CPI FOR FRESH FRUITS AND VEGETABLES



Source: USDA-Economic Research Service, http://www.ers.usda.gov/topics/in-the-news/california-drought-2014-farm-and-food-impacts/california-drought-2014-food-prices-and-consumers.aspx

Producer Prices

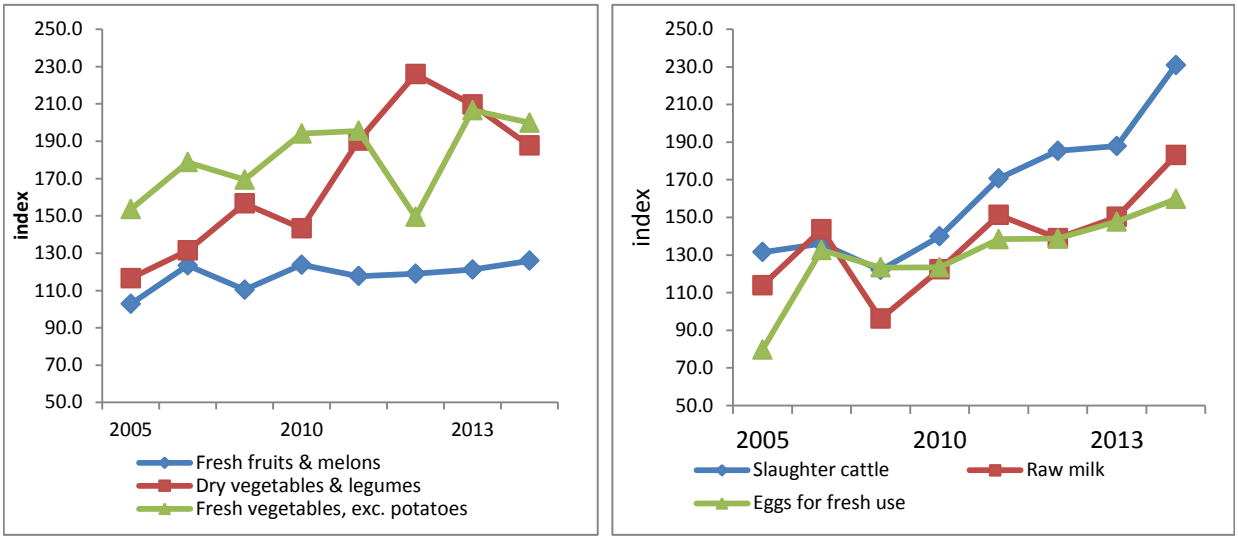
Producer price indexes (PPI) fluctuate more widely than CPIs reflecting price swings due to growing conditions and input supplies. The average PPI for fresh vegetables and dried vegetables (primarily legumes) has exhibited wide swings since 2011 (Figure 2 – 3). The estimated change in PPI from 2013 to 2014 for fresh vegetables, excluding potatoes is -3.4 percent and dry vegetables is -11.7 percent.

The PPI for fresh fruit increased very slightly in 2012 and 2013, but shows an estimated increase of about 3.7 percent in 2014. The increase is mostly due to the short citrus supplies.

In general, fluctuations in PPIs for slaughter cattle and raw milk usually reflect changes feed costs and cattle inventories. Feed costs for the industry are improving with rains in the grazing regions relieving the drought and with record corn and soybean production in 2014. These are improving returns and providing incentives to increase breeding stocks and increase slaughter weights.

High milk prices in 2014 lead to higher milk production anticipated for 2015.

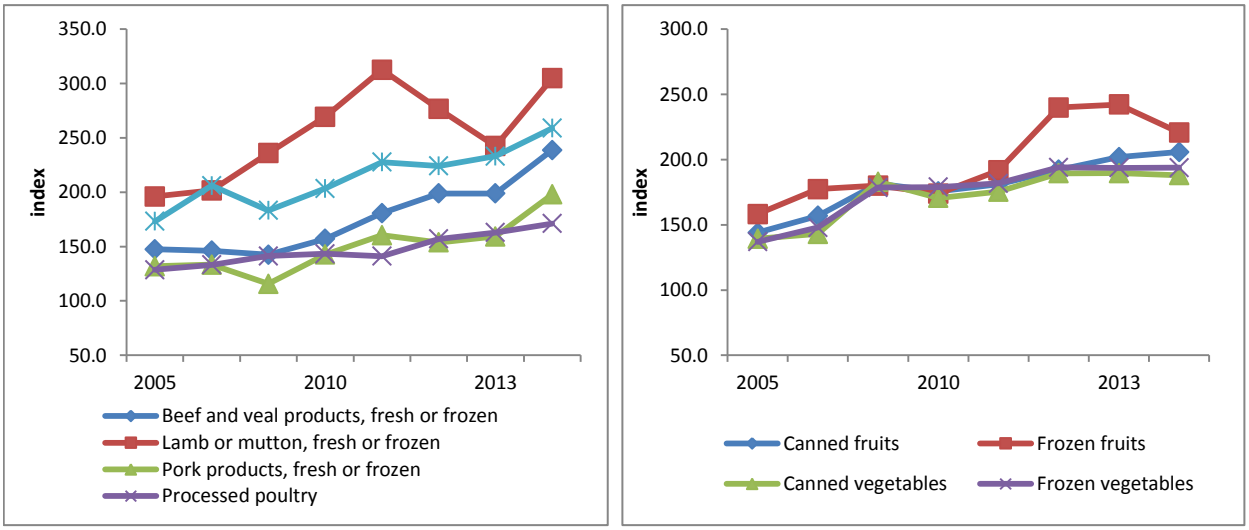
FIGURE 2 – 3. PRODUCER PRICE INDEXES FOR SELECTED COMMODITIES, FARM LEVEL



Source: compiled from data from the Bureau of Labor Statistics

Producer price indexes are also reported for processed foods such as fresh and frozen meat products, and canned and frozen fruits and vegetables (Figure 2 – 4). Processed foods exhibit smaller fluctuations as fluctuating input prices are modified by other processing costs. High slaughter cattle prices are still hurting meat processors, however, as they have not been able to raise their prices high enough to counter the high cost of goods sold.

FIGURE 2 – 4. PRODUCER PRICE INDEXES FOR SELECTED PROCESSED FOODS, WHOLESALE LEVEL



Source: compiled from data from the Bureau of Labor Statistics

Dismal CPIs for canned and frozen fruits and vegetables in 2014 appear to be slightly decoupled from the wholesale cost of these processed foods. Consumer demand and retail pricing strategies for these processed products may have more to do with the retail prices than do the wholesale PPIs. The percent changes in CPI for the following foods are estimated:

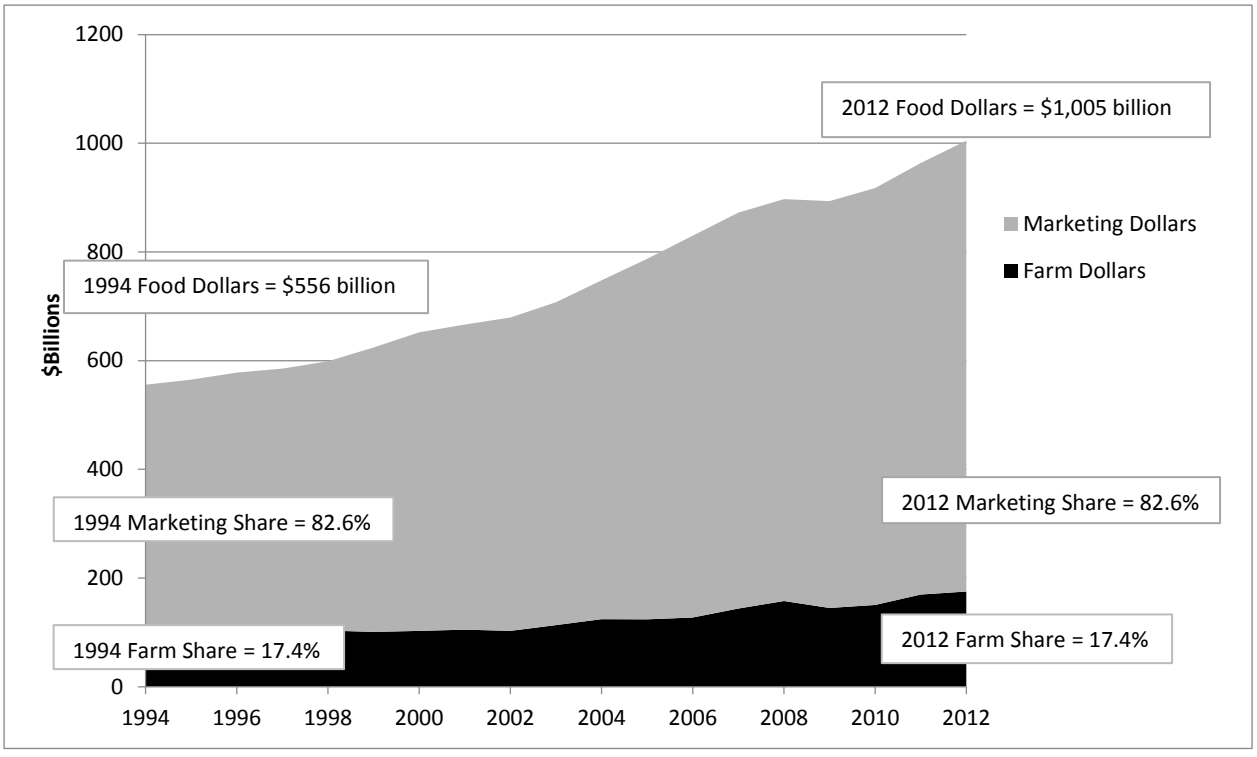
0.2% Canned fruit
2.3% Canned vegetables
-0.8% Frozen vegetables

A CPI for frozen fruit was unavailable.

The U.S. Food Marketing System

The marketing system in the United States is responsible for all the costs incurred in getting food from the farmers gate into the hands of the consumer. It covers transportation and storage, processing, handling, distribution, marketing, and retail. As the U.S. consumer has demanded food in more convenient forms, these costs have increased. USDA recently revised their Food Dollar Series using a variety of input-output accounts from the Bureau of Economic Analysis. The Food Dollar Series calculates costs for food produced and consumed in the United States. In 2012, the latest data available, consumer expenditures for food produced in the U.S. totaled just over $1 trillion (Figure 2-5). The farm value portion was $175 billion or about 17.4 percent of expenditures. The remainder of food expenditures, $830 billion, are associated with marketing costs as mentioned above.

FIGURE 2 – 5. FARM AND MARKETING EXPENDITURES FOR FOOD PRODUCED IN THE U.S.



Source: USDA-Economic Research Service. The Food Dollar Series. http://www.ers.usda.gov/data-products/food-dollar-series.aspx

U.S. agricultural trade is important to stabilize to domestic supplies, prices, and demand. Ag exports have been larger than imports since 1960 and have been able to help ease the trade deficit for non-ag merchandise. Exports for 2014 are forecast at $152.5 billion, imports at $109.5 for a trade balance of $43.0 billion (Table 2 – 3). Although bulk commodities like wheat, corn, rice, cotton, tobacco, etc. used to account for most of U.S. exports, a steady growth in exports of high-value products like food products has outstripped the bulk market.

In 2015, exports are expected to decline at the same time that imports are still expected to rise, resulting in a smaller trade balance of $27 billion.

TABLE 2 – 3. U.S. AGRICULTURAL TRADE, 2010 – 2015, YEAR ENDING SEPTEMBER 30
Billion dollars

Item	2010	2011	2012	2013	2014*	2015*
Exports	108.5	137.5	135.9	141.0	152.5	144.5
Imports	79.0	94.5	103.4	103.9	109.5	117.0
Balance	29.6	43.0	32.5	37.1	43.0	27.5

*forecast
Source: Compiled by USDA using data from U.S. Census Bureau, U.S. Department of Commerce.
http://www.ers.usda.gov/topics/international-markets-trade/us-agricultural-trade.aspx

Exports of all the major product industries are expected to decrease, except horticultural products which will continue to grow (Table 2 – 4). At the same time, imports of almost all products are expected to grow, with the exception of oilseed imports.

TABLE 2 – 4. U.S. AGRICULTURAL TRADE FORECASTS, SELECTED COMMODITIES, 2014 – 2015
Billion dollars

	2014		2015	
Item	Exports	Imports	Exports	Imports
Grains and feed	36.0	10.9	31.1	11.1
Oilseeds	34.8	9.9	29.7	9.7
Livestock, poultry, and dairy product	33.4	15.6	32.9	15.9
Cotton	4.7	na	4.1	na
Horticultural products (fruits, vegetables, & nuts)	34.1	47.4	37.0	51.4
Sugar & tropical products (cocoa, coffee, sweeteners, rubber)	6.5	23.3	6.7	26.2

Source: USDA-Economics Research Service, *Outlook for U.S. Agricultural Trade*.
http://usda.mannlib.cornell.edu/usda/ers/AES//2010s/2014/AES-08-28-2014.pdf

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US Department of Agriculture. (2012). *2012 Census of Agriculture.* Volume 1, Chapter 1: U.S. National Level Data. http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/st99_1_002_002.pdf

Chapter 3. Cooperatives

Roberta M. Severson, Director, Cooperative Enterprise Program

Farmer cooperative sales throughout the United States and New York State set new records in 2013, which demonstrates the vitality of the nation's farmer-owned cooperatives and the important role they play in the agricultural sector. Total net business volume of cooperative businesses (excludes sales between cooperatives) grew by 1.3 percent nationally and 5.4 percent in New York State. Noteworthy research has been conducted over the past several decades to document the importance of cooperative businesses. Similar to investor-owned firms, cooperatives must adapt to a variety of external and financial factors in order to remain profitable and add value to the businesses of their producer members. The following chapter provides an overview of cooperative activity within the United States and New York State and provides insight into the critical issues facing cooperatives in the future.

U.S. Situation – Farmer Cooperatives

In 2013, 2,186 U.S. farmer cooperatives owned through 2.0 million memberships had a record-breaking year with over $246.1 billion in gross business volume (includes sales between cooperatives) and nearly $1.2 billion returned to member owners in patronage refunds (Table 3-1). U. S. crop and livestock sales both increased by 6 percent in 2013 and production input sales increased by 2.0 percent. Vegetables and dairy increased by over 3 percent as well. Table 3-1 compares volume of cooperative business between 2012 and 2013 (Eversull).

TABLE 3-1. U.S. FARMER COOPERATIVES, COMPARISON OF 2012 AND 2013

Item	2012*	2013	Change
	($ billion)	*($ billion)*	*percent*
Gross Business Volume			
Marketing	$140.9	$144.6	2.6
Farm Supplies	92.2	95.9	4.1
Services	4.7	5.6	19.1
Total	**$237.8**	**$246.1**	**3.5**
Balance sheet			
Assets	$83.4	$82.6	(0.1)
Liabilities	53.2	47.9	(10.0)
Equity	30.2	34.7	14.9
Income Statement			
Sales (Gross)	$234.8	$246.1	4.8
Patronage income	0.9	1.2	33.3
Net income before taxes	6.1	6.2	1.6
Employees	(Thousand)	(Thousand)	
Full-time	129.4	136.2	5.3
Part-time, seasonal	56.2	54.9	(2.3)
Total	**185.6**	**191.1**	**3.0**
Membership	(Million)	(Million)	
	2.1	2.0	(4.8)
Cooperatives	(Number)	(Number)	
	2,238	2,186	(2.3)

*Revised USDA data
Source: Eversull, E.E., Ali, S. 2014. *Cooperative Statistics.* United States Department of Agriculture, Rural Development. Washington, D. C. Service Report #75. November.

Gross business volume of cooperatives (includes inter-cooperative transactions) increased by $8.3 billion or 3.5 percent in 2013. This increase is attributed to the 2.6 percent increase in business volume by marketing cooperatives, more specifically the increase in grain, oilseed, and dairy sales. Gross value of farm supply sales increased by $3.7 billion or 4 percent over 2012 sales driven by increases in feed and petroleum sales. Receipts from services increased by $860 million, up 18 percent over 2012.

Net business volume excludes inter-cooperative transactions. While not shown, net business volume for marketing cooperatives increased from $133.2 billion to $135.8 billion or $2.63 billion, an increase of 2 percent. This increase can be attributed to a 1 percent increase in dairy sales and a 4.4 percent increase in grain and oilseed sales. Net business volume of supply cooperative sales increased $2.46 billion to $67.18 billion in 2013. These increases are attributed to feed sales increase of 7.4 percent and petroleum sales of 4.5 percent. Service cooperatives accounted for $5.57 billion of the total net business volume of $208.56 billion. Services and other income increased 18 percent between 2012 and 2013.

The aggregate cooperative balance sheet shows total assets decreased by $0.8 billion or less than 1 percent. Liabilities decreased $5.3 billion from $53.2 billion in 2012 to $47.9 billion in 2013 or 10 percent. Equity of the aggregate balance sheet increased by $4.5 billion or approximately 15 percent. Net income before taxes stayed at similar levels between 2012 and 2013.

Nationally, farmer marketing cooperatives account for 54.6 percent of all farmer cooperatives with 34.4 percent of all memberships. Supply cooperatives account for 39.8 percent of all U.S. farmer cooperatives and 65.0 percent of all memberships. Farmer service cooperatives make up the balance; i.e. 5.5 percent of cooperatives with less than 1 percent of memberships. Membership numbers exceed farm numbers as a farm business can belong to one or more cooperative enterprises. Previous studies show farmers as members of up to three cooperatives. The total number of cooperatives declined modestly between 2012 and 2013 (-2.3 percent), reflective of continued industry consolidation (Table 3-1). While farmer cooperative members have also trended downward over the last decade, total memberships decreased modestly between 2012 and 2013 by 4.8 percent.

The strength of the farm economy resulted in more full time hires. In 2009 there were 122.5 thousand full time cooperative employees (Eversull). The number of full time employees increased to 129.0 thousand following the economic downturn and has remained mostly stable through 2012. The number of full time employees increased from 129.4 thousand in 2012 to 136.2 thousand in 2013. The number of full time employees in fruit and vegetable cooperatives increased from 13.2 thousand to 14.2 thousand. The number of part-time and seasonal employees increased from 16.1 thousand to 16.3 thousand. The number of full-time employees in the grain and oilseed cooperatives increased from 21.6 thousand to 23.5 thousand while the number of part time employees decreased by 1.0 thousand. The number of full time employees working for supply and service cooperatives remained relatively stable while the number of full time employees hired by marketing cooperatives increased by 8.4 percent to 78,400 employees. The number of part time and seasonal employees declined from 56.2 thousand in 2012 to 54.9 thousand in 2013. Marketing cooperatives employ 60.1 percent of all cooperative employees. Dairy, grain and oilseed, and fruit and vegetable marketing cooperatives employ over 54 percent of all cooperative employees. Supply cooperatives employ 38.5 percent of all cooperative employees.

New York State Situation

Data for agricultural cooperatives headquartered in New York State were obtained through a USDA Rural Development Cooperative Service survey. The most current state-level information available is for 2013. Table 3-2 summarizes cooperative businesses headquartered in New York State.

Between 2012 and 2013 the total number of farmer cooperatives increased by one to 55 cooperatives and the total number of memberships remained the same (5.7 thousand). The number of dairy cooperatives and “other product” marketing cooperatives remained the same while the number of fruit and vegetable

marketing cooperatives increased by one. The total number of supply and services cooperatives remained the same. The number of members belonging to service cooperatives decreased by an estimated 100 memberships.

Net business volume excludes sales between cooperatives. Net business volume increased by 5 percent with the biggest gains in "other products" marketed through cooperatives, sales of feed, and sales of "other products" sold by farm cooperatives. Net business volume of the 42 marketing cooperatives remained mostly unchanged between 2012 and 2013. Total products marketed decreased by $3.1 million, less than 1 percent. Of all farm products marketed by cooperatives, dairy accounts for 86 percent. Total dairy marketed by cooperatives increased $11.4 million which was an increase of less than 1 percent over 2012. Fruits and vegetables remained stable. "Other products" (wool, poultry, dry beans, livestock, maple syrup, and miscellaneous cooperatives) had the largest increase of all marketing cooperatives, increasing net business volume $16.9 million or 5.7 percent. The biggest gains in net business volume came from supply cooperatives most notably those cooperatives selling feed, which increased sales from $77 million to $104.2 million or 36 percent. Some of the highest grain prices on record were reported in 2013. Net business volume from "other supplies" saw a 4-fold increase. The farm economy is very strong. Farmers had the financial means to purchase large ticket items through their cooperatives.

TABLE 3-2. NEW YORK STATE AGRICULTURAL COOPERATIVE NUMBERS, MEMBERSHIPS AND NET BUSINESS VOLUME, 2012 and 2013[1]

Major Business Activity	Number & Membership (000) Headquartered in State				Net Business Volume	
	2012		2013		2011	2012
	No.	Members (000)	No.	Members (000)	($ million)	
Marketing:						
Dairy	29	3.1	29	3.1	$2,454.3	$2,465.7
Fruit & Vegetable	7	0.5	8	0.6	77.9	76.5
Other Products[2]	5	0.4	5	0.4	296.3	313.2
TOTAL MARKETING	41	4.0	42	4.1	$2,858.5	$2,855.4
Supply:						
Crop Protectants					$23.0	$21.2
Feed					77.0	104.2
Fertilizer					31.4	27.7
Petroleum					2.2	2.4
Seed					2.9	2.9
Other Supplies					27.4	140.2
TOTAL SUPPLY	5	1.4	5	1.4	$163.8	$298.7
TOTAL SERVICE[3]	8	0.3	8	0.2	$37.3	$40.3
TOTAL	55	5.7	54	5.7	$3,029.6	$3,194.4

Source: Eversull, E.E., Ali, S. 2014. *Cooperative Statistics.* United States Department of Agriculture, Rural Development. Washington, D. C. Service Report #75. November.
[1] Totals may not add due to rounding.
[2] Includes wool, poultry, dry bean, grains, livestock, maple syrup, ethanol, and miscellaneous cooperatives.
[3] Includes those cooperatives that provide services related to cooperative marketing and purchasing.

The top 50 dairy cooperatives market almost 80 percent of the milk within the United States. Ten of the 50 cooperatives have members inside and outside of New York State. These cooperatives accounted for 39 percent of all milk marketed by cooperatives in 2013. These cooperatives accounted for 38 percent of the memberships of the top 50 cooperatives (Seller). Dairylea Cooperative Incorporated successfully merged into Dairy Farmers of America in early 2014.

The USDA Rural Development Cooperative Survey does not include activity of the Farm Credit System. Farm Credit East, ACA service area includes New York State, New Jersey, Massachusetts,

Connecticut, Rhode Island, New Hampshire, and customers in several other states. As such there are no figures specific to New York State; however 52 percent of the loan portfolio is based in New York State. The 2013 Farm Credit East ACA annual report notes that loan volume increased 6.2 percent to $5.0 billion, which is attributed to the branch-based farm loan portfolio which grew $121.7 million. Net interest income before taxes rose from $142 million to $146.5 million. For the year ending 2013, Farm Credit East ACA declared a $42.0 qualified patronage refund of which 100 percent was distributed in cash in 2014. On January 1, 2014 Farm Credit of Maine, ACA merged with Farm Credit East, ACA.

Member Satisfaction

Cooperative-structured businesses are formed on the premise that a group of people share a common problem to be solved or opportunity to be achieved by working together that cannot be accomplished by working independently. Members share similarities early in the cooperative's lifecycle, e.g. proximity of location, similar sized businesses, shared values, etc. These likenesses change through time as the founders' businesses progress and as the economy and markets in which the cooperative started evolves. The satisfaction of the cooperative's performance to member-owners is critical to its success. A survey is one way to gauge member satisfaction.

The USDA Rural Development, Cooperative Business Program gathered information about dairy farm member satisfaction through 4 surveys conducted between 1993 and 2012. Many of the questions were very similar to one another across all 4 surveys. While 2,379 surveys completed, 1,736 surveys were included in *Member Satisfaction With Their Cooperatives: Insights From Dairy Farmers* (Liebrand). The report provides useful insights to cooperative leaders regardless of the commodity crop marketed, the crop input supplied or the service that is provided. Questions of the survey fell into 6 areas: 1. Overall member satisfaction, 2. Milk pricing, 3. Cooperative services, 4. Cooperative operations, 5. Cooperative principles, 6. Cooperative governance and member connectivity. Researchers provided the following limitations regarding the study. The surveys were based on the members who chose to complete the study and the studies were conducted at the request of the cooperative. Therefore the surveys are not random and do not necessarily reflect the perspectives of all dairy cooperatives and all dairy farmers who are members of cooperatives. The surveys were conducted at 4 different times over a 20-year period. The results and conclusions of the surveys do not reflect the economic conditions of the dairy industry or the financial performance of the cooperatives.

TABLE 3-3. CORRELATION BETWEEN MEMBER SATISFACTION OF COOPERTIVE AND MARKETING AND PRICING OF MILK

	Very dissatisfied*	Dissatisfied*	Unsure*	Somewhat satisfied*	Very satisfied*	Correlation
Cooperative overall	3.9	7.3	7.4	61.1	20.3	Very strong
Pricing policies	5.1	16.4	16.2	50.6	11.8	Very strong
	Strongly disagree*	Disagree*	Unsure*	Agree*	Strongly agree*	Correlation
Cooperative pays members fairly for their milk	5.7	11.7	22.3	49.3	11.8	Moderate
Practice of paying different prices by area is justified	10.8	21.0	37.4	26.2	4.6	Weak
Cooperative does a good job of marketing my milk and returns the best price for my milk	9.3	14.2	30.9	40.5	5.0	Strong
Milk hauling policy	9.7	18.7	15.7	40.7	15.2	Moderate
Satisfaction with co-op's provision of market information	2.5	7.4	39.5	35.5	15.1	Moderate

*Percentage

Respondents were asked to consider how pleased they were with the overall performance of the cooperative. Table 3-3 indicates that 80 percent of respondents to the survey were somewhat satisfied to very

satisfied with the overall performance of the cooperative. Overall performance of the cooperative is very strongly correlated to member satisfaction. Over 60 percent were somewhat to very satisfied with the pricing policies developed by the board of directors. These pricing policies were also very strongly correlated to member satisfaction with their cooperative. Members were asked to respond to a series of statements regarding milk pricing and marketing and hauling policies. Sixty percent agreed or strongly agreed that the cooperative pays members fairly well for their milk. This was moderately correlated to the overall satisfaction with their cooperative. Cooperatives may implement pricing policies related to volume, quality, and distance to processing facility, etc. Thirty percent of members were dissatisfied to very dissatisfied with the practice of paying different prices by area. One-third of the members were satisfied to very satisfied. There was a weak correlation between member satisfaction of the cooperative and the practice of paying prices by area. Possibly the satisfaction or lack thereof can be attributed to those who received higher prices compared to those who did not. Possibly those who are unsure did not understand why there was a difference in the price or if they did understand, they realized that these price differences are necessary to maintain the financial well-being of the cooperative. Policies and pricing surrounding milk hauling are contentious issues faced by dairy cooperatives. Over half were somewhat satisfied to very satisfied with the milk hauling policies of the cooperative. This is moderately correlated to their overall satisfaction with the cooperative.

The milk marketing system in the United States is very complex and prices are impacted by the global marketplace. A significant amount of information is generated to inform the industry. This information is beneficial to cooperative leaders as they consider the impact on the cooperative and its members. Table 3-3 indicates that 40 percent of the members were somewhat to very satisfied with the market information that was provided to them by the cooperative. A similar percentage was unsure. Less than 10 percent were dissatisfied or very dissatisfied. Provision of marketing information was moderately correlated to overall member satisfaction with the cooperative. Possibly there is a need to provide a segment of members with information about how milk prices are calculated. Thirty percent of those responding to the survey were unsure about whether the cooperative does a good job of marketing their milk and returning the best price to their members. Cooperatives can maintain or build member loyalty to the business when they can articulate the importance of the cooperative in the marketplace to the member's farm business.

TABLE 3-4. COOPERATIVE LEADERSHIP

	Strongly disagree*	Disagree*	Unsure*	Agree*	Strongly agree*	Correlation
Cooperative's management of operating and marketing costs	5.9	10.9	28.1	45.0	10.1	Strong
Cooperative management	4.6	9.3	19.5	49.8	16.8	Very strong
More concerned about cooperative operations than its members	4.4	36.0	27.2	22.9	9.4	Moderate
Satisfaction with board of directors	2.8	5.5	21.7	52.0	18.1	Strong

*Percentage

As noted previously, survey respondents were asked to consider how pleased they were with the overall performance of their cooperative. Tables 3-3 and 3-4 indicate that 80 percent of respondents to the survey were somewhat satisfied to very satisfied with the overall performance of the cooperative. The confidence that members place in the directors whom they elect and persons employed to manage the organization are strongly correlated to member satisfaction with their cooperative. **Three-quarters of respondents were somewhat to very satisfied with cooperative management, which is very strongly correlated to satisfaction of the members with the cooperative. This is the strongest correlation in the entire data set.** Seventy percent of members agreed to strongly agree that they were satisfied with the leadership provided by the board of directors, which was strongly correlated to the overall satisfaction they had with the cooperative. Members were satisfied that the board of directors would hire qualified managers. Members expect the board to hold management accountable; minimize operations and marketing costs to maintain or increase profitability and strengthen the cooperative enterprise.

TABLE 3-5. MEMBER INFORMATION

	Strongly disagree*	Disagree*	Unsure*	Agree*	Strongly agree*	Correlation
Cooperative keeps members well informed about its operations and programs	6.0	14.0	17.1	53.4	9.6	Strong
Members receive as much information as they need about operations and programs	7.1	22.2	25.9	43.0	1.9	Moderate
I am satisfied with field representatives	4.9	8.2	33.6	32.9	20.4	Moderate
I am satisfied with marketing information provided by the cooperative	2.5	7.4	39.5	35.5	5.1	Moderate

*Percentage

There was a strong correlation between satisfaction with the cooperative and satisfaction with the information provided by the cooperative. Table 3-5 indicates that 60 percent of the members agree to strongly agree that they receive as much information as they need about the cooperative's operations which is strongly correlated to their overall satisfaction with the cooperative. Robert Wellington is the Senior Vice President of Economics, Communications, and Legislative Affairs for Agri-Mark Cooperative Inc. Wellington described Agri-Mark's perspective on how to best communicate with members at the 2014 Northeast Cooperative Council Leaders Forum. Agri-Mark found that they needed to communicate through letters, social media, the Internet, and through meetings to intersect with the many platforms used by their members when accessing information. Messages were limited to respect the amount of time the members had to receive and process the information. Some Agri-Mark members had posted the cooperative's letters on the farm bulletin board. As a result farm employees and the farm's suppliers increased their understanding of the dairy industry.

TABLE 3-6. MEMBER CONNECTIVITY AND INFLUENCE

	Strongly disagree*	Disagree*	Unsure*	Agree*	Strongly agree*	Correlation
I feel I am part owner of the cooperative	5.2	12.6	12.5	56.1	13.5	Moderate
Belonging to the cooperative is part of my identity as a farmer	5.3	20.4	19.0	45.5	9.7	Moderate
The cooperative is just another place to do business.	5.0	44.0	14.0	33.1	4.0	Moderate
I would discontinue my membership with the cooperative if an alternative was available.	16.5	42.4	29.5	7.3	4.3	Strong
Cooperative members have a great amount of influence on how the cooperative is run.	9.1	27.2	25.4	35.6	2.7	Strong
I am satisfied with the amount of influence I have on how the cooperative is run.	8.4	21.0	25.9	41.5	3.1	Strong
The cooperative tries to cover too big an area as an organization.	10.5	44.6	28.9	10.7	5.4	Moderate

*Percentage

Member control is one of the three basic tenants of cooperative-structured businesses. As cooperatives expand the area they serve or merge into other cooperatives the members may question whether they have any influence over the cooperative they own. Membership and ownership is valued by the members. Table 3-6 shows that approximately 40 percent agreed to strongly agreed that members as a group and individually had influence on how the cooperative was run, which is strongly correlated to overall member satisfaction with the cooperative. Members also indicated that they would remain members of the cooperative even when an alternative was available.

Cooperative Outlook for New York

The global marketplace has significant impact on the NYS dairy industry. Milk prices received by U. S. dairy producers peaked in early 2014 while prices in the international marketplace softened. Cooperatives that process milk on behalf of their members have faced some challenges this year as the high price of milk paid to members reduced the margins to the cooperative on dairy products sold in retail outlets. Poor weather conditions in the upper Mid-West resulted in fewer crops and decreased milk production. Milk moved from New York State for processing in Wisconsin and Minnesota. The drought in New Zealand reduced the availability of milk powder for export in 2013 while the use of dairy ingredients has increased throughout the world. This led to several initiatives on the part of dairy farmers to come together to build processing facilities to produce products useful in cheese and yogurt production and ingredients for food manufacturing domestically and abroad. Dairy Farmers of America partnered with Craigs Station Ventures (a group of 8 dairy farmers) to break ground on a $12 million cold milk separation facility in Western NY. This is the first time the cooperative has partnered directly with a farm group. Capital will be contributed by each partner. Rick Smith, President and Chief Executive Officer of DFA said, "This investment is consistent with our strategy to deliver value to members by better serving our customers, maintaining markets for our members and developing local plant opportunities." The facility will have capacity to process up to 2 million pounds of milk daily into pasteurized cream, and low-fat, high protein skim milk. The plant will be powered through energy produced from a farmer-owned methane digester. DFA announced plans to partner with China's second-largest dairy producer, Inner Mongolia Yili Industrial Group Co. Ltd. to build a processing facility in Kansas. Milk consumption in China is increasing as living standards have improved. Revised Chinese government policies support larger family size. Concerns over domestic product contamination, e.g. infant formula have made the United States a preferred source of dairy ingredients. This initiative will strengthen the cooperative's position in the global market benefiting all DFA members.

The Cayuga Milk Ingredients processing facility came online following the November 2012 ground breaking near Auburn, NY. The processing facility is owned by 21 farm businesses with milk sourced from as many as 30 farms. These farms produce between 5 and 10 percent of all the milk produced in New York State. The plant's location reduces transportation costs of the company's farms. The processing facility has the capability to produce pasteurized cream, whole milk powder, liquid permeate, condensed milk, skim milk powder (standard and infant), non-fat dry milk, milk protein concentrate 70, and milk protein isolate 85 and 90.

Competition remains keen in the fruit and vegetable sector. Cooperatives bring value to their members in several ways. Consumers have ongoing interest in diversifying the produce they buy and purchasing local produce. This has lead retail customers to source product from nearby vegetable cooperatives. Growers have cautiously expanded some of the crops they grow. In-store promotions connect the cooperative and its farmer-members to consumers. Other cooperatives rely on launching new products or expanding their brand through licensing agreements, which brings added income to the cooperative. New customers can be secured as cooperatives adapt to changing retail market channels, serving retail grocery stores and small convenience stores.

Cooperatives headquartered in or doing business within New York State have the potential to strengthen the position of their businesses in the marketplace. Profitability is necessary for any business to remain viable into the future. Member satisfaction is critical to the longevity of a cooperative-structured business. Price is most important to member satisfaction and cooperative members have benefited from high prices in 2013 and 2014, which are expected to decrease in the coming year. Many of the cooperatives doing business in New York State were formed over 50 years ago. They will remain successful as they align themselves with the needs of their members and the needs of the market. This can be accomplished through marketing efforts that strengthen the brand, research and development of new products, investments in processing, and through beneficial partnerships. New York State cooperatives are well-positioned for solid performance in 2015.

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Chapter 4. Agricultural Finance

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General Outlook

The financial condition of New York's agricultural economy in 2014 is holding steady if not improving over 2013. Although there is some uncertainty regarding the future of grain and oilseed prices, at least in the short run the livestock sector including dairy appears to be sound. Sector-wide New York's diversified agricultural economy is stable as declines in cash crops are offset by higher livestock prices and lower feed crops. Credit conditions are strong. Farm equity is very high, and the debt carrying and debt repayment capacity of the agricultural economy is substantial. If New York is following national trends, loan charge-offs and non-performing/non-accruing loans are at historical lows. Farm Credit East in its Quarterly Report (as at September 30th 2014) shows an improvement over 2013. Impaired loans to total loans are 1.07%, nonaccrual loans to total loans are 0.99% and delinquencies as a % of total performing loans are at 0.35%. The performance of Farm Credit East and the Farm Credit System does not appear to be any more or less impaired than the commercial banking sector, and both are performing better than the commercial and personal lending sector. The residual effects of working capital shortages arising from the financial crisis appear to be over. There have been no failures of agricultural banks since 2012. Credit demand is moderately inelastic: a 1% increase in interest rates will decrease loan demand by about 0.588%. All indications suggest that farmers are being prudent with their lending behavior. For example, while an increase in the demand for farm credit is observed as interest rates fall, an increase in the number of loans does not change. Farmers are not borrowing just because interest rates are low; borrowing is done with a purpose.

Farmland values in 2014 are holding steady with a slight increase over 2013. The short run trend appears to be one of moderation, with no signals of a high growth in land values for 2015. Part of this may be a consequence of lower grain prices and increased volatility.

Agricultural Prices

Figures 4-1 a-f show the closing CME nearby futures prices from 2014 to the present (accessed November 17-19,2014, http://www.cmegroup.com/trading/agricultural/) . Corn, soybeans, and wheat are in the left column, and Class III milk, live cattle and lean hogs are presented in the right column. Grain and oilseed prices continue to drop, from the highs several years ago. Grain corn started 2014 at about $4.50/bushel, but ended the year at about $3.64/bushel a decrease of 21.2%. Soybeans and wheat, currently at prices around $10.23/bu and 5.59/bu. Saw price decreases over the year of approximately 9.95% and 13.42% respectively. Milk prices have held steady throughout the year and are about 21.9% higher than late 2013. Strength is also observed in the live cattle and hog markets with prices rising 26.3% from $1.31/lbs to 1.704/lbs and hogs rising 16.26% from $0.79/lbs to $0.93/lbs. Milk price increases are largely driven by consumer and industrial demand. Live cattle prices are likely due to increased demand as well as destocking of feeder cattle as feed prices climbed in 2012 and into 2013. Hog demand, particularly from Asia, combined with an outbreak of new porcine epidemic diarrhea virus (PEDv) and porcine reproductive and respiratory syndrome (PRRS) put pressures on supply.

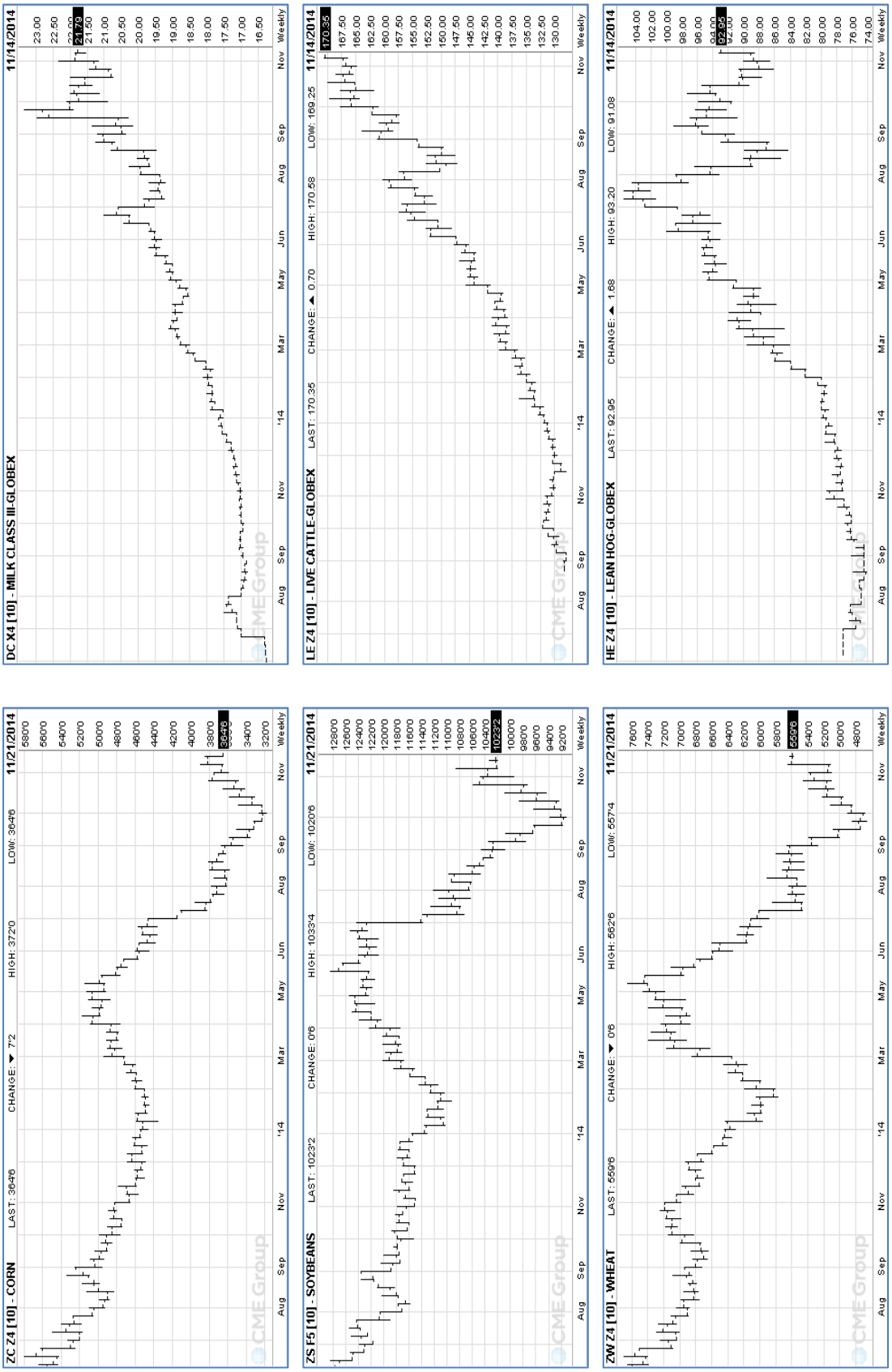


Figure 4-1: Nearby Futures Prices for Major Grains and Livestock Production, 2013-2014

Cash Receipts, Value Added and Farm Income

New York cash receipts from agricultural activities were $5.287 Billion in 2012. Real Cash Receipts for NY state farmers are as high as they have ever been on a per farm basis (Figure 4-2, right axis), although aggregate cash receipts in real terms (2009=100) have still not matched the period following the outbreak of war in 1939. New York farms continue to consolidate and expand with only 20% of farms in 2014 as there were in 1940.

Figure 4-3 shows net cash farm income per farm in constant 2009 dollars. Again, since 2003 NY farmers have seen a significant uptick in farm incomes. The volatility in commodity prices, combined with increased energy costs have contributed significantly to farm income volatility, but in terms of trend the outlook for NY farmers looks favorable in the next few years. This of course is contingent on the degrees of correlation between major crops and livestock. Sector wide, decreases in grain prices are being offset by rises in livestock prices, including milk. Farm profitability in 2014/2015 will be relatively stable as increased profitability in livestock, bolstered by lower feed costs, offset declines in the cash crop sector.

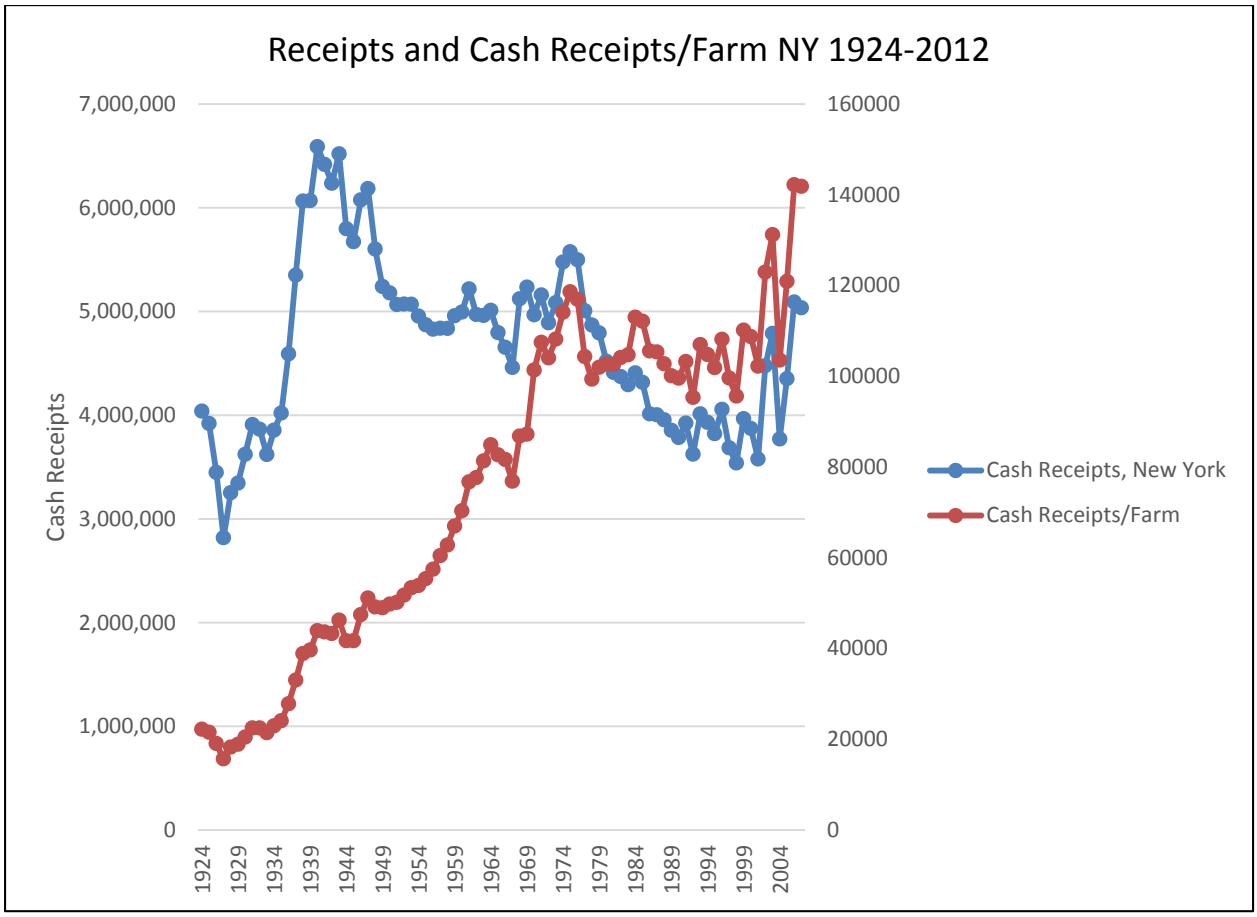


Figure 4-2: Real Cash Receipts (2009=100) NY Total and Per Farm (Source USDA ERS)

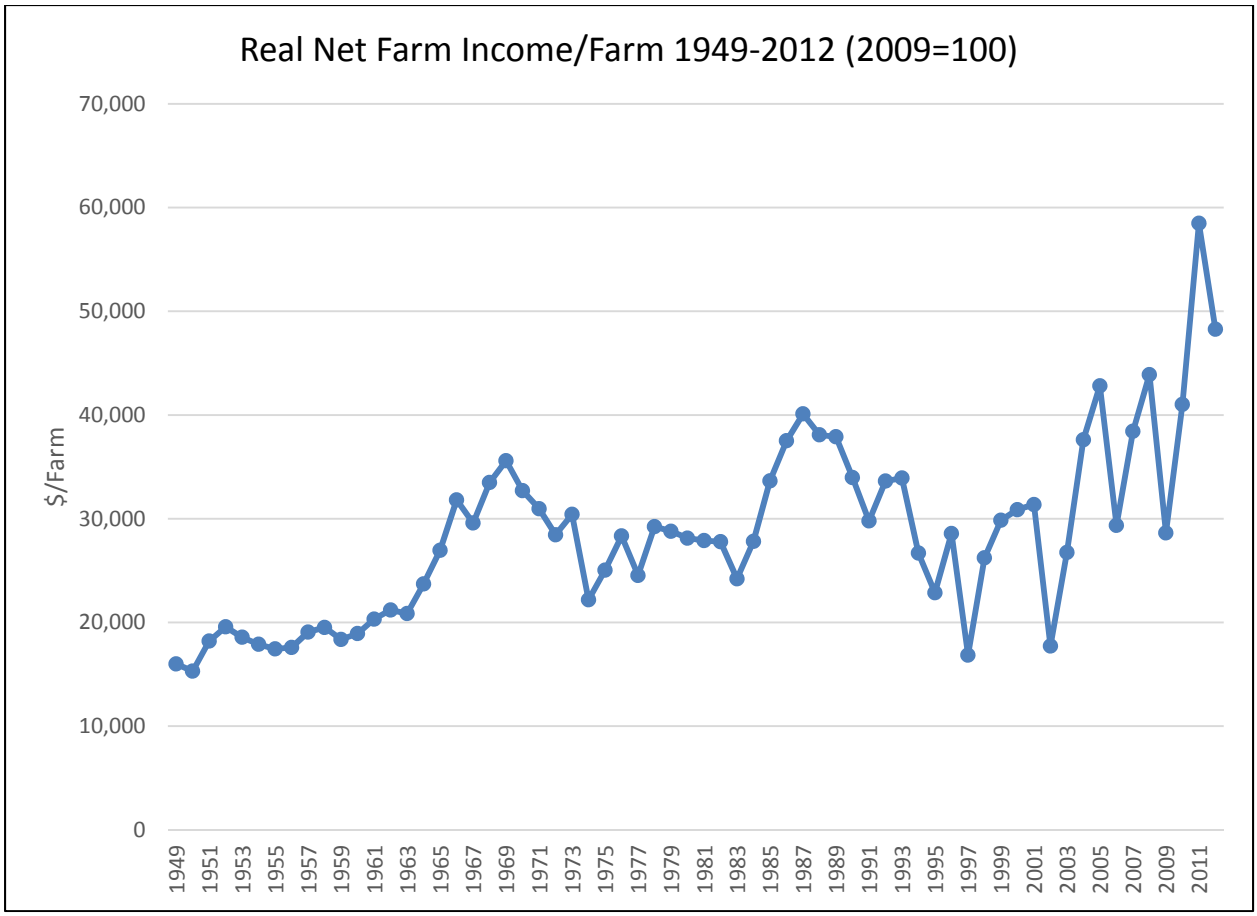


Figure 4-3: Real Net Farm Income per Farm (2009=100, Source USDA ERS)

As Table 4-1 shows, dairy accounts for approximately 48.3% of cash receipts in NY so that much of the financial and economic health of the State's agricultural economy depends on the dairy sector. For NY dairy farms using data from 1997-2010 it was found that a 1 unit decrease in the milk/corn price ratio would decrease average $/cow income by $248/year, for the low income/efficiency farms it was $429.42/cow. Between 2000 and 2007 the average price ratio was 5.39, but from 2008 to 2012 the average ratio fell to 3.03 capturing ethanol and other market effects.

Table 4-1: Share of Receipts for NY Commodities in Top 20 USA Rankings, 2012 (Source: USDA ERS)

Crop	Rank	State receipts for Total	Share of U.S. receipts for Total	Share of State receipts for all commodities ($5.2878 Billion)	Share of U.S. receipts for all commodities ($395.068 Billion)
		$1,000	Percent	Percent	Percent
Total	26	5,287,766	1.3	100.0	1.338
Apples	2	234,543	7.8	4.4	0.059
Dairy	3	2,553,816	6.9	48.3	0.646
Fruits/nuts	6	318,425	1.2	6.0	0.081
Greenhouse	8	383,350	2.5	7.2	0.097
Grapes	4	52,252	1.1	1.0	0.013
Potatoes	13	60,776	1.6	1.1	0.015
Strawberries	5	6,880	0.3	0.1	0.002
Tomatoes	5	47,174	2.5	0.9	0.012
Vegetables/ melons	7	625,277	3.0	11.8	0.158
Top 10		4,282,493	80.99	81.0	1.084
All Others		1,005,273	19.01	19.01	0.254

More generally, NY agriculture still suffers from significant inter-year volatility. Figure 4-4 shows the percentage change in Gross Value Added, Net Value Added and Net Farm Income from 2001-2012 (2012 is the last year data was updated). It shows that the residual effects of market uncertainties reside with the farmer. Since 2008 the economy has seen year over year changes of a decline by 60% to a rise of 60% in farm incomes. Gross value added is growing at an average rate of 4.4% annually with standard deviation of 11.37% while net value added is growing at an average rate of 5.06% with a standard deviation of 20.2%. But net farm incomes, while growing at an average rate of 7% , has a volatility of about 50%. This means that given current conditions, there is a 67% chance that net farm income, state-wide, will rise or fall by 50%.

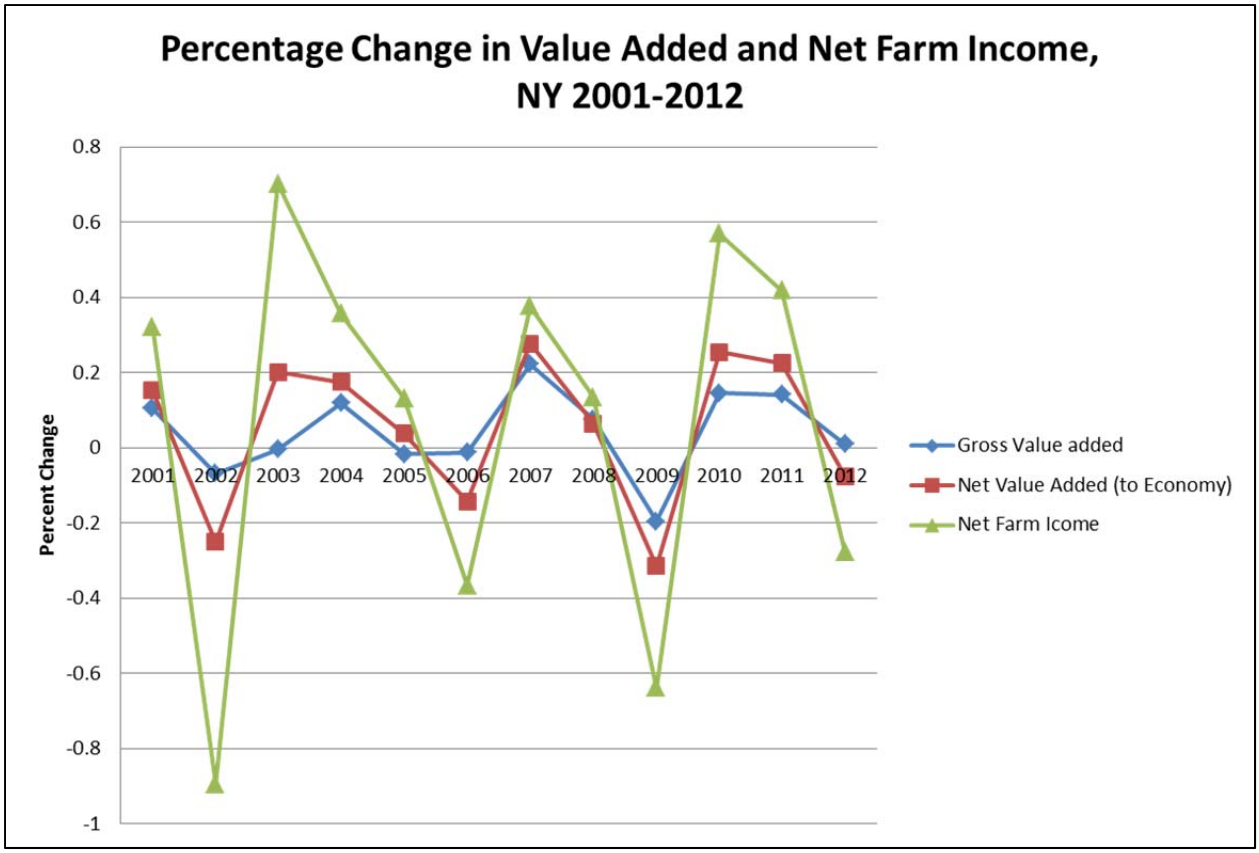


Figure 4-4: Percentage Change in Value Added and Net Farm Income, NY 2001-2012. Source USDA ERS

The Milk/Corn Price Ratio

Most important for NY State is of course the relation between milk prices and corn prices with the latter capturing a major input cost and the former capturing the leading source of revenue and value added. Table 2 shows the closing futures prices for corn and milk for contract months December 2014 through December 2015. Currently the milk to corn price ratio is at 5.07 which is actually higher than that calculated for December 2014 (Table 4-2 Column 4). The market futures price suggest that the Milk/Corn price ratio will remain above 4.0 (minimum 4.11) throughout 2015. This is still healthier than what has been observed in the past few years and while it might signal prudence in financial practices, it does not appear, historically at any rate, to signal any deterioration in financial conditions beyond conventional risk coping strategies.

Table 4-2: Projected Milk/Corn Price Ratio for 2014

Contract Month	Class III Milk	Corn	2015 Milk/Corn Price ratio	2014 Milk/Corn Price ratio
Dec-14	**19.05**	**3.75**	**5.07**	**4.45**
Mar-15	**16.81**	**3.88**	**4.33**	**4.00**
May-15	**16.70**	**3.96**	**4.22**	**3.90**
July-15	**16.87**	**4.03**	**4.18**	**3.90**
Sep-15	**17.30**	**4.10**	**4.22**	**3.87**
Dec-15	**17.18**	**4.18**	**4.11**	**3.75**

Agricultural Finance

The supply of credit to agriculture is strong and demand remains high. Figures 4-5 and 4-6 show the market shares of key providers of agricultural credit [1]. The Farm Credit System dominates the market for long term credit with about 27% compared to 20% for commercial lenders. In comparison, commercial lenders hold about 20% of non-real estate debt compared to about 14% of the Farm Credit System. The Farm Service Agency originates less than 1% of the debt but it is an important component of agricultural finance nonetheless because of its willingness to guarantee higher risk loans. Up until 1995 the data show that commercial lenders and the Farm Credit System were actually substitutes for credit: As Farm Credit loans increased, commercial loans decreased and vice versa. But since 1995 the two key lending sectors have been complementary as the FCS shed its 'lender of last resort' image. Under this competitive environment FCS mortgage loans have dominated. For operating and other intermediate loans commercial lenders and the FCS have always seemed to compete, although since 1995 it appears that non-mortgage loans originated by the FCS are increasing relative to those of commercial banks. In terms of the financial crisis it does not appear that there was any long term reduction in the provision of either real estate or non-real estate loans to agriculture.

[1] USDA NASS/ERS data on the allocation of farm debt was not updated to reflect 2013 or 2014 at the time of writing (November 2014)

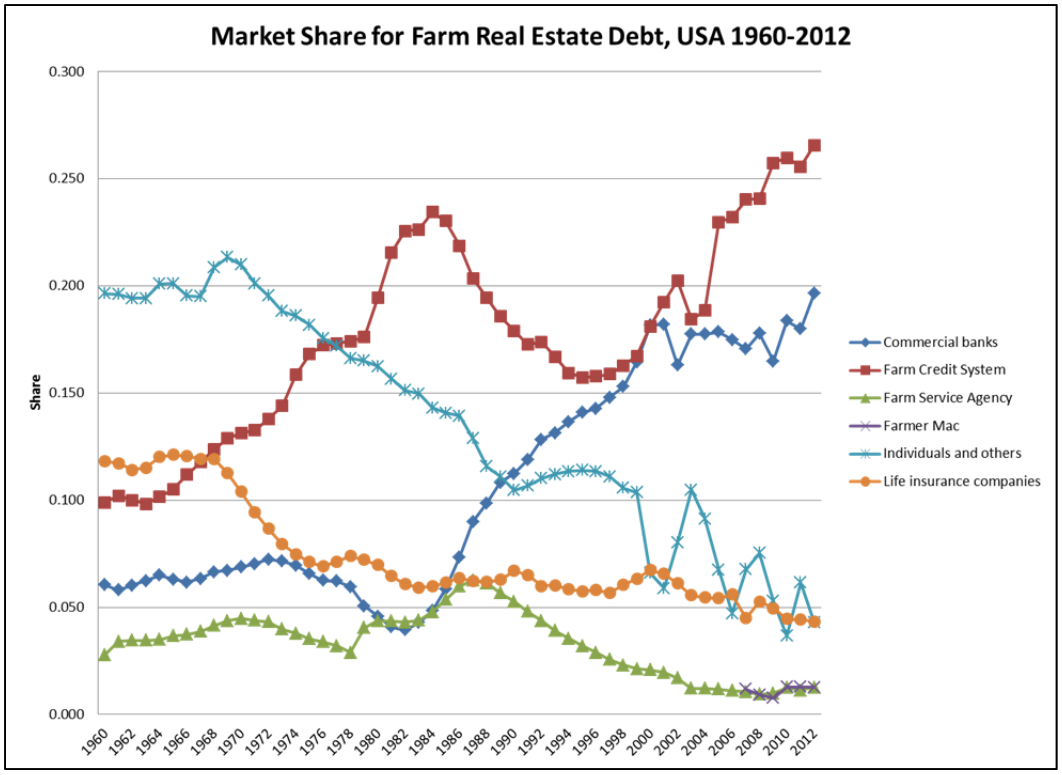


Figure 4-5: Market Share for Farm Real Estate Debt, 1960-2012

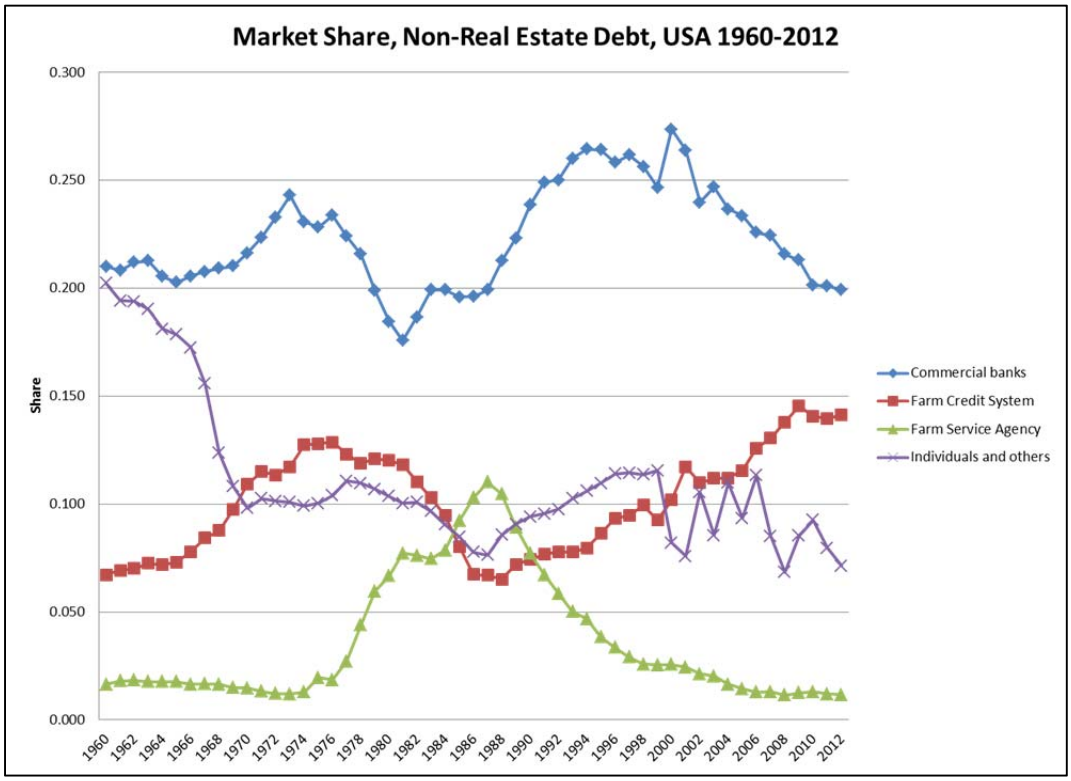


Figure 4-6: Market Share, Non-Real Estate Debt, USA 1960-2012

Table 4-3 provides a side-by-side comparison of a typical USA farm versus an average USA dairy farm (not necessarily NY) in terms of debt capacity. The average farm in the USA has net income of $40,882 in 2012 compared to $173,455 for dairy. The average farm has $74,250 in debt in comparison to the average dairy farm debt of $393,829. Adjusting for depreciation and debt servicing we can determine the debt servicing capacity of the two farm types. Assuming and interest rate of 7.5% and loan amortization over 20 years the maximum debt carrying capacity of an average USA farm is $445,081 while that of the dairy farm is significantly higher at $393,829. These numbers are absolute maximums in times of certainty. In reality the maximum capacity for the typical farm would be at most 75% at $333,811 and for the dairy farm $673,242. Even at these levels the actual debt used on average are only 22.2% and 58.5% of the reserved debt capacity.

Table 4-3: Debt Repayment Capacity of USA Farms and Dairy Farms

Farm Business Debt Repayment Capacity			
		ALL	Dairy
All Farms: TOTAL		2012	
All Farms: TOTAL	Units	Estimate	Estimate
Farms	Number	2,161,844	45,993
Number of farms with debt	Number	534,036	30,636
Gross cash farm income	$ per farm	158,529	894,449
Net farm income	$ per farm	40,882	173,455
Income for debt coverage	$ per farm	55,778	237,277
Principal/interest payments	$ per farm	9,870	54,754
Debt coverage margin	$ per farm	47,416	195,720
Maximum loan payment	$ per farm	43,659	88,053
Total reported debt	$ per farm	74,250	393,829
Max feasible debt (7.5%)	$ per farm	445,081	897,656
Max debt (7.5%) with 25% reserve	$ per farm	333,811	673,242
Repayment capacity use (7.5%)	Percent	0.166823	0.438731
Repayment capacity use (7.5%)	Percent	0.222431	0.584974

A similar story arises in the commercial banking sector. Figures 4-7 through 4-9 were generated from data made available through the Kansas City Federal Reserve's Farm Data Handbook and places current conditions in a historical context. System wide, nonperforming loans were below 1% (0.6%) by the 2nd quarter of 2014 (Figure 4-7) which are not materially different from than that of the Farm Credit System, but also expected since commercial banks can more easily move in and out of agricultural finance as market conditions change. But in terms of long term mortgages, nonperforming loans are about 1.12% of total (Figure 4-7), down from 1.36% at the end of 2013.

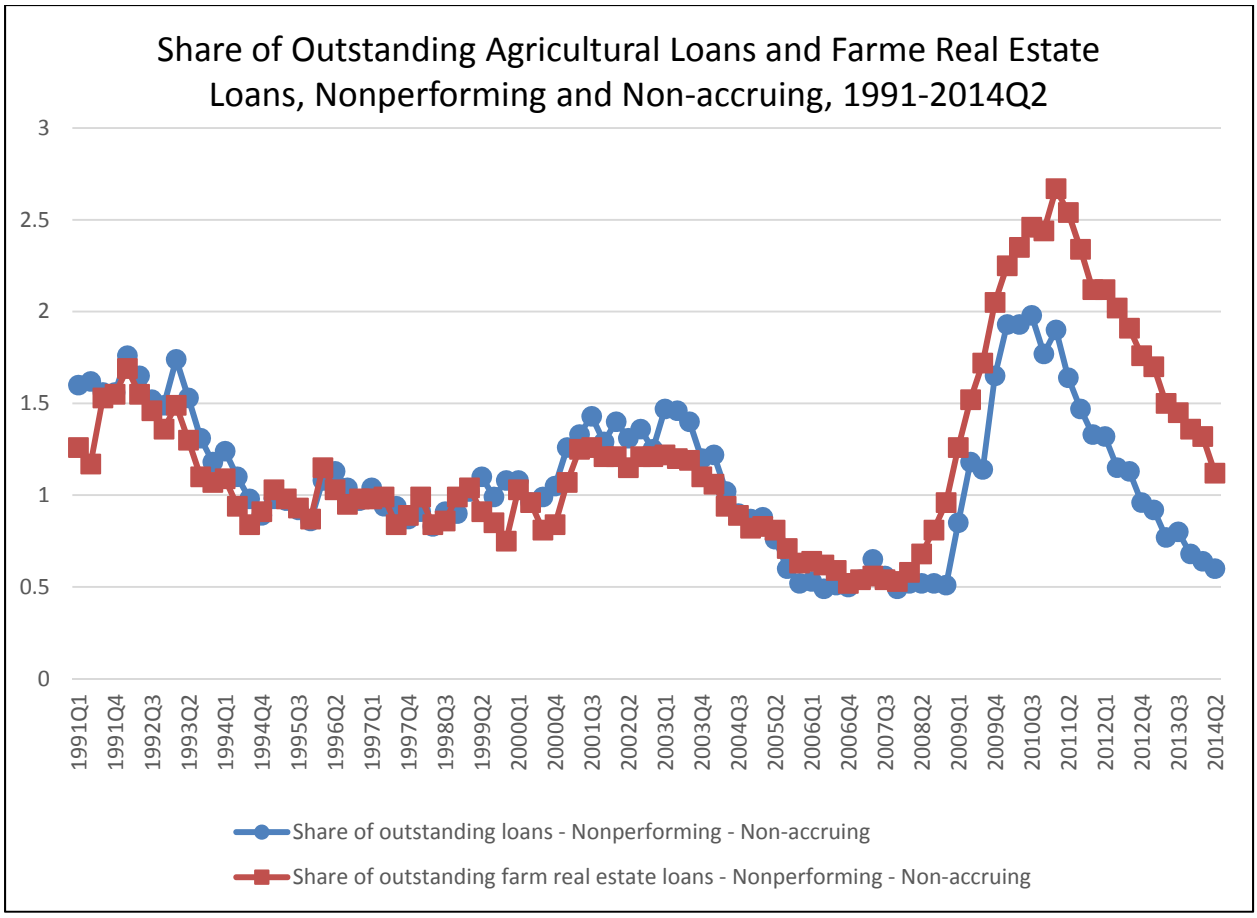


Figure 4-7: Share of Outstanding Farm Real Estate Loans-Nonperforming-Non-accruing

Figure 4-8 compares net charge-offs for commercial and agricultural banks from 1977-2013 which interestingly details the two significant financial crises of the agricultural sector. As of the most recent data in 2014 actual charge-offs of loans are quite small, and at historical lows for both the farm and non-farm sectors. Charge-offs applied to only 6 in 1000 agricultural loans versus 10 in 1,000 commercial loans. The first, peaking in the financial crisis of the mid 1980's, shows charge-offs by agricultural banks of about 2.25% in 1986 compared to 1.1% of commercial banks. But in the financial crisis following 2007/2008 the larger charge-off rate was with the nonagricultural banks at rates of 1.2% versus 0.8% in 2010. While some deterioration followed this later financial crisis because of the tightening of credit facilities (including working capital), what is important is that agricultural loans proved safer than nonagricultural loans, and banks with a larger proportion of agricultural loans were better able to stabilize credit risks. There is a very good case to make that because agricultural returns are largely independent or at least weakly correlated with the general industrial/consumer economy the commercial banking system may well show an increased interest in agricultural loans as a general hedging strategy that not only reduces credit risks but also adds to profits. More generally these results strongly suggest that the USA credit system for small loans is in very good shape with historical lows in nonperforming and non-accrual loans and charge-offs to those loans.

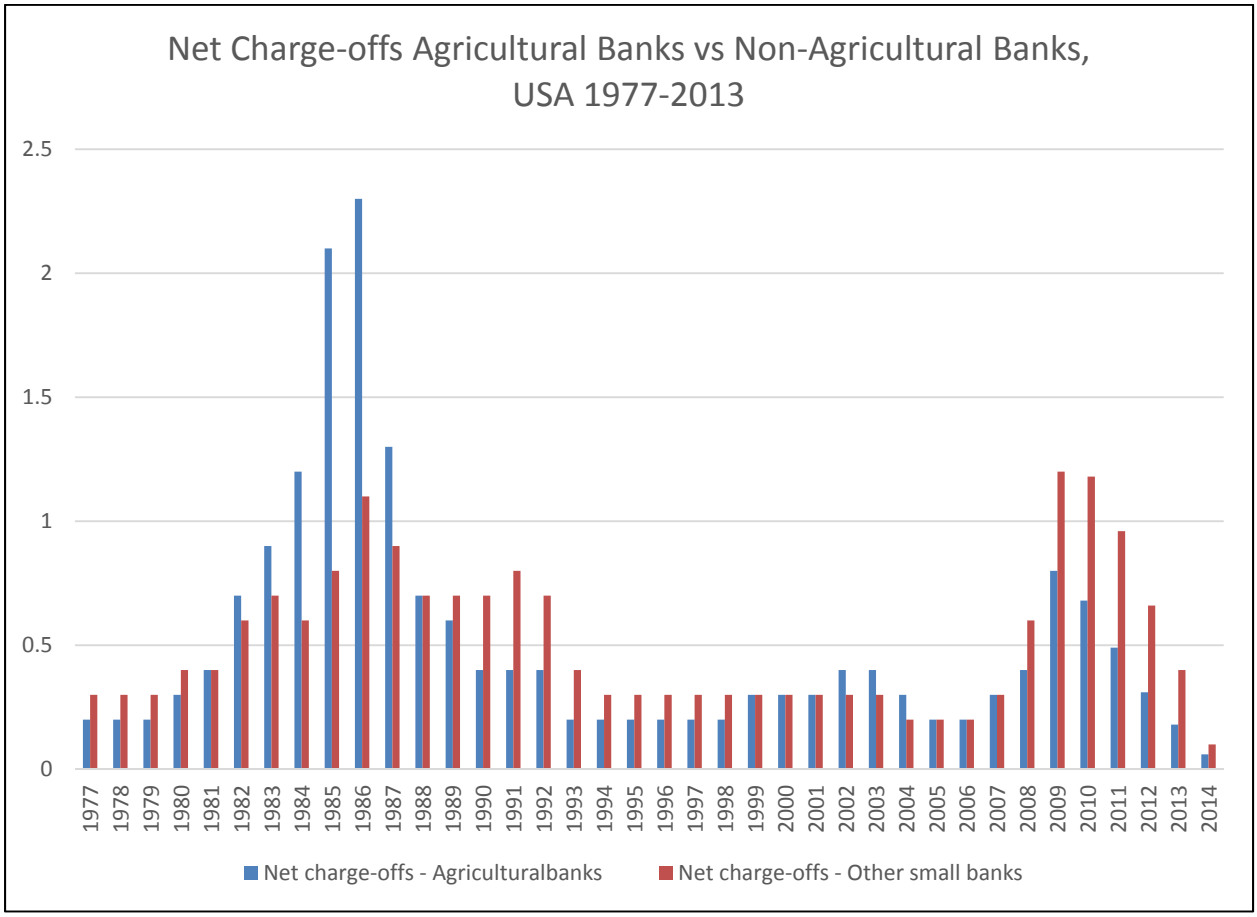


Figure 4-8: Net Charge-Offs. Agricultural versus Non-Agricultural Banks

Despite this, Figure 4-9 shows a slight fallout from the 2007/2008 financial crisis with a failure amongst some commercial banks averaging about 9 per year from 2009-2010, but an agricultural bank has not failed since 2012 indicating that the macroeconomic effects of the financial crisis has largely passed. It should however be noted that the increase in bank failures in 2009 and 2010 were largely due to conditions outside of agriculture. Since sub-prime loans were not typically applied to agricultural loans these banks likely failed for residual reasons such as a large number of sub-prime or otherwise overvalued residential and commercial real estate holdings or holding too much sub-prime paper on their books as part of an investment strategy.

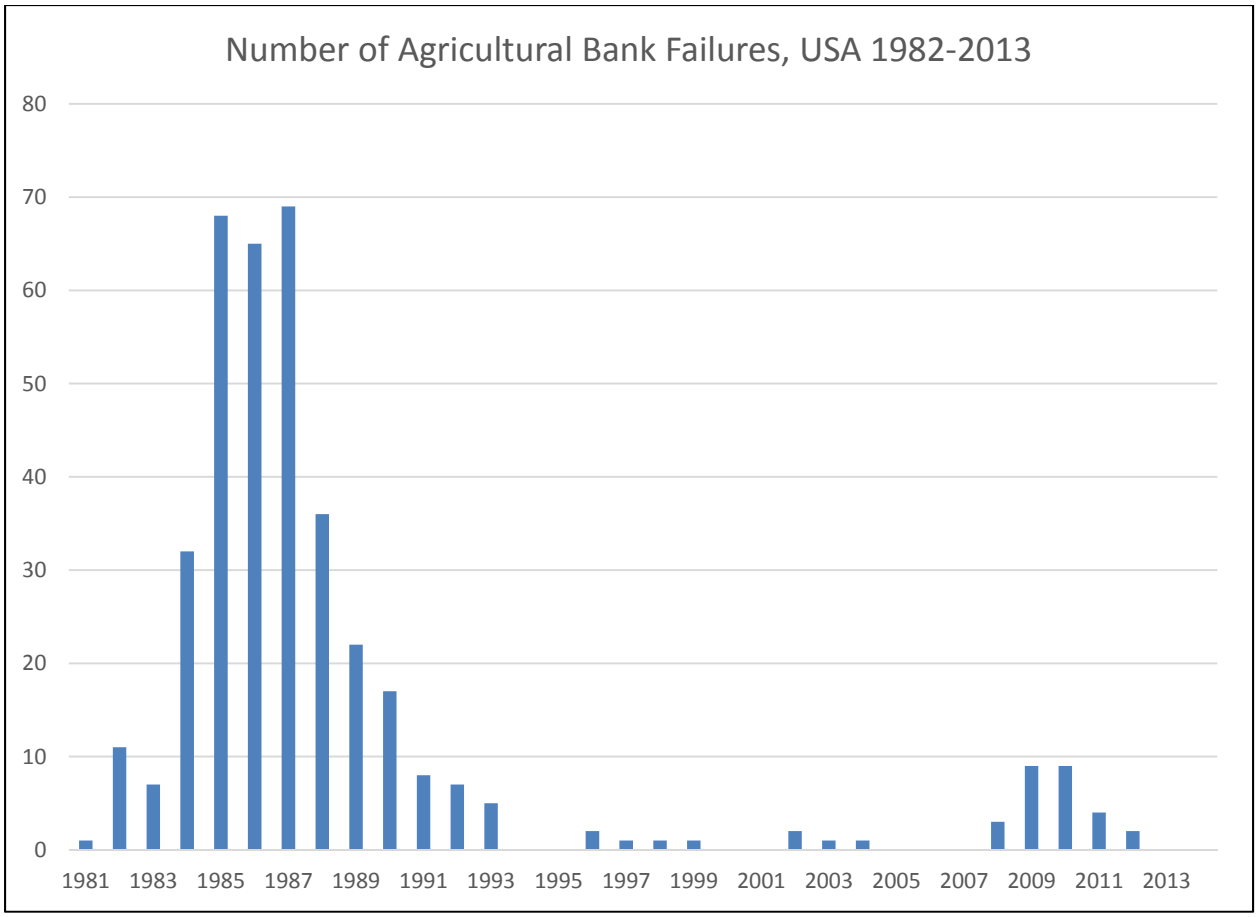
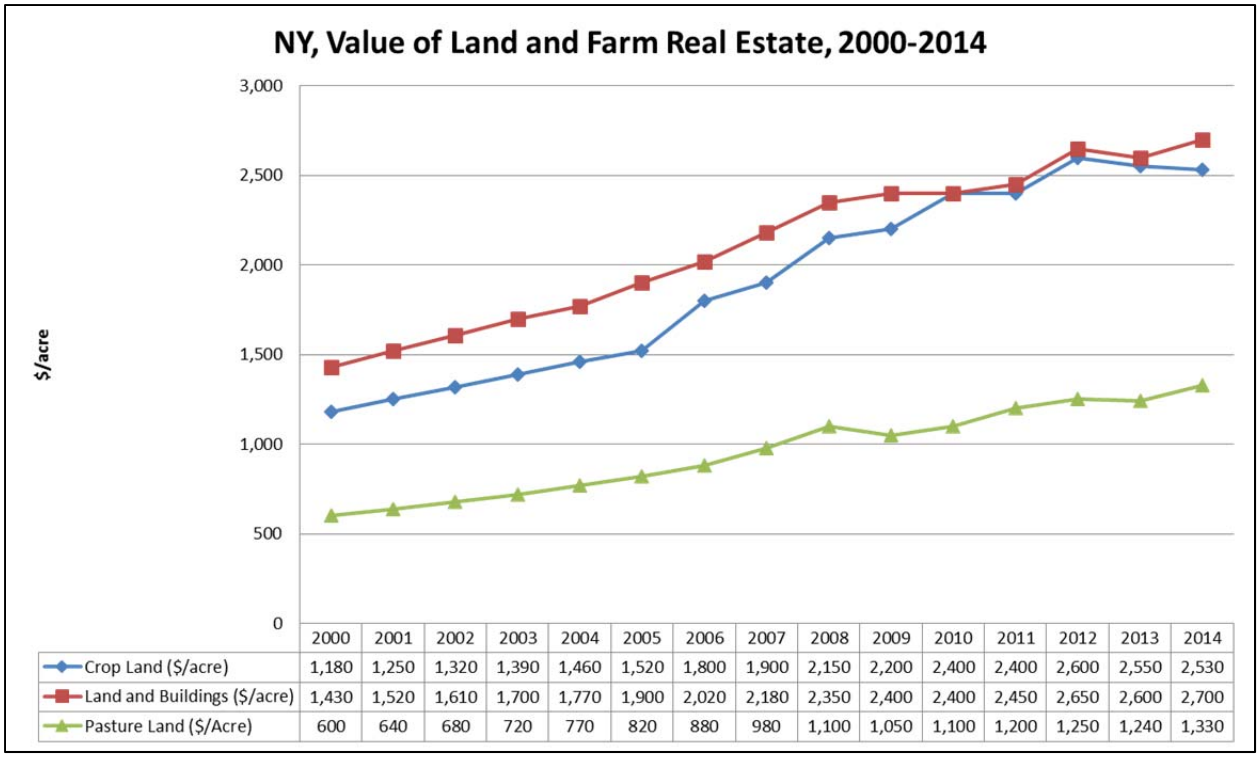


Figure 4-9: Number of Agricultural Bank Failures, USA 1982-2012

Farmland Values

Agricultural land is, for most farmers, the largest asset item with unrealized capital gains being the largest contributor to equity. Some extraordinary rises in farmland prices in recent year has led to questions of whether a bubble exists and if so whether a bust is imminent. In 2013/2014 it looks perhaps that land prices are now leveling off and in fact for the first time in many years USDA data shows that crop and pasture land, and land with buildings have decreased. The decrease is small with average prices falling only $50/acre over 2013 (Figure 4-10). But this comes after a significant reduction in the rate at which land prices were increasing since 2000 and peaking between 2005 and 2008. There are many possible reasons for this decline. The most obvious is that NY farmers looked rationally at the price of land, the cash flow it generates, the risks in generating those cash flows, and long run viability of agricultural production if they became overly speculative in land investment. Market uncertainties in grains and oilseeds as previously discussed could also cause some farmers to take a wait-and-see approach until the recent tumult in commodity markets and policy is resolved. Even so it is difficult to gage the future. The trend for 2015 is that land prices will either rise slightly or remain unchanged.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Crop Land ($/acre)	1,180	1,250	1,320	1,390	1,460	1,520	1,800	1,900	2,150	2,200	2,400	2,400	2,600	2,550	2,530
Land and Buildings ($/acre)	1,430	1,520	1,610	1,700	1,770	1,900	2,020	2,180	2,350	2,400	2,400	2,450	2,650	2,600	2,700
Pasture Land ($/Acre)	600	640	680	720	770	820	880	980	1,100	1,050	1,100	1,200	1,250	1,240	1,330

Figure 4-10: New York Land Values, 2000-2014, $/acre (Source: USDA ARMS)

Financial Conditions of U.S. and NY Farms

As indicated earlier New York is no longer surveyed as part of the USDA's periodic Agricultural Resource Management Survey but from past experience financial conditions in New York were fairly consistent with the financial conditions of farmers elsewhere in the USA. Figure 4-11 illustrates the debt to asset and debt to equity ratios sector wide across the USA. Overall, farm debt in agriculture is low with plenty of equity for investment and expansion. The debt to asset ratio sector-wide is only 10% and the debt to equity ratio is about 10.2%. These have not changed in any economically meaningful way since 2012. However it must be kept in mind that these ratios are sector wide and include farms with no debt as well as debt and also includes the capital gain (market) value of farmland. In general as long as the value of assets increases faster than the accumulation of debt one will see a decrease in either leverage ratio. In this outlook report for 2012 it was reported only 29.4% of American farmers have debt with an average debt to asset ratio of 28.9% and a debt to equity ratio of 40.6%. Even at 28.9%, this is not a degree of over-leverage that will bring widespread harm to the agricultural economy should a down-turn occur. Younger farmers hold more debt relative to assets or equities (36.9% and 58.4%) than older farmers (22.1% and 28.3%).

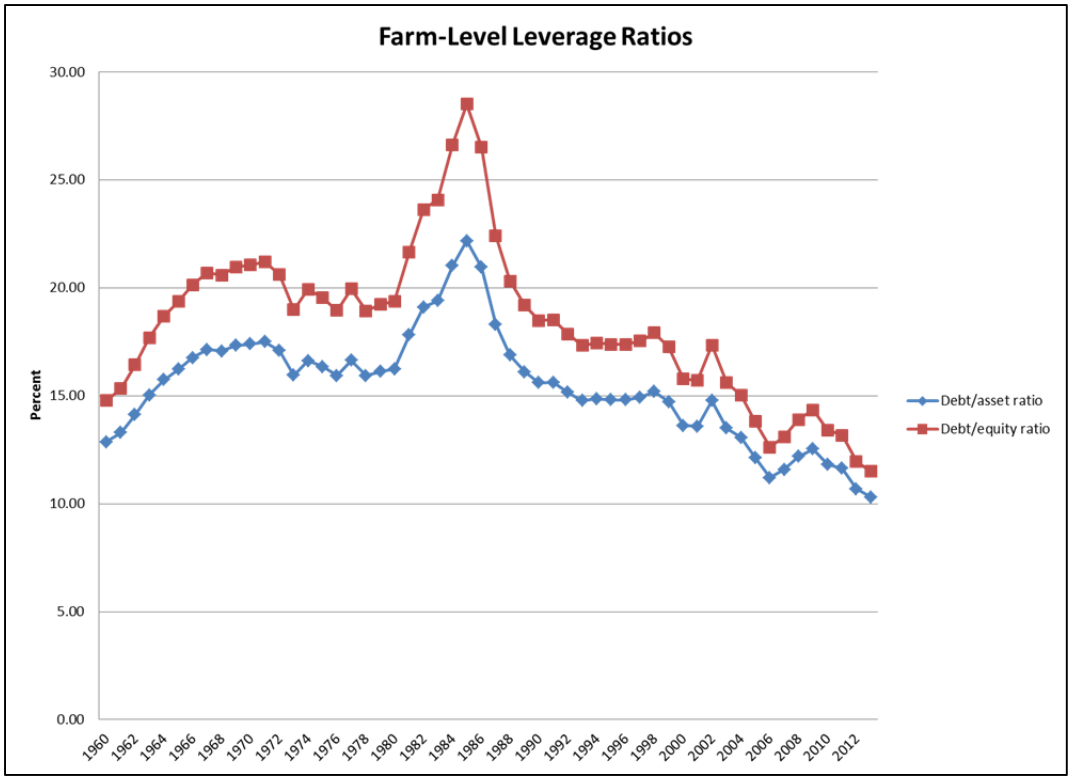


Figure 4-11: Debt to Asset and Debt to Equity Ratios, United States 1960-2012

Loan Demand and Interest Rates

This section describes some aspects of credit demand and interest using data available from the Agricultural Finance Databook, Kansas Federal Reserve. Figure 4-12 shows the percentage allocation of non-real estate loans by loan type. What is interesting in this graph is the percentage of loans, 68.94% that are applied to the 'other' category. This category is largely represented by lines of credit to farmers, from which funds are drawn to purchase livestock, inputs, machinery and so on.

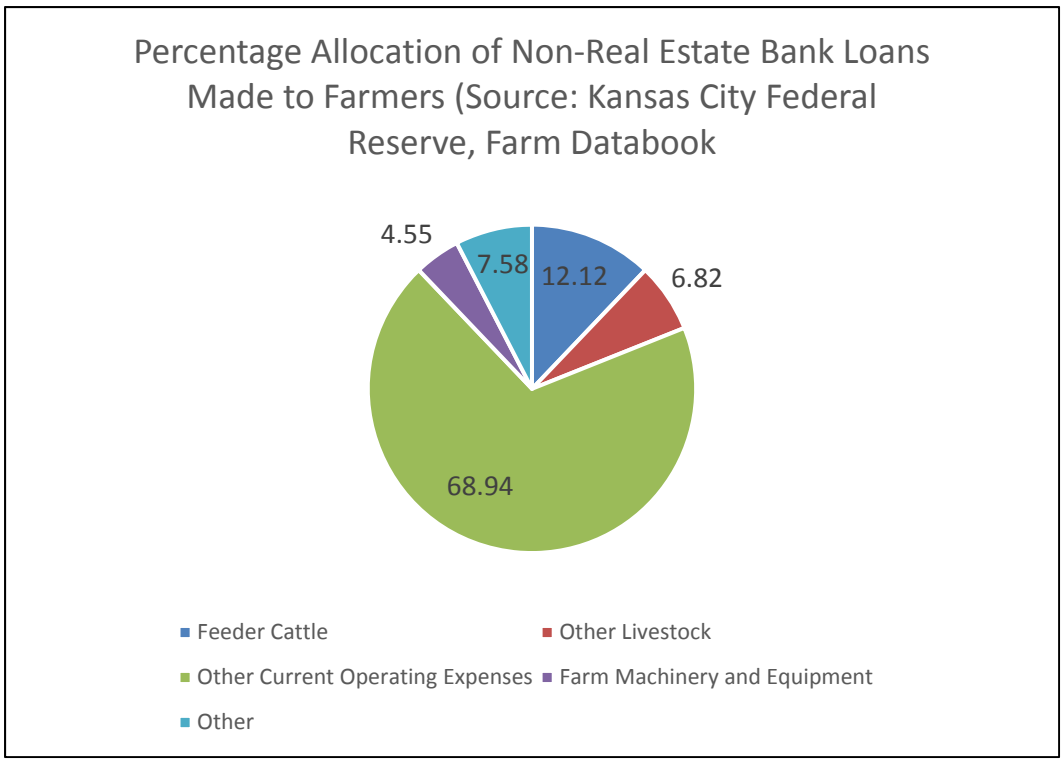


Figure 4-12: Percent Allocation of Non-real estate loans

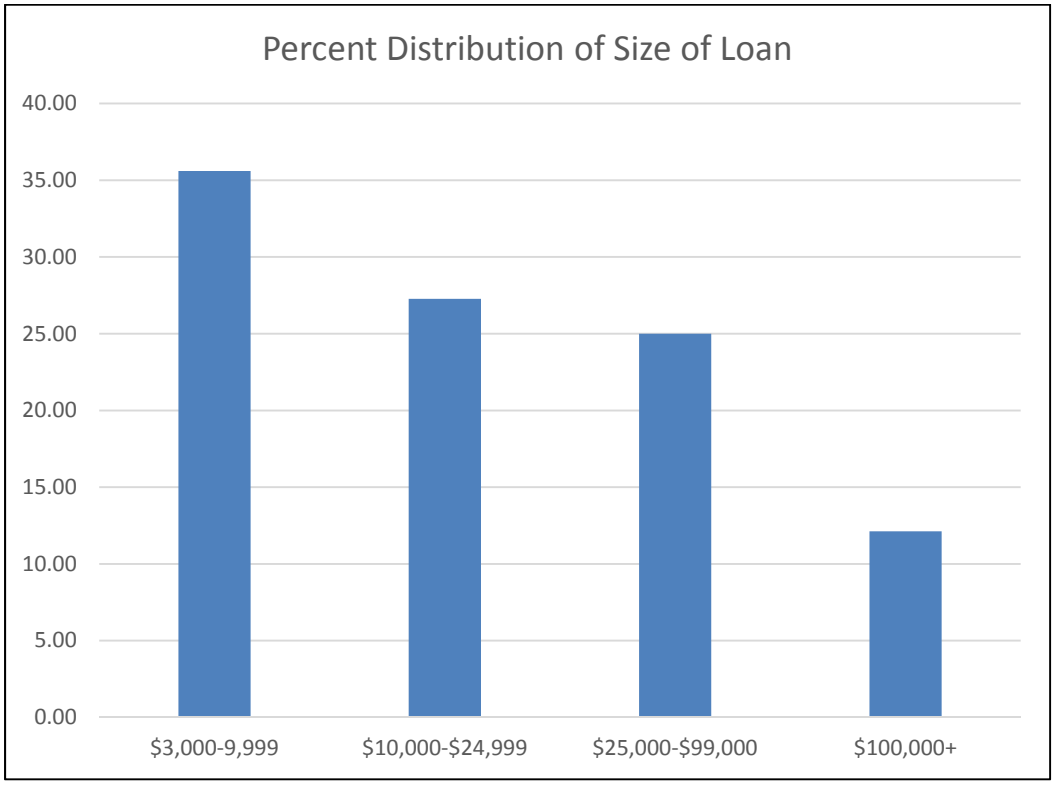


Figure 4-13: % Distribution of Non-Real Estate Loans by Type

However, the actual size of loans is relatively small (Figure 4-13 and Figure 4-14). 35% of loans are less than $10,000, while only slightly more than 10% of non-real estate loans are greater than $100,000. Figure 4-14 shows how these loans are distributed across uses. The average line of credit was about $227,000 with substantially lower machinery loans of $48,950 to livestock loans of $68,140.

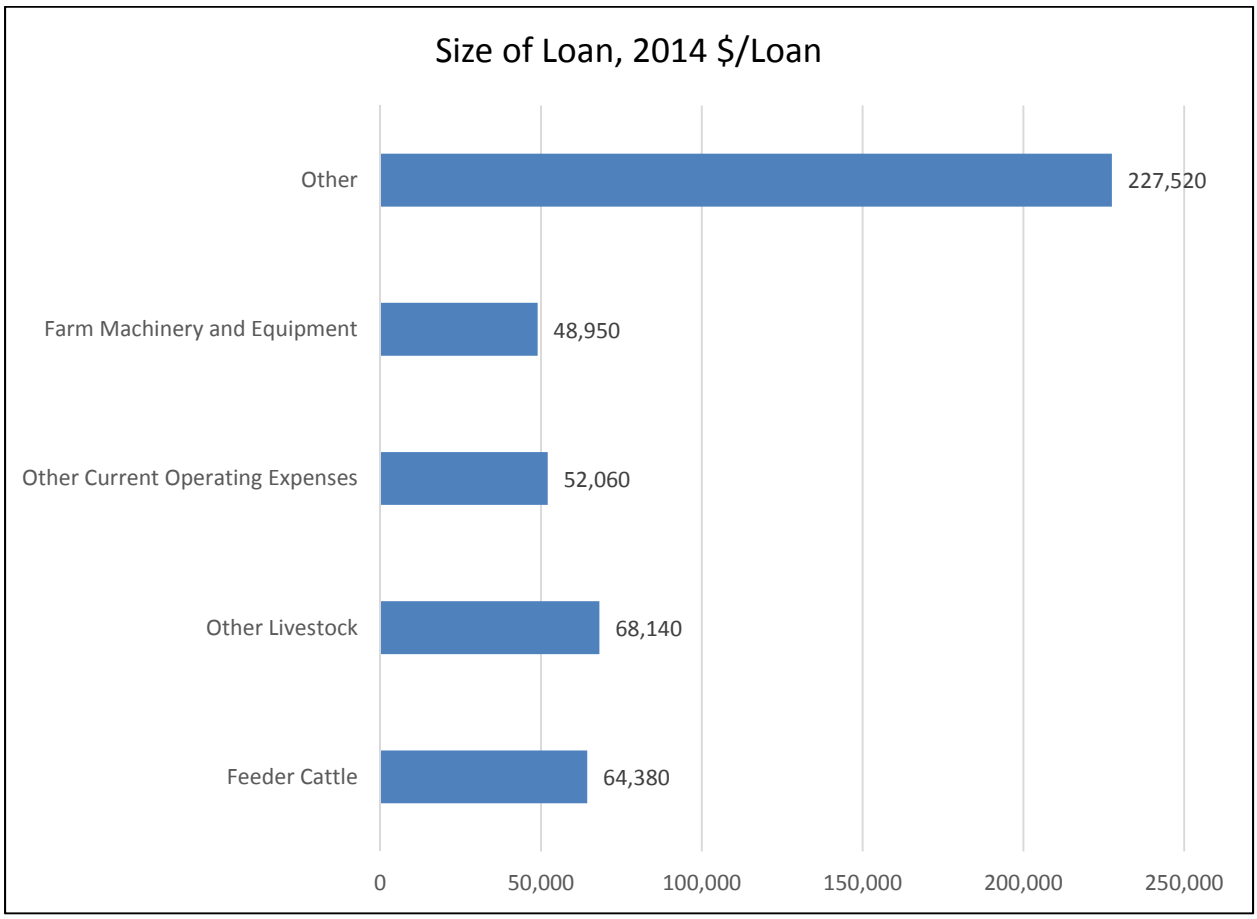


Figure 4-14: Average Loan Size by Loan Type

Interest rates remain low. Figure 4-15 shows the distribution of loan rates by type. Loans for cattle, livestock, operating expenses and farm machinery ranged from 4.1% to 4.9% in 2014Q2. However, the loan rates on the 'other' category are substantially lower at 2.5%. This is probably due to securities assigned to lines of credit in comparison to market-valued or illiquid collateral on production and machinery loans. Figure 4-6 shows that there is an interest rate bias in favor of larger loans. For example the average effective rate of interest on loans greater than $100,000 is 3.7%, almost a full percentage point lower than rates on loans of $25,000-99,000.

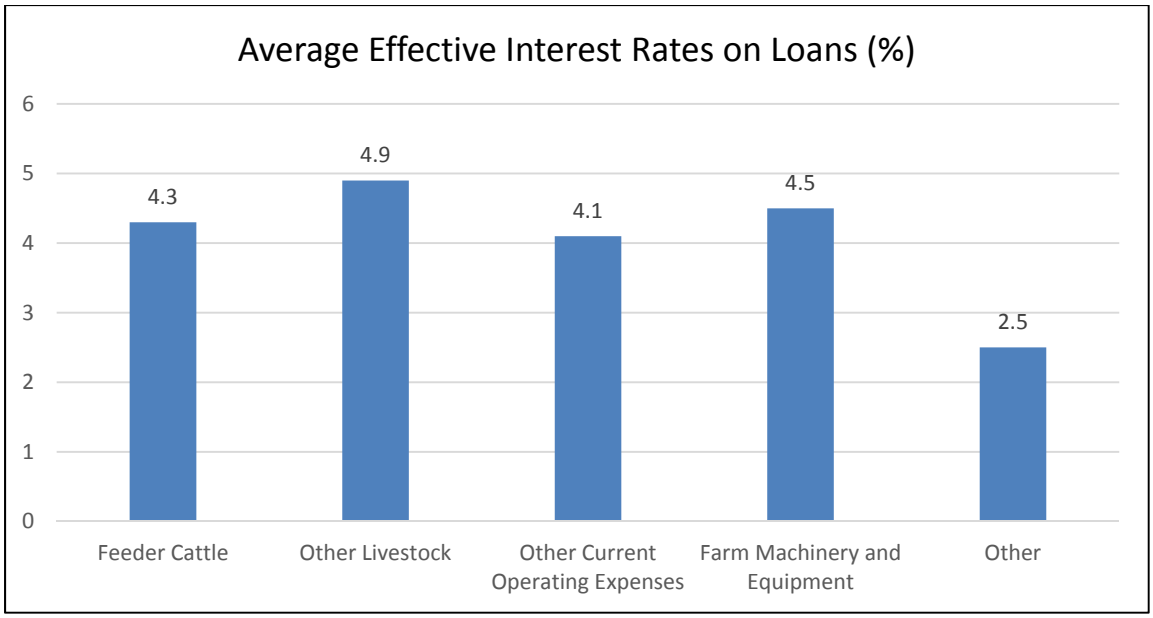


Figure 4-15: Average Effective Interest Rates on Loans, by Type

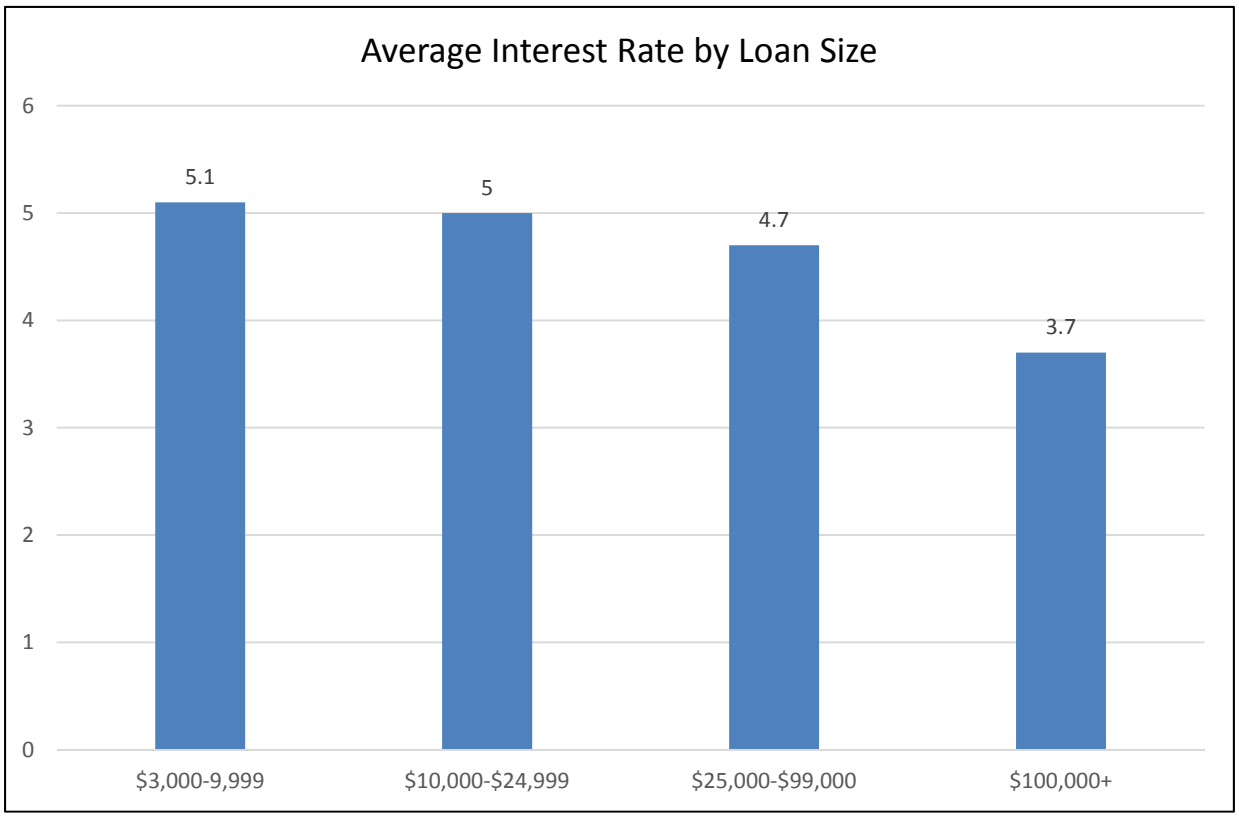


Figure 4-16: Average Interest Rates by Loan Size

Finally, Figure 4-17 shows the historical relationship between average loan demand between 1991 and 2014 and effective interest rates charged on those loans. A simple regression through the loan-interest pairs gives a rough estimate of the credit demand elasticity. This elasticity of -0.588 indicates that on average a 1% increase in interest rates will reduce credit demand by 0.588%. This 'inelastic' demand suggests that farmers typically borrow with a purpose, but moderate their borrowing as interest rates rise.

For example if interest rates rise from 4% to 5%, (an increase of 25%) the elasticity measure suggests that the demand for credit will fall by 14.7%: A loan of 100,000 at 4% will fall to $85,300 if interest rates rise to 5%.

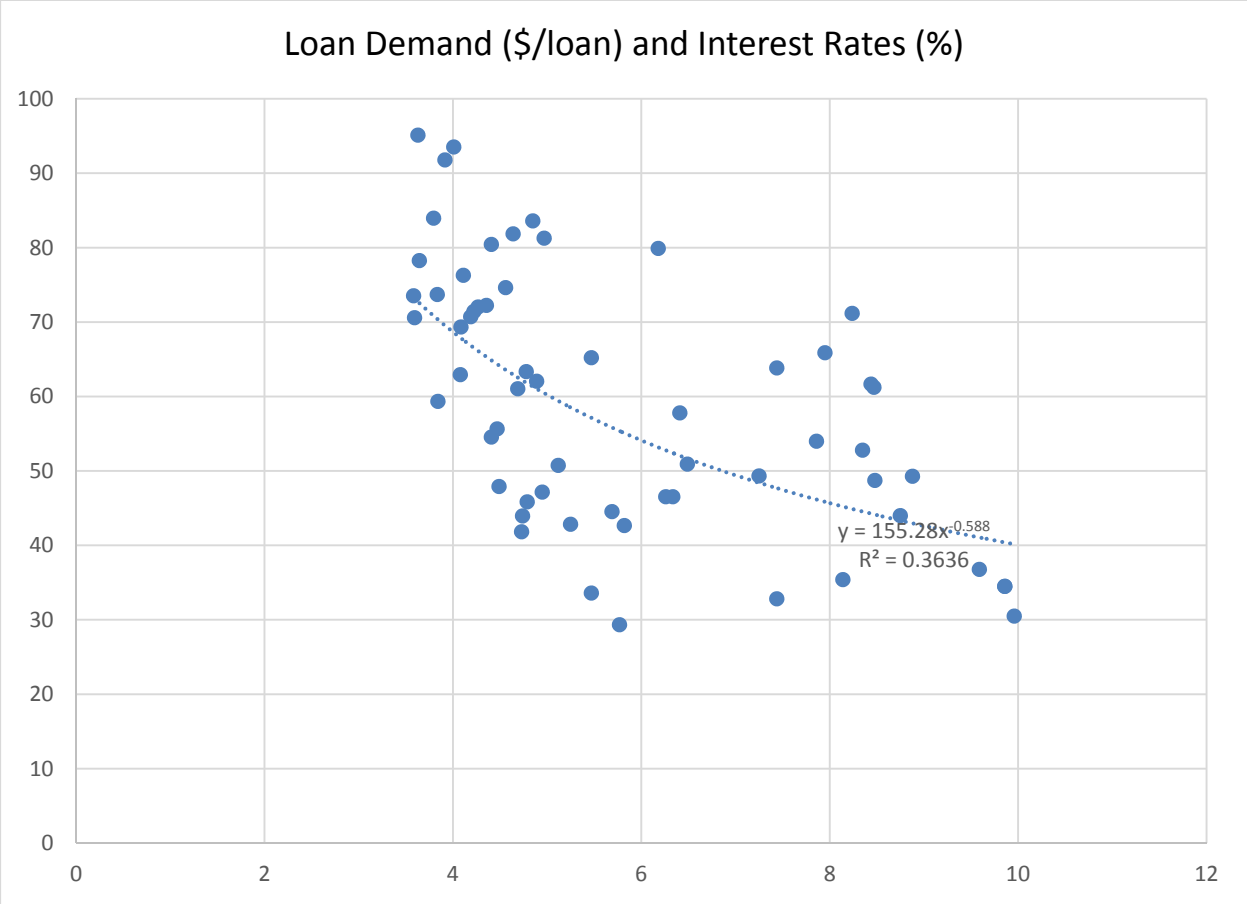


Figure 4-17: Loam Demand ($/loan) and Interest Rates (%)

Summary and Conclusions

2014 has been a mixed year for New York farmers. Grain and oilseed farmers are seeing lower cash prices and higher volatility and risk, while livestock farmers, including dairy are doing reasonably well with significantly higher prices with reduced feed costs. For dairy farmers, New York's principal farm type, the milk/corn price ratio measured by CME futures prices is over 4, which indicates that milk prices are more than breakeven.

Agricultural credit from both the Farm Credit System and commercial lenders seem to be in ample supply and with interest rates hovering between 2.5% and 5% the cost of debt will unlikely be a significant barrier to credit demand. However, a quick estimate of credit demand found that the demand for credit is modestly inelastic with a 1% increase in interest rates reducing credit demand by only 0.588%. In general debt is treated as a necessity by farmers, but they are also prudent and reduce the amount of credit as interest rates rise. Equity looms large in the agricultural sector and there is a tremendous amount of low risk credit capacity to ensure ample supply. The tumult of the financial crisis appears to have largely dissipated and in NY, the Northeast, and nationally loan performance is solid and faring much better than the non-agricultural market.

Chapter 5. Grain and Feed

Loren W. Tauer, Professor

The December 2014 Corn Futures Contract (CZ4) on the Chicago Board of Trade closed at $4.99 per bushel on May 1, 2014 when the new crop corn was beginning to be planted. On October 1 when corn harvest was beginning to gear up, that December 2014 Contract (CZ4) closed at $3.21, a decrease of 36 percent from May 1! Since October 1 the price has increased somewhat but has not recovered to the highs of the spring. The large decrease in the price was due to a number of factors, including conflicts and economic conditions, the decrease in oil and then ethanol prices, but another reason for the large price drop was the estimate by the USDA that the United States, the largest producer of corn in the world, was on schedule to harvest the largest corn crop in U.S. history, the second record in a row.

U.S. crop production estimates for the 2014 production year will again be released December 10, 2014 (this chapter is being written in late November) at which time the U.S. production for the year will be known (with estimates of variance around those estimates). What will determine prices over the rest of the crop season will be changing demand conditions as well as the Southern Hemisphere new crop beginning to arrive on the World markets in early spring of year 2015. So in this chapter I am going to present the projection of supply and demand conditions as of November 10, when the last crop report was released, and then discuss what factors may come into play that may alter those estimates. Because we only do one outlook per year I encourage you to visit web sites to obtain relevant information to revise your own estimate of grain prices over the year. I will report on corn for grain, soybeans and wheat, and then on animal feed, of which corn and soymeal are the largest components in the U.S.

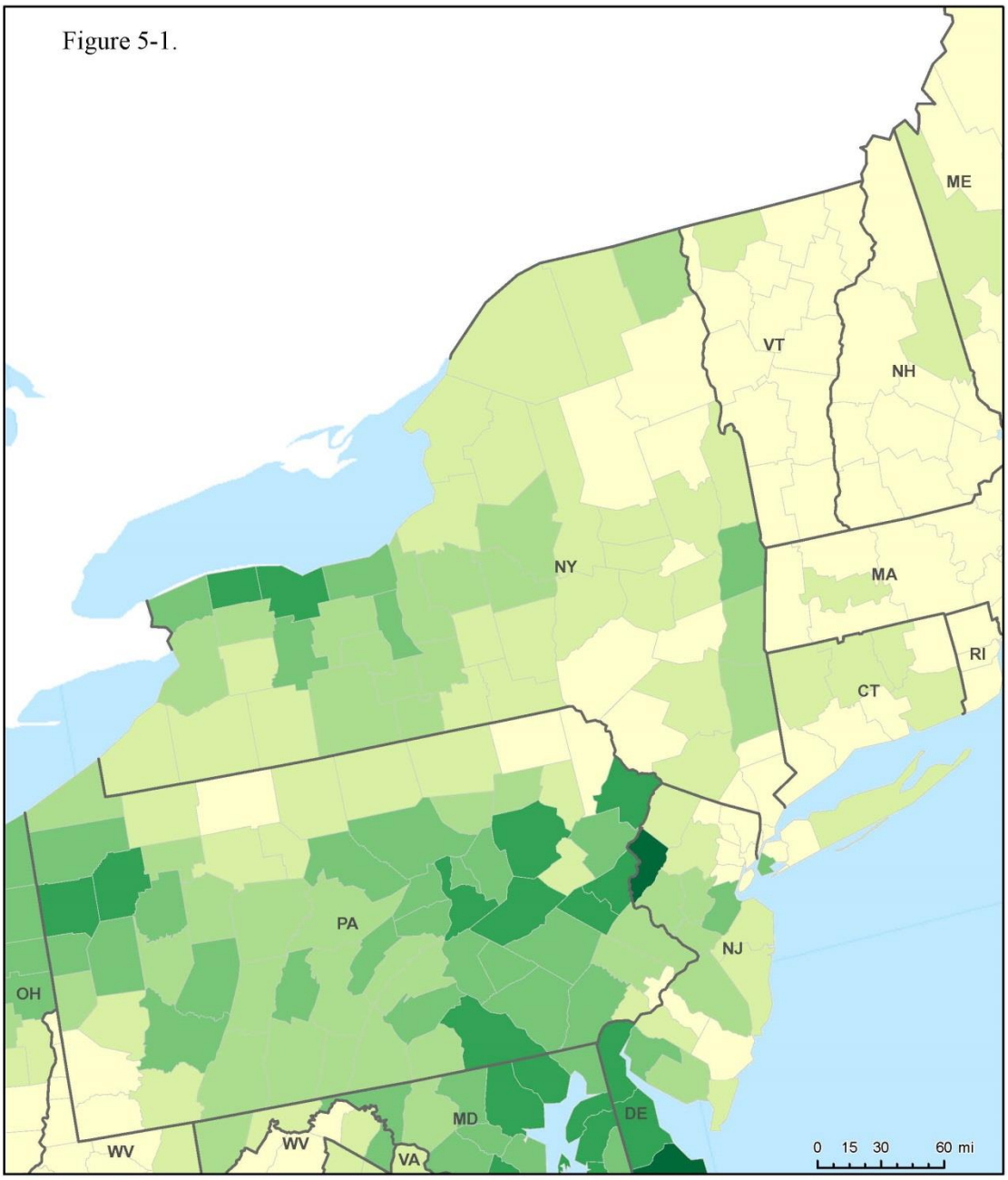
The 2012 Agriculture Census which was recently released provides a picture of where corn for grain is produced in New York. A map of the counties in New York as well as the counties in neighboring states where corn for grain as a percentage of total harvested acres is shown in figure 5-1. Note that this shows the relative importance of corn in the county by the percentage of acreage in corn and not corn acreage or total corn production. The major corn areas in New York are in the Northwest and Finger Lakes counties, but a significance percentage of acreage is east of the Hudson River. In some of these counties much of the grain is used on the farm for dairy and animal feed. Figure 5-2 shows the same statistic for soybeans. It is somewhat similar to the figure for corn except that Seneca County in the Finger Lakes Region is prominently highlighted.

Corn Supply and Demand

The U.S. Feed Grain and Corn Supply and Use estimates which were released November 10, 2014 are shown in Table 5-1. Feed grain includes Corn, Sorghum, Barley and Oats, but Corn constitutes the bulk of feed grain, and the estimates for Corn are shown separately in the bottom of Table 5-1. The next release date is December 10, 2014 when final new crop production will be estimated. Additional release dates for the year 2015 are Jan. 12, Feb. 10, March 10, April 9, May 12, June 10, July 10, Aug. 12, Sept. 11, Oct. 9, Nov. 10, Dec. 9, all at 12:00 noon ET.

The November estimate of total U.S. corn production for the year is 14,407 million bushels, which was a downward estimate from the October estimate of 14,475 bushes. This record production will

Figure 5-1.



Acres of Corn Harvested for Grain as Percent of Harvested Cropland Acreage: 2012

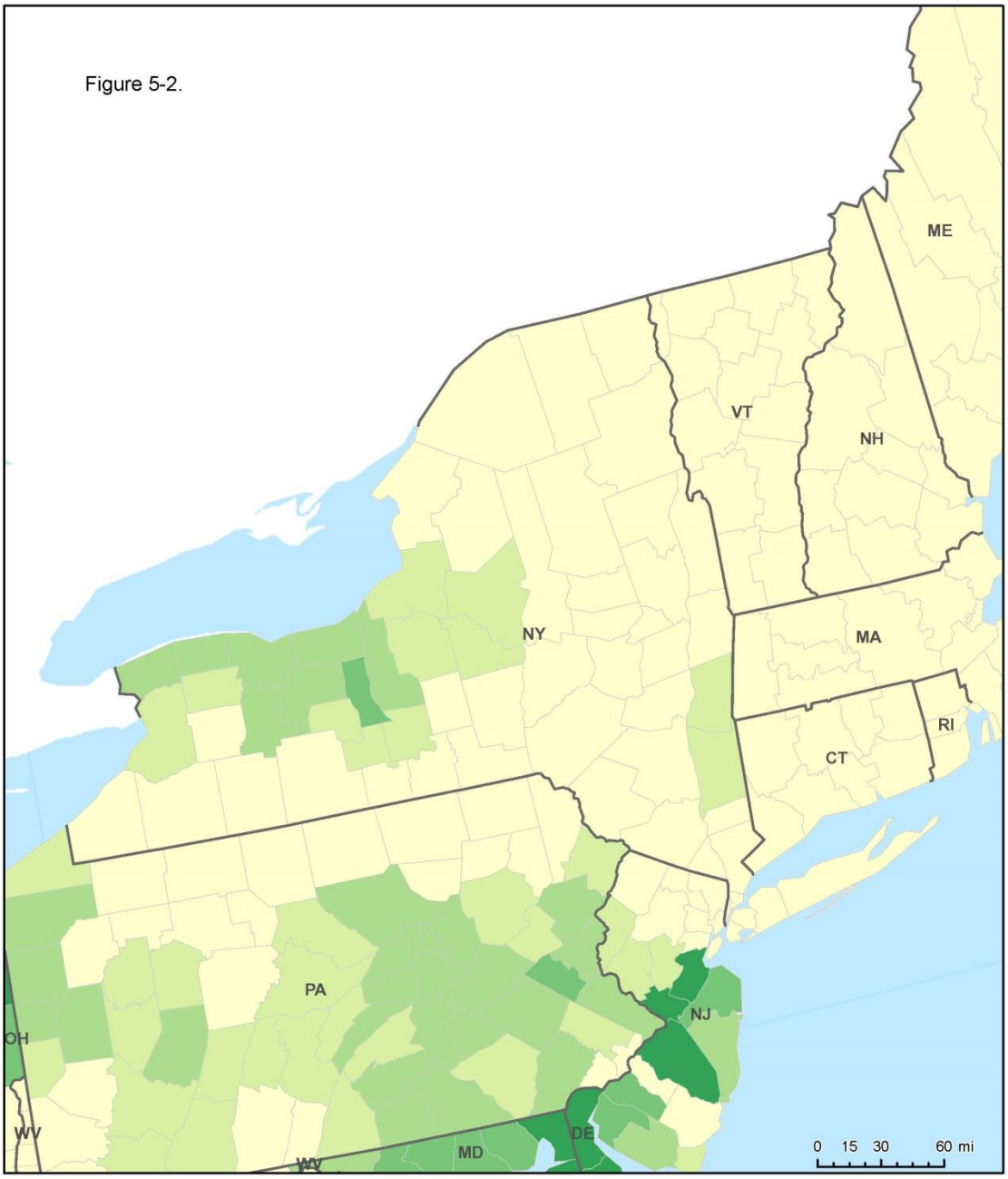
Less than 5
5 - 14
15 - 24
25 - 34
35 - 44
45 or more

NASS map ID: 12-M161 Date: 11/10/2014

For data collection, some county equivalent entities in AK, HI, MD, MO, and VA are included in other county equivalent entities.

Source: USDA National Agricultural Statistics Service, ESRI.
For more information: http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Ag_Census_Web_Maps/Overview/

Figure 5-2.



Acres of Soybeans Harvested for Beans as Percent of Harvested Cropland Acreage: 2012

Less than 5
5 - 14
15 - 24
25 - 34
35 - 44
45 or more

NASS map ID: 12-M191 Date: 11/10/2014

For data collection, some county equivalent entities in AK, HI, MD, MO, and VA are included in other county equivalent entities.

Source: USDA National Agricultural Statistics Service, ESRI.
For more information: http://www.agcensus.usda.gov/Publications/2012/Online_Resources/Ag_Census_Web_Maps/Overview/

TABLE 1-1. U.S. FEED GRAIN AND CORN SUPPLY AND USE [1]/

November 2014

FEED GRAINS	2012/13	2013/14 Est.	2014/15 Nov. Proj.
		Million Acres	
Area Planted	109.9	109.9	103.8
Area Harvested	96.6	98.2	92.7
		Bushels	
Yield per Harvested Acre	2.95	3.76	4.11
		Million Bushels	
Beginning Stocks	27.8	23.5	34.4
Production	285.1	369.3	381.2
Imports	6.4	3	3.1
Supply, Total	319.4	395.8	418.7
Feed and Residual	114.9	135.7	141.8
Food Seed & Industrial	160.3	171.3	172.5
Domestic, Total	275.2	307	314.3
Exports	20.7	54.4	50.5
Use, Total	295.8	361.4	364.8
Ending Stocks	23.5	34.4	53.9
CCC Inventory	0	0	0
Free Stocks	23.5	34.4	53.9
Outstanding Loans	0.8	2	5.9
CORN	2012/13	2013/14. Est	2014/15 Nov. Proj.
		Million Acres	
Area Planted	97.3	95.4	90.9
Area Harvested	87.4	87.7	83.1
		Bushels	
Yield per Harvested Acre	123.1	158.8	173.4
		Million Bushels	
Beginning Stocks	989	821	1236
Production	10755	13925	14407
Imports	160	36	25
Supply, Total	11904	14782	15668
Feed and Residual	4315	5132	5375
Food, Seed & Industrial [2]/	6038	6497	6535
Ethanol & by-products [3]/	4641	5134	5150
Domestic, Total	10353	11629	11910
Exports	730	1917	1750
Use, Total	11083	13546	13660
Ending Stocks	821	1236	2008
CCC Inventory	0	0	0
Free Stocks	821	1236	2008
Outstanding Loans	32	76	230
Avg. Farm Price ($/bu) [4]/	6.89	4.46	3.20 - 3.80

Note: Totals may not add due to rounding. 1/ Marketing year beginning September 1 for corn and sorghum; June 1 for barley and oats. 2/ For a breakout of FSI corn uses, see Feed Outlook table 5 or access the data on the Web through the Feed Grains Database at www.ers.usda.gov/data-products/feed-grains-database.aspx. 3/ Corn processed in ethanol plants to produce ethanol and by-products including distillers' grains, corn gluten feed, corn gluten meal, and corn oil. 4/ Marketing-year weighted average price received by farmers.

be obtained from a projected 83.1 million harvested acres, which is less than the 87.7 million acres harvested the previous year and 87.4 million acres in 2012. The record production this year is from a yield per acre of 173.4 bushels, the result of excellent growing conditions this summer. This is a much higher yield than the 123.1 bushels per acre harvested during the drought year of 2012 and the yield of 156.8 bushels per acre in 2013.

Although the total corn supply this year at 15,668 million bushels will be more than the 14,782 million bushels supply last year, given the weaker global economy and the stronger U.S. dollar, 167 million fewer bushels are expected to be exported this year. Given the low projected price, 243 million more bushels are expected to be used as feed in the U.S. Ethanol plants were running at full capacity this year, earning record profits early in the year, so only 16 more million bushels are expected to be turned into ethanol alcohol. Given these estimates of uses during the year, the ending stocks is projected to be 2,008 million bushels, which is 14 percent of the production, and lower than the ending stocks 2013/14 (beginning this year) of 1,236 million bushels. This leads to a projected average weighted farm price for the coming year from $3.20 to $3.80, much lower than the average farm price of $6.89 for the year 2012/13. A price less than half of the price from two years earlier is a significant change and will require major adjustment on the part of the industry, especially if this low price continues for more than one year. Current corn-belt land values are not sustainable on three dollar corn.

Supply changes that may occur

The most significant supply change may be what happens to production in the Southern Hemisphere. Brazil and Argentina have increasing become major players in the corn market so the market will be keeping an eye on growing conditions in those countries to determine the size of those crops as their growing season progresses. Later in the year the developing conditions of the 2015 U.S. corn crop will become a factor. The record yield per acre of this year may not be repeated and if growing conditions deteriorate during the coming summer that should strengthen corn prices. If a farmer has storage and can maintain grain quality into the summer months there may an opportunity to benefit this coming summer from possible price increases.

A supply factor impacting movement to users will be the ability of the U.S. transportation system to move the corn from production to usage areas, including exports. Given the railroads are moving much of the increased oil production out of North Dakota, the ability of the railroads to move a larger amount of grain to export loading facilities is limited. However, large amounts of corn is used in ethanol production in localized plants, especially in the northwest corn belt, which is typically moved by trucks, so the bottleneck in the trains may not be as significant as some suspect.

One issue always with a bumper crop, however, is the ability of the industry to dry and adequate store the corn until needed. Temporary storage must be used and maintaining the quality of the corn in temporary storage until consumed can be a challenge leading to deterioration in quality, especially if transportation is not available to move the corn to users. Some grain may become unsuitable especially for ethanol production but also for animal feeding. Given the weak basis that typically occurs in regionally surplus regions, and the low interest rate, many farmers will store grain given a belief that the upside potential might be more than downside risk.

Demand changes that may occur

Ethanol plants were extremely profitable for the last few years and were running flat out producing ethanol. Ethanol producers had a very profitable year until the recent decrease in ethanol price. Oil prices continue to fall which will impact ethanol price and the operating margins for ethanol plants. As with most markets biofuels have become an international market but often subject to policy distorting mandates.

The economies of the world will influence demand for animal protein and the use of corn in the production of animal protein as well as products milled from corn. Europe is still struggling economically with the German economy possibly not as robust. China's growth continues but it appears that growth may occur at a decreased rate. None-the-less China appears to be committed to expanding their livestock industry through large scale production systems that will depend upon imported feed ingredients given the limited capacity to expand crop production in China and limited ability of China too domestically collect and move the large quantities of feed necessary to sustain the larger livestock operations.

If the U.S. economy continues to expand then there will be increased demand for meat. Poultry can be scaled up quickly and pork to a certain extent, but given the reduction in the U.S. beef cow herd there will be a limit to beef expansion. A strong U.S. economy, however, will also strengthen the U.S. dollar which will make agricultural commodities and products more expensive. If the Federal Reserve allows interest rates to increase during 2015 that will increase the demand for U.S. dollars for bond investments, as well as purchases of other U.S assets.

Armed conflicts historically have meant higher agricultural prices as production is reduced or supply channels are disrupted. Eyes will be on the conflict in the Ukraine and the decision by Russia to not purchase agricultural products from Europe, the U.S. and other signature countries restricting specific exports to Russia. Corn and many agricultural commodities are fungible so Russia will be able to obtain these commodity products from Brazil and other countries, often at only a slight increased cost of transportation. Also a factor is that Ukraine is one of the largest producers of corn in Europe and any expanded conflict may disrupt the production of corn in the Ukraine this coming summer.

Soybean Supply and Demand

Like corn in the coarse grains, soybeans are the major component of the U.S. oilseed production, which includes sunflower, cottonseed, rapeseed, as well as peanuts. U.S. Soybean production for this year is projected to be 3,958 million bushels with a record yield of 47.5 bushels per acre, which is greater than the 44 bushels per acre the previous year and 40 bushels per acre in the production year of 2012. This yield per acre increase of 9.3 percent is slightly greater than the 9.2 percent increase in corn yields, but unlike acres of corn harvested that decreased this year, the acres of soybeans harvested increased from 76.8 million acres to 84.2 million acres. This large harvest of soybeans also had a deterioration impact on soybeans prices into this fall but not to the same extend as corn. Although soybean oil can be used as a biofuel, it is not as extensively used for that purpose as is corn for ethanol production (and biodiesel). The price of oil and then ethanol fell dramatically through the summer.

Soybean crush in the U.S. is projected to be 1,780 million bushels this year, up from 1,734 million bushels the previous year. Exports are also projected to be relatively strong at 1,720 million

bushels compared to 1,647 bushels the previous year. Ending stocks are projected to be at 450 million bushels compared to ending stocks last year of only 92 million bushels.

Given the projected domestic use and exports the season average soybean price in the U.S. is projected to be between $9.00 and $11.00 per bushel. With a soybean price of $10.00 and a corn price of possibility $3.50, the soybean price to corn price ratio would be 2.86. There may be adjustment in either or both prices to approach the average ratio of 2.52 since 1975. Carl Zulauf at The Ohio State University states that the price ratio should be between 2.19 and 2.85 at a 67percent probability using monthly data since 1975 (http://farmdocdaily.illinois.edu/2013/09/soybean-corn-price-ratios-since-1975.html). If this high ratio continues into the spring there will be an incentive for farmers to shift some acreage from corn to soybeans, especially if the ratio also occurs in next year's corn and soybean futures prices.

The relationship between corn and soybeans not only exists on the farm but also at the usage level. Feed rations in the U.S. use corn as the primary carbohydrate source and soybean meal as the primary carbohydrate source with roughage included for the ruminants. Distillers' grain from corn ethanol is higher in protein than corn which reduces the amount of supplemental protein (soybean meal) necessary in the ration.

Changes in Soybean Supply and Demand

Many of the identical factors impacting the supply and demand for corn will also impact the supply and demand for soybeans given the relationship between the two commodities in production and usage. Production of soybeans in the Southern Hemisphere has a more significant impact than production of corn given the large amount of U.S. soybeans exported and the large production of soybeans produced in Brazil and also exported. The bumper crop of soybeans in the Corn Belt is not as problematic for storage and quality as for corn if for no other reason than soybeans are harvested first and get the storage bins before corn is harvested. Given the higher value per bushel, soybeans would be given the preference for indoor storage.

A strong U.S. dollar will reduce the demand for soybeans as will weaker world economies. If animal protein production continues to expand in Asia then demand for soybean meal will continue to be strong as will corn. Although protein feed substitutes exist for soymeal as there are carbohydrate substitutes for corn, there is limited substitution potential because many of those substitutes are allocated to human diets.

TABLE 5-2. U.S. SOYBEANS AND PRODUCTS SUPPLY AND USE (DOMESTIC MEASURE) [1]/

November 2014

SOYBEANS	2012/13	2013/14 Est	2014/15 Nov. Proj.
		Million Acres	
Area Planted	77.2	76.8	84.2
Area Harvested	76.1	76.3	83.4
		Bushels	
Yield per Harvested Acre	40	44	47.5
		Million Bushels	
Beginning Stocks	169	141	92
Production	3042	3358	3958
Imports	41	72	15
Supply, Total	3252	3570	4065
Crushings	1689	1734	1780
Exports	1317	1647	1720
Seed	89	98	92
Residual	16	0	23
Use, Total	3111	3478	3615
Ending Stocks	141	92	450
Avg. Farm Price ($/bu) [2]/	14.4	13	9.00 - 11.00

SOYBEAN OIL	2012/13	2013/14 Est	2014/15 Nov. Proj
		Million Pounds	
Beginning Stocks	2540	1705	1165
Production [4]/	19820	20130	20560
Imports	196	165	160
Supply, Total	22555	22000	21885
Domestic Disappearance	18687	18958	18450
Biodiesel 3/	4689	4800	4800
Food, Feed & other Industrial	13998	14158	13650
Exports	2164	1877	2100
Use, Total	20850	20835	20550
Ending stocks	1705	1165	1335
Avg. Price (c/lb) [2]/	47.13	38.23	34.00 - 38.00

TABLE 5-2. (Cont'd.)

SOYBEAN MEAL	2012/13	2013/14 Est	2014/15 Nov. Proj
		Thousand Short Tons	
Beginning Stocks	300	275	250
Production [4]/	39875	40685	42785
Imports	245	336	165
Supply, Total	40420	41296	43200
Domestic Disappearance	28969	29496	30100
Exports	11176	11550	12800
Use, Total	40145	41046	42900
Ending Stocks	275	250	300
Avg. Price ($/s.t.) 2/	468.11	489.94	330.00 - 370.00

Note: Totals may not add due to rounding. Reliability calculations at end of report. 1/ Marketing year beginning September 1 for soybeans; October 1 for soybean oil and soybean meal. 2/ Prices: soybeans, marketing year weighted average price received by farmers; oil, simple average of crude soybean oil, Decatur; meal, simple average of 48 percent protein, Decatur. 3/ Reflects only biodiesel made from methyl ester as reported by the U.S. Energy Information Administration. 4/ Based on an October year crush of 1,725 million bushels for 2013/14 and 1,800 million bushels for 2014/15.

Wheat Supply and Demand

Soybeans have supplanted wheat as the second largest harvested crop in the state of New York (other than hay). In 2014 there were 95,000 acres of wheat harvested (all winter) and 397,000 acres of soybeans. Table 5-3 lists the production and usage of all wheat and then because the various types of wheat are used to produce different type of products, Table 5-3 also lists the production by type of wheat. The U.S. production of soft red winter wheat for 2014/2015 is projected to be 455 million bushels, of which 266 will be used domestically and 155 million bushels will be exported. This will leave ending stocks of 162 million bushels given beginning stocks of 113 million bushels. The projected wheat price this year is between $5.65 and $6.15, which is a decrease from last year's price of $6.87 and the 2012/2013 year price of $7.77 per bushel. Again, determining factors for wheat prices will be production in other countries as well as global demand for wheat based upon the global economic conditions.

TABLE 5-3. U.S. WHEAT SUPPLY AND USE [1]/

November 2014

	2012/13	2013/14 Estimate	2014/15 Nov. Projection
Area Planted	55.3	56.2	56.8
Area Harvested	48.8	45.3	46.4
Yield per Harvested Acre	46.2	47.1	43.7
Beginning Stocks	743	718	590
Production	2252	2135	2026
Imports	123	169	170
Supply, Total	3118	3021	2785
Food	945	951	960
Seed	73	77	76
Feed and Residual	370	228	180
Domestic, Total	1388	1256	1216
Exports	1012	1176	925
Use, Total	2400	2432	2141
Ending Stocks	718	590	644
CCC Inventory	0	0	0
Free Stocks	718	590	644
Outstanding Loans	8	8	45
Avg. Farm Price ($/bu) [2]/	7.77	6.87	5.65 - 6.15

TABLE 5-3 CONTINUED. U.S. WHEAT BY CLASS: SUPPLY AND USE

Year beginning June 1			Hard Red Winter	Hard Red Spring	Soft Red Winter	White	Durum	Total
					Million Bushels			
2013/14 (Est.)	Beginning Stocks		343	165	124	63	23	718
	Production		747	491	568	271	58	2135
	Supply, Total 3/		1109	733	713	341	125	3021
	Domestic Use		427	318	318	120	73	1256
	Exports		446	246	283	171	31	1176
	Use, Total		873	564	600	291	103	2432
	Ending Stocks, Total		236	169	113	50	22	590
2014/15 (Proj.)	Beginning Stocks		236	169	113	50	22	590
	Production		738	556	455	224	53	2026
	Supply, Total 3/		985	805	583	283	130	2785
	Domestic Use		453	308	266	101	88	1216
	Exports		320	280	155	145	25	925
	Use, Total		773	588	421	246	113	2141
	Ending Stocks, Total	Nov	212	217	162	37	17	644
		Oct	192	247	162	37	16	654

Note: Totals may not add due to rounding. 1/ Marketing year beginning June 1. 2/ Marketing-year weighted average price received by farmers. 3/ Includes imports.

Feed Supply and Price

Although there are many different types of livestock produced in New York the major feed use is for milk production. Most farmers produce most if not all of the forage for dairy, but that forage is augmented with energy from corn and protein from soybeans, as well as other ingredients to produce balanced rations for group feeding. Given the importance of corn and soybeans in the milk production ration, the new Margin Protection Program (MPP) for dairy producers uses the price of corn, soybean meal, and alfalfa to determine the cost of a feed ration required to produce hundred pounds of milk. The signup deadline for the MPP for 2015 was December 5, 2014. The late sign up date was due to the delayed time required to implement the new program. Future year signups will be during the period July 1 through September 30 for the following calendar year. So before the end of September 30, 2015 producers will need to make a decision concerning the level of protection to purchase for calendar year 2016.

The milk production margin is calculated as the difference between the price of a hundredweight of milk and the feed cost required to produce that milk. The milk price used in calculating the Margin is the U.S. all-milk price. The feed cost is 1.0728 times the U.S. average corn price (per bushel) plus 0.0137 times U.S. average alfalfa price (per ton) plus 0.00735 times the Central Illinois soybean meal price (per ton). The prices of milk, corn, and alfalfa will be obtained from the USDA publication Agricultural Prices. The soybean meal price is published by the USDA Agricultural Marketing Service (AMS). Actual payment is based upon these prices and not the price that an individual dairy producer receives for milk or pays for purchased feed. Here is the USDA web site with the documents and which will list the computed monthly margins as they occur.
http://www.fsa.usda.gov/FSA/webapp?area=home&subject=dmpp&topic=landing

There are a number of decision tools that have been constructed to assist dairy producers in deciding what coverage level from $4.00 to $8.00 to select. (There is no premium for the base $4.00 coverage except for the $100 administrative fee.) The best decision tools forecast upper and lower margin bounds which are based upon the futures prices for corn and soybean meal with variability of those prices extracted from option prices on those futures. Unfortunately there is no futures price for hay. However, because prices individual producers will pay for feed will differ from these prices it would be useful for producers to record the actual prices they received for milk and paid for the feed components of corn, soybean meal and alfalfa (if purchased) so that individual farm margins can be determined in relationship to the projected and later published margins. If a producer's margin is much greater than the MPP computed margin, maybe because of much higher milk prices, then that deviation should be a factor in deciding what level of margin protection to purchase.

Keeping up with market developments

There are numerous sources of data and information on corn, soybean, wheat, and feed price determinants. Some are public information from agricultural magazines and agricultural universities while others are proprietary information from advisory services in which you can fee subscribe. Many of these sources use as a starting point the supply and demand usage estimates of the USDA which can be found at the Office of the Chief Economist, USDA web site: http://www.usda.gov/oce/commodity/wasde/. You can visit that web site on release dates for the revised supply and demand estimates, or you can register on that site to have those estimates emailed to you on release dates. You can also subscribe electronically to *Agricultural Prices*.

Have a successful marketing year!

Chapter 6. Dairy — Markets and Policy

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2015 Dairy Outlook

Positive Factors:

- The U.S. economy continues to improve and domestic sales have been strong
- Feed prices are much lower

Negative Factors:

- All major exporters including Oceania, the European Union and the U.S. have had substantial increases in milk production
- Milk prices have begun to drop and are forecast to be significantly lower

Uncertainties:

- Extreme drought in California
- The beginning of an El Niño event.
- The need for and the effectiveness of the new Margin Protection Program
- Demand strength from China

New York Dairy Situation and Outlook
2013, Projected 2014, and Estimated 2015

Item	2013	2014	2015	Percent Change 13-14	Percent Change 14-15
Number of milk cows (thousand head)	610	615	614	0.8	-0.2
Milk per cow (lbs.)	22,080	22,343	22,536	1.5	0.9
Total milk production (million lbs.)	13,469	13,741	13,837	2.3	0.7
Blended milk price ($/cwt.)[a]	20.25	24.40	17.34	20.8	-28.9

Table 6-1. U.S. Milk Supply and Utilization, 2004 - 2013

	2005	2006	2007	2008*	2009	2010	2011	2012*	2013 [a]	2014 [b]	2015 [c]
Supply											
Cows Numbers (thous.)	9,043	9,137	9,189	9,315	9,203	9,119	9,194	9,232	9,221	9,255	9,325
Production/cow (lbs)	19,566	19,894	20,204	20,396	20,572	21,148	21,346	21,696	21,822	22,285	22,770
Production	176.9	181.8	185.7	190.0	189.3	192.8	196.3	200.3	201.2	206.2	212.3
Farm Use	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9
Marketings	175.9	180.8	184.6	189.0	188.4	191.9	195.3	199.3	200.2	205.3	211.4
Beginning Commercial Stocks	7.2	7.9	9.5	10.3	10.0	11.3	10.8	10.9	12.2	11.2	10.5
Imports	7.4	7.5	7.2	5.3	5.6	4.1	3.5	4.1	5.3	4.2	3.8
Total Supply	**190.5**	**196.2**	**201.3**	**204.6**	**203.9**	**207.2**	**209.6**	**214.3**	**217.7**	**220.7**	**225.7**
Utilization											
Domestic Commercial Use	179.8	183.7	185.5	185.8	187.1	187.5	189.3	193.3	194.2	197.9	202.6
Ending Commercial Stocks	7.9	9.5	10.3	10.0	11.3	10.8	10.9	12.2	11.2	10.5	12.1
Commercial Exports	2.8	3.1	5.4	8.8	4.9	8.7	9.4	8.8	12.4	12.3	11.0
Net Removals (excluding exports)	0.0	0.0	0.0	0.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0
Total Use	**190.5**	**196.2**	**201.3**	**204.6**	**203.9**	**207.2**	**209.6**	**214.3**	**217.7**	**220.7**	**225.7**

Source: Dairy Situation and Outlook, Milk Production, and Dairy Market News, U.S. Department of Agriculture. Note that total may not add exactly due to rounding.

* Leap year.

[a] Revised.

[b] Based on preliminary USDA data and Cornell estimates.

[c] Projected by Mark Stephenson.

The Dairy Situation

Many dairy farmers have a modesty, a quietness, about them that tends to understate their actual circumstances. A poor harvest may be shrugged off as being a risk of the business and a great harvest might be commented on as "could have been worse". This year I am hearing dairy farmers refer to 2014 as a "healing year", a year in which they are making up for the damages inflicted on their balance sheets from the low milk prices in 2009 and the high feed prices in 2012. This is the soft-peddled dairy speak for what has been a truly great year. Milk prices hit an all-time high, feed prices contracted significantly from the levels of recent years and interest rates continue to hover at very low levels.

Domestic consumer and export customers were also hit by record high cheese, butter, nonfat dry milk and other dairy product prices. But rather than run away from consumption in the category, they seemed willing to explore these higher prices.

Dairy farmers were also introduced to a new tool in their risk management toolbox—the Margin Protection Program (MPP). This new dairy policy has also brought the discussion of "margin" or income over feed costs (IOFC) into common use. A high margin suggests greater profitability for producers and the MPP margin also hit an all-time high in 2014.

Milk Supply

Strong margins are a market's signal telling producers that they want more milk and dairy products. Such signals not only supply the incentive, but also the wherewithal to expand. The previous peak of high profitability—late 2007 and early 2008—saw dairy farms jump on the signal with rapidly increased expansion. This time milk production was slower to expand but eventually it began to pick up pace.

We saw a decline in the number of dairy cows heading for slaughter which is an advanced signal that late lactation and marginal cows were being kept in the milking herd (Figure 6-1). Year

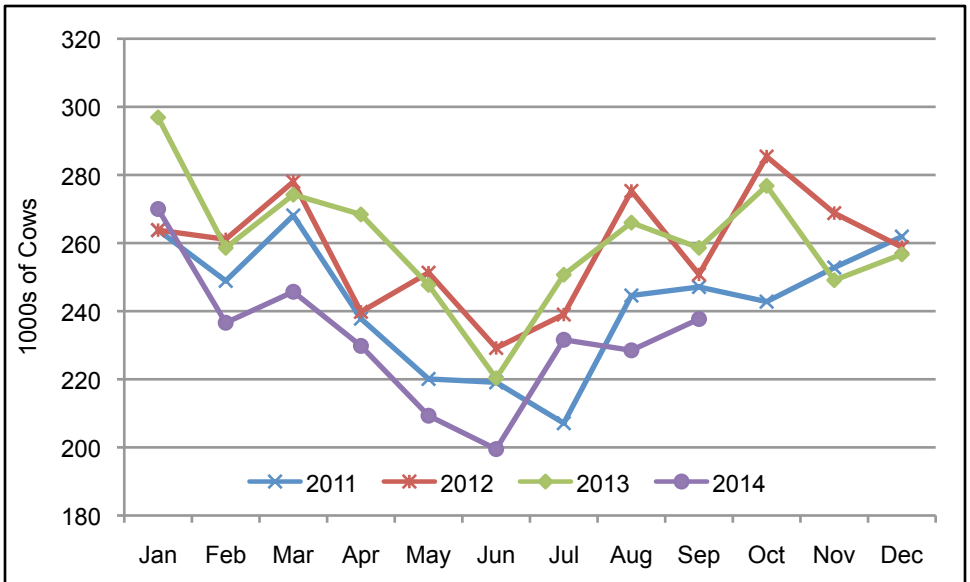

FIGURE 6-1. COMMERCIAL DAIRY COW SLAUGHTER

over year dairy cow slaughter was down 11 percent compared to the same months in 2013. This decline was later reflected by an increase in dairy cow numbers in the U.S. and most regions of the country. The rate of cow expansion was similar to that seen in 2008 in response to the positive margins of that year.

An excellent growing season and a softening demand for gasoline yielded a tremendous corn and soybean crop available for feed and a much lower prices for concentrates resulted. Producers responded to these lower feed costs by increasing ration density and pushing more milk per cow. By April, 2014, production per cow was showing the impact on productivity (Figure 6-2). In combination, more cows and more milk per cow began to supply significantly more milk to the market.

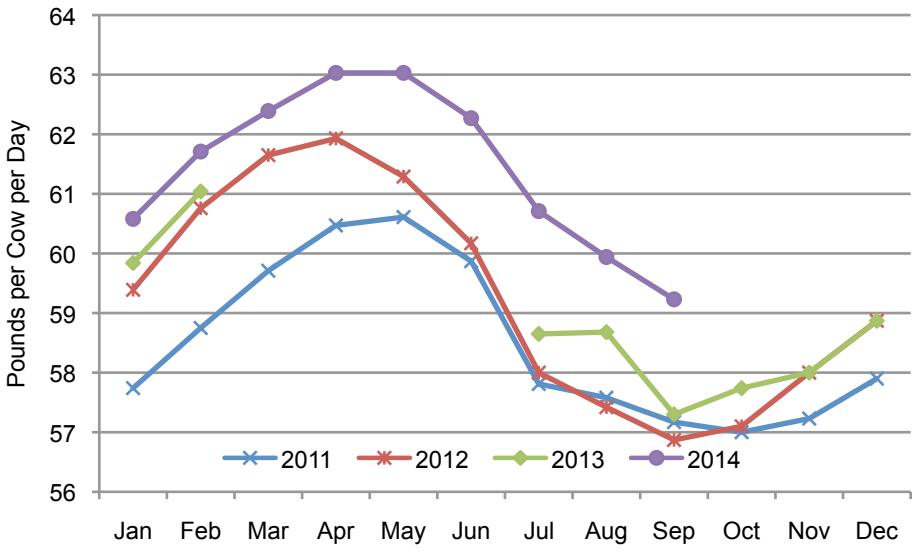

FIGURE 6-2. MILK PRODUCTION PER COW

High milk price signals were also received outside the U.S. Grazing regions, like Oceania, are more constrained to expansion by the limits of their pasture. But, Australia and New Zealand have had plentiful spring rains and pasture conditions have been excellent. As a consequence, both countries have increased milk production by more than 4 percent and New Zealand land values have increased by more than 7 percent from previous year's levels.

The European Union has also had a good growing season but they have had further reason to consider expansion. By April of 2015, the EU milk production quotas will be coming off and in anticipation, a few countries are selling milk at a penalty and in excess of current quota limits. As an example, Ireland has a stated goal of increasing their country's milk production by 50 percent. Germany and the Netherlands are also in growth mode. In total, the 27 countries of the E.U. have been up in production by more than 4 percent year-over-year.

Dairy Product Demand

The U.S. economy has passed a number of milestones after the recession of 2009. By September of 2014, the unemployment rate had dropped below the magic number of 6 percent (Figure 6-3). This was the target level set by the Fed at which their quantitive easing policy would be retracted and where interest rates may be allowed to rise.

FIGURE 6-3. U.S. UNEMPLOYMENT RATE

There is additional evidence that consumers are feeling better about the economy. Auto sales have picked up, the housing market has strengthened (both new home starts and value of homes sold) and this optimism is reflected in the monthly measure of the consumer's confidence in the economy which has been steadily improving for the last three years. More closely related to our industry, we can observe the Restaurant Performance Index which has been above a level of 100 for the past two years. This indicates expansion of the restaurant trade where dairy products are prominently featured.

One dairy product who's sales continue to be challenging is fluid milk. Per capita consumption has been on the decline for many years but total sales remained relatively flat as population growth offset individual consumption. However, since 2010 total fluid sales appear to be in dramatic decline. Some of this likely due to intense competition in the beverage space, and some of the decline is probably due to category shifting within dairy products. For example, substantial increase in yogurt consumption for breakfast has no doubt cannibalized fluid milk previously used on cereal. Cold cereal consumption has also shown a dramatic decline in recent years.

Dairy Exports

The value of U.S. dairy product export sales was at its highest level ever in the first half of 2014. However, those strong sales had a draw on our stocks of dairy products—particularly butter and cheese. A modest spring flush of milk in the U.S. was inadequate to rebuild those stocks to comfortable levels until late in the fourth quarter of 2014. Short stocks drove our domestic dairy product prices to all-time highs for cheese, butter and nonfat dry milk (Figure 6-4).

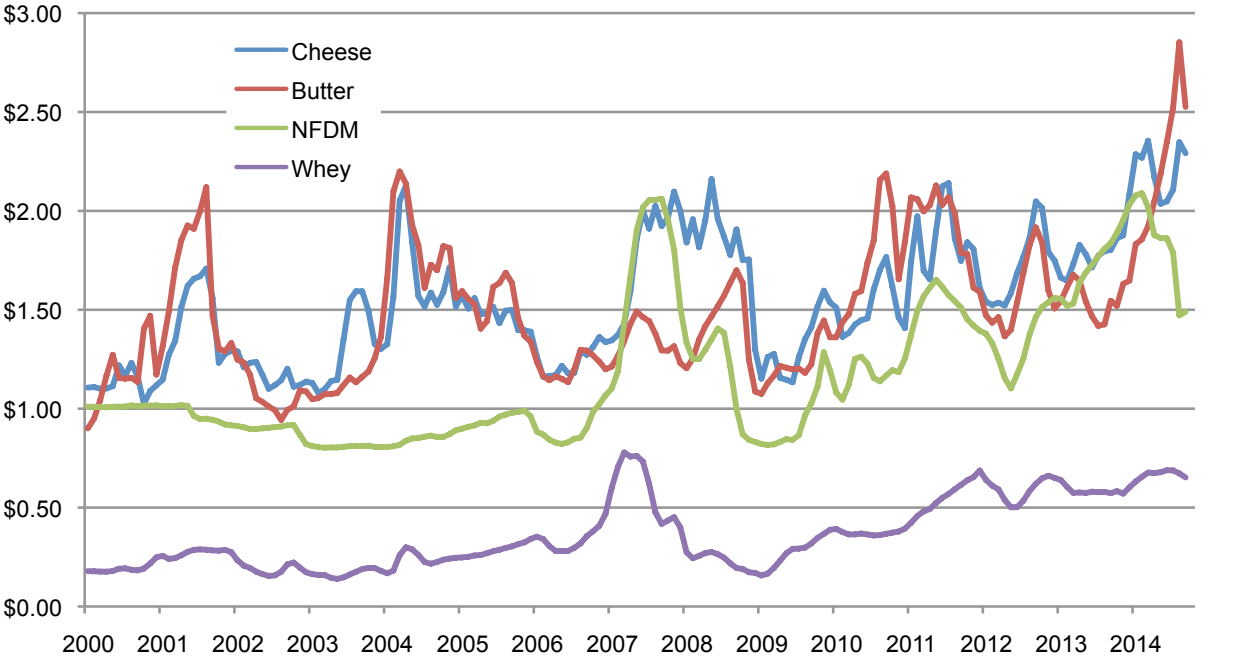

FIGURE 6-4. NASS / AMS PRODUCT PRICES

In the second half of 2014, China withdrew from its intense dairy product buying in part because they had adequate commitments for delivery and because world prices were falling—this supported a "wait and see" buying attitude.

China's economy has experienced extraordinary growth over the last many decades. They have had more than a 9 percent growth in GDP in 30 out of the last 50 years. And, this growth has fueled improvements in the quality of the diet and demand for dairy products. Their current growth is still more than 7 percent, but the rate of growth has been in decline since 2009 and some are worried about continued growth in demand for dairy products.

In contrast to China's GDP growth, the U.S. has been feeling good about the climb out of recession and back into positive growth of about 2 percent per year. The European Union has experienced slightly slower growth than the U.S. including the stronger economies such as Germany, the United Kingdom and France. The E.U. continues to have some troubling economies as well, such as Greece, Spain and Portugual. Recently, the third largest economy in the world—Japan—has slid back into recession.

The lackluster performance of the largest economies of the world makes the U.S. look like a standout if only by comparison. One reporter has commented on the U.S. as being "the best looking horse in the glue factory". The U.S. economy has at least had a slow and steady march toward improvement and world investment dollars have been moving back to our currency. This has given strength to our currency relative to other country's. While that may sound like a good thing, it makes exports from the U.S. look relatively more expensive to importing countries. If we are to be competitive in export markets, the price of U.S. sourced product must be sold at a discount.

Dairy Stocks

The short dairy product stocks in the U.S. supported high product prices at a time when world prices were in decline. The U.S. prices were being almost entirely supported by the demand from our domestic market while export sales from the U.S. were in decline. Toward the end of 2014, U.S. dairy product prices were falling but were still above historic relationships of the both the Oceania and the European Union prices.

By the fourth quarter of 2014, holiday sales commitments had been made and stocks of the major commodities had returned to more normal levels. This has also provided the slack in demand necessary for dairy product, and thus milk prices to begin to decline from the record levels (Figures 6-5 and 6-6).

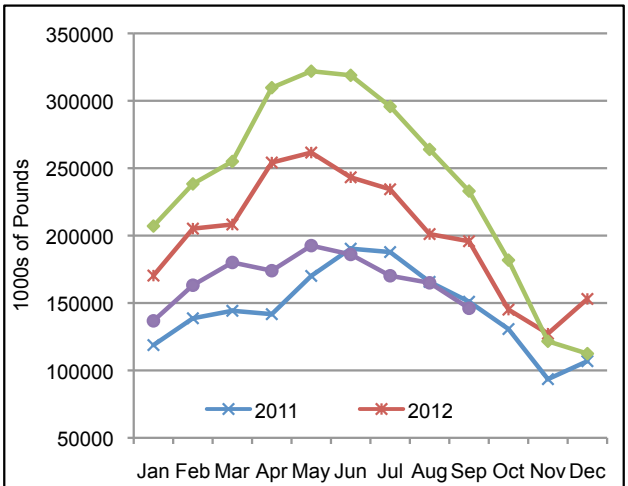

FIGURE 6-5. BUTTER STOCKS

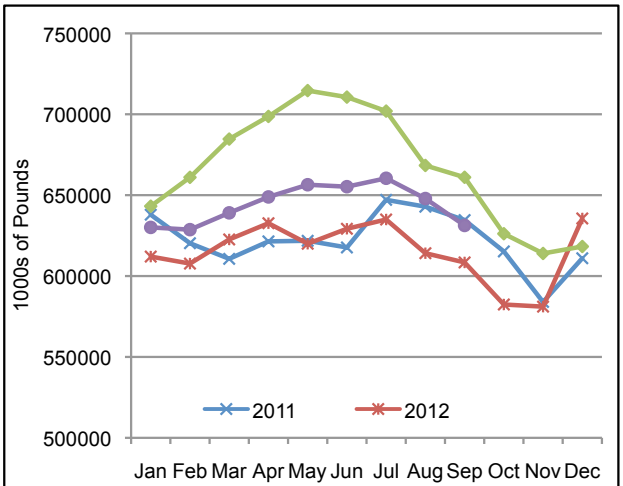

FIGURE 6-6. AMERICAN CHEESE STOCKS

The Dairy Outlook

The futures market is an excellent, and unbiased source of forecast milk prices. Participants are great sponges for information about milk production, product stocks, overseas supply and demand for exports. And, when you have investments in your position with futures contracts, the appetite for data relevant to the industry is quite keen. Futures markets almost always get the direction of future prices correct and they are very often right about the turning points—the times when direction changes. However, futures markets often understate the magnitude of the change, positive or negative, more than a few months out. That is probably because investors tend to be cautious about the future until they have overwhelming evidence to the contrary.

Futures markets are forecasting a year of much lower milk prices than we have had in 2014. They are already incorporating knowledge about drought in California and its impact on western milk supplies. They are looking at NAOA forecasts about the probability of an El Niño event[1].

[1] There is a 58% chance of El Niño during the Northern Hemisphere winter. This would bring much needed rain to California and tend to cause drier conditions in Oceania.

Futures markets are looking at demand for dairy products in China and other Asian countries as well as a growing demand in North Africa. They are watching to see if Brazil, Uruguay and Argentina will be able to increase milk production and export more dairy product. And, of course, they are watching conditions here at home.

Currently, futures markets are forecasting somewhat more than a $5.00 drop in average class III and IV milk prices in 2015 relative to 2014. I believe this may be understated. The Agricultural Marketing Service (formerly NASS) National Dairy Product Sales report is presently showing U.S. product prices well above our export competitors (Oceania and the European Union, Figures 6-7 and 6-8). U.S. products normally sell at a discount relative to these other suppliers. If our domestic prices were in a more normal alignment with current world price, then our federal order product price formulas would suggest current class III and IV milk prices of $15.73 and $12.80 respectively. It isn't clear that the world product prices have even found their bottom yet. These competitive class prices would be more like $6.65 lower class III and $9.25 lower class IV than 2014 milk levels.

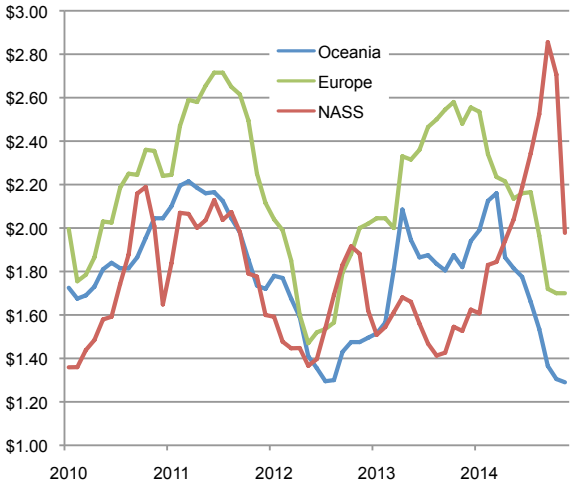

FIGURE 6-7. BUTTER PRICES

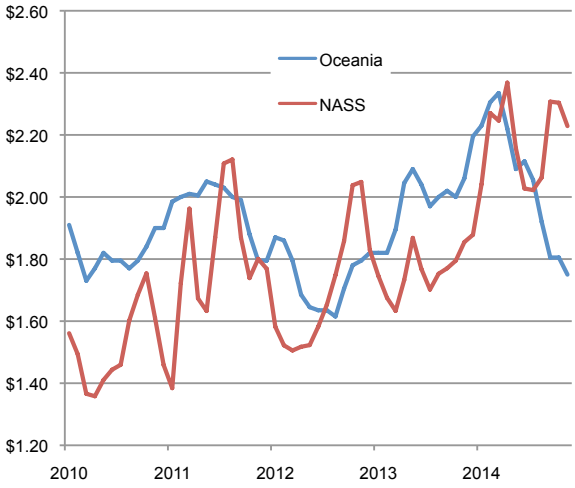

FIGURE 6-8. CHEESE PRICES

I am more pessimistic than the futures markets are at this time but I resist bringing my price forecasts inline with what current export prices would indicate. My own forecasts expect that China will resume dairy product purchases and that the likelihood of an El Niño event is growing. That would tend to slow down milk production growth in Oceania. And, significantly lower milk prices should cause U.S. producers to tap on the brakes. Feed prices are favorable except that alfalfa prices in California remain stubbornly elevated due to extreme drought conditions and those are likely to persist for another year. I am projecting U.S. All Milk Prices to decline by an average of $7.00 for 2015 relative to 2014.

Dairy Policy

Dairy policy for the new farm bill had been discussed and crafted by various industry organizations for more than five years. Ultimately led by National Milk Producers Federation and sponsored by Colon Peterson, democrat and ranking member of the House Ag Committee, an insurance-like product was proposed which also contained a soft-quota on milk production referred to as market stabilization. The concept of the insurance was not controversial and widely embraced, but market stabilization was very contentious. Many producers felt that stabilization was the cornerstone of the legislation while others were staunchly opposed. Dairy processors were nearly uniformly opposed to stabilization. The Senate passed their version of the farm bill with the stabilization included but the House would not even let the legislation come up to the floor for a vote.

A compromise was finally suggested which included language that kept the insurance product but discarded stabilization. The substitution for stabilization was a market purchase requirement of non-storable dairy products by the Secretary of Agriculture if a national milk-feed margin fell below a $4.00 level. This was passed and signed into law on February 7, 2014.

The new insurance product is called the Margin Protection Program (MPP) for Dairy and is run by the Farm Service Agency. The milk-feed margin is the U.S. All Milk Price minus a ration value meant to support a hundredweight of milk production from an average cow including the complement of dry and hospital cows, and young stock. The historic margin value has averaged about $8.50 over the last decade but has varied from less than $3.00 to more than $14.00. Once a year, dairy farms will be able to purchase margin protection from $4.00 to $8.00 in 50¢ increments and cover from 25-90 percent of their historic annual production which is defined as the highest milk production achieved in 2011, 2012 or 2013 for most producers.

The level of protection from $4.00 to $8.00 comes in rates at two different premium tiers. The first 4 million pounds of milk covered is at the lower rate and milk above the first 4 million at a significantly higher rate (more than double). In most years, farms will elect coverage levels for the coming calendar year in July through September of the previous year. This year, the election decision took place from September 2 through December 5, 2014.

We don't have data yet on the signup to know how many producers have chosen to use the new product or what the typical buy-up level will be. The margin forecast has been eroding and is approaching what would be payments under the MPP at the highest levels (Figure 6-9).

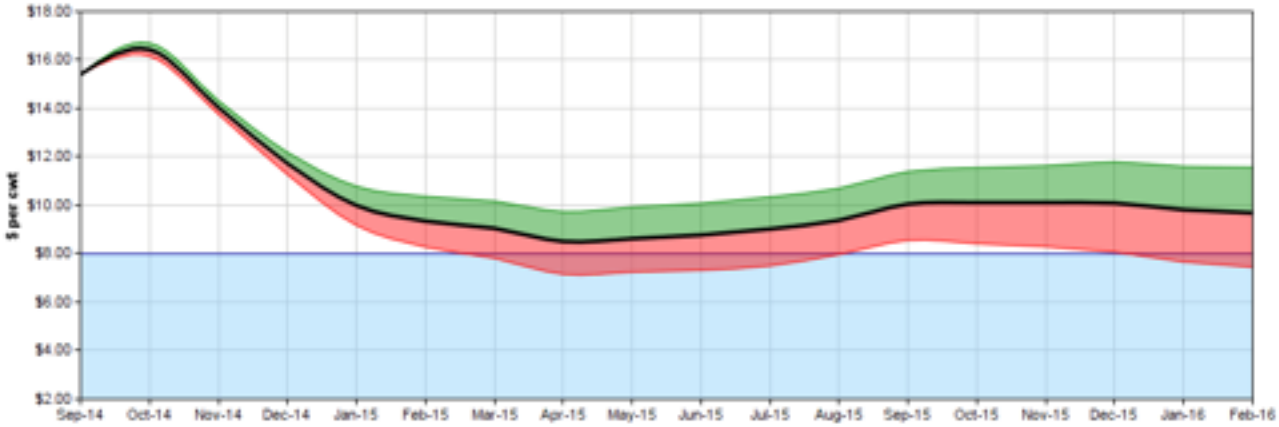

FIGURE 6-9. FORECAST MARGIN OVER THE YEAR AHEAD.

It is not difficult to make the case that this is the most significant change in dairy policy in the last 35-40 years. Previous policies, like the Dairy Price Support Program, operated at a market level with the government being willing to purchase as much storable dairy product as anyone wanted to sell to them at announced prices consistent with a milk price goal. Dairy farmers did not have an individual decision to make with this program. Likewise, the Milk Income Loss Contracts (MILC) was quite passive. Producers had to signup for the program and, if they sold more than 2.85 million pounds of milk, they would have to choose the start month for payments. But this program required minimal decision making on the part of producers. The new MPP requires that individuals make annual decisions about the level of protection desired and invest in program with premiums.

Only time will tell whether this program is widely embraced by producers and is considered a success. The premiums for the MPP are implicitly subsidized, but it is difficult to know the degree. In years like 2015, we are not forecasting much, if any, payments. However, in years like 2009 or 2012, the payouts would have been substantial at any level of protection.

Table 6-2. National Farm Prices for Milk; CCC Purchase, Wholesale, and Retail Prices for Cheddar Cheese, Butter, and Nonfat Dry Milk; and Selected Retail Price Indices, 2002–2012

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Farm Milk ($/cwt.)												
All Milk (ave. fat)	12.55	16.05	15.13	12.88	19.13	18.33	12.82	16.26	20.14	18.53	20.05	24.47
Class III (3.5%)	11.42	15.39	14.05	11.89	18.04	17.44	11.36	14.41	18.37	17.44	17.99	22.37
Support (3.5%)	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
Milk Price: Feed Price Value	2.61	3.10	3.24	2.57	2.81	2.01	1.78	2.26	1.88	1.52	1.74	2.55
MILC payments [c]	1.09	0.22	0.01	0.61	0.01	0.00	1.15	0.02	0.00	0.73	0.26	0.00
Cheddar Cheese, Blocks ($/lb.)												
CCC Purchase	1.131	1.131	1.131	1.131	1.131	1.131	1.130	1.130	1.130	1.130	1.130	1.130
Wholesale, Chicago Mercantile Exchange	1.317	1.649	1.492	1.239	1.758	1.856	1.296	1.496	1.806	1.698	1.764	2.141
Butter ($/lb.)												
CCC Purchase, Grade A or higher, Chicago	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
Wholesale, Gr. AA, Chicago Merc. Exchange	1.145	1.817	1.549	1.236	1.368	1.465	1.243	1.728	1.962	1.603	1.556	2.160
Nonfat Dry Milk												
CCC Purchase, Unfortified ($/lb.)	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800
Wholesale, Central States	0.838	0.858	0.985	1.001	1.804	1.300	1.010	1.247	1.564	1.391	1.718	1.842
Retail Price Indices (1982–84=100.0)												
Milk	111.5	125.0	127.0	125.5	140.1	148.5	129.0	133.6	145.8	147.5	149.2	156.3
Cheese	169.4	180.8	183.3	180.8	191.5	214.6	203.5	204.8	217.5	222.4	221.9	232.0
All Dairy Products	167.9	180.2	182.4	181.4	194.8	210.4	197.0	199.2	212.7	217.3	217.6	224.1
All Food	180.0	186.2	190.7	195.2	202.9	214.1	218.0	219.6	227.8	233.8	237.0	241.5
All Consumer Prices	184.0	188.9	195.3	201.6	207.3	215.3	214.5	218.1	224.9	229.6	233.0	236.6

Source: Dairy Situation and Outlook, Dairy Market News, and Federal Milk Order Market Statistics, U.S. Department of Agriculture.

[a] Revised.

[b] Estimated by Mark Stephenson.

[c] Milk Income Loss Contract payments began in October of 2001 and ends in August of 2014.

MILK PRICE PROJECTIONS*
Northeast Federal Order Statistical Uniform Price
3.5 Percent, Suffolk County, Massachusetts
Last Quarter 2013-2014, Four Quarters 2014-2015

Month	2013	2014	Difference
		(dollars per hundredweight)	
October	20.88	25.04 a	4.16
November	21.28	23.04 a	1.76
December	21.79	20.88 a	-0.91
Fourth Quarter Average	21.32	22.99 a	1.67
Annual Average	***20.25***	***24.40*** a	***4.15***

Month	2014	2015 a	Difference
		(dollars per hundredweight)	
January	22.93	20.05	-2.88
February	24.42	18.19	-6.23
March	24.97	17.55	-7.42
First Quarter Average	24.11	18.60	-5.51
April	25.46	17.12	-8.34
May	25.24	16.88	-8.36
June	24.38	16.67	-7.71
Second Quarter Average	25.03	16.89	-8.14
July	24.75	16.56	-8.19
August	25.42	16.69	-8.73
September	26.26	16.85	-9.41
Third Quarter Average	25.48	16.70	-8.78
October	25.04 a	16.99	-8.05
November	23.04 a	17.25	-5.79
December	20.88 a	17.30	-3.58
Fourth Quarter Average	22.99 a	17.18	-5.81
Annual Average	***24.40*** a	***17.34*** a	***-7.06***

Chapter 7. Dairy -- Farm Management

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George J. Conneman, Professor Emeritus
Cathryn Dymond, Extension Support Specialist

Herd Size Comparisons

The 171 New York dairy farms that participated in the Dairy Farm Business Summary (DFBS) Project in 2013 have been sorted into seven herd size categories and averages for the farms in each category are presented in Tables 7-1 and 7-2. Note that after the less than 60 cow category, the herd size categories increase by 40 cows up to 100 cows, by 100 cows up to 200 cows, by 200 cows up to 600 cows and by 300 cows up to 900 cows.

In most years, as herd size increases, the net farm income increases; and that was the case for 2013 (Table 7-1). Net farm income without appreciation averaged $25,437 per farm for the less than 60 cow farms and $1,351,681 per farm for those with more than 900 cows. Return to all capital without appreciation generally increased as herd size increased. With herd sizes less than 200 cows, many farms find it difficult to find a low cost combination of technology and labor to produce milk. Thus profits are lower for these herds than other herd sizes.

It is more than size of herd that determines profitability on dairy farms. Farms with 900 and more cows averaged $975 net farm income per cow while 60 cows or less dairy farms averaged $546 net farm income per cow. The over 900 herd size category had the highest net farm income per cow while the 60 to 99 herd size category had the lowest net farm income per cow at $436. In some years, other herd size categories have averaged the highest net farm income per cow. Other factors that affect profitability and their relationship to the size classifications are shown in Table 7-2.

TABLE 7-1. COWS PER FARM AND FARM FAMILY INCOME MEASURES
171 New York Dairy Farms, 2013

Number of Cows	Number of Farms	Average Number of Cows	Net Farm Income without Appreciation	Net Farm Income per Cow	Labor & Management Income per Operator	Return to all Capital without Appreciation
Under 60	14	47	$25,437	$546	$-4,387	-2.8%
60 to 99	13	77	33,375	436	-3,064	-1.6%
100 to 199	24	143	109,301	765	27,325	3.6%
200 to 399	22	298	196,971	662	40,614	4.4%
400 to 599	20	491	369,321	752	89,300	5.8%
600 to 899	28	729	663,587	911	153,648	7.2%
900 & over	50	1,387	1,351,681	975	360,155	9.1%

Note: All data in this chapter are from the New York Dairy Farm Business Summary and Analysis Project unless a specific source is specified. Publications reporting Dairy Farm Business Summary data for New York, three regions of the state, for large herds, small herds, grazing farms, and farms that rent are available from the Charles H. Dyson School of Applied Economics and Management website: http://www.dyson.cornell.edu/outreach/index.php .

This year, net farm income per cow showed a positive correlation with herd size, however some size categories varied from the expected relationship slightly. All herd size categories saw an increase in operating cost of producing milk from a year earlier (Table 7-2). Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

The farms with more than 900 cows averaged more milk sold per cow than any other size category (Table 7-2). With 26,225 pounds of milk sold per cow, farms in the largest herd size group averaged 7.5 percent more milk output per cow than the average of all herds in the summary with less than 900 cows.

The ability to reach high levels of milk output per cow with a large herd is a major key to profitability. Three times a day milking (3X) and supplementing with bST are herd management practices commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk three times per day have been successful. None of the 27 DFBS farms with less than 100 cows used a milking frequency greater than two times per day. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 199 cows reported 17 percent of the herds milking more often than two times per day, the 200-399 cow herds reported 59 percent, 400-599 cow herds reported 70 percent, 600-899 cow herds reported 86 percent, and the 900 cow and larger herds reported 96 percent exceeding the two times per day milking frequency.

TABLE 7-2. COWS PER FARM AND RELATED FARM FACTORS
171 New York Dairy Farms, 2013

Number of Cows	Average Number Of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Till-able Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Operating	Total
Under 60	47	17,097	3,814	4.1	8.0	$15,036	$16.13	$28.08
60 to 99	77	18,515	5,124	3.6	8.5	11,183	17.89	25.36
100 to 199	143	21,456	7,489	2.7	9.2	12,010	16.42	22.22
200 to 399	298	23,701	8,955	2.3	9.0	11,093	17.07	21.74
400 to 599	491	25,195	10,783	2.1	8.0	10,299	16.94	21.04
600 to 899	729	25,228	11,223	2.1	8.2	11,148	16.60	20.52
900 & over	1,387	26,225	12,599	1.9	8.3	10,371	16.50	19.85

Milk output per worker has always shown a strong correlation with herd size. The farms with 100 cows or more averaged over 1,169,058 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 452,000 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow. The 400 to 599 herd size group had the more efficient use of farm capital with an average investment of $10,299 per cow.

The 50 farms with 900 or more cows had the lowest total cost of producing milk at $19.85 per hundredweight. This is $1.28 below the $21.13 average for the remaining 121 dairy farms. The lower average costs of production plus a similar milk price gave the managers of these large dairy farms profit margins (milk price less total cost of producing milk) that averaged $1.32 per hundredweight above the average of the other 121 DFBS farms.

Dairy Operations and Milk Cow Inventory

TABLE 7-3. NUMBER OF DAIRY FARMS AND MILK COWS BY SIZE OF HERD
New York State, 2013 [a, b]

Size of Herd	Farms		Milk Cows	
Number of Cows	Number	% of Total	Number	% of Total
200 – 499	188	42.1%	65,000	19.2%
500 – 749	113	25.3%	69,000	20.4%
750 – 999	45	10.1%	38,000	11.1%
1,000 – 1,499	56	12.5%	66,000	19.5%
1,500 – 1,999	23	5.1%	40,000	11.8%
2,000 – 2,999	15	3.4%	35,000	10.3%
3,000 or more	7	1.5%	26,000	7.7%
Total	447	100.0%	339,000	100.0%

[a] This information on number of farms and number of cows by size of herd is derived from several sources:
- Dairy Statistics as published by the New York Agricultural Statistics Services for 2013.
- CAFO (Concentrated Animal Feeding Operations) permit reports for 2013.

[b] The author wishes to thank everyone who provided some data as well as providing valuable advice and perspectives. However, any errors, omissions or misstatements are solely the responsibility of the author, Professor George Conneman, **e-mail GJC4@cornell.edu**.

In 2013, there were 447 large dairy farms (farms with 200 or more cows) in New York State. Those farms reported housing 339,000 milk cows total in the State of New York. The table above was prepared based on the NYASS data plus the CAFO permit filing for additional herd size categories.

Farms with 1,000 or more cows (101 farms) represent about 22 percent of the farms but kept over 47 percent of the cows.

Ten-Year Comparisons

Ten years ago (2004) there were 50 herds with 1,000 or more cows and only 6 with over 2,000. The total number of farms in NYS in 2004 was 6,500, and in 2013 there were almost 5,000.

The total cost of producing milk on DFBS farms has increased $5.27 per hundredweight over the past 10 years (Table 7-4). In the intervening years, total cost of production increased from 2004 to 2005, decreased in 2006, increased from2007 to 2008, decreased in 2009 to $16.72, and has been increasing each year since to $20.56 in 2013. It is interesting to note that costs of production decrease in low milk price years and increase in high milk price years. Over the 10 years, milk sold per cow increased 12 percent and cows per worker increased 2 percent on DFBS farms (Table 7-5). Farm net worth has increased significantly, while percent equity has been fairly stable.

TABLE 7-4. TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 2004 to 2013

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Operating Expenses										
Hired labor	$2.67	$2.66	$2.58	$2.70	$2.79	$2.70	$2.61	$2.75	$2.72	$2.78
Purchased feed	4.88	4.37	4.30	5.21	6.17	5.45	5.41	6.53	7.29	7.56
Machinery repair, vehicle expense & rent	1.09	1.07	1.04	1.27	1.24	1.07	1.16	1.36	1.31	1.40
Fuel, oil & grease	.41	.53	.58	.67	.91	.57	.65	.88	.84	.84
Replacement livestock	.16	.11	.07	.07	.08	.06	.06	.08	.05	.07
Breeding fees	.21	.22	.23	.24	.26	.21	.21	.22	.21	.21
Veterinary & medicine	.59	.62	.65	.65	.68	.63	.63	.67	.65	.68
Milk marketing	.72	.76	.80	.80	.85	.88	.89	.88	.87	.86
Other dairy expenses	1.27	1.32	1.29	1.41	1.52	1.44	1.45	1.48	1.48	1.49
Fertilizer & lime	.30	.34	.31	.40	.47	.41	.37	.45	.55	.57
Seeds & plants	.24	.22	.23	.28	.33	.35	.36	.39	.42	.48
Spray & other crop expense	.20	.19	.19	.25	.26	.20	.21	.25	.27	.22
Land, building & fence repair	.21	.25	.22	.32	.34	.23	.26	.37	.35	.35
Taxes	.22	.23	.21	.23	.21	.22	.22	.23	.23	.24
Insurance	.16	.16	.17	.19	.18	.17	.17	.18	.17	.17
Utilities (farm share)	.36	.39	.41	.44	.43	.38	.41	.42	.37	.40
Interest paid	.57	.65	.78	.83	.54	.51	.53	.48	.45	.47
Misc. (including rent)	.43	.37	.45	.49	.49	.44	.44	.49	.49	.55
Total Operating Expenses	$14.67	$14.54	$14.51	$16.46	$17.77	$15.90	$16.04	$18.12	$18.71	$19.34
Less: Nonmilk cash receipts	1.70	1.96	1.94	1.75	1.57	1.89	1.62	2.11	2.47	2.23
Increase in grown feed & supplies	.17	.12	.22	.39	.66	-.04	.36	.17	0.34	0.29
Increase in livestock	.22	.21	.27	.30	.33	.34	.30	.18	0.17	0.10
OPERATING COST OF MILK PRODUCTION	$12.58	$12.25	$12.08	$14.02	$15.21	$13.71	$13.76	$15.66	$15.73	$16.72
Overhead Expenses										
Depreciation: machinery & buildings	$1.32	$1.32	$1.26	$1.32	$1.38	$1.28	$1.32	$1.38	$1.43	$1.49
Unpaid labor	.07	.06	.07	.07	.04	.05	.04	.04	.03	.04
Operator(s) labor [35]	.67	.61	.63	.65	.58	.54	.50	.53	.44	.41
Operator(s) management (5% of cash receipts)	.90	.90	.79	1.07	1.10	.80	.96	1.16	1.10	1.18
Interest on farm equity capital (5%)	.92	1.02	1.06	1.20	1.29	1.21	1.15	1.15	1.38	1.41
Total Overhead Expenses	$3.88	$3.91	$3.81	$4.31	$4.39	$3.88	$3.97	$4.26	$4.38	+$4.53
TOTAL COST OF MILK PRODUCTION	$16.46	$16.16	$15.89	$18.33	$19.60	$17.59	$17.73	$19.92	$20.11	$21.25
AVERAGE FARM PRICE OF MILK	$16.64	$15.98	$13.85	$20.34	$19.24	$13.88	$17.81	$21.67	$19.77	$21.65
Return per cwt. to operator labor, capital & mgmt.	$2.67	$2.35	$0.44	$4.93	$2.61	$-1.16	$2.69	$3.61	$3.35	$2.12
Rate of return on farm equity capital	6.0%	4.1%	-4.6%	13.4%	3.6%	-10.3%	5.2%	13.6%	6.5%	9.8%

[35] 2004 through 2006 = $2,200/month, 2007 = $2,300/month, 2008 = $2,400/month, 2009 through 2011 = $2,500/month, 2012 = $2,600/month, and 2013 = $2,600/month of operator labor.

TABLE 7-5. TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 2004 to 2013

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of farms	200	225	240	250	224	204	204	190	169	171
Cropping Program										
Total tillable acres	701	729	730	758	883	965	987	1,086	1,189	1,277
Tillable acres rented	345	365	360	385	446	482	493	519	554	603
Hay crop acres	339	361	366	364	421	464	469	477	530	565
Corn silage acres	245	246	249	258	297	348	340	405	488	504
Hay crop, tons DM/acre	3.5	3.2	3.2	3.0	3.5	3.3	3.5	3.4	3.0	3.5
Corn silage, tons/acre	17.7	18.8	18.4	18.9	19.9	18.7	19.6	16.6	16.9	18.0
Fertilizer & lime exp./tillable acre	$31	$33	$30	$40	$49	$42	$43	$50	$66	$71
Machinery cost/cow	$565	$624	$618	$708	$800	$660	$712	$839	$864	$918
Dairy Analysis										
Number of cows	334	340	350	358	414	469	489	531	609	650
Number of heifers	260	270	283	289	348	391	415	459	522	557
Milk sold, cwt.	73,767	78,250	80,862	82,315	99,884	113,555	119,782	130,898	154,730	166,004
Milk sold/cow, lbs.	22,070	22,998	23,083	22,983	24,115	24,208	24,508	24,648	25,401	25,532
Purchased dairy feed/cwt. milk	$4.86	$4.37	$4.29	$5.20	$6.16	$5.45	$5.39	$6.52	$7.29	$7.07
Purchased grain & concentrate as % of milk receipts	27%	26%	29%	24%	31%	38%	29%	29%	34%	32%
Purchased feed & crop exp/cwt.milk	$5.60	$5.12	$5.02	$6.13	$7.23	$6.41	$6.32	$7.62	$8.52	$8.87
Capital Efficiency										
Farm capital/cow	$7,010	$7,508	$7,762	$8,426	$9,145	$9,060	$9,141	$9,629	$10,232	$10,635
Real estate/cow	$2,809	$2,950	$3,030	$3,356	$3,606	$3,713	$3,857	$3,951	$4,193	$4,368
Machinery investment/cow	$1,226	$1,314	$1,384	$1,448	$1,535	$1,553	$1,570	$1,614	$1,686	$1,775
Asset turnover ratio	0.64	0.60	0.52	0.67	0.59	0.44	0.56	0.64	0.60	0.61
Labor Efficiency										
Worker equivalent	7.97	8.18	8.19	8.40	9.75	10.74	10.93	12.13	13.59	14.43
Operator/manager equivalent	1.64	1.60	1.63	1.62	1.72	1.83	1.82	1.88	2.01	2.01
Milk sold/worker, lbs.	925,553	956,698	987,530	980,234	1,024,799	1,057,063	1,095,897	1,079,423	1,138,769	1,150,279
Cows/worker	42	42	43	43	42	44	45	44	45	45
Labor cost/cow	$752	$765	$757	$784	$823	$794	$771	$818	$810	$823
Hired labor exp./hired worker equiv.	$33,311	$33,539	$34,071	$34,924	$36,312	$35,908	$35,643	$37,152	$37,406	$38,335
Profitability & Financial Analysis										
Labor & mgmt. income/operator	$78,061	$64,745	$-31,269	$189,019	$75,945	$-147,313	$101,484	$227,028	$92,417	$175,046
Farm net worth, end year	$1,466,674	$1,690,427	$1,736,505	$2,200,655	$2,640,168	$2,639,640	$3,012,912	$3,759,325	$4,484,930	$4,672,688
Percent equity	60%	63%	62%	68%	68%	62%	65%	70%	69%	68%

TABLE 7-6. COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 83 New York Dairy Farms, 2004 - 2013

Selected Factors	2004	2005	2006	2007
Milk receipts per cwt. milk	$16.71	$15.98	$13.83	$20.41
Size of Business				
Average number of cows	506	527	555	556
Average number of heifers	382	412	441	443
Milk sold, cwt.	116,547	125,676	132,583	133,585
Worker equivalent	11.64	12.03	12.38	12.55
Total tillable acres	990	1,019	1,051	1,080
Rates of Production				
Milk sold per cow, lbs.	23,012	23,858	23,900	24,043
Hay DM per acre, tons	3.8	3.7	3.4	3.1
Corn silage per acre, tons	18	19	19	19
Labor Efficiency				
Cows per worker	44	44	45	45
Milk sold per worker, lbs.	1,001,623	1,044,907	1,070,875	1,064,703
Cost Control				
Grain & concentrate purchased as % of milk sales	27%	25%	29%	23%
Dairy feed & crop expense per cwt. milk	$5.53	$5.05	$4.96	$6.02
Operating cost of producing cwt. milk	$12.51	$12.12	$12.07	$13.77
Total cost of producing cwt. milk	$15.29	$14.98	$14.93	$16.78
Hired labor cost per cwt.	$3.34	$3.21	$3.17	$3.28
Interest paid per cwt.	$0.49	$0.59	$0.72	$0.72
Labor & machinery costs per cow	$1,305	$1,353	$1,336	$1,454
Replacement livestock expense	$22,452	$16,460	$10,510	$14,269
Expansion livestock expense	$36,672	$22,281	$25,567	$13,955
Capital Efficiency				
Farm capital per cow	$6,570	$7,083	$7,323	$7,877
Machinery & equipment per cow	$1,119	$1,215	$1,246	$1,344
Real estate per cow	$2,513	$2,629	$2,751	$2,888
Livestock investment per cow	$1,692	$2,062	$2,115	$2,305
Asset turnover ratio	0.70	0.67	0.56	0.74
Profitability				
Net farm income without appreciation	$343,350	$326,260	$72,106	$717,413
Net farm income with appreciation	$458,395	$504,710	$190,590	$917,409
Labor & management income per operator/manager	$144,960	$119,033	$-32,085	$326,598
Rate return on:				
Equity capital with appreciation	19.6%	18.3%	3.9%	29.1%
All capital with appreciation	13.0%	13.2%	4.8%	21.1%
All capital without appreciation	9.6%	8.4%	1.9%	16.5%
Financial Summary, End Year				
Farm net worth	$2,095,778	$2,469,231	$2,513,118	$3,209,447
Change in net worth with appreciation	$345,315	$362,202	$22,552	$736,131
Debt to asset ratio	0.40	0.37	0.40	0.32
Farm debt per cow	$2,715	$2,723	$2,884	$2,711

Farms participating in the DFBS each of the last 10 years have increased size of business, labor efficiency and milk sold per cow (Table 7-6). All measures of profitability exhibit wide variability from year-to-year and are highly correlated with milk price received.

TABLE 7-6. COMPARISON OF FARM BUSINESS SUMMARY DATA (Continued)
Same 76 New York Dairy Farms, 2004 - 2013

2008	2009	2010	2011	2012	2013
$19.31	$13.93	$17.85	$21.67	$19.77	$21.66
573	603	640	659	679	703
475	509	541	567	584	601
141,754	149,614	160,403	165,450	173,642	181,460
13.09	13.59	14.00	14.52	15.23	15.59
1,147	1,193	1,237	1,266	1,324	1,362
24,718	24,810	25,045	25,104	25,576	25,816
3.8	3.6	3.7	3.5	3.0	3.6
20	19	19	16	16	17
44	44	46	45	45	45
1,083,057	1,101,252	1,145,869	1,139,137	1,139,946	1,164,199
30%	37%	28%	28%	35%	32%
$7.27	$6.47	$6.23	$7.58	$8.60	$9.01
$15.27	$13.66	$13.76	$15.68	$16.06	$16.92
$18.46	$16.72	$16.80	$19.02	$19.57	$20.56
$3.37	$3.23	$3.12	$3.28	$3.26	$3.31
$0.53	$0.51	$0.52	$0.48	$0.47	$0.46
$780	$1,439	$1,483	$1,651	$1,695	$1,769
$19,304	$8,792	$10,424	$21,959	$7,401	$12,030
$32,871	$24,061	$12,385	$5,304	$23,910	$5,676
$8,622	$8,632	$8,523	$9,162	$9,886	$10,403
$1,507	$1,559	$1,528	$1,614	$1,730	$1,807
$3,122	$3,270	$3,291	$3,519	$3,857	$4,162
$2,305	$2,207	$2,174	$2,212	$2,246	$2,236
0.65	0.47	0.62	0.69	0.62	0.63
$379,728	$-148,922	$450,414	$758,423	$387,478	$578,475
$477,144	$-121,968	$596,487	$922,965	$613,220	$740,286
$120,285	$-171,377	$150,370	$290,690	$80,634	$167,734
11.6%	-7.0%	14.4%	20.4%	10.8%	12.4%
9.2%	-2.9%	10.4%	14.6%	8.4%	9.5%
7.3%	-3.5%	7.7%	11.8%	5.0%	7.3%
$3,398,683	$3,100,637	$3,569,144	$4,271,388	$4,639,703	$5,062,164
$190,965	$-292,917	$457,568	$705,879	$361,500	$392,215
0.34	0.41	0.37	0.33	0.34	0.33
$2,995	$3,427	$3,188	$3,204	$3,420	$3,535

Debt to asset ratio has remained stable and debt per cow increased 30 percent while farm net worth nearly doubled. During this time, crop yields have fluctuated, largely due to weather. Purchased grain and

concentrate as a percent of milk sales varied from 23 to 37 percent, with the high in 2009, and the low in 2007.

TABLE 7-7. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
171 New York Dairy Farms, 2013

Item	Western & Central Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	Northern Hudson & Southeastern New York
Number of farms	20	54	27	29	41
ACCRUAL EXPENSES					
Hired labor	$377,892	$654,943	$520,713	$378,808	$265,916
Feed	1,214,399	1,688,906	1,486,611	1,022,058	717,366
Machinery	314,191	451,550	473,138	364,769	233,455
Livestock	490,465	739,853	678,734	444,251	315,968
Crops	169,815	255,932	297,777	236,471	123,410
Real estate	132,732	203,810	159,826	131,756	80,081
Other	159,925	275,247	280,037	189,532	127,065
Total Operating Expenses	$2,859,420	$4,270,242	$3,896,835	$2,767,645	$1,863,260
Expansion livestock	54,279	11,879	18,186	9,441	5,592
Extraordinary expense	0	1,610	148	276	2,433
Machinery depreciation	123,040	193,153	193,906	151,723	82,736
Building depreciation	61,986	140,101	137,345	72,003	40,706
Total Accrual Expenses	$3,098,725	$4,616,986	$4,246,420	$3,001,088	$1,994,726
ACCRUAL RECEIPTS					
Milk sales	$3,347,429	$4,669,303	$4,487,947	$3,204,253	$1,988,405
Livestock	303,641	403,035	312,220	208,202	160,518
Crops	67,562	116,053	103,672	75,982	22,689
Government receipts	28,114	50,512	26,232	50,737	20,052
All other	26,315	103,826	77,821	85,832	46,152
Total Accrual Receipts	$4,076,703	$5,745,765	$5,320,113	$3,833,209	$2,398,335
PROFITABILITY ANALYSIS					
Net farm income (w/o appreciation)	$674,336	$725,744	$761,473	$623,919	$243,090
Net farm income (w/ appreciation)	$772,816	$948,131	$924,618	$773,653	$312,160
Labor & management income	$740,641	$814,567	$794,568	$603,942	$275,217
Number of operators	2.06	2.16	1.89	2.03	1.83
Labor & mgmt. income/operator	$359,535	$377,114	$420,406	$297,508	$150,392
BUSINESS FACTORS					
Worker equivalent	12.91	18.04	16.83	13.18	9.73
Number of cows	589	846	822	573	363
Number of heifers	542	728	707	461	307
Acres of hay crops[a]	552	623	799	558	423
Acres of corn silage[a]	534	628	710	478	366
Total tillable acres	1,098	1,468	1,736	1,278	809
Pounds of milk sold	15,398,548	21,672,835	20,962,747	14,705,036	8,973,943
Pounds of milk sold/cow	26,157	25,609	25,488	25,649	24,740
Tons hay crop dry matter/acre	3.3	4.1	3.5	3.3	2.9
Tons corn silage/acre	21.0	18.6	18.8	17.1	14.4
Cows/worker	46	47	49	43	37
Pounds of milk sold/worker	1,192,838	1,201,321	1,245,929	1,115,356	922,454
% grain & conc. of milk receipts	33%	32%	31%	30%	33%
Feed & crop expense/cwt. milk	$8.98	$8.97	$8.51	$8.56	$9.37
Fertilizer & lime/crop acre	$73.43	$76.60	$71.03	$77.46	$56.65
Machinery cost/tillable acre	$443	$481	$417	$449	$441

[a]Excludes farms that do not harvest forages.

FIGURE 7-1. PERCENT CHANGE IN MILK PRODUCTION
Five Regions in New York, 1990-2010

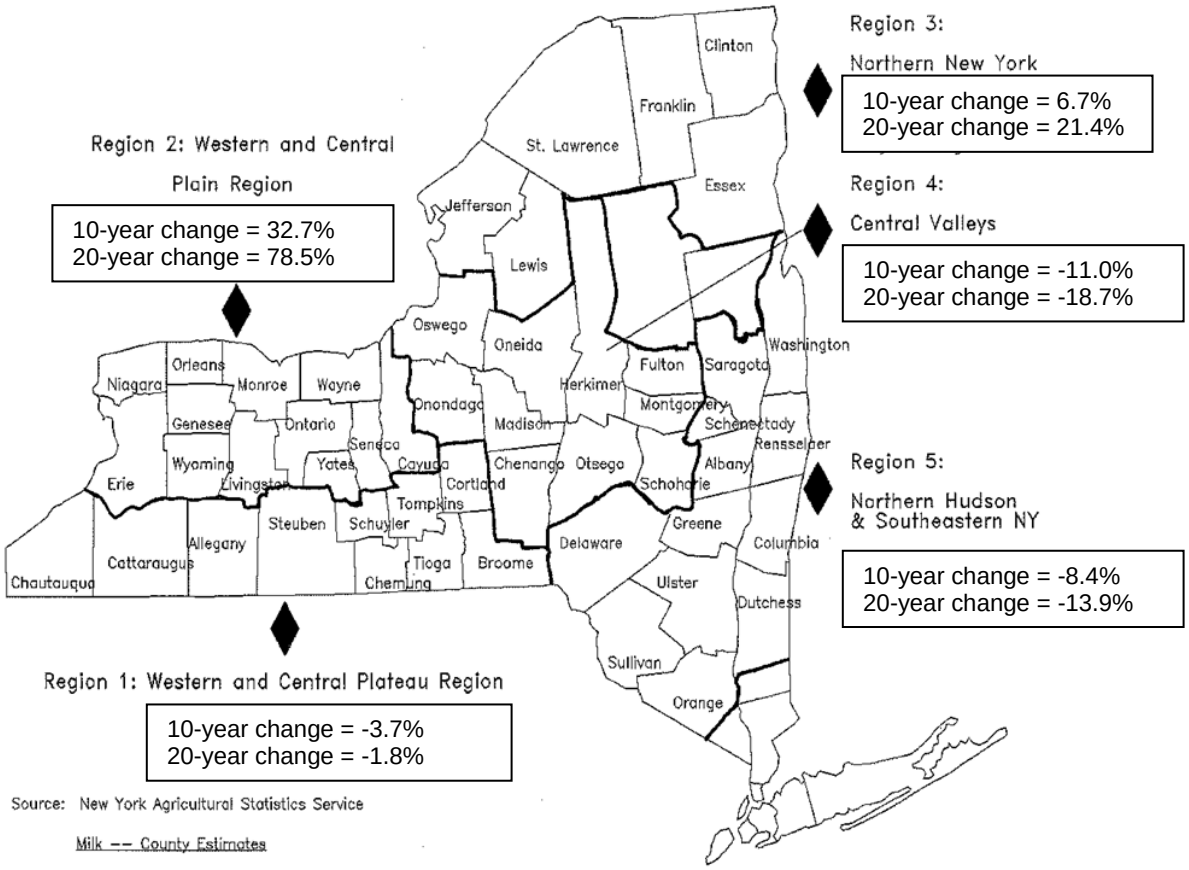


TABLE 7-8. MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York

Item	Region[a] 1	2	3	4	5
Milk Production[b]			(million pounds)		
1990	2,062.0	2,539.0	2,085.2	2,823.0	1,545.4
2000	2,103.8	3,415.2	2,372.3	2,576.1	1,452.6
2010	2,025.5	4,531.5	2,530.5	2,294.0	1,331.3
Percent change, 2000 to 2010	-3.7%	+32.7%	+6.7%	-11.0%	-8.4%
Percent change, 1990 to 2010	-1.8%	+78.5%	+21.4%	-18.7%	-13.9%
2013 Cost of Producing Milk[c]			($ per hundredweight milk)		
Operating cost	$16.16	$16.65	$16.20	$16.02	$18.05
Total cost	19.74	20.35	19.76	19.96	21.89
Average price received	21.74	21.54	21.41	21.79	22.16
Return per cwt. to operator labor, management & capital	$2.83	$1.90	$2.30	$2.69	$1.28

[a]See Figure 7-1 for region descriptions.
[b]Source: New York Agricultural Statistics Service, Milk-County Estimates. The 2013 data was not available.
[c] From Dairy Farm Business Summary data.

TABLE 7-9. COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1963 - 2013

Selected Factors	1963	1973	1983	1993	2003	2013
Number of farms	468	609	510	343	201	171
Size of Business						
Average number of cows	39	69	88	130	314	650
Average number of heifers	24	46	72	100	240	557
Milk sold, cwt.	4,270	8,519	13,432	24,448	70,105	166,004
Worker equivalent	1.70	2.20	3.00	3.68	7.50[c]	14.43[c]
Total tillable acres	105[a]	198[a]	272	351	659	1,277
Rates of Production						
Milk sold per cow, lbs.	10,950	12,300	15,264	18,858	22,302	25,532
Hay DM per acre, tons	2.3	2.3	2.5	2.7	3.2	3.5
Corn silage per acre, tons	12	13	14	15	17	18
Labor Efficiency						
Cows per worker	23	32	29	35	42[c]	45[c]
Milk sold per worker, pounds	251,200	392,600	447,733	664,868	934,733[c]	1,150,279[c]
Cost Control						
Grain & conc. as % of milk sales	32%	31%	25%	29%	30%	32%
Dairy feed & crop expense/cwt.	$1.71	$2.81	$3.44	$3.76	$4.91	$8.87
Operating cost of prod. cwt. milk	$2.92	$4.32	$13.99	$10.18	$11.46	$16.59
Total cost of producing cwt. milk	$4.24	$7.49	$16.04	$13.97	$14.47	$20.31
Milk receipts per cwt. milk	$4.31	$7.30	$13.64	$13.14	$13.24	$20.79
Capital Efficiency						
Total farm capital	$55,304	$207,621	$477,048	$840,060	$2,118,872	$6,912,750
Farm capital per cow	$1,418	$3,009	$5,421	$6,462	$6,748	$10,635
Machinery & equipment per cow	$304	$527	$1,038	$1,165	$1,208	$1,775
Real estate per cow	$675	$1,547	$2,668	$2,932	$2,722	$4,368
Livestock investment per cow	$368	$738	$1,339	$1,523	$1,847	$2,266
Asset turnover ratio	0.35	0.32	0.38	0.46	0.56	0.61
Profitability						
Net farm income without apprec.[d]	NA[b]	NA[b]	$49,571	$70,832	$48,074	$592,380
Net farm income with apprec.[d]	$50,345	$94,694	$91,892	$90,608	$120,283	$741,840
Labor & management income per operator/manager[d]	$26,585	$53,491	$37,554	$14,509	$-19,442	$175,046
Rate of return on:						
Equity capital with appreciation	NA[b]	14.0%	0.1%	3.5%	2.5%	12.9%
All capital with appreciation	NA[b]	8.7%	3.6%	4.6%	3.3%	9.9%
All capital without appreciation	NA[b]	NA[b]	3.9%	3.1%	0.6%	7.8%
Financial Summary, End Year						
Farm net worth	NA[b]	$153,064	$322,001	$553,370	$1,207,964	$4,672,688
Change in net worth with apprec.	NA[b]	NA[b]	6,909	22,489	10,747	419,456
Debt to asset ratio	NA[b]	0.34	0.21	0.35	0.44	0.321
Farm debt per cow	NA[b]	$1,103	$2,207	$2,254	$3,075	$3,478

[a]Acres of cropland harvested.
[b]NA = not available.
[c]Based on hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator.
[d]Profitability measures adjusted for inflation using Consumer Price Index – 2013 dollars.

Identifying Bottlenecks in Your Business

Introduction

Before a recommendation can be made regarding where a dairy farm business can improve, it must first be determined what the business is striving to accomplish. A mission statement is very helpful in this respect as a mission statement will describe why the farm exists. An example mission statement is "Our mission is to produce and market high quality milk in sufficient quantities to provide a good standard of living for our family. The business should also be sufficiently profitable to provide above average compensation for employees and long term security for our family". The above mission statement will not be right for all farms and mission statements will change over time as the age of the operator increases and family situation changes. An analysis of a farm business is most useful to the manager when the mission is known and thereby conveys to the evaluator what the business wants to accomplish.

The objectives of the farm are also of value to the evaluator because they more specifically state business direction. Objectives are general, challenging and untimed directions for the business. Example objectives might be to build net worth, increase profits and allow more time for personal and family activities.

Operating a profitable dairy farm business requires that the factors of production such as land, labor and capital be combined and managed to achieve a value of production that is greater than the cost of production. There are numerous ways to accomplish a profit in dairying; striving for high output per cow but with corresponding costs, low output per cow but with low costs or high output per cow with low costs. The latter category, high output with low costs is a characteristic of most of the highly profitable dairy farms.

Evaluating a Dairy Farm Business

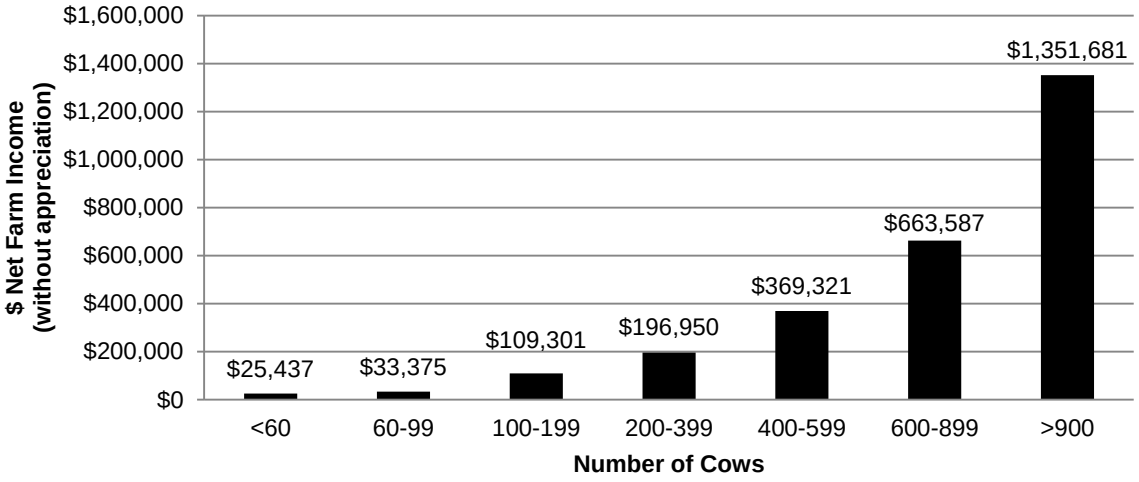
Evaluating a business to determine areas for improvement can be accomplished in the most simple terms by ascertaining if the business has 1) an adequate herd size, 2) excellent rates of production, 3) high labor efficiency, 4) stringent cost control and 5) strong financial position. Again, the evaluation should be set within the context of the mission and objectives of the farm family.

Farm Size

The question to be answered when examining the size of a dairy farm is "Is size of the farm sufficient to meet the family mission and objectives"? Or if the objective of the family is to increase profitability, is the size of the business a limiting factor?

There is a strong and well established relationship between farm size and farm income on well managed farms. Net farm income without appreciation increases as size of herd increases, ranging from about $25,000 on farms with less than 60 cows to over $1,351,000 on farms with more than 900 cows. See Figure 7-2.

FIGURE 7-2. NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE
171 New York Dairy Farms, 2013



In 1918, George F. Warren made an insightful observation regarding the relationship between farm size and income. "Not only are average incomes much larger on larger farms, but the chances of making a good profit are much better. However, no farm is large enough to ensure a profit."

Rate of Production

Achieving high rates of milk production per cow does not guarantee a profit, but on average, farms with higher rates of production do achieve higher incomes. As pounds of milk sold per cow increase, net farm income, net farm income per cow and labor and management income per operator generally increase. See Table 7-10.

Profitability measured as net farm income per cow rather than per farm removes the influence of herd size and also shows a positive relationship with milk sold per cow. In 2013, net farm income per cow generally increased as pounds milk sold per cow increased with some fluctuation.

TABLE 7-10: MILK SOLD PER COW AND FARM INCOME MEASURES
171 New York Dairy Farms, 2013

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income without Appreciation	Net Farm Income Per Cow	Labor & Management Income Per Operator
Under 16,000	14	179	$75,069	$274	$16,445
16,000 to 18,999	15	120	62,845	585	13,278
19,000 to 20,999	7	173	161,736	1,002	43,502
21,000 to 22,999	17	288	203,188	659	65,086
23,000 to 24,999	34	750	627,201	770	206,337
25,000 to 26,999	51	826	665,356	815	157,628
27,000 & over	33	1,003	1,195,727	1,094	368,774

Labor Efficiency

Labor efficiency is a measure of the amount of work done, on average, by one full time equivalent worker. A full time equivalent worker is considered to represent 230 hours of work per month. The labor efficiency measure used here is pounds of milk sold per worker. As can be seen from Table 7-11, as pounds of milk sold per worker increases, so does net farm income and labor and management income per operator.

TABLE 7-11. MILK SOLD PER WORKER AND NET FARM INCOME
171 New York Dairy Farms, 2013

Pounds of Milk Sold Per Worker	Number of Farms	Number of Cows	Pounds Milk Sold Per Cow	Net Farm Income (without appreciation)	Labor & Management Income Per Operator
Under 500,000	19	75	16,557	$23,235	$-10,767
500,000 to 699,999	18	115	21,265	73,881	15,941
700,000 to 899,999	24	355	21,925	228,910	29,679
900,000 to 1,099,999	33	565	24,068	392,816	105,666
1,100,000 & over	77	1,046	26,049	1,052,843	321,854

In a stanchion barn, labor efficiency should be 600,000 pounds of milk sold per worker or higher. Small freestall barns should achieve 800,000 pounds per worker or higher and large freestall barns over 1,000,000 pounds of milk sold per worker.

Cost Control

Cost control is very important in operating a profitable dairy farm. If the three major costs in operating a business are under control, some of the smaller expense categories can be slightly higher and not seriously impact overall profit. The three largest cost categories on a dairy farm are purchased feed, hired labor, and machinery repairs; with milk marketing expense a close fourth. In this analysis, purchased feed and crop production expense per hundredweight of milk and machinery costs will be discussed. Hired labor was discussed under the category of labor efficiency.

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs, and milk production between herds. It includes all purchased feeds used on the farm, and it includes crop expenses that are associated with feed production.

On average, farms with feed and crop expenses exceeding $8.00 reported below average profits in 2013. Farms reporting less than $8.00 per hundredweight generally showed above average profits. However, reducing feed and crop expenses does not necessarily lead to higher profits particularly when milk output per cow falls below average as can be seen in the farms in the group reporting less than $7.00 per hundredweight. See Table 7-12.

TABLE 7-12. PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT OF MILK AND FARM INCOME MEASURES
171 New York Dairy Farms, 2013

Feed & Crop Expense Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Appreciation	Labor & Management Income Per Operator
$9.00 or more	76	623	7.7	16,429	$432,566	$121,087
8.50 to 9.00	25	835	8.7	23,676	839,815	223,885
8.00 to 8.49	29	657	8.7	24,658	669,485	216,978
7.50 to 7.99	15	904	8.4	25,916	1,120,158	324,673
7.00 to 7.50	13	633	8.8	21,383	722,267	206,431
Less than 7.00	13	163	7.4	17,814	139,977	32,198

Most machinery costs are associated with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Machinery costs have not been allocated to individual crops, but they are calculated per total tillable acre. See Table 7-13.

Controlling machinery costs can have a significant impact on profitability. Machinery costs should be evaluated along with labor efficiency. If machinery costs are high, as a result of use of labor saving technologies, then a high labor efficiency must result to offset the high machinery costs.

TABLE 7-13. ACCRUAL MACHINERY EXPENSES
166 New York Dairy Farms That Grow Forages, 2013

	Average 166 Farms		Average Top 10% Farms[a]	
Machinery Expense Item	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	$143,737	$108.95	$241,825	$108.91
Machinery repairs & vehicle expense	167,528	126.98	241,059	108.56
Machine hire, rent & lease	70,889	53.73	133,629	60.18
Interest (5%)	59,093	44.79	77,345	34.83
Depreciation	155,340	117.74	224,495	101.10
Total	$596,587	$452.19	$918,352	$413.58

[a]Average of 16 farms with highest rates of return to all capital (without appreciation) that grow forages.

Financial Position

Farm debt per cow should be below $3,500. Businesses that have been in operation for many years without an increase in herd size should have a very low debt per cow, below $1,000. Total farm investment per cow (market value) should be less than $9,000 and for large dairy farms $8,000 or less. See Table 7-16.

Farm Business Charts

For a complete analysis of the business, a farm business chart can be very useful. The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 171 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the 10 percent for any other factor. See Tables 7-14 and 7-15.

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. In some cases, the "best" management position is somewhere near the middle or average. Many things affect the level of costs, and must be taken into account when analyzing the factors.

TABLE 7-14. FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
171 New York Dairy Farms, 2013

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
39.9	1,976	52,254,852	28,620	5.3	24	64	1,544,121
26.0	1,187	31,161,995	27,342	4.5	21	53	1,298,023
20.9	968	25,221,350	26,638	4.1	20	49	1,211,659
17.6	764	19,848,109	26,051	3.7	19	46	1,154,144
14.1	614	15,011,729	25,370	3.4	18	44	1,092,286
10.5	438	10,936,395	24,516	3.1	17	41	1,006,486
6.8	284	6,492,159	23,399	2.8	16	38	883,376
4.4	162	3,307,891	21,767	2.4	15	34	759,105
2.9	94	1,828,527	18,508	2.0	12	28	592,477
1.9	52	866,932	13,668	0.7	1	22	385,315

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$774	21%	$495	$1,118	$1,040	$6.20
1,215	27	683	1,445	1,588	7.48
1,385	28	762	1,561	1,823	8.06
1,558	30	826	1,664	1,976	8.31
1,645	32	894	1,719	2,106	8.68
1,748	33	952	1,800	2,202	9.02
1,854	34	1,000	1,902	2,325	9.33
1,944	36	1,079	2,032	2,430	9.68
2,067	38	1,170	2,181	2,564	10.08
2,287	41	1,419	2,577	2,818	11.63

The next section of the Farm Business Chart provides for comparative analysis of the value and costs of dairy production.

The profitability section shows the variation in farm income by decile and enables a dairy farmer to determine where he or she ranks by using several measures of farm profitability. Remember that each column is independently established and the farms making up the top decile in the first column will not necessarily be on the top of any other column. The dairy farmer who ranks at or near the top of most of these columns is in a very enviable position.

TABLE 7-15. FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
171 New York Dairy Farms, 2013

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Operating Cost Milk Production Per Cow	Operating Cost Milk Production Per Cwt.	Total Cost Milk Production Per Cow	Total Cost Milk Production Per Cwt.
$6,223	$23.52	$2,159	$13.06	$3,399	$17.86
5,991	22.38	3,071	14.31	4,330	18.88
5,767	22.10	3,470	14.93	4,667	19.58
5,609	21.89	3,688	15.53	4,913	20.09
5,459	21.70	3,940	16.31	5,051	20.73
5,260	21.51	4,124	17.06	5,192	21.42
4,995	21.31	4,290	17.67	5,382	22.44
4,661	21.11	4,557	18.42	5,568	23.48
4,066	20.83	4,803	19.33	5,902	24.77
2,972	20.27	5,289	21.14	6,317	30.55

Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
$2,293,718	$1,662	0.27	$2,875,086	$2,196	$1,658,986	$807,659
1,323,231	1,409	0.22	1,537,847	1,751	874,557	426,977
871,401	1,179	0.20	1,049,392	1,469	561,397	262,451
588,780	1,013	0.18	778,316	1,276	361,202	171,348
373,730	852	0.15	523,504	1,081	177,429	97,301
237,277	691	0.12	328,362	894	86,913	46,707
156,234	547	0.10	208,401	704	28,456	19,016
92,959	411	0.07	115,544	559	-1,382	-132
36,993	243	0.05	51,507	380	-36,812	-21,191
-14,804	-81	-0.03	-5,596	-3	-162,083	-94,885

The farm financial analysis chart, Table 7-16, is designed just like the farm business chart shown in Tables 7-14 and 7-15 and may be used to measure the financial health of the farm business.

TABLE 7-16. FINANCIAL ANALYSIS CHART
171 New York Dairy Farms, 2013

Liquidity/Repayment							
Planned Debt Payments Per Cow	Available For Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
$ 53	$1,585	9.83	12.79	0%	$ 260	62%	91.19
222	1,243	3.26	3.76	2	1,348	40	7.09
366	1,038	2.19	2.77	4	2,070	33	4.70
456	927	1.73	2.22	7	2,607	28	3.29
549	789	1.50	1.72	9	3,074	24	2.77
641	661	1.23	1.38	10	3,514	20	2.40
730	521	0.98	1.06	11	3,972	16	1.97
852	418	0.76	0.82	14	4,428	10	1.47
1,086	204	0.48	0.38	16	5,196	5	1.13
1,917	-448	-1.71	-0.72	21	6,854	-8	0.61

Solvency				Operational Ratios		
		Debt/Asset Ratio		Operating	Interest	Depreciation
Leverage Ratio[a]	Percent Equity	Current & Intermediate	Long Term	Expense Ratio	Expense Ratio	Expense Ratio
0.02	98%	0.02	0.00	0.65	0.00	0.03
0.13	89	0.09	0.00	0.70	0.01	0.04
0.23	82	0.15	0.06	0.72	0.01	0.04
0.32	76	0.23	0.15	0.74	0.01	0.05
0.39	72	0.27	0.25	0.76	0.02	0.06
0.49	68	0.32	0.34	0.79	0.02	0.06
0.62	62	0.38	0.40	0.81	0.03	0.07
0.76	57	0.42	0.47	0.84	0.03	0.08
0.87	54	0.50	0.56	0.88	0.04	0.09
1.61	41	0.67	0.81	0.94	0.06	0.13

Efficiency (Capital)					Profitability	
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth With Appreciation	Percent Rate of Return With Appreciation on: Equity	Investment[b]
0.88	$2,155	$755	$6,982	$2,009,009	29%	19%
0.73	2,989	1,109	8,484	1,003,640	20	14
0.67	3,498	1,373	9,154	681,182	17	12
0.62	3,913	1,629	9,860	440,826	14	10
0.58	4,276	1,858	10,660	247,080	11	8
0.55	4,774	2,013	11,257	131,971	8	6
0.52	5,265	2,259	11,917	79,692	5	5
0.46	5,806	2,473	12,832	18,703	2	3
0.39	6,721	2,865	14,119	-5,034	-1	1
0.28	9,762	4,363	17,767	-366,287	-10	-4

[a]Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.
[b]Return on all farm capital (no deduction for interest paid) divided by total farm assets.

Conclusion

The saying "You can't manage what you can't measure" is equally valid in dairy farm management as it is in an industrial or commercial business. Effective managers measure the most important factors for success in their business, compare the values with the performance of similar businesses and set annual goals for improvement. The most effective goals are SMART. That is, they are Specific, Measurable, Attainable, Rewarding and Timed. Annually setting goals and then measuring progress towards goals is an important component of management. Research has shown that goals that are written are much more likely to be achieved than are goals that are only verbalized or goals that are not shared.

Evaluating a dairy farm business is not something to do once in a lifetime, but rather progress should be measured annually and new goals set for the following year. If a farm is not moving forward while other farms are, then the farm is moving backward relative to the industry. Performing an annual analysis and setting goals for the future is an excellent process to use in moving your business forward.

Chapter 8. Labor Intensive Farming: Current and Future Challenges

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Introduction

In 2014 farm managers in New York continued to experience many of the challenges attracting and retaining workers that they did over the past several years. In a recent Cornell survey, New York apple grower's rated labor as their number one management challenge. Undocumented workers continue to play a significant role in agricultural and other business operations throughout the State. Likewise, aggressive immigration enforcement in some areas of the State continues to create anxiety and uncertainty for farm employers and their workers. Advocates for immigration reform had hoped that the House of Representatives would follow the Senate's lead by passing immigration reform legislation before the campaigning for the 2014 mid-term elections. Prior to the November election, the Republican House made no progress on immigration reform legislation. In the absence of immigration reform, farm employers continue to look for legal workforce alternatives and to invest in equipment and facilities that will make them more labor efficient. Still, immigration reform continues to be a top priority for farm employers with labor intensive operations.

Immigration Enforcement on New York Farms

Immigration enforcement activities continue to have a major impact on farms due to New York's international border with Canada. In recent years, there have been reports of increased immigration enforcement on New York farms, particularly dairy farms. An important part of that enforcement increase was the introduction of I-9 audits in 2009. The audit process was implemented in addition to already existing immigration raids and monitoring of businesses that Hispanic workers frequent. In the spring and summer of 2014 there were numerous reports that enforcement actions on New York farms had increased dramatically. These actions raised the concern of many farm employers and the organizations that represent them. As a result of pressure from New York's farming community, Senators and Congressmen from New York brought the concerns of New York dairy farmers to the attention of officials in the Department of Homeland Security. On July 1, 2014, eleven members of New York's congressional delegation sent a letter to the Deputy Assistant Secretary of Immigration and Customs Enforcement (ICE) to express concern over enforcement activities on dairy farms. The letter stated; "we request that ICE improve its communication and cooperation with dairy farmers to lessen the impact on dairy production and the workforce". The letter was signed by U.S. Senators from New York, Charles E. Schumer and Kirsten E. Gillibrand. The letter was also signed by the following members of the U.S. House of Representatives: Chris Collins, Tom Reed, Bill Owens, Dan Maffei, Brian Higgins, Chris Gibson, Sean Patrick Maloney, and Richard Hanna. The effort appears to have met with some success. Two meetings of elected officials and Department of Homeland Security officials resulted in response to the letter. In addition a working group was formed between New York's agricultural community and the Department of Homeland Security to improve lines of communication with the agreement that future

meetings would be scheduled to discuss enforcement related issues. However, until there is a legislative solution to the undocumented worker problem, it seems likely that the farm employers and their works will continue to experience enforcement pressures.

Immigration Reform in the 113th Congress and Beyond

Eighteen months after the U.S. Senate passed the "Border Security, Economic Opportunity and Immigration Modernization Act" by a bi-partisan vote of 68-32, the failure of the House of Representatives to enact, or even vote on any immigration reform proposal has become for many a defining symbol of a broken federal government. With 200 co-sponsors (including two Republican representatives of agricultural districts), H.R. 15, the House companion to the Senate bill (S. 744), failed to muster a "majority of the majority" (117 Republicans); and prospects for reform in the 113th Congress have been declared dead at various times throughout 2014 by Speaker of the House John Boehner and a host of political analysts. This gridlocked situation has left New York fruit, vegetable and grape growers, as well as dairy farmers to deal with continuing, costly labor uncertainty in the form of audits, worker detentions, farm raids and the shifting regulatory challenges posed by the H-2A Program for seasonal workers.

On November 4th, Republicans gained eight seats in the U.S. Senate and twelve in the House. Three of the 15 new Republicans in the House will be from New York: Lee Zeldin on Long Island; John Katko in Central New York; and Elise Stefanik in the North Country. The GOP lost three incumbents nationally, for a net gain of 12; a few races had yet to be decided at this writing. The coming changes have not generated optimism among those who have worked to craft effective policy reforms that would improve the outlook for labor intensive farming operations throughout the nation. Of the eight new Republican Senators, for example, only Senator-elect Mike Rounds of South Dakota, through his work as a co-chair of a Midwest task force on immigration reform, demonstrated a grasp of the business and economic dimensions of the issue. Increased border security and "no amnesty" pledges were cornerstones of most of the winning Republican candidates, while others, such as Senator-elect Cory Gardner of Colorado, promoted the piecemeal reform approach favored but not implemented in the House.

BEFORE THE ELECTION	AFTER THE ELECTION
HOUSE 234 **Republicans** 201 **Democrats** (includes 1 currently vacant R seat, 2 currently vacant D seats)	**HOUSE** At least 244 **Republicans** (net gain of at least 12, largest R majority since 1928) At least 184 **Democrats** 7 races still pending
SENATE 55 **Democrats** (including 2 Independents who caucus with Ds) 45 **Republicans**	**SENATE** 53 **Republicans** (net gain of at least 8, more likely 9) 46 **Democrats** Still pending – Louisiana runoff on December 6

Source: The New Balance of Power: What the 114th Congress Means for Business: McDermott, Will & Emery, November 2014

Immigration Reform Coalitions

Regardless of mid-term election results and inaction by the current Congress, a wide variety of reform advocacy organizations, driven by diverse needs and goals, have continued to lay the cooperative political and policy groundwork necessary to repair a broken immigration system. Some examples are highlighted below.

The National Immigration Forum persistently brings together leading figures from the political, business (including agriculture), law enforcement and evangelical communities to craft moral, economic and fiscal arguments and consolidate influential support for reform. These arguments have been made through a variety of media, including recent films, such as *"The Stranger",* commissioned by the Evangelical Immigration Table; economic briefs (*Immigration Reform, Economic Growth and the Fiscal Challenge*) developed by economist Douglas Holtz-Eakin of the American Action Forum; and major projects, such as The *New American Workforce* initiative, which has succeeded already in speeding progress on the path from green card to citizenship for aspiring citizens in seven major U.S. cities. Some of this work appears peripheral to the specific objectives pursued by farm employers and their advocacy organizations. But this work by a diverse community of potential farm employer allies goes on even when Washington is mired in stalemate. Conscientiously cultivating relationships with such diverse, well-connected, well-funded and productive grassroots coalitions can only improve the chances of achieving agricultural goals on immigration.

Leaders of the Agriculture Workforce Coalition (AWC), representing some 70 organizations, from Farm Credit East to Wine America, the National Association of Agricultural Employers, United Fresh and the National Milk Producers Federation, negotiated the agricultural labor and guest worker provisions of S. 744 with Senate leaders and United Farm Workers. The negotiators did great service to the nation by hammering out compromise agreements on divisive, complex issues such as guest worker wage rates, housing requirements and blue card provisions for undocumented farm workers living in the U.S. Once the 113th

Congress comes to a close and leadership changes hands, S.744 will no longer represent a legislative option. To be effective, any future piecemeal or comprehensive reform initiatives would do well to incorporate the products of these unprecedented collaborations on agricultural labor issues into new legislative proposals.

These are only two examples of many active coalitions at work nationally and locally to improve the U.S. immigration system. Given the treacherous terrain over which agribusiness advocates for reform must travel to fix the broken immigration system, alliances designed to reach common objectives offer more effective leverage and better prospects for success in dealing with a challenging political environment.

Executive Action and its Implications

In the vacuum created by congressional inaction since the Senate sent S.744 to Speaker Boehner in June 2013, the Latino community and others (but not all others) with a stake in reform have pressed hard for executive action to solve some of the problems addressed by the unpassed bill. It is unclear how the President might deal with issues related to agriculture, but news reports speculating on the timing and components of an executive order are emerging.

Just after the election, the debate over executive action focused more on the political ramifications of President Obama's taking this step than on the specifics that might be included in a possible executive order. The newly empowered Republican majority in both houses of Congress reacted angrily to the possibility and spoke of measures—cutting off funding, filing a lawsuit similar to the pending action on administration of the Affordable Health Care Act, holding up judicial nominations and omnibus spending bill negotiations—they could take to undo the President's initiative. In attempts to lower the temperature of this high stakes argument, incoming Senate Majority Leader, Mitch McConnell pledged that a government shutdown would not be part of the Republican strategy to oppose executive action on immigration reform; and soon-to-be Minority Leader, Harry Reid urged the President to delay announcement of an executive order until debates on fiscal-year 2015 tax and spending bills had been concluded. Farm organizations have observed the unfolding situation cautiously, understanding the short term benefits in reduced labor and regulatory uncertainty that might help agricultural employers; but also fully aware of the potential damage that yet another "poisoned well" between the Administration and the Congress might do to their constituents. In any case, all parties agree that meaningful congressional action on reform will be necessary to repair, in any sustainable way, the many broken parts of the current immigration system. Those who are optimistic about the prospects for reform in the Republican Congress believe Speaker Boehner's repeated assertions that his conference is motivated to do something, certainly in piecemeal steps, about the immigration challenge. Less hopeful views are based on the long track record of inaction in the House and the fervent voices inside the Republican conference opposing any reform other than additional border security and stricter enforcement of existing laws. If legislative progress is to be made in 2015, it will be initiated in the House of Representatives. In the volatile, potentially toxic environment surrounding the possibility of an executive order, waiting to see formally announced proposals before assessing the merits of and prospects for such proposals appears to be the wisest course.

NY Minimum Wage Increases

The State minimum wage was increased as a part of the 2013-2014 New York State budget in three increments. The wage increased from $7.25 to $8.00 per hour on December 31, 2013. It will further increase to $8.75 on December 31, 2014 and then to $9.00 per hour on December 31, 2015. The wage increases apply to agricultural workers as well as other workers and will increase labor as a cost of production on many farms. Labor is the single largest cost of production on most farms producing fresh fruits and vegetables. Labor is the second highest cost of production on dairy farms, after purchased feed.

New York Apple Growers Respond to Labor Challenges

A 2013 survey of New York apple growers reveals how the industry continues to change as well as the adjustments growers are making in their labor practices in spite of stalled immigration reform efforts. The 95 growers responding to the survey tended to have larger farms with many (48%) using the H-2A Program. Growers reported that new trellised planting systems are increasing labor efficiency allowing workers to perform pruning, tying and harvest operations from the ground or from a platform. When growers were asked "what are the top three issues for the industry to work on over the next 5 years", labor related issues came out on top by far. When growers were asked how their businesses have changed or will change as a result of labor pressures the top three answers were 1) design orchards and plating systems to be more labor efficient 2) down size and decrease acreage and 3) rely on the H-2A Program.

Growers were also asked about labor shortages. Thirty-six percent of those surveyed reported that they were short of workers in 2013. The consequences of being short of labor were either leaving apples unharvested or having fruit harvested late and therefore diverted to a lower paying market.

There were many mentions of the H-2A Program in the survey responses. The H-2A Program is a Federal Program that allows farmers to bring in foreign born workers for seasonal jobs. While growers continue to raise concerns about the high costs of the program and the excessive paperwork, many still use it to reduce the risks of not having sufficient labor during critical work periods. In summary, the survey results revealed on apple industry heavily focused on labor efficiency. Growers are ensuring that each worker is as productive as possible by shifting to high density production systems as well as adding labor saving equipment such as platforms.

Farm Labor Management Case Studies

An ongoing Specialty Crops Block Grant project at Cornell uses case studies to improve our understanding of how farm employers manage their human resources under existing federal agricultural labor and immigration policies. In-depth interviews with farm managers were conducted on grape and vegetable production operations in 2014. Aside from descriptions of the size and scope of these farm businesses, questions focused on recruiting and hiring practices, staffing challenges, labor concerns and alternative labor pools. Farmers were also asked about other facets of their business operations that are affected by the environment in which they must make their labor management decisions.

Several more interviews will be conducted in the months ahead, but some key points emerged from the early discussions:

1. These farm operators believe the continuing weight of uncertainty generated by current policy has caused their businesses to miss (or decide against) opportunities for value added enterprises, expansion and even transfer to the next generation.
2. Difficulties in working with the H-2A Program are significant and costly. Whether those interviewed use the program or not, they have a strong desire for a major overhaul of the system; and promising ideas on how this might be successfully done.
3. Some farmers are making major investments in labor-saving technology.
4. Exploration of new sources of agricultural labor is still an experimental process. Results, for example, of using refugees to fill gaps in the available labor supply are mixed.
5. Farmers look to Cornell and Cornell Cooperative Extension to gather and disseminate data and information that will lead to necessary changes in the immigration system and its impact on farm business operations.

2015 Agricultural Labor Outlook

Some agricultural employers will face tighter labor supplies in the year ahead and will continue to make adjustments in their operations. Immigration reform is viewed by many in agriculture as a potential solution to labor shortages. As a result farm employers will continue to follow the national immigration debate closely and will continue their call for immigration reform at the federal level.

Specifically, the following is our outlook for agricultural labor and 2015:

1. **Immigration enforcement actions are likely to continue -** Efforts to open up lines of communication between farm employers and the Department of Homeland Security are seen as a positive step. I-9 audits on farms are expected to continue.

2. **A continued decline in the number of immigrants available to fill farm jobs is expected** – The number of agricultural workers coming to New York from Mexico has declined with tighter border security and more available jobs in Mexico due to an improving economy. In addition, some immigrants who have been here for a number of years and are returning home.

3. **Reliance on the H-2A seasonal worker program will continue** – As long as there is heavy immigration enforcement pressure, fruit and vegetable growers will use the program to ensure that seasonal crop operations are performed in a timely fashion and to avoid crop losses.

4. **Interest in agricultural labor alternatives will continue** – With tight labor supplies and increasing wage rates, farm employers will continue to look for ways to become more labor efficient. Alternatives include robotics and other types of modern equipment to replace some labor. Some farm managers will also look at mechanized row crops such as corn and soybeans.

5. **Farm owners with labor-intensive enterprises will be cautious about expanding** – With labor supplies uncertain and labor costs increasing, farm managers will expand cautiously. Likewise, the next generation of farm managers is likely to consider carefully the risks associated with not having available a sufficient number of qualified workers as they make strategic business decisions.

6. **Farm labor costs will rise with New York State minimum-wage increases** – Between December 31, 2013 and December 31, 2015 farm wages will increase from $7.25 per hour to $9.00 per hour increasing the labor bill on many farms.

7. **There will be a continuing search for legal workers** - Some farm employers have experimented with refugees, workers from Puerto Rico, and workers who are in the United States on J-1 training visas as a way to avoid hiring undocumented workers. Those efforts are likely to continue.

8. **Agricultural leaders will continue to advocate for workable immigration reform** – Through the Agricultural Workforce Coalition, agriculture as an industry has taken a united stand on the need for immigration reform. Specifically, agriculture is calling for an adjustment in immigration status for current undocumented workers and a modern guestworker visa program. In addition, the dairy industry is asking to be included in an agricultural guestworker program.

9. **Building political coalitions will be critical** – Immigration reform is more likely to pass if agriculture aligns with business groups, faith groups, Latino groups, and others.

Chapter 9. Fruits and Vegetables

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Specialty crops are an important component of New York State's agricultural economy. In 2013 the total farm value of all agricultural products produced in New York was approximately $5.5 billion, which has increased from the five-year average total farm value over the period between 2007 and 2012. In 2013, fruit and vegetable crops accounted for slightly more than 12% of the total value of agricultural production in New York State. Fruits and vegetables were planted on approximately 240 thousand acres in New York State in 2013 and this represents slightly more than 5% of total harvested cropland. Therefore, the value generated from fruits and vegetables is nearly three times the value generated from other crops on a per acre basis.

Horticultural commodities are an important component of agriculture in New York State and we continue to see a significant quantity of fruits and vegetables produced in the State, and marketed to consumers through various channels. New York State is a top-producing state of apples, tart cherries, pears, grapes, cabbage, cauliflower, onions, pumpkins, snap beans, squash, and sweet corn. Apples and grapes are the two highest revenue fruit crops in New York while cabbage, sweet corn, snap beans, squash, and onions have been the five highest revenue vegetable crops in recent years; the value of production for each of these crops exceeded $30 million in 2013.

Below I provide a situation and outlook report for fruits and for vegetables, and examine market conditions for selected crops that are important in New York State. I review past production patterns and provide an assessment of the likely future market trends for fruit, berries, and vegetables (fresh and processing) in New York State. In each case I review production and price data between 2011 and 2014, give an economic outlook on expected market conditions in 2015, and also provide some thoughts on the long term marketing and policy issues for horticultural crops produced in New York State.

9.1 Fruit and Berry Situation and Outlook

Production of the major fruit crops in New York State was, overall, higher in 2013 compared to 2012; overall market conditions in 2013 were comparable to those in 2012. Prices for the major fruit crop in New York State, the apple crop, were substantially lower in 2013 compared to 2012, but production was up significantly and the total value of the marketed crop was similar to that in 2012. Crop values for several other fruit crops were also similar in 2013 to those observed in 2012. In what follows, I take a closer look at domestic prices and production values, consumption patterns, and international market conditions for major fruit crops in 2013. Similar to last year, market conditions for grapes are examined separately in Chapter 10. Overall, the total value of fruit (including grapes) in New York in 2012 was approximately $375 million, up 15% from the values in 2011 and 2012, but still less that the peak values observed in 2007 and 2008.

Table 9-1 shows that 705 thousand tons of apples were produced in New York State in 2013; this crop was valued at $237 million. The overall value of the 2013 crop was down slightly compared to the 2012 crop; the value of the fresh crop was down and the value of the processing crop was up slightly in 2013 compared to 2012. Table 9-1 also indicates that the average price of New York State apples decreased in 2013 compared to 2012; the price of apples decreased in both the fresh market and the processing market due to the significant increase in available supply in 2013. The average price for New York apples used in the fresh market was $510 per ton and the price was $193 per ton for apples used in the processing market in 2013; these prices are much lower than those observed in 2012 but are in line with those in 2011.

Once the official data from 2014 are released, I expect to see statistics that show a significant increase in apple production compared to 2013 and most other normal years in recent history. Early evidence from the *US Apple Association* shows that U.S. apple production will be 259 million bushels, which is up 4% from 2013 and the 3rd largest apple crop in history. The 2014 crop was driven by a much larger crop in the West; production was down overall in the eastern and Midwestern states in 2014. Overall, it appears that production in western states (mainly Washington State) is up 13% compared to 2013. Bearing acreage is down by about 15% over the past decade, but the total crop is up which highlights the increasing productivity (output per unit of land) in the apple market. Average yields per acre are up over 35% over the past decade. Even though 2014 represents a large crop, there is optimism that average prices for growers will remain close to prices observed in 2013.

Relative to other states, New York continued to be a major national producer of apples in 2013; New York State continues to be the second largest producing state for apples in the nation (with production levels now quite close to those in Michigan). As shown in Table 9-2, the value of U.S. apple production in 2013 was $3,150 million based on production of over 10 billion pounds and an average price of $0.30 per pound. Washington State typically produces approximately 55 to 65% of the U.S. apple crop, and in 2014 Washington State is expected to produce 161 million bushels (about 60% of the national crop). In New York State, production is forecast to be 30 million bushels in 2014 which is down approximately 11% from 2013. Michigan's crop in 2014 is expected to be close to 25 million bushels, and that is down from their substantial crop (of nearly 30 million bushels) in 2013.

In addition to apples, New York State is also a top producer of several other tree fruit and berry crops; New York is a top ten producing state for tart cherries, pears and strawberries. Table 9-1 shows that production of all other major fruit and berry crops increased in 2013 versus 2012. Production was up and prices were down, so overall crop values remained relatively consistent to higher for all of these selected fruit crops (except tart cherries) in 2013. In 2013 New York State produced approximately $7.5 million in cherries ($4.3 million was tart cherries and $3.2 was sweet cherries), $5.7 million in peaches, and $5.1 million in pears.

TABLE 9-1. COMMERCIAL NONCITRUS AND NONGRAPE FRUIT PRODUCTION AND PRICES IN NEW YORK STATE

	Production			Prices		
	2011	2012	2013	2011	2012	2013
	------ Thousand tons ------			*------ Dollars per ton ------*		
Apples	610	360	705	404	704	342
Fresh	265	168	325	666	1,078	510
Processed	340	188	370	199	369	193
Tart Cherries	3.0	1.4	6	484	2,100	716
Pears	12.1	3.1	9.2	600	758	565
Peaches	6.8	2.6	7.7	1,240	1,580	815
Sweet Cherries	0.7	0.3	1.0	3,140	3,700	3,750
Strawberries	1.8	1.6	1.9	4,700	4,300	4,060
Blueberries	0.9	1.0	0.6	4,400	4,580	4,300

Sources: New York Agricultural Statistics, 2013-2014; NASS Noncitrus Fruits and Nuts 2013 Summary, 2014.

Also shown in Table 9-1, berry production (including strawberries and blueberries) in 2013 was comparable to production levels observed in 2012, and the total value of these berries produced in New York State decreased from $10.8 million to $9.8 million in 2013 compared to 2012. The *USDA Fruit and Tree*

Nuts Outlook report that focuses on eastern (tree and berry) fruit crops was delayed this year and was not available at the time this handbook was being developed.

Table 9-2 highlights the values of tree fruit crops in New York between 2011 and 2013; I also show the total value of these crops nationally in 2011, 2012, and 2013. The information in Table 9-2 highlights that New York apples and tart cherries are important nationally, pears and peaches are important for New York State but have less of an impact on those markets nationally, and sweet cherries are a relatively small industry in New York State. The value of the U.S. apple crop decreased in 2013 relative to 2012, and is expected to be larger in 2014 given the size of the crop and the successful marketing strategies employed for large apple crops witnessed in recent years. The total value of peaches and sweet cherries decreased nationally in 2013, but the value of tart cherries increased nationally in 2013. The smaller changes in values for peaches and cherries in New York State are likely due to the regional marketing of these products that is more typical in the Northeast.

In addition to the differences in production and intra-national trade within the United States, international trade continues to be important in fresh and processed fruit markets. Imports of fresh apples in the United States reached a high of 472 million pounds in 2003/04 but have fallen recently; the United States imported 381 million pounds of fresh apples in 2011/12 and imported approximately 371 million pounds in 2012/13. Imports of processed apple products have been steadily increasing in recent years, and now the United States imports more apple juice that what it produces; approximately 80% of all apple juice imports come from China. Exports of fresh apples from the United States have been relatively steady since the mid-1990s, hovering around 1,700 million pounds per year. U.S. exports exceeded 1,800 million pounds in 2010/11 and 2011/12, and were approximately 1,700 million pounds in 2012/13. Imports of processed apple products have grown over the past fifteen years yet the value of each imported unit has fallen over this time, and this will continue to present challenges to U.S. processors of apple products.

TABLE 9-2. VALUE OF NONCITRUS FRUITS IN NEW YORK STATE AND THE UNITED STATES

	New York State			United States		
	2011	2012	2013	2011	2012	2013*
			------ Million dollars ------			
Apples	244	249.8	237.2	2,823.4	3,397.6	3,154.7
Fresh	176.5	180.6	165.8	2,482	2,980.3	2804
Processed	67.5	69.2	71.5	341.4	327.4	350.7
Tart Cherries	1.4	2.8	4.3	69.1	50.5	104.4
Pears	7.0	2.4	5.1	366.6	433	432.3
Peaches	8.4	4.0	5.7	588.3	629.2	544.3
Sweet Cherries	2.1	1.1	3.2	834.6	843.3	771.8
Strawberries	8.5	6.9	7.7	2,394.7	2,408.6	2,542
Blueberries	4.0	3.9	2.1	807.6	781.8	716
All Fruit (including grapes)	345.4	323.2	374.3	13,910.4	15,529.8	16,111.3

Sources: New York Agricultural Statistics, 2013-2014; NASS Noncitrus Fruits and Nuts 2013 Summary, 2014.

* Publication of the 2013 USDA data were delayed in the fall of 2014, and were not available at the time of printing.

It is widely expected that it will be difficult to market all of the fruit produced in 2014 and that additional years with large crops will experience lower prices. Given the experience in 2014, there is also a

greater likelihood of a smaller apple crop in eastern and Midwestern states in 2015, and this would place some upward pressure on apple prices for crops harvested in 2015 and for fruit stored into 2016. Of course, the national effects can be dampened (or heightened) by market conditions in Washington State. Washington State's apple production is expected to continue to expand in 2015 and beyond, notably for particular varieties such as Honeycrisp and Gala. Note that 7% of apple production in Washington State is approximately equal to 33% of the apple crop in New York State. In addition, there are new plantings coming into production in Washington State over the next 5 years and this alone could have a significant effect on producer prices in 2015 and beyond.

U.S. consumption patterns for fresh, frozen, and canned fruit products between 2002 and 2007 were examined in earlier editions of the *Agricultural Outlook Handbook*. Consumption rates had been very stable for frozen fruit products and showed a slight decline for many canned products. The per capita apple consumption rates in the United States have been relatively stable between 2002 and 2007. They have also been below per capita consumption rates for bananas, and this is a pattern that reflects a larger trend over the last two decades.

TABLE 9-3. CONSUMPTION PATTERNS FOR SELECTED FRESH FRUITS IN VARIOUS COUNTRIES

	Consumption			
	1991-93	2001-03	2004-06	2007-09
	------ *pounds per capita* -------			
Apples				
United States	18.92	15.84	18.04	17.82
United Kingdom	24.64	20.46	22	22.22
Japan	12.32	12.76	11.22	12.54
Canada	26.4	25.08	29.48	28.6
Germany	52.36	40.26	41.8	42.9
France	30.8	35.64	35.64	33.22
Spain	38.94	41.14	33.88	30.36
Italy	46.64	44	37.84	37.84
New Zealand	32.34	35.64	29.92	29.04
China	11.88	28.38	29.04	36.3
Japan	12.32	12.76	11.22	12.54
Turkey	71.06	72.6	64.68	69.96
Bananas				
United States	24.42	28.38	25.08	25.08
United Kingdom	14.3	24.42	25.74	26.4
Japan	15.4	14.52	16.28	17.6
Oranges				
United States	12.32	8.36	11.88	11.88
United Kingdom	6.38	7.26	6.82	6.16
Japan	15.84	15.18	14.08	13.2

Source: World Apple Review, Belrose Inc., 2010.

We reproduce Table 9-3 from last year's *Agricultural Outlook Handbook* to reinforce trends in fresh fruit consumption patterns in the United States, and elsewhere. Fresh fruit consumption (given in pounds per

person) is provided in five different time periods between 1991 and 2009 in up to 12 countries. Apple consumption in the United States has remained in the range of 18 pounds per person per year over this time period, it was reported to have fallen below 15 pounds per capita in 2012/13 but is expected to rebound to above 17 pounds per capita during 2013/14. Trends in other countries are surprisingly different. In Canada per capita consumption of apples has been closer to 26 pounds per person. The per capita consumption rate in many western European countries has exceeded 30 or 40 pounds per person per year. Of the countries listed in Table 9-3, only Japan has a lower per capita consumption rate of apples than the United States. This information indicates that apple marketers need to develop very strategic plans to reach new consumers or expand apple sales to existing consumers.

9.2 Fruit Outlook: Marketing and Policy Issues

Several economic and marketing issues that have been important to producers and packers of fruit crops in New York State will continue to be key marketing concerns over the next two to five years. Important and on-going issues include food safety concerns, labor availability, crop insurance rates, promotion activities, pest and disease management, and competition with foreign suppliers. Of the issues listed here, fruit producers in New York State and elsewhere have indicated that labor availability remains a top concern. This was also a priority topic in the election cycle in 2012 and since then has attracted much attention with some members of Congress continuing to look at new solutions to this issue that is of paramount interest to fruit growers. Most recently we have witnessed presidential executive action that seeked to authorize employment for a significant number of unauthorized immigrants. However, this proposal was not expected to largely affect the number of authorized workers available to the agricultural sector nor would it affect the guest worker program (H2A) that is currently used by some agricultural employers. The uncertainty surrounding agricultural labor supply forces farm owners to consider the possibility of workforce disruptions during harvest and other critical work periods, as well as the possibility of fines and other penalties. Practical alternatives to the unauthorized workforce must be found if labor-intensive agriculture is to be viable in the future; and this is especially true in specialty crop markets in New York State.

The large apple crop in 2014 in the United States places additional pressure for successful marketing strategies. Large domestic crops and large crops in outside markets place further stress on these marketing efforts. In 2014 we also saw large apple crops in EU production regions, and in particular in Poland. These large crops coupled with trade restrictions with Russia have caused prices to fall in Europe in 2014, and places additional competition between producers in third country apple importers.

Lastly, specialty crop growers continue to consider the economic effects from introducing new technologies and transgenic horticultural varieties. In New York State there is work underway that is examining the market potential for high tunnels in sweet cherry production, and other work that is examining biomarker technologies designed to identify the onset of post-harvest physiological disorders in stored apples. Recent research at Cornell University examines the trade-offs between harvest timing, fruit size, fruit color, and the development of post-harvest disorders (that affect prices for stored fruit) for apples. The results indicate that although earlier harvest dates decrease fruit size and color and hence prices and revenue for fruit marketed in the autumn, earlier harvest dates lead to fruit with less disorder problems and potentially increased revenue for stored fruit.

9.3 Vegetable Situation

Total land planted to vegetables (not including potatoes and dry beans) in New York State decreased slightly from 98,300 acres in 2012 to 96,300 acres in 2013 (64,000 acres for fresh vegetables and 32,000 acres for processing vegetables). Harvested acres of both fresh and processing vegetables were down in 2013. Acreage used to produce processing vegetables is still far below the average level observed between 2003 and 2010, and the production of the processing vegetables in New York State may find a new long-term equilibrium closer to 30,000 harvested acres. The value of New York vegetable production (including vegetables for fresh and processing markets but not including potatoes and dry beans) decreased from $450 million in 2012 to $382 million in 2013; the value of fresh vegetables decreased by nearly $55 million in 2013 compared to 2012. In 2013 fresh market vegetables contributed $350 million to the total value of vegetables in the state (down from $405 million in 2012) while processed vegetables contributed $32 million in 2013 (which was down from $45 million in 2012).

The large decrease in harvested acreage of processing vegetables in 2013 was due, in part, to weather conditions during that latter part of the growing season and during the harvest season. There continues to be a long-term decline in the production of processing vegetables in New York State. Across the United States, the production of processing snap beans and green peas has decreased substantially between 2000 and 2014. Statistics indicate that there has been a general decline in the production of these two processing vegetables nationwide and the green pea industry has experienced more drastic changes in production than the snap bean industry. Wisconsin has been the largest producer of snap beans nationally, followed by Oregon, New York and Minnesota. New York has typically been the third or fourth largest producing state of snap beans in the United States. Minnesota dominates national pea production followed by Washington, Wisconsin, New York, and Oregon. As one of the top five producing states, New York plays an important role in supplying national markets for green peas and snap beans. The latest data (2010 for snap beans and 2006 for green peas) show that New York State accounts for about 10% of total national production. In recent years, we have seen dramatic declines in planted acreage of green peas and downward trends in acres planted to other key processing vegetables grown for freezing and canning. This is a critical concern for New York State farmers and is somewhat of an enigma, given the fact that geographically the production areas are relatively close to big cities such as New York City and Boston. A number of factors have combined to influence planting decisions and outcomes, including historically high corn and soybean prices, a 48% decline in per capita use of canned and frozen green peas since 1971, persistent production and yield challenges for New York snap bean growers, increasing concentration in the processing industry, and inventory decisions, especially for frozen vegetables, made by New York processing firms during the past four years.

Preliminary market conditions reported in a recent edition of the *USDA Vegetables and Pulses Outlook* suggest that prices for most fresh vegetables were up in 2014 compared to levels observed in 2013. The same *Outlook* report shows that total shipments of fresh market vegetables were level in the first three quarters of 2014 across the United States, but then down in later quarters of 2014. This is due largely to drought conditions in California that have affected the supply of many vegetable crops for which California is a significant producer. Consumer prices for fresh vegetables were also higher in 2014 relative to the same time periods in 2013, and the price increases facing consumers averaged about 15%, but in some cases have been higher. Relative to 2013, the exported quantity of fresh vegetables was down in 2014 and imports were up by about 5%; the increase in imported quantities for some vegetables was higher than 5%. Overall, the United States has been importing about 25% of fresh vegetables consumed since 2010; prior to 2010, the import share was closer to 15%. Much of the change in U.S. import activity has been driven by protected-culture technologies employed in Mexico and Canada. Chinese products account for less than 2% of the imported vegetables that enter the United States. Key export markets for U.S. vegetables continue to be Canada, Mexico, Japan, Taiwan, the United Kingdom, and China.

TABLE 9-4. COMMERCIAL VEGETABLE PRODUCTION AND PRICES IN NEW YORK STATE

	Production			Price		
	2011	2012	2013	2011	2012	2013
Fresh	------ *Thousand cwt* ------			------ *Dollars per cwt* ------		
Sweet corn	1,862	2,266	2,486	28.80	30.20	31.4
Cabbage	4,708	4,536	4,275	20.00	25.30	19.7
Onions	1,891	3,131	2,015	20.80	16.90	16.0
Snap beans	323	345	391	96.10	97.00	89.8
Cucumbers	464	609	434	40.00	42.40	38.5
Tomatoes	432	546	446	84.80	86.40	72.6
Pumpkins	693	986	960	34.10	33.50	31.4
Squash	836	855	866	51.30	48.20	43.9
Cauliflower	49	66	53	49.00	65.00	59.8
Processing [a]	------ *Thousand tons* ------			------ *Dollars per ton* ------		
Sweet corn	-	-	-	-	-	-
Snap beans	50.9	62.5	62.3	298.00	300.00	264.00
Green peas	-	-	-	-	-	-

Source: New York Agricultural Statistics, 2013-2014. NASS Vegetables 2013 Summary, 2014.

[a] Much of the data describing production and prices for processing vegetables in New York State are not published to avoid disclosing specific information about individual operations.

New York State continues to be a significant producer of onions, cabbage, snap beans (fresh and processed), fresh tomatoes, pumpkins, squash, and sweet corn; for each of these commodities, New York State has often produced crops that have a value of $30 million or more. Total crop values for some of these commodities fell below typical levels in 2013, notably onions. Historically New York State has produced an onion crop and a snap bean crop that had a value exceeding $50 million, but these have both fallen short of this mark in 2012 and 2013. In the tables shown here and in the discussion that follows, we focus on recent economic conditions, and provide some outlook, for nine fresh vegetable products and four processed vegetable products that are important markets in New York. Table 9-4 shows production patterns for key vegetables in New York State between 2011 and 2013. Data describing trends in fresh vegetable markets are shown at the top of Table 9-4 and trends for processing vegetables are shown on the bottom portion of Table 9-4. Much of the most recent information for processing vegetables is not available from New York State Department of Agriculture and Markets due to the small number of producers involved, budget constraints facing the National Agricultural Statistics Service, and the proprietary nature of the data.

Production of nearly all of the major fresh vegetable products in New York State was down in 2013 relative to 2012. Onions, in particular, are the one crop listed in Table 9-4 that showed a substantial decrease in production in 2013 compared to 2012, and New York State is a top five producing state for onions. Typically we think that lower production levels lead to higher prices, but prices for nearly all of the fresh and processed vegetables listed in Table 9-4 were level, or down slightly, in 2013. This somewhat non-intuitive finding is likely due to the size of the production base in New York State relative to national market; that is, prices in New York State are driven by market conditions in other, more significant, production regions within the United States and elsewhere. Changes in the total values for the specified vegetable products are shown in Table 9-5. Because of the decreased production in 2013, the total value of the listed crops is down in 2013 overall. Table 9-5 also highlights the national importance of many (fresh and processed) vegetables. For seven of the nine fresh vegetable crops listed in Table 9-5, New York State contributes at least 5% of the

national crop. In the cases of cabbage and pumpkins, New York State contributes over 25% of the crop nationally.

TABLE 9-5. VALUE OF COMMERCIAL VEGETABLE PRODUCTION IN NEW YORK STATE AND THE UNITED STATES

	New York State			United States		
	2011	2012	2013	2011	2012	2013 [a]
Fresh			*------ Million dollars ------*			
Sweet corn	53.6	68.4	78.1	758.7	814.9	842.3
Cabbage	86.6	105.9	84.2	363.9	408.2	442.2
Onions	33.1	46.0	31.6	742.2	944.0	969.2
Snap beans	31.0	33.5	35.1	306	293.3	317.8
Cucumbers	18.6	25.8	16.7	199.4	243.7	215.6
Tomatoes	36.6	47.2	32.4	1,043.5	848	1,112.4
Pumpkins	23.6	33.0	30.1	113.1	148.9	149.9
Squash	42.9	41.2	38.0	256.4	245.3	237.1
Cauliflower	2.4	4.3	3.2	305.5	239.2	283.1
Processing						
Sweet corn	-	-	-	305.1	373.1	357.8
Snap beans	15.2	18.8	16.4	160.9	203.0	213.3
Green peas	-	-	-	117.7	168.7	151.9

Sources: New York Agricultural Statistics, 2013-2014; NASS Vegetables 2013 Summary, 2014.

[a] Data for 2013 were not available from *USDA Agricultural Statistics* at the time this report was written (as of December 1, 2014).

Recent USDA information indicates that national shipment levels of fresh vegetables were approximately 10% lower in early-2014 compared to early-2013. The 10% change comprises a large range across individual commodities, however. National shipments of broccoli, cauliflower, mixed greens, head lettuce, herbs, and cherry tomatoes increased by 15% or more; at the same time national shipments of asparagus, snap beans, Chinese cabbage, carrots, cucumbers, leaf lettuce, onions, squash, and Roma tomatoes decreased, and in some cases decreased sharply (up to a 45% decrease). Furthermore, these numbers may overstate actual market conditions given that local markets have become much more important and these are not covered in the USDA national shipment information.

9.4 Vegetable Outlook: Marketing and Policy Issues

In addition to the issues mentioned above and discussed in section 9.2, there are additional outlook issues that may be particularly important to vegetable markets in New York State during 2015 and beyond. Many of the outlook issues identified for fruit crops in section 9.2 also have implications for vegetable products. Food safety concerns, traceability issues, country-of-origin labeling requirements, international trade (with Europe and with Pacific Rim countries), immigration reform, the new Food Safety Modernization Act, technological changes, and crop insurance policy changes may affect vegetable markets, and in some cases the effects in vegetable markets may be different from the effects in fruit markets.

Technologies have the capacity to greatly improve the economic situation for growing and marketing horticultural crops produced in New York State. We continue to see a wide variety of new technologies and new plant varieties being introduced to producers that improve crop yields and/or quality. Related to this, the issue of commercializing and adopting transgenic crop varieties is resurfacing in specialty crop markets.

Growers are carefully considering the likely costs and benefits of these genetically modified (GM) traits, and this is a topic where additional economic research is being conducted but where more research is needed. Three specific examples are the Arctic technology for apples (the technology that controls the browning of the flesh), GM technologies for citrus (that effectively manages citrus greening), and the recent introduction of the GM potato 'Innate' by Simplot. Furthermore, little is known about the likely acceptance of such crops by retailers and/or consumers.

My research program has begun studying consumer acceptance for fruits and vegetables that include GM traits. Ballot initiatives and legislative action in several states has re-ignited old controversies and led to greater public scrutiny over biotechnology and its promise. While much of the discussion has focused on existing applications in corn and soybeans, public discourse has also shifted toward new applications in horticultural markets perceived to provide more benefits. Previous research has suggested that consumers do not view all applications of biotechnology uniformly. There seems to be less aversion to medical applications of biotechnology than those related to food, more aversion to GM animals than plants, and greater acceptance of applications that provide more tangible benefits for the consumer. Nevertheless, it remains unclear, particularly in light of recent debates, which dimensions of food or biotechnology applications are most determinative of consumer acceptance. Ultimate success or failure of food biotechnology may rely less on regulatory processes and more on which types of GM foods are ultimately brought to market. In a recent study we examined the extent to which the desirability of GM foods systematically varies according to whether a food is fresh or processed, by food type (meat vs. fruit/vegetable vs. field grain) and by the motivation for the genetic modification. The results indicate that adding "GM" cause a larger drop in desirability for fresh than processed food and also caused a larger drop in the desirability of meat relative to field crops, with horticultural crops falling in between. Thus, not only does GM change the overall desirability of the food product, it changes the relative ranking of products, with larger penalties associated with being GM assigned to fresh foods versus processed foods.

Other new research at Cornell University is examining the economic impact of two proposed free trade agreements on specialty crop agriculture in the United States, and for growers in New York State. The first is the Trans-Pacific Partnership (TPP), a free trade agreement with several Pacific Rim countries, and the second is the Transatlantic Trade and Investment Partnership (TTIP) with the European Union. The TTIP proposal, in particular, has begun an ambitious set of negotiations between the United States and the EU. Agricultural markets receive relatively high levels of support and protection in both regions, and therefore are sensitive to the discussions surrounding the TTIP. Several fruits and vegetables are highly valued agricultural products traded between the United States and the EU, and any reduction in trade barriers resulting from the TTIP has the capacity to generate additional trade in this sector. In addition to tariffs on agricultural products, EU producers also receive substantial domestic support through subsidies and from a range of non-tariff barriers (often related to minimum residue limitations or sanitary regulations). Preliminary results show that reductions in tariffs would have relatively small effects in these markets, whereas reductions in EU domestic policies would have much larger trade and welfare implications.

Chapter10. Grapes, Wine and Ornamental Crops

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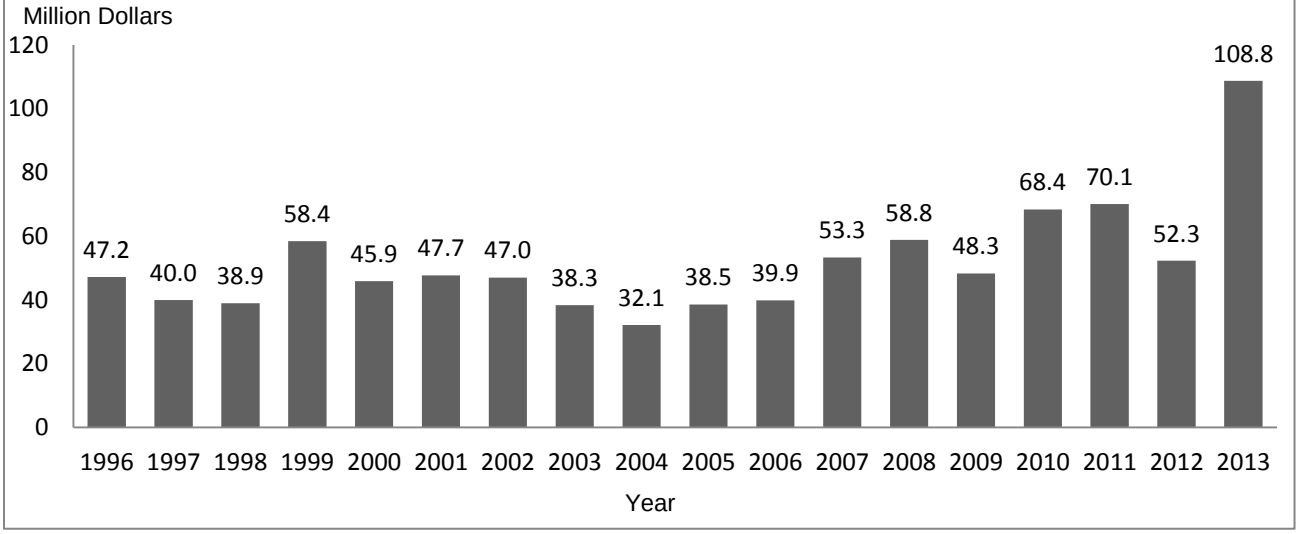
Specialty crops are an important component of New York State's agricultural economy. The agricultural products returned over $5.7 billion in 2012, which increased 8.4% from the total farm value in 2011 (data for 2013 is not available yet). About 23% of the state's land area or 7 million acres were used by the 36,000 farms to produce a very diverse array of food products. Tree fruit, berry and grape crops accounted for nearly 5.7% of the total value of agricultural production in New York State with a total value of $323 million, down 8% from the 2011 value. And another 3% was generated from production of ornamental crops with a value of $171 million. Horticultural commodities are an important component of agriculture in New York State and we continue to see a significant quantity of fruits and vegetables produced in the State, and marketed to consumers through various channels. The crop value of grapes was estimated at $52.3 million in 2012 with a substantial 25% decrease from 2011.Floriculture products were valued at $169 million dollars which placed New York the ninth place in size in the nation. Bedding and garden plants are still the primary commodities.

Below we consider the market for three categories of specialty crops and take a closer look at market conditions in each. We examine current patterns, and provide an outlook, for grapes, wine, and ornamental products in New York. In each case we review production and price data between 2008 and 2013, give an economic outlook on expected market conditions in 2014 and 2015, and also provide some thoughts on the long term potential for grapes, wine, and ornamental products produced in New York State and the United States.

10.1 Grapes

Wine and juice grapes production placed New York third behind California and Washington. According to the National Agricultural Statistical Service, in 2013, grape production in New York experienced a great year and increased nearly100% from 2012 to 208,000 tons. Fresh grapes totaled 3,000 tons while 199,000 tons were crushed by wineries and processors. Grapes utilized for wine represented about 25 about percent of the total and grapes employed in juice production accounted for 75 percent of the total grapes processed. Utilized production in 2013 represent a record high, due to excellent growing conditions in many wine regions across the state. After experiencing a decline from 2008 to 2009, aa significant increase from 2009 to 2011, the crop value in 2012 shrank substantially compared with the 2011 crop value. However, the value of the grape crop in 2013 is estimated at $78.1 million, a 49 percent increase from 2012 (Figure 10-1). Among the total value of production, 62.5% of the production was for juice, 35% went into wines and 2.5 % for fresh market (Table 10-1). Crop values for 2014 are not available yet, but are forecasted to stay at 2013 levels approximately. According to Chris Gerling (Verizon to Harvest Newsletter 14-#10), there was damage and loss early in the season. It was enough to earn a declaration that allows New York farm wineries to purchase out of state fruit. But growing conditions improved dramatically as the production season advanced.

FIGURE 10-1. VALUE OF UTILIZED PRODUCTION OF GRAPES, NEW YORK, 1996-2013



Source: New York Agricultural Statistics, 2014.

According to the Economics Research Service, the U.S. grape crop is expected to be down in 2014. According to the Fruits and Nuts report, U.S. grape production is forecast at 15.9 billion pounds (or 7.9 million tons) in 2014, down 8 percent from 2013. California is expected to produce 89 percent of the total grapes, even though the grape crop in this state is forecast down 9 percent from 2013, but over 5 percent above the average 2008-12 crop. Drought remains a major concern among growers but a hail storm in the spring also affected blooms in some vineyards. Smaller crops are also forecast in New York, Michigan, Pennsylvania, Virginia, Ohio, Missouri, and Arkansas, with combined production to represent 5 percent of total volume. While mostly substantial production cuts are expected in these states, Washington state second-grape production is up 14 percent on favorable weather during the growing season, for both juice and wine grapes.

TABLE 10-1. NEW YORK GRAPE UTILIZATION, 2011-2013

Use	2011	2012	2013
		tons	
Fresh	5,000	3,000	6,000
Juice[a]	130,000	69,000	158,000
Wine	53,000	40,000	89,000
Total	188,000	112,000	253,000

[a] Includes other processing for jam, jelly, etc.

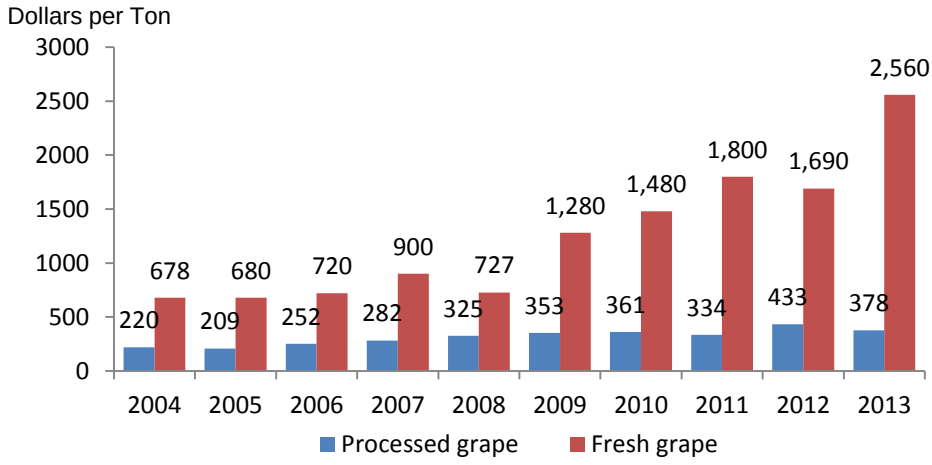
Source: Fruit Report, New York Field Office, NASS, USDA, 2014

Grapes and Prices in New York

Due to funding constraints, the USDA did not collect prices for each variety as has been the case in previous years. Relative to 2013, grower prices of processing grapes decreased to $378 per ton from $433 per

ton in 2012 (a 13% decrease). Prices for fresh grapes are typically higher than those for grapes used for processing, reflecting higher production costs. Much of the high production costs are attributable to a significant dependence on manual labor (Figure 10-2). However, in 2013, the price for table grapes increased substantially to $2,560 per ton from $1,690 per ton. Typically, prices for table grapes are lowest in August, when the U.S. domestic grape supply is at its peak, and prices begin to rise in November as supplies decrease. Overall, the significantly increase in processed grape production in 2013 kept the grower price much lower than in 2012 for processed grapes.

FIGURE 10-2. PRICES PAID FOR NEW YORK GRAPES FRESH AND PROCESSD 2004-2013



Source: Fruit Report, New York Field Office, NASS, USDA, 2014.

After experiencing a 6% decrease from 2011 to 2012, prices for fresh grapes increased dramatically in 2013. Prices for all processing grapes remain lower than fresh grape prices. However, prices for juice grapes have steadily climbed in the last few years while the price for wine grapes have experienced frequent rises and declines. In 2013, juice grapes were valued at $318 per ton, up $43 per ton from the previous year; and wine grapes at $631 per ton, up $132 per ton from the previous year (NASS 2012). Overall, the prices for processing grapes went up significantly in 2013, while the prices for fresh grapes dropped slightly.

Concord is still the predominant variety grown and processed in New York (Table 10-2). After experiencing a significant increase from 2009 to 2010, and a steady increase from 2010 to 2011, Concord grapes suffered a substantial decrease in 2012. There were 64,600 tons of Concord New York-grown grapes processed in 2012 which represents almost 50% decrease relative to 2011 and is far below the 5-year production average. However, the 2013 harvest was the largest experienced in recent years and increased to 148,000 tons, more than double from the harvest in 2012. Over the past five years, in average, Concords comprised about 70% of total tonnage utilized in the state. Due to funding constraints, starting in 2011, the USDA collected production data only for Concord, Niagara and the total amount of grapes processed for wine and juice. The second leading variety is still Niagara. Production of Niagara grapes increased significantly from 11,400 tons in 2012 to about 20,000 tons in 2013, with an annual average of 16,140 tons utilized over the past five years, accounting for 10.6 % of the NY crush. Therefore, the total grapes processed in 2013 went up to 247,000 tons from 109,000 tons, about 30% above the five-year average.

TABLE 10-2. GRAPES: NEW YORK GROWN
RECEIVED BY WINERIES AND PROCESSING PLANTS, 2008-2013[a]

Variety	2009	2010	2011	2012	2013	5-year Avg.
Catawba	5,150	7,110	NA[c]	NA[c]	NA[c]	5,130
Concord	84,900	117,300	124,700	64,600	148,000	107,900
Delaware	340	350	NA[c]	NA[c]	NA[c]	345
Niagara	12,400	21,600	20,300	11,400	20,000	17,140
Aurora	3,530	2,990	NA[c]	NA[c]	NA[c]	3,260
Baco Noir	820	610	NA[c]	NA[c]	NA[c]	715
Cayuga White	1,650	1,540	NA[c]	NA[c]	NA[c]	1,595
De Chaunac	420	240	NA[c]	NA[c]	NA[c]	330
Rougeon	370	260	NA[c]	NA[c]	NA[c]	315
Seyval Blanc	1,280	680	NA[c]	NA[c]	NA[c]	980
Vitis Vin.(all)	7,880	9790	NA[c]	NA[c]	NA[c]	8,835
Other varieties[b]	9260	4310	38,000	33000	NA[c]	21,143
Total, all varieties	128,000	172,000	183,000	109,000	247,000	167,800

a Includes New York grown grapes received at out-of-state plants.

b Includes other American and French Hybrid varieties not shown.

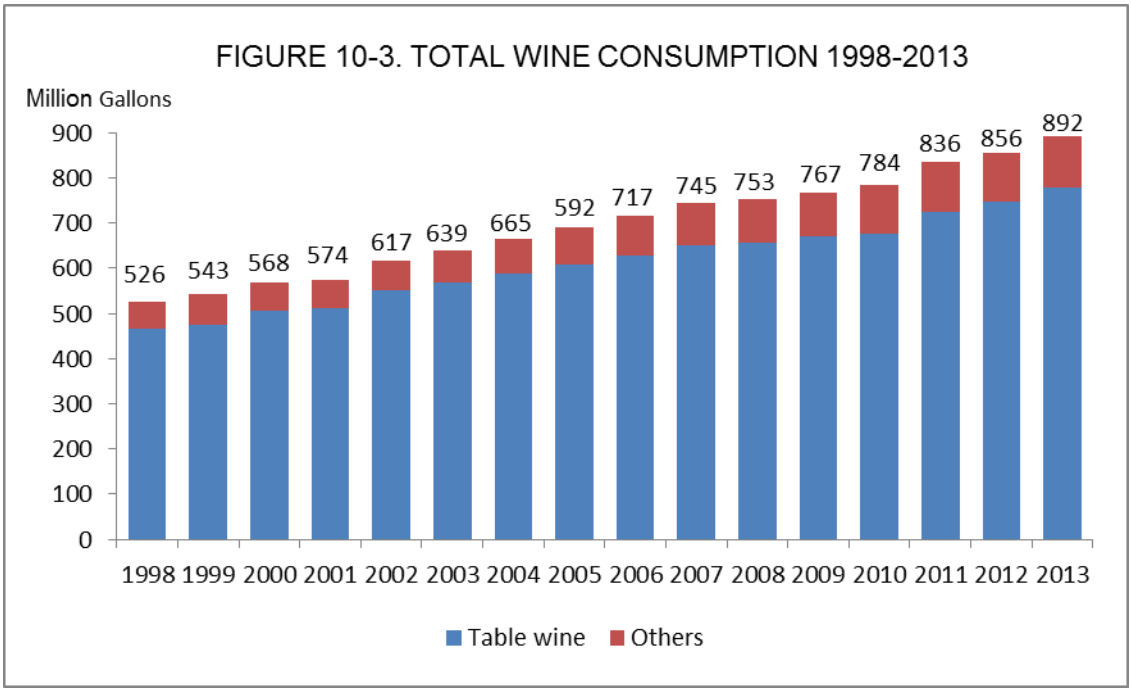
c Data not collected due to lack of funding

Source: New York Agricultural Statistics, 2014

10.2 Wine

According to the fruit report from NASS New York Field Office, in 2013, wineries and processing plants located in New York State crushed a total of 247,000 tons of grapes grown in New York or other states, up 126% from the 109,000 tons processed from the 2012 crop. Grape crushed for wine in New York increased substantially and accounted for about 40% of all grapes processed (the rest 60% went to grape juice and other products). Tonnage utilized for juice and other products increased dramatically from 2012 to about 145,000 tons.

In 2013, the U.S. was again the world's largest wine market. The U.S. wine industry continues its expansion (Figure 10-3). Shipments into U.S. trade channels of wine from California, other states and foreign suppliers reached 856 million gallons (nearly 360 million 9-liter cases), a record high for the industry in 2013 and a 3.8 % increase compared to the previous year, with an estimated retail value of $34.6 billion. Compared with 2012, total wine sales in food stores and other off-premise measured channels grew 2% by volume and 6% by value. Wine-selling locations continued to expand in 2013 with a 15% growth in off-premise retail outlets and 12% growth in restaurants and other on premise outlets. According to Fredrickson and Associates, California's 207.7 million cases held a 58% share of the U.S. market with slightly decrease from 60% market share in 2011. The total estimated retail value in California reached up $22 billion. This was the 19th consecutive year of volume growth in the U.S. Table wine sales again led wine sales in 2013 with a total of $314.9 million 9-liter cases (Table 10-3). According to the Wine Institute, shipments of sparkling wine and champagne continued growing over the past 26 years, reaching 17.7 million cases, up 2% over the previous year. Strong sales came from a variety of different producers and regions worldwide. Sparkling wine grew 3%



Source: Wine Institute; Department of Commerce; Gomberg, Fredrickson and Associates, 2013

TABLE 10-3. WINE SALES IN THE U.S.
2009-2013 IN MILLIONS OF 9-LITER CASES

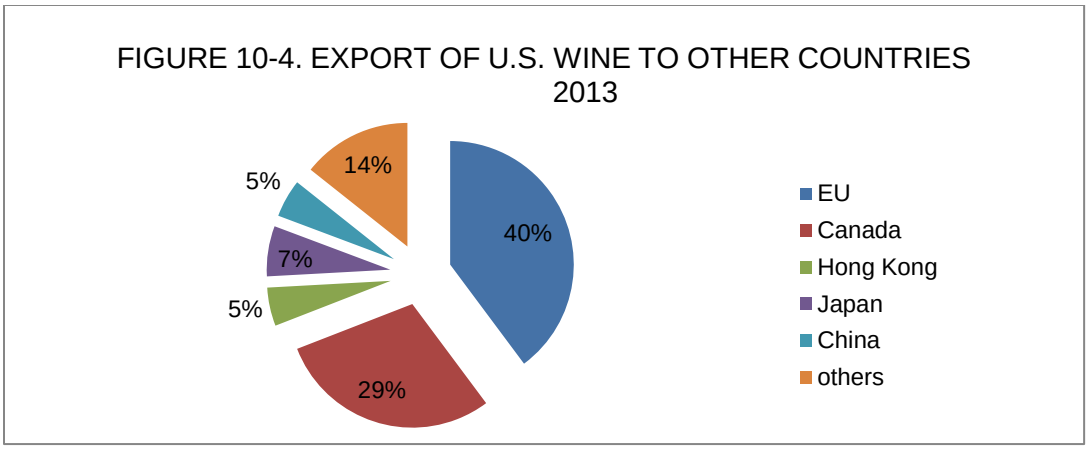
(Wine shipments from California, other states and foreign producers entering U.S distribution)

Year	Table Wine	Dessert Wine	Sparkling Wine/ Champagne	Total Wine	Total Retail Value
2013	327.7	29.0	18.4	375.2	$36.3 billion
2012	314.9	27.5	17.7	360.1	$34.6 billion
2011	304.4	29.8	17.4	351.5	$32.9 billion
2010	285.2	27.9	15.4	329.7	$30.0 billion
2009	281.5	26.8	14	322.8	$28.7 billion

Source: Wine Institute; Department of Commerce; Gomberg, Fredrickson and Associates, 2014

driven by moscato and sparkling wines. However, the overall volume in 2013 slightly slowed down after a major surge in 2012.

According to the Wine Institute, U.S. wine exports, 90% from California, reached a record high $1.55 billion in winery revenues in 2013, up 16.4% compared to the previous year, an increase for the fourth consecutive year by value. Volume shipments reached 435.2 million liters or 48.4 million cases, up 7.5%. About 40% of U.S. wine exports by value were shipped to the 27-member countries of the European Union, accounting for $620 million of the revenues, up 27% from 2012. Other important markets for U.S. wines include: Canada, $449 million slightly up from 2011; Hong Kong, $78 million, down 30% from 2012; Japan, $108.8 million, down 1% from 2012; and China, $78 million, up 1% from 2012 (Figure 10-4).



Source: Wine Institute; Department of Commerce; Gomberg, Fredrickson and Associates, 2014

10.3 Outlook for Grapes and Wine

New York grapes are employed mostly in either wine or juice production, while a very small percentage is allocated to table grapes. In 2013, there were 3,000 tons of fresh grapes, while 247,000 tons of grapes were crushed by wineries and processors in New York State. According to USDA's Economic Research Service, fewer Grapes are expected to be crushed for wine. This will be due primarily to reduced wine grape production in California. According to the report, California typically accounts for over 90 percent of all U.S. grapes sent to wineries each year. California's wine grape production in 2014 is expected to be 8 percent down from 2013, or 3.9 million tons (or 7.8 billion pounds). This decline offsets increased wine grape production in Washington, expected to be 10 percent, increasing production to 230,000 tons (or 460 million pounds). On average, Washington accounts for 3-4 percent of U.S. grapes for wineries in the country. Smaller expected grape crops in other states, including Michigan, Virginia, New York, Pennsylvania, Missouri, and Ohio will further reduce crushed tonnage.

Based on recent 5-year average shares of State-level grape production going to wineries, the USDA's Economic Research Service projects total grape tonnage crushed for wine to be down 7 percent in 2014/15 from the previous season, totaling 4.7 million tons. This may increase domestic grower prices for grapes sold to wineries in the 2014-2015 season. In 2013/14, grape tonnage for wine increased 8 percent from the previous season to 5.1 million tons, which drove prices down 3 percent to $736 per ton.

Considering the grape juice market, The same USDA report indicates that although juice-grape production in Washington is expected to increase 215,000 tons in 2014 (up nearly 20 percent from 2013), production declines in New York, Ohio, Michigan and Pennsylvania can lower grape tonnage crushed for juice in 2014/15. As a result, juice-grape grower prices may be up during the 2014/15 marketing season (August-July), which is the opposite from 2013/14, when above-trend tonnage realized a 7-percent drop in the average grower price.

Due to the strong demand for wine in the U.S. and the small harvest in 2012, wine grape prices are likely to increase in 2014/2015. Prices received by growers in 2012 was $1,540 per ton, increased 9% from last year. The price for raisin-type grape was $3,770 per ton in September 2013, 3% higher than the price in 2012, and continued increasing to $3,850 per ton in October 2013. In the meantime, America consumes 12% of the world's wine but only produces 8%, and the consumption of wine is expected to grow in the next few years. Though the U.S wine making industry is growing, with the number of wineries expanding dramatically

in the last 15 years, most of them are "boutique" operators rather than major producers. As a result, these new wineries are not driving significant growth in supply. According to the Wine Institute, in 2012, total U.S consumption was 856 million gallons, a record high, while the production was 752.4 million gallons. Therefore, with the consumption of wine expected to grow, import of wine will continue to grow over the next few years. The majority of imports will continue to come from Italy, France, Chile, Argentina and Spain.

Table 10-4 shows longer-term forecasts for the period 2014- 2016 from the National Food and Agricultural Policy Project (NFAPP), prepared in 2012. According to NFAPP, total grape output will grow steadily nationwide. The additional output is likely to be for wine and table grapes, as indicated by moderate increases in per capita consumption of these two items. The juice grape projections present a pretty stable outlook, while the per capita consumption of raisins shows a slightly downward trend.

TABLE 10-4. ECONOMIC OUTLOOK FOR GRAPES, 2014-2016

	U.S. (unless noted otherwise)		
	2014	2015	2016
Total			
Acres (1,000)			
Yield (tons per acre)	974	974	983
Total U.S. Production (1,000 tons)	8	8	8
Total Production Outside California (1,000 tons)	7,726	7,766	7879
Table Grapes	905	938	972
Production (million pounds)			
Farm Price (dollars per ton)	2,069	2,093	2125
Retail Price (dollars per pound)	805	838	861
Exports (million pounds)	2.54	2.64	2.72
Imports (million pounds)	938	957	975
Per capita consumption (pounds)	1,557	1,614	1,672
Wine	8.31	8.42	8.55
Production (million gallons)			
Farm Price (dollars per ton)	651	662	675
Retail Price (dollars per gallon)	711	746	777
Exports (million gallons)	33.46	34.66	35.72
Imports (million gallons)	129	131	134
Per capita consumption (gallons)	285	299	313
Raisins	2.5	2.54	2.59
Production (million pounds)			
Farm Price (dollars per ton)	681	685	689
Retail Price (dollars per pound)	223	226	228
Exports (million pounds)	NA	NA	NA
Imports (million pounds)	368	376	384
Per capita consumption (pounds)	51	54	56
Grape Juice	1.6	1.58	1.57
Production (million gallons)			
Farm Price (dollars per ton)	96	97	98
Retail Price (dollars per gallon)	340	345	349
Exports (million gallons)	4.82	4.96	5.06
Imports (million gallons)	29	29	30
Per capita consumption (gallons)	85	88	91
	0.47	0.48	0.49

Sources: National Food and Agricultural Policy Project, 2010.

10.4 Ornamentals

Nationally, the 2013 wholesale value of floriculture crops grew 1% from the 2012 valuation. The total crop value at wholesale for the 15-State program for all growers with $10,000 or more in sales was estimated at $4.40 billion for 2013, compared with $4.36 billion for 2012. The number of producers in 2012 was 6,042, which represents a reduction of 2% from the previous year. The total covered area allocated to floriculture crop production was 701 million square feet, which is down 4% from 2012.

TABLE 10-5. GROWER CASH RECEIPTS OF FLORICULTURE AND NURSERY CROPS, NEW YORK, 2006-2013

	2007	2008	2009	2010	2011	2012	2013
	--- *Million dollars* ---						
Floriculture[a.b]	209.1	204.3	182.6	166.6	171.166	169.2	183.5
Nursery[c]	NA	NA	NA	NA	NA	NA	NA
Floriculture and nursery crops	NA	NA	NA	NA	NA	NA	NA

a Includes growers with $10,000 or more in floriculture sales.
b Includes ornamental plants without woody stems, grouped into bedding/garden plants, cut cultivated greens, cut flowers, potted flowering plants, indoor foliage plants, and propagative floriculture material.
c Includes ornamental plants and trees with woody stems, including broadleaf evergreens, coniferous evergreens, deciduous shade trees, deciduous flowering trees, deciduous shrubs and other ornamentals, fruit and nut plants for home use, cut and to-be-cut Christmas trees, and propagation material or lining-out stock. Also includes other ornamental crops not classified as floriculture.

NA Not available

Source: Floriculture and Nursery Press Release, National Agricultural Statistical Service. 2014

TABLE 10-6. VALUE OF FLORICULTURE PRODUCTION BY PLANT CATEGORY, NEW YORK, 2009-2013

	2009	2010	2011	2012	2013	5-yr. avg. 2009-2013	2013 vs. 5-yr. avg.	2013 vs. 2012
	------ *Million dollars* ------						**%**	**%**
Bedding/garden plants[a]	98.6	105	103	105.8	106.9	103.5	3%	1.0%
Potted flowering plants[a]	42.3	20.8	24.2	28.9	30.5	29.3	4%	5.5%
Cut flowers[a]	2.3	1.9	NA[c]	0.973	0.608	2.1	-71%	-37.5%
Foliage Plants[a]	2.94	2.63	2.52	2.53	NA[c]	2.7	NA[c]	NA[c]
Propagative materials[a]	16.8	17.6	22.1	22.1	21.3	20.0	6.6%	-3.6%
Grower sales $10,000-$99,999 (Unspecified crops)	17.7	18.9	19.6	17	17	18.4	-7.7%	-10.1%
Total[b]	183	167	171	178.7	183.5	173.5	-5.8%	2.7%

a Sales by operations with annual sales of $100,000 or more.
b Total reported crops includes categories not listed
c Not published to avoid disclosing individual operations

Source: Floriculture and Nursery Crops, Situation and Outlook Yearbook, Economic Research Service, USDA, various years.

In 2013, the commercial sales value of New York floriculture production totaled $183.5 million, a slight increase from the 2012 sales value, ranking New York 8th in the nation (Table 10-6). Unfortunately, data on nurseries are not available since 2006, due to changes in data collection procedures at USDA's National Agricultural Statistical Service. This situation analysis considers only floriculture as a result. Table 10-6 indicates that bedding and garden plants continued to be the number one component with total value of sales at $106.9 million in 2013, a slight decrease from the 2012 sales value. Potted flowering plants were the second with a value of sales $30.5 million in 2013, a modest increase from 2012. Propagative materials were third at $21.3 million, a 3.6% decrease from the previous year (Table 10-6). In 2013, there were 620 growers in New York, a 9% decline from last year. The total covered area for floriculture production in 2013 was 25.8 million square feet, up slightly from 2012; and the open ground area used to produce floriculture crops significantly increases to 672 acres from 607 acres in 2012 (Table 10-7). According to the NYS Department of Agriculture and Markets, these data on open ground area are not comparable to years before 2009 due to the combined data collection efforts of the Census of Horticulture and the Annual Floriculture Survey. The data after 2009 included area used for production of nursery crops as well as floriculture crops.

TABLE 10-7. GROWING AREA FOR FLORICULTURE CROPS IN NEW YORK[a]
2009-2013

Year	Total greenhouse Cover	Shade and temporary cover	Total covered area	Open ground	Total covered & open ground
	-- 1,000 square feet --			*--- acres ---*	
2009	23,042	405	23,447	2,589	3,127
2010	25,378	340	25,718	760	1,350
2011	25,023	286	25,309	670	1,250
2012	24,869	348	25,217	607	1,186
2013	25,242	398	25,822	672	1,265

a Includes operations with $10,000+ in annual floriculture sales. Crops include cut flowers, cut cultivated greens, potted flowering plants, potted foliage plants, bedding and garden plants, and propagative materials. Total may not add due to rounding.

Source: Floriculture Crops, NASS, USDA, various years

An important distinction in floricultural production is the size of operation. According to NASS reports, the U.S. value of floriculture production was $4.40 billion in 2013, slightly higher compared to $4.36 billion for 2012 (Table 10-8). The value of production from large growers increased by1%. In addition, the value of production from small growers increased by 13.6% with respect to 2012. In New York, the value of production from large growers increased slightly by 8.4 %. In contrast to U.S. trends, the value of production from small growers increased by 9.4% relative to 2012. The share of value of production from small growers is larger in New York in comparison to the national market. Small growers' share of production in New York was 10.1% in 2013, which is higher compared to the 3.5% share of small growers nationwide. In New York, the value of production from small growers was 16.9 million dollars in 2013, similar to the production value in 2012; and the value from large growers increased to $166.6 million relative to 2012 (Table 10-8).

When reading the published U.S. floriculture and nursery crop statistics, it should be noted that only 15 states were surveyed by the USDA in 2006 and thereafter, compared to 36 states prior to 2006. Consequently, the data in Table 10-9 collected from 15 states include only California, Florida, Hawaii, Illinois, Maryland, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Texas and Washington. In 2013, the leading two states were still California and Florida, which account for

48% of the total wholesale value in the 15-States. Michigan ranked third, followed by Texas and North Carolina. These three states contribute 21% of the total whole sale value in 2013.

TABLE 10-8. WHOLESALE VALUES OF FLORICULTURE PRODUCTION, BY GROWER SIZE[a], NEW YORK AND UNITED STATES, 2011-2013[b]

	New York			U.S.		
	2011	2012	2013	2011	2012	2013
	------ *Million dollars* ------					
Small growers	19.6	17	16.9	144	132	150
Large growers	151.6	152.2	166.6	3,937	4,207	4,250
All growers	171.2	169.2	183.5	4,081	4,360	4,400

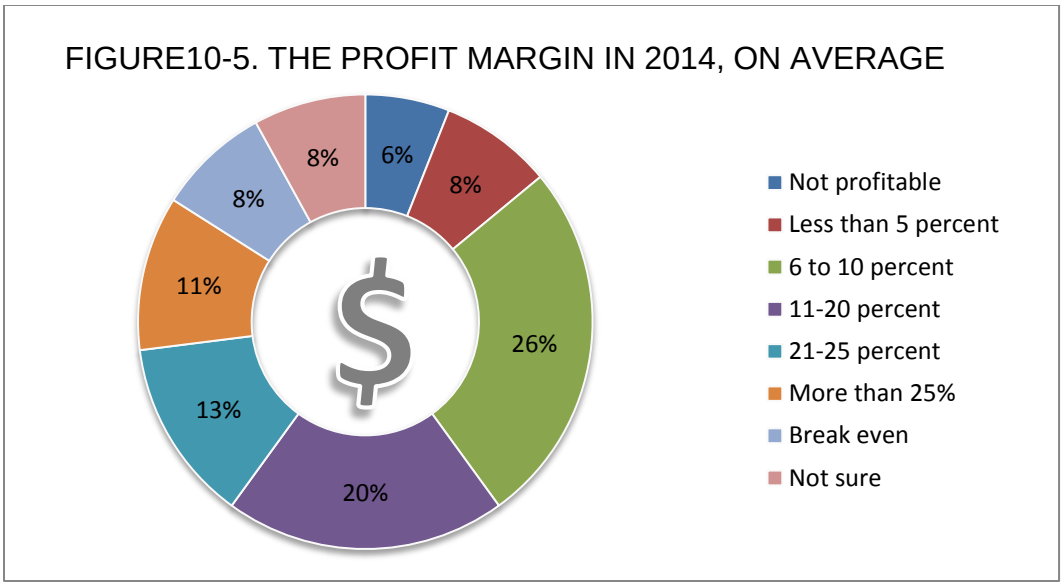
a Small growers have between $10,000 and $100,000 in annual floriculture sales; large growers have at least $100,000.

b Wholesale value of sales of growers with at least $10,000 in annual floriculture sales. Growers are located in the 36 surveyed states.

Source: Floriculture Crop, National Agricultural Statistic Service (NASS), USDA, 2014

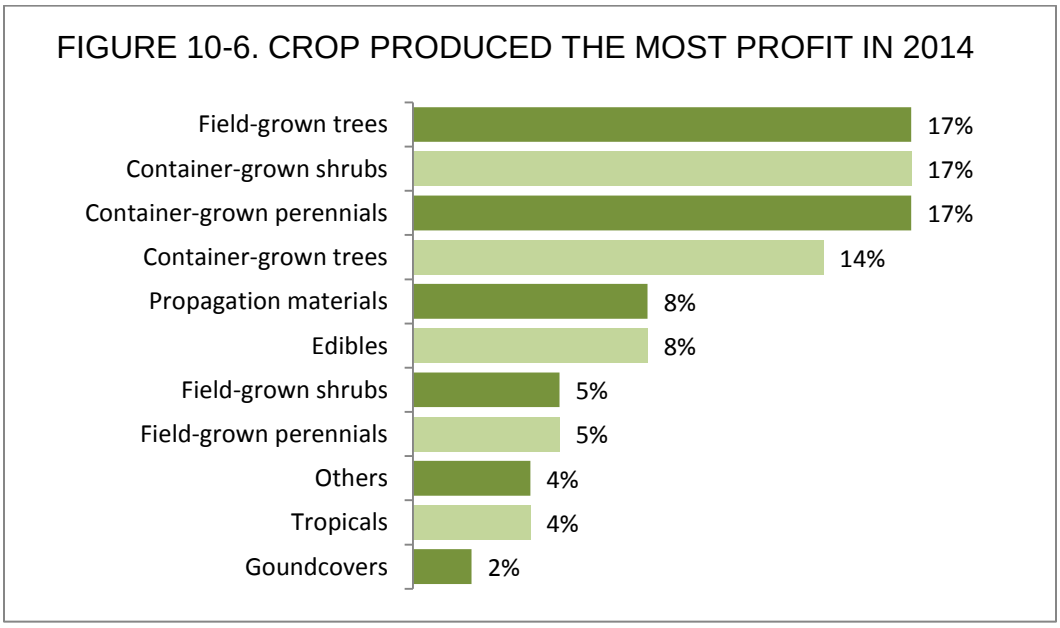
According to the Floriculture Crop 2014 summary report by NASS, USDA, the 2013 wholesale value of floriculture crops was $4.4 million in 2013, up 4% compared with 2012. The crop value at wholesale for growers with $10,000 or more in sales was estimated at $4.25 billion for 2012, up 1% from 2012. These 15 states only comprised 42% of all producers but the wholesale values accounts for 97% of total wholesale values in 2013. The wholesale value of all bedding and garden plants was $1.96 billion, up slightly from the previous year. Potted flowering plants for indoor or patio use, were valued at $778 billion in 2013, up 6% from the previous year. Potted herbaceous perennials were valued at $602 dollars, up 5% from 2012. The value of 2013 foliage plant production, at $631 million, down 1% from the previous year, and Florida continues to dominate this category with 72% of the total value. The value of cut flowers, at $419 million, was down slightly from 2012; while cut cultivated greens, increased to77.2 million, up 2% from 2012.

Regarding nursery crops, after experiencing some progress from 2012 to 2013, *Nursery Management State of the Industry* 2014 points out that sales and profit margins continued to increase in 2013. More than half of growers indicated an increase in sales and in profitability in 2014 relative to 2013, though majority of the grower were on the lower end at 1-9%. The report reveals that more than 50% of growers indicated that their profits went up, 31% of growers reported no change. Regarding profit margins in 2014, 34% of the growers stated that they had a profit margin between 1-10%; 20% of growers enjoyed profit margins ranging from 10 to 20 %; and 24% of growers reported profit margins above 20%. 6% of respondents reported that they were not profitable in 2014 (Figure 10-5). The *Nursery Management* reports that the growers are very confident about the increase in the market demand for nursery product in 2015. Over 80% of those surveyed predicted a growth in their profit levels at varying degree in 2015; and about 19% of growers are forecasting a decrease in profit levels.



Source: Nusery Management, State of the Industry 2014

In 2014, growers reported that the most profitable crops were container-grown shrubs (17%), container-grown perennials (17%) and field-grown trees (17%), followed by the contained-grown trees (14%) and propagation materials (8%) (Figure 10-6). Compared to 2013, the profit for field-grown shrubs, field grown perennials and container-grown trees increased by 2%, 4% and10%, respectively. The other crops all experienced a decline in profit margin.



Source: Nusery Management, State of the Industry 2014

Many growers in the north/central region of the U.S. already have or will plant more area in 2014 compared to 2013. The report also indicates that, surprisingly, 34% of growers are planning to grow more propagation materials in 2015. Almost 31% of respondents said they plan to increase production of

perennials. This is good news, in comparison to the negative trends experienced by the sector in recent years. Increased production varies by type of product: about 30% of those surveyed are increasing contain-grown shrubs; nearly 26% of growers are planning to increase production of contain-grown trees in 2015 given that contain-grown trees experienced a profit jump in 2014; and 24% of growers plan to increase production of edibles. However, about 18% of respondents report they plan to grow fewer filed-grown trees in next year. Overall, trees and shrubs are doing better and contribute significantly to profitability. Respondents are anticipated that there will be a shortage in 2015 of field-grown trees, contain-grown trees and propagation materials.

Outlook

Similarly to last year, economic indicators suggest that ornamental growers are experiencing a period of steady sustained growth. Even though the economy is currently not normal by historical standard, it will be better than in recent years. Therefore the recovering economy could provide some support for ornamental industry to grow. However, the economy in 2015 will not be strong enough to save poorly managing operations. The local economy is important for ornamental growers; however, the driven force is still the national economy.

The production of the ornamental crops will increase in the coming 2015, driven primarily by improved economic conditions and by new residential construction being the brightest part of the economy. In 2015, housing starts could number 1.29 million in 2015, a 26% increase from 2014. The expected household income gain is the primary driven factor for the growth of the ornamental industry. Over 80% of growers are very confident that the nursery market will be very promising in 2015, but they seem to be very careful with the capital expenditure. Around 40% of respondents ate not budgeting for an expansion project in 2015. For those who consider expanding in 2015, their budgets are less than $25,000.

The next couple of years will not be more challenging than the past five years. However, to maintain growth, suppliers should focus on understanding customer needs and having the right assortment of products. They need to learn to serve customers in innovative ways: as consumers continue to change, they need to change with them. Producers and retailers should not try to wait to react to change. Instead they should focus on anticipating consumer demand for the products and services offered by the industry. By doing so, the ornamental supply chain, including growers and retailers, would eventually be more customer-centered, more relationship-oriented, and more transparent.

In summary, growers need to understand the “driving forces” of the market in order to survive in the future. They must stay informed about the new trends affecting their business. Understanding and providing superior service to consumers is another essential aspect that growers should focus on in the coming years. In addition, it is important for growers to diversify their marketing mediums. Though email is the dominant marketing medium for most growers, they should also consider using social media (e.g., twitter, facebook), direct mail, faxes, online/digital ads, trade magazines, text messages and so on.

Looking ahead, growers will be focusing some areas that could yield the best possible gain in retaining or improving profit margins. Increasing crop price will be the primary measure for most growers to take for success in 2015, followed by introducing new plant, providing better quality control, offering a better product mix, implementing production efficiencies, providing better packaging and merchandising and so on.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2014-09	Dairy Farm Business Summary, Northern New York Region, 2013	($12.00)	Knoblauch, W., Dymond, C., Karszes, J., Howland, B., Murray, P., Deming, A., Balbain, D., Buxton, S., Manning, J., Collins, B. and A. Figueras
2014-08	Dairy Farm Business Summary, Hudson and Central New York Region, 2013	($12.00)	Knoblauch, W., Conneman, G., Dymond, C., Karszes, J. Howland, B., Buxton, S., Kiraly, M., Kimmich, R. and K. Shoen
2014-07	Dairy Farm Business Summary, New York Small Herd Farms, 140 Cows or Fewer, 2013	($16.00)	Knoblauch, W., Dymond, C., Karszes, J. and M. Kiraly
2014-06	Dairy Farm Business Summary, Western New York Region, 2013	($12.00)	Knoblauch, W., Dymond, C., Karszes, J., Howland, B., Hanchar, J., Carlberg, V., Kimmich, R. and J. Petzen
2014-05	Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2013	($16.00)	Karszes, J., Knoblauch, W. and C. Dymond
2014-04	Agriculture-Based Economic Development in New York State: The Contribution of Agriculture to the New York Economy		Schmit, T.
2014-03	Agriculture-Based Economic Development in New York State: Assessing the Inner-Industry Linkages in the Agricultural and Food System		Schmit, T. and R. Boisvert
2014-02	Dairy Replacement Programs: Cost & Analysis 3rd Quarter 2012		Karszes, J.
2014-01	Cost of establishment and production of V. vinifera grapes in the Finger Lakes region of New York - 2013		Gomez, M.
2013-17	New York Economic Handbook, 2014		Extension Faculty and Staff

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