July 1976 76-26

AN EXAMINATION OF DAIRY FARMER FUNDED NUTRITION EDUCATION PROGRAMS IN NEW YORK STATE

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INTRODUCTION

Dairy Farmers in the Federal Order II Milk Marketing Area spend close to $4 million on generic promotion efforts annually. These monies have historically been allocated in the following way:

Direct media advertising	54%
Local nutrition education	21%
U.D.I.A. payments	17%
Local program support	8%
	100%

During 1972-1975 research was conducted on the largest area of program expenditures--media advertising. Consumer attitudes toward milk and other beverages, beverage consumption behavior and the relationship between advertising and milk sales have been reported in previous publications. This report focuses on the second largest expenditure of dairy promotion funds--nutrition education.

Sections 1 and 2 describe the objectives, program activities, and time allocations for the 1974-75 year of the two Dairy Council organizations (Dairy, Food and Nutrition Council, and Dairy Council of Metropolitan New York) which carry out the local nutrition education programs. Information on the activities of these organizations was gathered through interviews of Dairy Council personnel and examination of their records.

The executive directors were involved in the data collection procedures at each stage. For example, both were invited to suggest alterations in the format used to allocate staff members' time; Mrs. Shafer indicated

several refinements in the categories used. Private interviews were held with each Dairy, Food and Nutrition Council staff member to complete the time summaries and provide further detail on activities engaged in. The Dairy Council of Metropolitan New York staff were also interviewed, with Mrs. Guiney present[1/]. After some additional computation on the time summaries, all were returned to the executive directors for review. The entire description of each organization was provided to the executive directors during June, 1976.

Section 3 presents a summary of the results of a mail survey of nutrition education practices among New York and New Jersey public school elementary teachers. A random sample of 4,500 teachers was mailed the questionnaires in January and February, 1976; 47% responded. The teachers reported their use of films and other audio-visual tools, their attendance at teacher-training workshops in a variety of subject areas, and their experiences teaching nutrition and foods. The information sources they consult and their interest in future nutrition workshops were also detailed. The results will be published as an Agicultural Economics Research paper (Cornell University).

An extensive review of the literature pertaining to nutrition education was undertaken and is presented in Section 4. The need for nutrition education is documented, and various programs for adults, health professionals, educators, and children were reviewed.

[1/] One DFNC nutritionist had recently left the organization; her weekly records were used to construct the time summary. One DCMNY nutritionist also had recently left; however, no records of her time were available for our use.

In order to better understand some of the programs cited in the literature, interviews and correspondence with certain local, state, and out of state nutrition educators were undertaken. Contacts included Dairy Council of California and Ontario Milk Marketing Board (Section 5), and Cooperative Extension/EFNEP personnel, a BOCES health coordinator, personnel in the State Department of Education--Division of Drug & Health Education Services and Bureau of Home Economics, U.S.D.A., and Division of Nutritional Sciences, Cornell University (Section 6).

Those areas of the ADA & DC of NY program which most closely relate to Dairy Council activities are described in Section 7. Information was obtained through one interview with Mr. Pinegar and Sandra Anglund and other written summaries which were provided.

A summary of the major points to be considered as a result of this report is included in Section 8.

DAIRY, FOOD AND NUTRITION COUNCIL, INC.

INTRODUCTION

The Dairy Food and Nutrition Council (DFNC) is a maturing organization offering thoughtful leadership to nutrition educators in northern New Jersey and upstate New York. Its objective is to use nutrition education[1/] to improve the dietary habits of individuals in its service area. DFNC was conceived in 1973 to improve the efficiency of dairy industry sponsored nutrition education programs[2/]. Through careful planning and extensive internal review it continually strives to increase the efficiency of its program execution.

1/ DFNC uses the four basic food groups, one of which is milk and dairy products, as the foundation of its educational activities.

2/ Prior to January 1974, five small autonomous dairy council programs were operating in upstate New York and northern New Jersey.

SECTION 1

The nutrition education program of the Dairy, Food and Nutrition Council has evolved since its formation in response to changes in its constituents--school children and adults--and in response to an increased understanding of their needs. In this respect, the aims of the educational arm of the DFNC program were formulated in part by the Food Practices Surveys carried out by DFNC; these gave the staff specific information on the food selection patterns and informational needs of elementary students in certain counties. Experimentation in program techniques has also characterized the DFNC program. For example, a pilot study was conducted in 1974-75 to determine the extent to which rural, outlying counties within the DFNC area could be serviced by mailing educational materials and other teaching aids to schools which could not efficiently be offered teacher workshops.

This latter approach is especially important in light of the huge audience DFNC is responsible for reaching. In 13 counties of Northern New Jersey and 50 counties of upstate New York, there are over 10.7 million people[3/], approximately 200,000 health professionals[3/], and over 150,000 school teachers[4/] with whom Dairy, Food and Nutrition Council might interact.

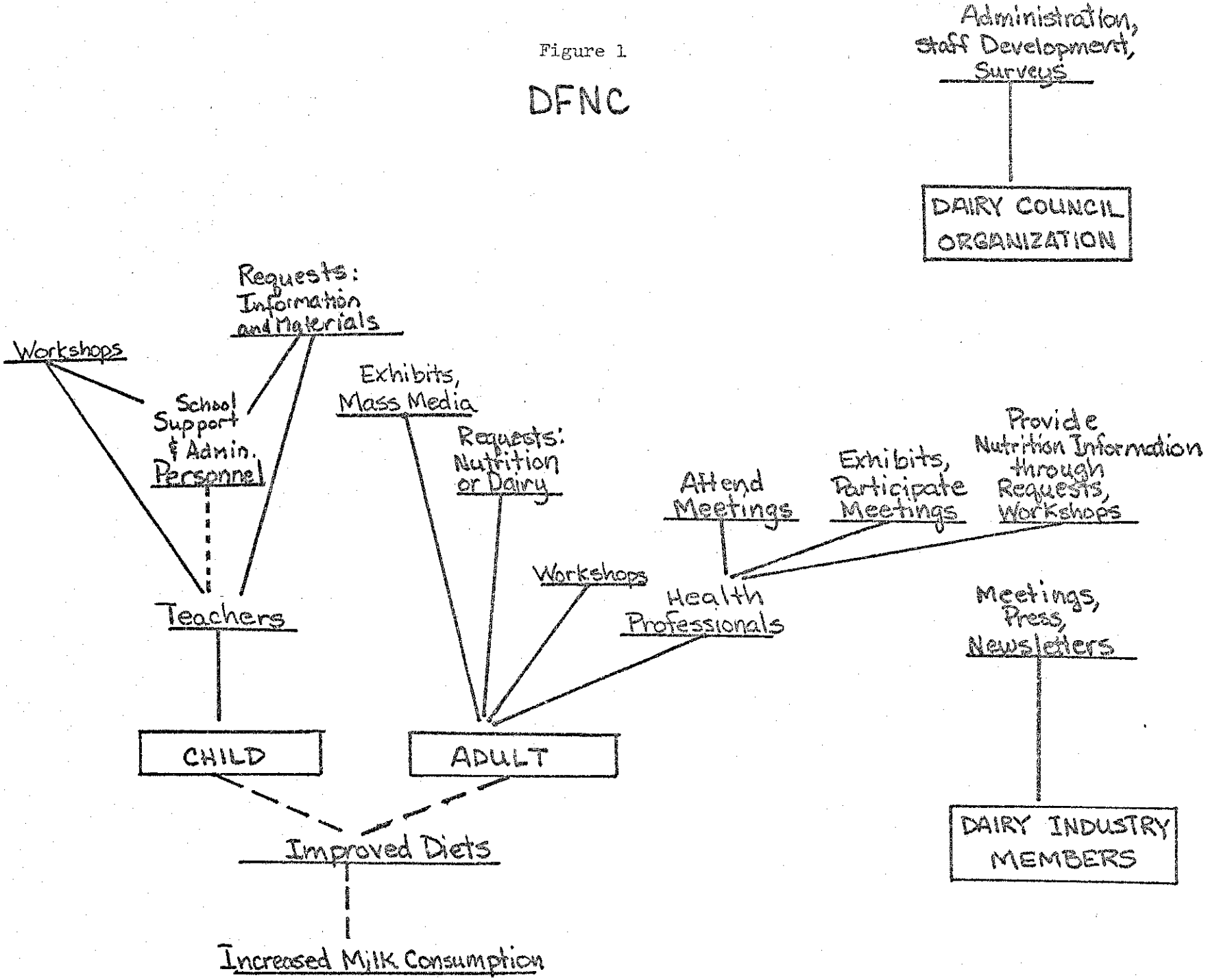
The methods used to reach this formidable audience are diagrammed in Figure 1, and while the program has continued to evolve since the 1974-75 period studied, the broad description of the program shown remains accurate.

3/ 1970 Census. Includes physicians, health workers (dieticians, registered nurses, dental hygienists, etc.), and health service workers (nursing and other health aides, practical nurses, dental assistants, orderlies, etc.).

4/ New York State and New Jersey Departments of Education and Digest of Educational Statistics, 1974, DHEW.

Figure 1

DFNC



As the diagram shows, DFNC programs are accomplished in part through direct contacts with adult consumers and children but most often through intermediaries who later are expected to pass on the information learned. These intermediary agents are used in the educational realm (school teachers and college classes), in the health professional field, and in the consumer area. The staff's frequent participation in professional health activities throughout their communities has produced professional ties and a strong reputation for the DFNC nutritionists and educators--both are important factors in the implementation of program activities.

DFNC programs have also been shaped by the existing office structure. Regional offices have been maintained in the four New York State cities in which Dairy Council offices existed prior to the consolidation: Poughkeepsie, Albany, Syracuse, and Binghamton. In each of these there is a program director[5/] and either full- or part-time secretarial help--with overall program coordination provided by the East Orange, New Jersey, main office.

Program areas may be described in terms of both inputs and outputs. Outputs include workshops, seminars and consultations provided, films shown, displays exhibited, media efforts and others--with the output goal the learning and improved dietary habits which result. Measureable inputs include both time and funds. Table 1 summarizes the expenditure of time during the July 1974-June 1975 period for nine professional staff members interviewed, and Table 2 gives separately the time summaries for the six nutritionists. While staff members are provided compensatory time off whenever their duties require more than the expected 35 hour week, the commitment of program personnel was exhibited in the longer-than-normal work hours reported for the year by several members. The staff

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5/ Since mid-1975, other professional staff positions have been filled in the Syracuse and Albany offices.

Table 1. DFNC TIME SUMMARY--PROFESSIONAL STAFF[1/]

Activity	Audience									
	Pre-K	K-6	General Educ. H.S.	College	Total Education	Consumer	Dairy Industry	Health Professionals	Staff Organizational Dev.	Total
Workshops--Presentation and Preparation	4.9%	9.0%	4.7%	.7%	19.3%	1.1%	.7%	1.3%		22.4%
Workshop and Materials Evaluation and Revisions		.4	3.0		3.4				.3	3.7
Meetings/Seminars--Participation and Preparation			1.1	1.7	2.8	1.0	3.2	4.4	.5	11.9
Attend Meetings/Seminars				.1	.1	.1	.6	3.9	3.7	8.4
Exhibits, Displays		1.3	.1		1.4	2.2	.3	.4		4.3
Mass Media			.1		.1	6.4	.5	.1		7.1
Administrative, Staff Development, Surveys		1.5	4.2		5.7	.5		.3	10.8	17.3
Office, Answering Requests			5.1	.3	5.4	3.8	.6	1.5	2.2	13.5
Research			.1		.1	1.6			1.8	3.5
Travel	- - - - - - - - - - - not assigned to specific audiences - - - - - - - - - - -									7.9
TOTAL	4.9	12.2	18.4	2.8	38.3	16.7	5.9	11.9	19.3	100.0%

1/ Professional Staff = Executive Director, Program Director, Communications Director, and six Nutritionists. A separate summary of the Executive Director's activities is given on Page 17.

Table 2 DFNC TIME SUMMARY--NUTRITIONISTS[1/]

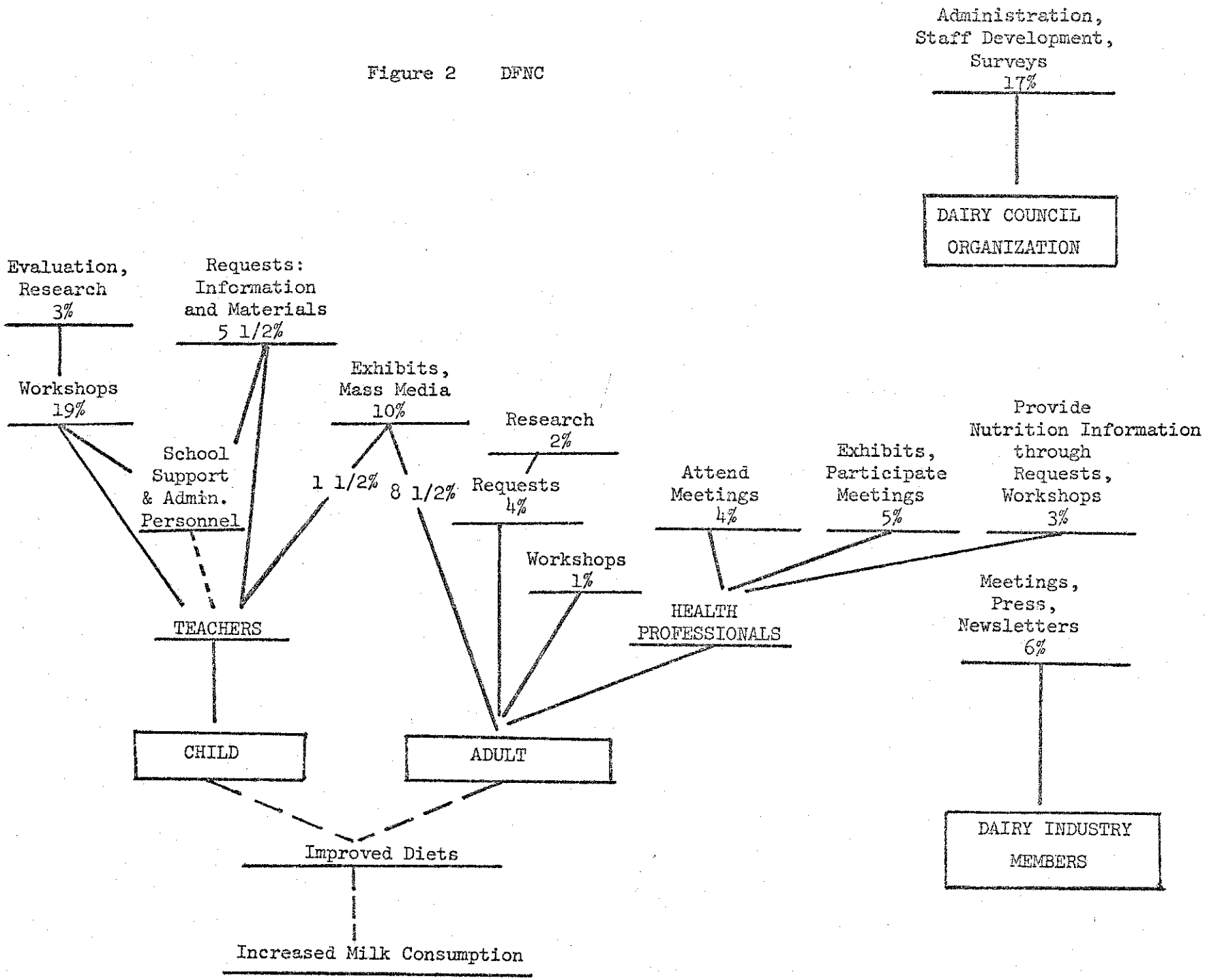
Activity	Audience									
	Pre-K	K-6	General Educ. H.S.	College	Total Education	Consumer	Dairy Industry	Health Profes-sionals	Staff Organiza-tional Dev.	Total
Workshops--Presentation and Preparation	7.6%	13.8%	2.6%	1.0%	25.0 %	1.2%	.3%	2.0%		28.5 %
Workshop and Materials Evaluation and Revisions	.1	.6	1.3		2.0					2.0
Meetings/Seminars--Partici-pation and Preparation			1.3	1.3	2.6	1.5	2.0	5.4		11.5
Attend Meetings/Seminars			.1	.1	.2	.2	.5	4.6	4.0	9.5
Exhibits, Displays		2.0	.2		2.2	2.2	.5	.6		5.5
Mass Media			.1		.1	2.2	.2	.2		2.7
Office, Answering Requests			7.2	.5	7.7	4.7	.5	2.3	1.3	16.5
Administrative, Staff Development		1.5	.7		2.2				8.9	11.1
Research			.2		.2	1.4			2.8	4.4
Travel	- - - - - - - - - - - - not allocated among specific audiences - - - - - - - - - -									8.3
TOTAL	7.7	17.9	13.7	2.9	42.2	13.4	4.0	15.1	17.0	100.0

1/ Total of six nutritionists

members' time was categorized according to specific types of activities. The professional staff spent an average of 22% of work hours on workshop preparation and presentation, plus 4% on workshop evaluations or revisions and 8% on travel--most of which was workshop related. Office work accounted for about 14% of staff time--much of it answering requests. Participation in meetings or seminars took slightly less time (12%); many of these were health professional or industry-related. A distinction was made between active participation in seminars (when the Dairy Council staff member either was involved in organizing the meeting or was on the program as a speaker or panel member herself), and attendance at meetings. About 8% of the staff's hours were involved in such attendance--approximately half of the meetings attended were health professional organizations' meetings, and half were seminars or classes that serve to develop the staff members' abilities through continuing education--including both university sponsored workshops or courses and NDC training sessions. Approximately 11% of the effort is devoted to mass media and displays or exhibits which directly reach consumers and health professionals. The remaining one-fifth of staff time was involved in research, administrative and staff development activities necessary for the efficient operation of the program.

Program efforts may also be described in terms of the audiences they reach. Audiences for program activities described in Table 1 and Figures 1 and 2 include the four that are used on Dairy Council Program Activity Reports: Educational (broken down into pre-K, K-6, 7-12 plus mixtures of teachers/administrators, and college groups), consumer, dairy industry, and health professional. An additional category was used to cover those activities contributing to the development of staff or the organization without being aimed at some other specific audience.

Figure 2 DFNC



As Figure 2 shows, work with educators has been the major focus of DFNC efforts--almost 40% of staff time and 35% of the funds available were allocated to this audience (Table 3). More than half of this effort was with the workshops that are offered to public school teachers to train them in using teaching aids, techniques and activities that will maximize the amount of learning taking place, and that should ultimately lead to behavior change in the form of better food choices. These workshops are carefully monitored and progress is continuously assessed through testing of the teacher before and after the workshop, and teacher and student surveys. Such survey work accounted for an additional 3% of staff time; other workshop evaluations were an additional 3%. The informational service provided by DFNC to teachers was also an important part--almost 6% of the total. The remaining time working in the educational area was spent on exhibits and administrative functions. These activities are described in more detail in Section 2.

Health professionals also were a major audience--about 12% of staff time and 13% of available funds were spent here. The largest part of this work involved participation or attendance at health organizations' meetings. Such contacts are maintained partly in order to help legitimize other programs of the Dairy Council nutritionists. Since Dairy Council, rather than limiting its efforts to increasing the consumption of dairy products, promotes improved health through balanced dietary intakes, it is important for staff members to be recognized by other health professionals as professionals interested in a variety of nutrition areas. Participation in community and state nutrition organizations provides the wide background and experiences for staff members that will facilitate their work within and beyond the professional community. Further discussion of DFNC's work with health professionals appears in Section 3.

Table 3

DFNC 1975 Budget

Income	$414,800	
Expenses		
Program activities and direction[1/]		
Professional	47,000	11.3%
Educational	143,000	34.5
Consumer	50,100	12.1
Dairy Industry	20,600	5.0
Administration--program personnel	33,400	8.0
NDC meetings, communications, auto	20,950	5.1
Affiliation fees	22,150	5.3
	$337,200	81.3%
Office Operations		
Personnel, rent, supplies, legal	$ 77,600	18.7%
Total Expenses	$414,800	100.0%

[1/] Program personnel expense is allocated among program areas. The total budget for program personnel was approximately $176,000. Office personnel was approximately $47,000.

Consumers are the recipients of the second largest effort--approximately 17% of the staff's time and 12% of the budget were devoted to work answering requests (about 4%), working with the mass media (7%) and presenting exhibits (almost 2%). One part of the mass media effort has been a Media Writer's Conference coordinated by the DFNC Communications Consultant. Occasional workshops and meetings were given for consumer leaders and some research to answer questions was needed as well. Further description of these activities is in Section 4.

DFNC communicates with dairymen both to keep them up to date on nutrition research relating to dairy products, and to explain in detail the types of activities the DFNC staff undertakes through dairy sponsorship. Approximately 6% of staff time and 5% of the budget was involved with reporting at dairy industry meetings, writing for the dairy press, and regularly providing newsletters to dairy leaders describing the DFNC activities.

The final 19% of staff time was accounted for by the administrative tasks and meetings which serve staff or organizational development purposes. Staff meetings, record keeping and report writing, staff-development classes, seminars and reading, budgeting, program priority discussions, and the other related administrative tasks necessary for operating five offices are included in this figure.

SECTION 2--EDUCATIONAL

The major force of DFNC efforts is in the educational arena, and teacher training in nutrition through short workshops presented by DFNC nutritionists is an important part of this program area. Educators accounted for two-thirds of those participating in DFNC workshops during 1974-75 and another 18% of the participants were college students, many of whom are future educators (Table 4). Workshops are given for all age levels, though the bulk of the effort is with the K-3 and 4-6 grade level teachers. In the different DFNC offices the distribution varied somewhat--some concentrating more on pre-K or on 7-12 workshops during 1974-75, for example. While the majority of participants were classroom teachers, some administrators, health educators, school nurse teachers, and food service personnel also attended workshops.

The average size of the teacher workshops was 18-20 teachers, most commonly lasting four to six hours and often given in two or three sessions. Most workshops were given after school hours although sometimes arrangements can be made to conduct workshops on a Superintendents' Conference Day or other release time. Few were given on Saturdays since attendance has tended to be poorer. While credit seems to be a strong incentive for teacher participation in workshops, the decision to award credit for attendance at a workshop is made by individual school districts and thus is not within the control of DFNC. The number of credit hours needed for salary increments also varies across districts. The staff has noted that progressively fewer teachers will

TABLE 4

WORKSHOP PARTICIPANTS--JULY 1, 1974 - JUNE 30, 1975
DAIRY, FOOD AND NUTRITION COUNCIL, INC.

1. Educators			
A. Pre-school	538		
B. K-6	945		
C. 7-12	347		
D. Administrators	94		
E. Special education	2		
F. College instructors	4		
G. Health educators	101		
H. Food service workers	278		
I. Teachers aides	13		
J. School nurses, nurse teachers	159		
		2481	69.3%
2. College Students			
A. Elementary education	259		
B. Nutrition or nutrition education	223		
C. Dental Hygiene	54		
D. General	101		
		637	17.8%
3. Health Professionals			
A. Hospital nurses	83		
B. Nutrition aides	35		
C. Dental hygienists	12		
		130	3.6%
4. Adults			
A. Parents	61		
B. PTA leaders	85		
C. General	97		
		243	6.8%
5. Dairy Leaders	91		
		91	2.5%
TOTAL		3582	100.0%

attend workshops on their own personal time unless credit is offered. Also, it was noted that while school nurse teachers represent a valuable group, they would usually attend workshops only with graduate credit, since their salary increases generally depend on college credit rather than in-service credit.

Travel time is an important factor in workshop scheduling because teachers are generally unwilling to travel long distances and so in rural areas it is sometimes difficult to gather enough teachers for a workshop. Also, the four upstate DFNC offices can efficiently give workshops only in schools comparatively close to the office. No workshop solicitation has been undertaken in the western and northern counties in the past because of the investment in travel that would be necessary[6/], although occasionally workshops have been held in these areas. In other areas, workshops are arranged through personal contacts and through cooperation with BOCES or Cooperative Extension personnel. Mass mailings have not been used to solicit workshops since there is not sufficient staff to follow through on such an undertaking.

Teaching materials are provided by DFNC at all nutrition workshops free of charge. Frequently, one set of materials will be left with the school nurse or school learning/resource center; one estimate of the cost of these materials to DFNC was approximately $15-20 for the K-3 set and approximately $10 for the 4-6 set. In addition to these, each participant receives certain of the materials demonstrated at the workshop--posters, pamphlets and/or activity pieces for her class. Other requests for materials are generally filled by sending enough for one class and making larger amounts available at cost. Films and filmstrips are

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6/ In St. Lawrence County a pilot project was undertaken to determine the costs of servicing outlying counties by making a "mini-catalog" of DFNC materials available to all schools. Administrators were visited by DFNC staff and urged to place the catalog and order forms with their teachers. Given the 30% response rate from teachers, mailing packets of materials at $3 each to teachers in 13 production counties would cost $4000; in 13 marketing area counties an additional $4000 would be needed, and Essex, Rockland and Bergen counties would require $12,000.

also an important part of the workshops and are occasionally left at the school following the workshop for the teachers' use and later returned to DFNC.

Subjects covered during the workshops vary according to the needs of a particular audience. There is a standard program on general nutrition that is used for most K-3 or 4-6 workshops, though for junior and senior high groups particular stress may be placed on weight control, health foods, dental health, or other subjects that the participants request.

Another facet of the DFNC nutrition educational effort is the various projects and exhibits that are loaned to schools free of charge. These require comparatively little staff time; scheduling and occasionally transportation or personal instructions are the only input necessary. Animal feeding demonstrations require the most monitoring by staff, and are often forbidden by school administrators so they have been used principally only in one area (Poughkeepsie). Ice cream and butter making kits and dairy farm models are available for school use. These are generally scheduled and transported by local school district personnel.

Films are used by the DFNC office as an easily available teaching tool; one which requires little teacher preparation and which will not be affected substantially by a teacher's inadequate nutrition background. They have been used extensively by the DFNC staff--the number of viewers during 1974/75 is given in Table 5. In 1975 there were approximately eight titles in use with numerous copies of each--all in nearly constant use by schools. A booking agency, local BOCES offices, and county audio-visual organizations are used to assist the DFNC offices in booking films. This makes it possible to spend a minimum of staff time on handling, scheduling and mailing such films. Film use is not charged for.

TABLE 5

DFNC FILM SUMMARY

	Educ. Showings/Viewers	Cons.	Prof	Total
July 1974	10/378	4/200	1/ 50	15/ 628
August 1974	15/500	2/ 44	3/191	20/ 735
September 1974	170/7292	2/52	3/150	175/7494
October 1974	452/17206	6/301	8/425	466/17932
November 1974	534/17804	3/211	7/235	544/18250
December 1974	489/26128	1/ 9	2/ 71	492/26208
January 1975	379/10497	3/135	9/380	391/11012
February 1975	502/16127	5/250	4/114	511/16491
March 1975	427/14405	6/282	15/624	448/15311
April	424/16369	8/428	10/337	442/17034
May 1975				394/22469
June 1975				492/17496
				4390/171060

MILKMOBILE SUMMARY

	# Schools	# Classes	# Pupils	Malls/Fairs
July 1974				4/12,879 19,391
August 1974				4/57,530
September	4	38	984	
October	29		8,447	
November	94	135	9,590	
December	12	159	4,455	
January 1975	10	112	2,389	
February	15	184	3,965	
March	16	193	4,351	
April	13	75	1,902	
May				17,005
June				

Exhibits and displays are used by DFNC to efficiently present a nutritional or dairy message to large numbers of students. The Milkmobile is the most widely used exhibit and reached over 36,000 children and 90,000 consumers in 1974-75. (Number of viewers is given in TAble 5.) The mobile unit summarizes the production of milk on a dairy farm, the processing which it undergoes, and the nutritional importance of dairy products. The Milkmobile is partially supported by the Garden State Milk Council; from September through May it is used at schools throughout the two states, and during the summer it appears at shopping malls, county fairs, and the State Fair[1/].

DFNC also services colleges through a field study program with home economics and dietetics students, in which the students work with DFNC staff members for credit in related courses. Perth Amboy, Montclair, Douglas and Plattsburgh all have requirements for community nutrition experience and arrangements are made with them. During spring, 1974, an unpaid intern functioned as a staff member for ten weeks.

1/ The Milkmobile was not in use during the 1975-76 school year.

SECTION 3--HEALTH PROFESSIONALS

Work with health personnel serves a dual purpose in DFNC's nutritional education efforts. First, DFNC through written material, seminars, workshops, exhibits, and personal conferences hopes that health professionals will be better informed nutritionally. Second, the active interest taken by DFNC staff members in diversified health activities helps to facilitate their acceptance as well-balanced professional nutritionists in their work with educators.

An important aspect of the services DFNC offers to health professionals is the provision of educational material such as Dairy Council Digest and Nutrition News. These periodicals provide current information on nutrition research and nutrition or dairy product topics. Other written materials are provided as well. DFNC personnel also are available to offer consultation services to health professionals regarding diet and particularly the role of milk and dairy products in special diets.

Seminars, lectures, and other programs for dieticians, physicians, and dental and medical schools are a major part of the Dairy Council effort--approximately 500 health professionals participate each year. Topics have included childhood obesity, teenage nutrition, food beliefs and fads, and maternal nutrition. Often seminars are co-sponsored by regional dietetics associations, county Red Cross Chapters, county medical societies, local medical schools, or home economics associations. Guest lectures are also sponsored at medical and dental colleges; three physicians and dentists gave such one or two day presentations during 1974-75.

Another technique used to increase the health professional's exposure to accurate nutrition information and increase awareness of DC is the preparation of

exhibits and displays at professional meetings. Past exhibits have dealth with general nutrition, nutrition research relating to dairy products, and the importance of dairy products in the diet.

The DFNC staff also gains useful exposure through their attendance at professional organization meetings to make personal contacts, to remain up-to-date on current developments in the health field, and for the professional enrichment of the individual staff member. Between 5% and 10% of staff time is devoted to attendance at meetings of various professional organizations. The list of affiliations is extensive and includes home economics, health, dietetics and nutrition-related organizations such as NYDA, NJDA, NJHEA, AHEA, NYSHEA, State Nutrition Council, Home Economists in Business, and Society for Nutrition Education.

SECTION 4—CONSUMERS

An important part of the Dairy, Food and Nutrition Council's role as a service organization is its availability as a resource for nutrition, food, and dairy-oriented information. Requests for educational materials, for general or specific nutrition information, or for answers relating to the value of milk and dairy products or their use in particular diets are received frequently and handled by all staff members.

The mass media is extensively used to provide consumers with food and nutrition information. Publicity of special events--such as Nutrition Week or June Dairy Month--incorporates some discussion of various nutrition topics, and news releases are written on milk and nutrition news and research developments, throughout the year. Publicity which combines nutrition and dairy industry news serves to extend the public relations aspect of DFNC's task. Both radio and television interviews are conducted with Dairy Council personnel, dealing both with the uses and care of dairy products, and with more general nutrition topics. Arrangements are made for National Dairy Council spots such as "Dr. in the Kitchen," other nutrition radio messages, and public service spots to appear in New York and New Jersey newspapers and radio stations.

Another method used in 1974-75 to disseminate nutritionally-oriented material to the general public involves conferences with those media personnel most closely involved with food and nutrition writing. An annual Media Writers' Conference provided nutrition information to food editors to stimulate the use of dairy product information and recipes. Topics included nutrition in pregnancy, dental health, coronary heart disease, and health foods.

The Dairy, Food and Nutrition Council also provides some workshops to consumer groups, although this audience only accounted for 7% of all workshop participants. Groups participating have included home aids, nursing home proprietors, an alcoholic rehabilitation class, and an adult consumer education class. Topics presented to these groups vary according to the particular interests of the participants--general nutrition, health foods, weight control, or some other area. Films are often used in these workshops and in other adult presentations.

Consumers also receive DFNC information through viewing of exhibits such as the Milkmobile, and other public appearances. At the New York State Fair, for example, the DFNC staff are available to answer questions and supervise use of the Quiz Machine, viewing of the Milkmobile, and other nutrition exhibits. These convey information on the economics of the dairy industry in New York State, and the nutritional value of milk and dairy products and show DC educational materials. The industry's annual Dairy Open House which DFNC helped to plan is another opportunity for consumers and media persons to view a dairy operation and learn something of the economics and technology involved.

SECTION 5--COMMUNICATIONS WITH DAIRY INDUSTRY MEMBERS

The Dairy, Food and Nutrition Council actively communicates with dairy farmers concerning its program, in an effort to comprehensively report to the dairy industry on the use of their funds. Staff members attend producer meetings, farmers' cooperatives, other farm groups, and the ADA & DC of NY annual meeting in order to fulfill this reporting function. Discussion of program accomplishments and displays outlining the Dairy Council activities are often included at such meetings.

The DFNC annual meeting also gives the staff an opportunity to present to dairy farmers a summary of the year's activities, the budget for the coming year, and to demonstrate some of the nutrition teaching techniques used.

Dairy farmers are also reached via the dairy press--news releases and articles (on DFNC activities, dairy products and nutrition research) are produced and distributed to dairy publications. A one-page newsletter summarizing the Dairy Council's activities is also compiled and distributed to 275 farmers[8/] approximately six times a year to keep them aware of program activities.

A more minor area is the annual workshop given for Dairy Princesses to provide them with nutrition information on dairy products. This serves both to remind the farmers of Dairy Council's presence and to distribute more complete and accurate information about the value of milk to the consumers who come into contact with the Dairy Princesses.

[8/] The majority of these are DFNC Area Committee Members, DFNC Board of Directors, Advisory Board, ADA & DC of NY Board.

Two Dairy Wives Seminars also served to highlight methods and information used with consumers, teachers, health professionals. These explained what Dairy Council does and how to provide milk as part of a nutritionally adequate diet. This area has been discontinued for 1976.

Table 6.
TIME SUMMARY—EXECUTIVE DIRECTOR
DAIRY, FOOD AND NUTRITION COUNCIL, INC.

Days	Percent	Description of Activity
70	27.8	Program development and delivery--this includes speeches made on occasions such as Bergen County and Essex County school administrators seminars, lecture to a Rutgers University graduate nutrition seminar and activities such as the NDC Joint Advisory Committee, the Hospital-Based Dietary Practices Survey, Nutrition Council, Evaluation Study, New York State Fair exhibit, New York State Food Conference, and personal conferences.
41	16.2	Staff--this includes recruitment, orientation, and training of new staff members, continuing education of experienced staff members, staff conferences, and individual counseling of staff members on program.
40	15.9	Industry--this includes preparation for and actual time in Board of Directors meetings, individual conferences with Board members, preparation for and time for the DFNC Annual Meeting, attendance and participation at other industry meetings.
101	40.1	General Administration--this includes the general management of the affiliated unit: planning, scheduling, delivery of services, keeping and analysis of records, writing reports, correspondence and general handling of mail, recruitment and training of office personnel, financial management.
252	100.0%	

DAIRY COUNCIL OF METROPOLITAN NEW YORK, INC.

Introduction

Dairy Council of Metropolitan New York (DCMNY) is an aggressive team of professional nutrition educators combating nutritional biases and illiteracy. The Council confronts the problem of nutritional illiteracy through service as a nutrition resource agency not only for groups and organizations within metropolitan New York but also for regional and national media. Through the elimination of nutritional illiteracy DCMNY hopes to improve the quality of New Yorkers' diets.

SECTION 1

To influence the diets of eleven million through nutrition education programs implemented by DCMNY's staff of seven professionals is a seemingly impossible task. With the resources available to DCMNY reliance on direct interaction with consumers obviously could not yield the desired impact[1/]. They instead work through intermediaries to multiply the effectiveness and productivity of their inputs. Figure 1 provides a schematic representation of the intermediaries and pathways used by DCMNY to get the message of nutrition education through to consumers--both children and adults. The figure shows that certain of the program efforts aimed at affecting the audiences' food choices are accomplished by approaching adults or children directly--usually through the mass media, exhibits, or by providing answers to an individual's questions. For the most part, however, the activities diagrammed entail either teachers or health professionals as intermediary agents. Even the task of working with these intermediaries is a formidable one: for example, the eight-county region has over 125,000[2/] public and private elementary and secondary school teachers and 185,000 health workers[3/].

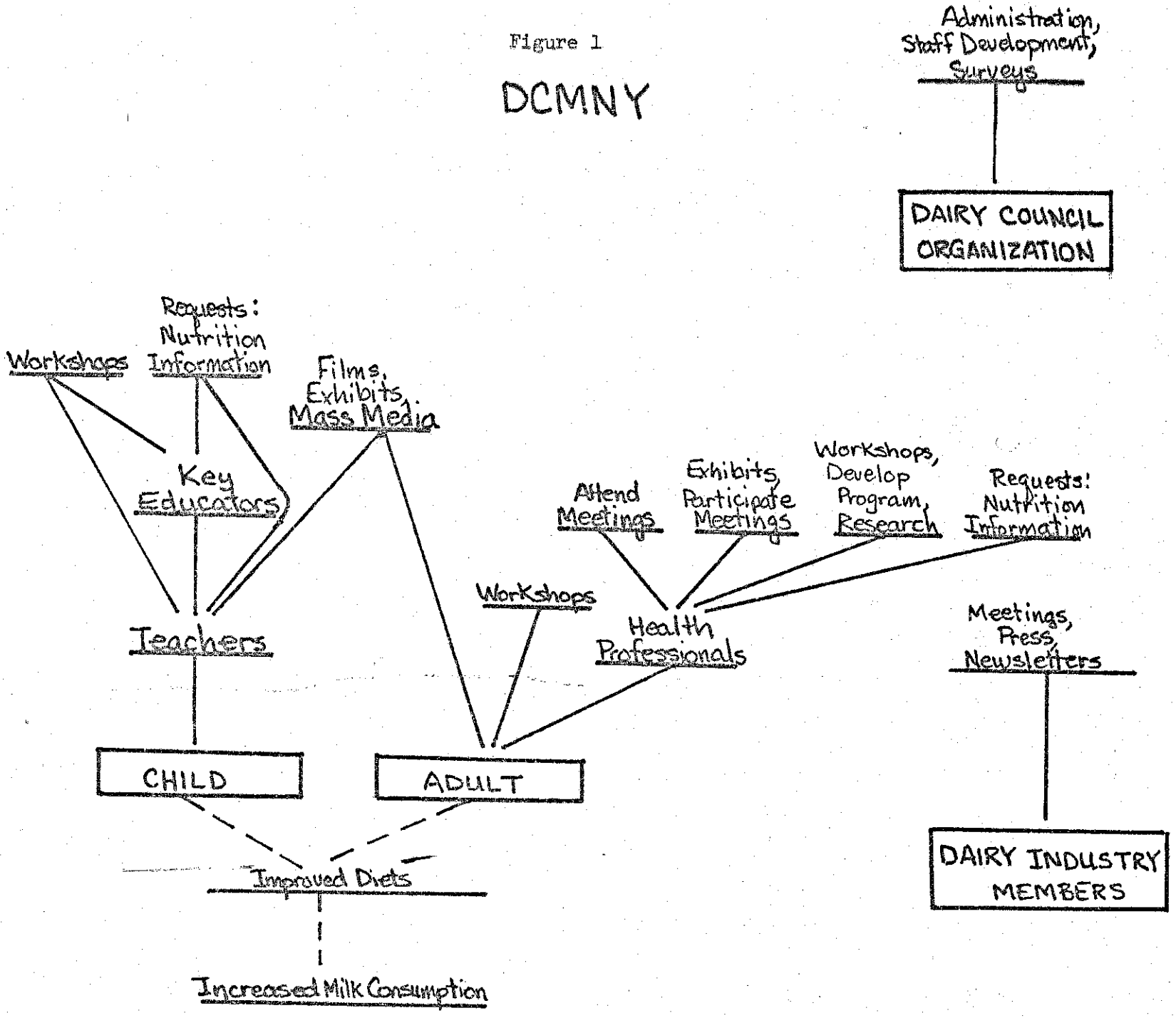
1/ In New York City there is a federally-funded nutrition program, EFNEP, designed to improve the diets of low income people through direct one-to-one relationships. This program has been in existence for seven years, and currently has 280 aides (full-time equivalents) working with 11,000 families in New York State. Even with this intensive effort only very modest short-term behavior changes have been observed. References 4,12,13,and 26 in the Review of Literature give further detail.

2/ New York State Department of Education and Digest of Educational Statistics, 1974, DHEW.

3/ 1970 Census figures.

Figure 1

DCMNY



Due to several outside factors, work with teacher intermediaries is not always easy to execute. Unionization, lack of release time for in-service training, frequent teacher turnover, unsafe conditions in the schools and drastic cuts in school staffing and health educators all combine to make DCMNY's task a difficult one. Such barriers have been important factors in shaping the current program.

The following description of budget and program activities for DCMNY covers the period July 1974 - June 1975. While some changes in the technical aspects of the program have occurred during the last twelve months, the basic structure shown in Figure 1 continues to be an accurate representation of general program activities.

One measure of the relative importance of each of the DCMNY's program activities is the appropriation of staff time and funds. Tables 1 and 2 show the breakdown of professional staff work hours for July 1974 - June 1975. Ten general types of activities were identified which would encompass essentially all Dairy Council efforts; the four principal audiences for these activities were educators (Pre-K, K-6, high school, college, universities, and other mixtures of educators), consumers, health professionals, and dairy industry members. The 1975 budget (total of $461,320) is used in the following discussion and is summarized in Table 3.

Staff members of DCMNY comprise basically three groups: administrators (executive director, assistant director/director of communications, and program director--all three having nutrition backgrounds), four nutritionists[4/] and secretarial/support personnel. Office policies allow each staff member ten days vacation each year. Since some programs, workshops, and exhibits

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[4/] One of the four nutritionists left the organization in mid-1975 and was unavailable for interviewing by Cornell staff.

Table 1

DCMNY TIME SUMMARY--PROFESSIONAL STAFF[1/]

Activity	Audience									
	Pre-K	K-6	H.S.	Universities and Colleges	Total Education	Consumer	Dairy Industry	Health Professionals	Staff Organizational Dev.	Total
Workshops--Presentation and Preparation	.6%	2.7%	1.2%	3.7%	8.2%	1.0%		2.0%	.1%	11.3%
Workshop and Materials Evaluation and Revisions	.4	1.1	1.5	.8	3.8	1.6		6.0		11.4
Meetings/Seminars--Participation and Preparation		.4	.4	.5	1.3	.4	2.6	3.0		7.3
Attend Meetings/Seminars						.1	.3	3.7	1.2	5.3
Exhibits, Displays	.6	2.8	.9	.3	4.6	1.1	1.1	1.6		8.4
Mass Media	.3	.2	.2	.1	.8	4.9	2.5	.2		8.4
Office, Answering Requests	.8	2.0	.9	1.0	4.7	1.1	.5	2.0		8.3
Administrative, Staff Development	1.0	2.4	2.3	2.0	7.7	2.7	2.0	2.3	5.9	20.6
Research	.6	1.1	1.2	1.3	4.2	1.4	.8	3.4		9.8
Travel	- - - - - - - - - - not assigned to specific audiences - - - - - - - - - - -									9.2
Total	4.3	12.7	8.6	9.7	35.3	14.3	9.8	24.2	7.2	100.0

1/ Professional Staff = Exec. Director, Assistant Director/Communications Director, Program Director, and three nutritionists.

Table 2

DCMNY TIME SUMMARY--NUTRITIONISTS[1/]

Activity	Audience									
	Pre-K	K-6	Universities and H.S.	Colleges	Total Education	Consumer	Dairy Industry	Health Professionals	Staff Organizational Dev.	Total
Workshops--Presentation and Preparation	1.5%	7.2%	2.5%	7.4%	18.6%	2.2%		2.6%		23.4%
Workshop and Materials Evaluation and Revisions	.3	.7	1.4	.4	2.8	.5		7.5		10.8
Meetings/Seminars--Participation and Preparation	.1	.2	.1	.1	.5	.2	.5	5.1		6.3
Attend Meetings/Seminars			.1		.1			4.5		4.6
Exhibits, Displays	.4	3.1	1.1	.2	4.8	1.4		1.0	1.5	8.7
Mass Media										.0
Administrative, Staff Development	.8	2.3	1.9	2.1	7.1	.6		2.1	3.1	12.9
Office, Answering Requests	1.3	4.2	1.5	1.5	8.5	1.2		3.6		13.3
Research	.3	1.2	1.0	.7	3.2	.4		2.9		6.5
Travel	- - - - - - - - - - not assigned to specific audiences - - - - - - - - - -									13.5
Total	4.7	18.9	9.6	12.4	45.6	6.5	.5	29.3	4.6	100.0

1/ Total of three nutritionists.

Table 3

DCMNY 1975 Budget[1]

Income	$461,300 [2]	
Expenses		
Program activities and direction[3]		
Professional	96,800	21.0%
Educational	125,100	27.1
Consumer	58,500	12.7
Dairy industry	21,600	4.7
Administration--program personnel	8,000	1.7
NDC meetings, communications, auto	11,500	2.5
Affiliation fees	22,600	4.9
	$344,100	74.6%
Office operations		
Personnel, rent, supplies, legal	$117,200	25.4%
Total Expenses	$461,300	100.0%

[1] Approximately $40,000 of the funds budgeted for 1975 were carried forward into 1976.

[2] This figure does not include approximately $6550 interest income and $6400 income from sale of services.

[3] Program personnel expense is allocated among program areas. Total program personnel cost was approximately $134,000. Office personnel was approximately $54,000.

occur during the evening or on weekends, compensatory time off is provided in order to maintain the 35-hour work week expected of staff members. Two administrators (executive director and assistant director/director of communications), however, have chosen not to limit themselves to the prescribed work hours since their actual work hours were substantially over the number of hours expected in one year (1750 hours). This enthusiasm and concern was evident throughout the discussions of program activities with each staff member.

The ten types of staff activities indicated in Table 1 show the diversity of DCMNY's program. Approximately equal time was given to the implementation and creation/revision of the workshop portion--together these activities represented the largest time investment (23%). The staff's participation in seminars represented 7% and somewhat less time (5%) was spent in attendance at other meetings the staff member was not actively involved with. In both cases many of these meetings were of health professional groups. Work with exhibits, displays and loan projects required about 8% of staff time--much of this for student and educator groups. An equal amount of time was spent on mass media efforts though here the focus was on adult consumers. The task of answering requests for information and handling correspondence also required approximately 8% of staff time. One-fifth of the staff's time was devoted to administrating the various portions of the program--record keeping, staff meetings and management, program planning and other administrative tasks are time consuming but necessary. The research needed to build new programs soundly and keep staff and current programs up to date required about 10% of staff time. The travel necessary for program implementation accounted for the final 9% of staff time.

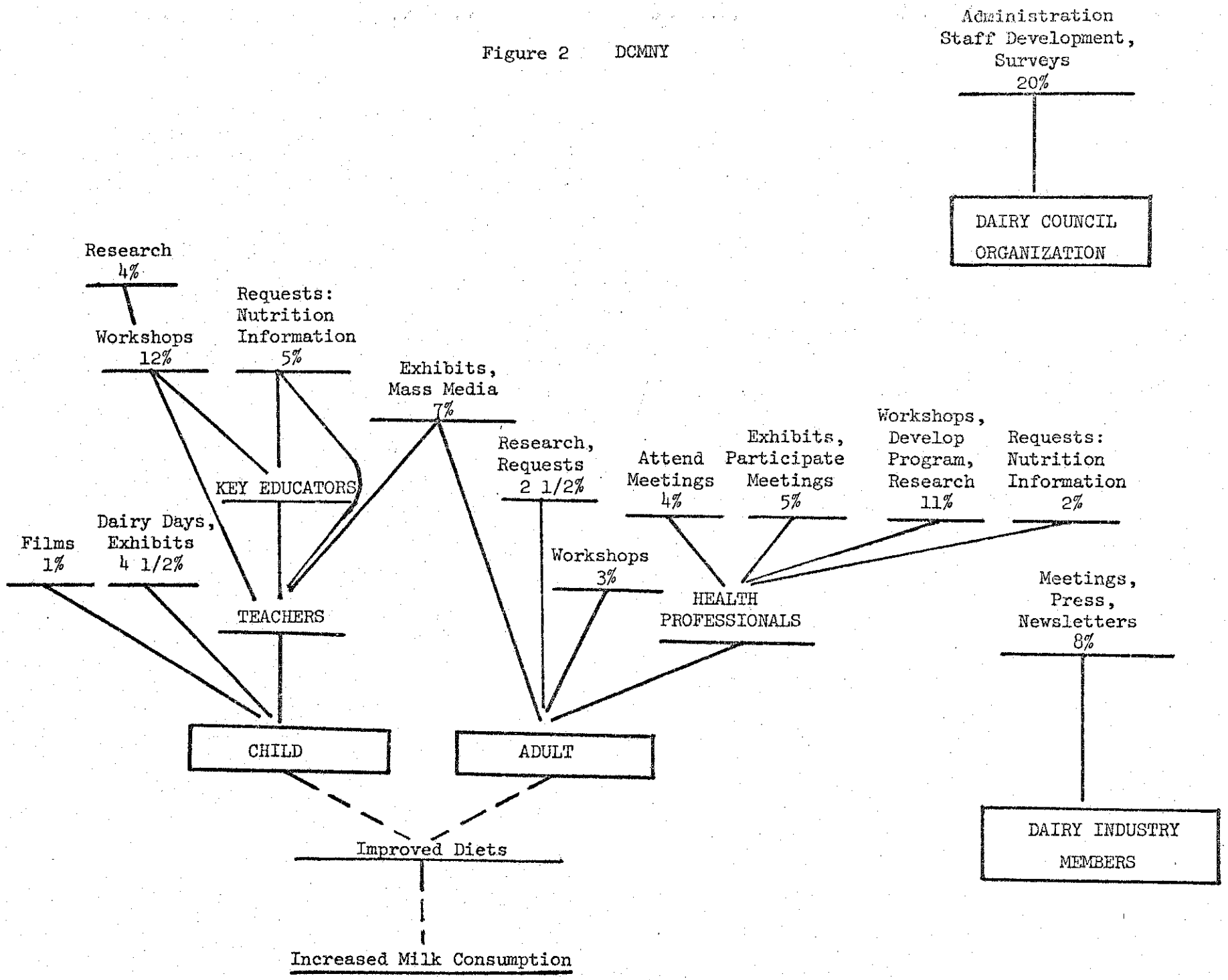
The DCMNY program also may be described in terms of the audiences it reaches. The largest portion of DCMNY programming has been aimed at

educators; over one-third (35%) of the professional staff's time and one-fourth (27%) of the budget are devoted to this audience. As the schematic description of activities shows (Figure 2), the exhibits (Dairy Days, etc.) and films (Romper Room and others shown in the classroom) reach the students directly; these account for about 5 1/2% of staff hours. About 12% is devoted to workshop preparation, presentation, evaluation and revisions and, since much of the 9% of time spent in travel is workshop-related, the actual time involved with workshops is close to 20%. Figure 2 also points out DCMNY's involvement as an information source for teachers--much of the 5% of time defined as "office" work is used in answering requests for information on nutrition or the dairy industry which come to DCMNY from teachers. Office, administrative, and research tasks necessary for carrying out the educators' program account for the remaining staff time. Section 2 describes the accomplishments in the educational area in more detail.

Work with health professionals was the second most heavily emphasized program area, with one-fourth of staff time and 21% of the budget allotted for such efforts. The primary aim of the DCMNY work with health professionals is to provide these intermediaries with accurate nutrition information. A secondary result of this work is its "legitimizing" effect: the Dairy Council must maintain its role as an unbiased nutrition authority with knowledgeable nutritionists (not simply milk and dairy product promoters) in order to remain welcomed into the schools, and in order to be regarded as an expert, diversified nutrition resource by others.

DCMNY in 1974-75 began to focus much more heavily on health professionals and in order to institute such a program the professionals' needs had to be determined, new materials had to be researched and developed, and

Figure 2 DCMNY



the most effective means of communicating the desired information had to be found. The considerable preparation time involved in these tasks is noted in the time summaries: research and development of new materials and new workshop programs required about 9% of staff time (and workshops given bring this program area to a total of about 11%). An ongoing aspect of the DCMNY relationship with other health professionals is their participation and attendance at professional organizations' meetings. Almost nine percent of total staff time was devoted to such meetings or seminars. While often DCMNY staff are actively involved in the program (as a speaker, panelist, coordinator, or exhibitor), almost half of the hours are spent simply in attendance at professional meetings. In such cases, the primary purposes are the maintenance of useful contacts, additional exposure for the DCMNY organization, and the professional enrichment of the individual staff member. Section 3 offers more detailed information relating to DCMNY activities with health professionals.

Consumers are also serviced by the DCMNY program--14% of staff time and 13% of the 1975 budget were assigned to tasks relating to consumer education. While some time is devoted to answering consumer queries relating to nutrition and/or dairying and occasionally consumer workshops are offered, the bulk of this effort is devoted to the mass media program. A highly valued portion of the program is DCMNY's availability as a resource for magazines, newspapers, and radio programs, as no other organization offers the same service. Such efforts have been generally successful at gaining wide exposure for the Dairy Council name, publicizing the positive aspects of the dairy industry and disseminating accurate nutrition information. Together with consumer exhibits, these efforts accounted for 7% of staff time. Section 4 further describes the consumer program area.

Communications with dairy industry members account for approximately 10% of the professional staff's efforts and were budgeted about 5% of the available funds for 1975. The primary thrust of this effort is to report to dairy farmers on DCMNY program activities and accomplishments and to report on dairy related nutrition research. One quarter of the time involved in industry-aimed efforts is used for work with the dairy press and production of a monthly newsletter, and one quarter is involved in reporting at industry meetings. The remaining time was spent on exhibits at industry functions and various administrative duties. Section 5 enumerates the communications of DCMNY with the dairyman.

In all organizations a certain portion of the staff's time must be devoted to administrative activities which serve the agency itself or its staff members. Included in such administrative duties are annual staff evaluations, monthly staff meetings, budgeting, supervision of staff, weekly and monthly reports, and other record keeping. Staff development covers NDC meetings, conferences and seminars attended for the staff members' enrichment, and reading done to remain up-to-date on new developments in nutrition. Approximately 7% of staff time is accounted for by these activities.

SECTION 2--EDUCATIONAL PROGRAMS

One type of educational program undertaken by DCMNY is the teacher training workshop. Through workshops, DCMNY staff demonstrate specific nutrition teaching techniques (materials, activities, and audio visual tools) and explain new subject matter as well to K-12 teachers. During the July 1974 - June 1975 period, 40% of the 114 workshops recorded were for school teachers or administrators, and another 39% were given for college students--most of whom were in the education field (Table 4). Over 1100 teachers or administrators and about 1000 college and university students were reached that year through this program. Most workshops had between 10 and 30 participants and lasted approximately 2 hours.

DCMNY has developed a series of workshops aimed at specific groups of educators: Pre-K to Grade 3, Grades 4 to 6, junior and senior high teachers, dental hygienists, school nurses and health educators who are interested in preventive dentistry and nutrition education. Each basic workshop consists of several specific topics or concepts which may be used in any combination to suit the workshop participants' interests. Registration is said to be limited to 15 - 20 persons per workshop although actually this fluctuates. A fee of $5 per person is usually charged to cover the cost of the package of teaching materials which is selected for the particular workshop and distributed to the participants. Workshops are held in schools, administration buildings, and at the Dairy Council office. Since release time is practically non-existent in New York City, most workshops must be given after school hours. DCMNY emphasizes reaching "key educators:"

Table 4

WORKSHOPS OFFERED, July 1974 - June 1975
DAIRY COUNCIL OF METROPOLITAN NEW YORK

Audience	Number of Workshops		Number of Participants	
Educators				
Pre-school	3		44	
K-6	28		639	
7-12	11		404	
General	4		60	
	46	40%	1147	38%
College and University				
Elementary education	15		298	
Secondary education	5		151	
Nutrition/Dietician	8		130	
General	16		393	
	44	39%	972	33 %
Health Professionals				
Nurses	3		52	
Nutrition aides	4		92	
Para-professionals	5		145	
Professionals	3		286	
	15	13 %	575	19 %
General--Adults	9	8%	297	10 %
Total	114	100%	2991	100%

administrators (such as ssistant superintendents), health coordinators, curriculum supervisors and school staff who are then expected to train individual teachers. This "multiplier effect" should enable DCMNY to disseminate information more broadly than would be possible by reaching only individual teachers, although the available data do not show exactly how often this actually takes place. Health educators and school nurse teachers are the ideal audience for such workshops but many have left the schools because of recent budget cuts. DCMNY records show that for the 1974-75 period, approximately half of the educators attending workshops were "key" administrators and half were classroom teachers.

College students and university post-graduate students in classes on early childhood education, home economics, health education and other health fields also are offered DCMNY workshops. The use of university facilities allows easy access to practicing teachers, as well as to future educators and health professionals through an already established system. Topics include both those designed for educators and those offered to health professionals, and are chosen depending on class requirements and the professor's lesson plans. Examples of actual workshops appear in Table 5.

At all workshops, Dairy Council provides at least one trained professional and a selection of nutrition materials designed by National Dairy Council and DCMNY. Included are student booklets, posters, activity pieces, games, recommended films, field trips and activities. All materials may be ordered by teachers from the DCMNY office. Consultants and translators are used as needed, and bilingual workshops and nutrition materials have been offered to Hispanic, Chinese and Hebrew groups.

Several means of evaluating the workshop are used by DCMNY. One indicator of teacher use of the workshop materials is the reordering of materials by past workshop participants. On occasion more detailed feedback

Table 5

Educators' Workshops--DCMNY

I. Teachers and administrators--examples.

A. Workshops for elementary teachers in Nassau, co-sponsored by Division of Drug & Health Education in Albany and BOCES.
B. Junior high school teachers in Queens, Nassau (co-sponsored by BOCES).
C. Health educators in NYC, Bronx (mini-workshop for dental health week).
D. Workshop using values clarification techniques on organic/natural foods and weight control for participants of New York State Home Economics Teachers Association Conventions.

II. College students--examples.

A. Workshops at New York University, Brooklyn College, Lehman College (Bronx), and Teachers College--Columbia.
B. One day workshop at Wagner College, as part of a week-long health education workshop.
C. Early childhood education class at Hunter College (largely practicing teachers).

is received when Dairy Council is asked by the same group to repeat a workshop. Pre-tests and post-tests of participants are utilized and workshop evaluation sheets are distributed so that participants can comment on the value of the content, time allotted, and other aspects. In addition a program plan record is kept describing the topics covered and materials used as well as the staff member's evaluation after completion of the workshop.

The service reputation of DCMNY is a strong one and teachers frequently call on Dairy Council staff for nutrition information, information on the dairy industry, or teaching materials. Requests for written material are handled by the secretarial staff but the nutritionists answer all other questions personally. This accounts for much of their 13% office work and part of the 4% research.

Information services also include exhibits produced by the DCMNY staff. Displays and exhibits offer the opportunity to make contact with large numbers of people in a comparatively short time and at a comparatively low cost to the Dairy Council organization. (Days shown are in Table 6.) While the original development of a new exhibit involves a substantial effort, the exhibit may afterwards be re-used many times. Approximately four exhibits per year are presented at school administrators' meetings; the "Human Machine" exhibit provided nutrition information and novel teaching ideas to those attending the annual ten-county Archdiocese Teachers' Institute, held in The Bronx, for example.

Dairy Council demonstrations and exhibits capture the interest of school children as well each year. The "Day in the Park" sponsored by Head Start included a Dairy Council exhibit, and the annual Dairy Days and Dairy Week also provide nutrition and dairy product information to large audiences. Elementary students observe dairy demonstrations and also participate in dairy-oriented activities. For example, Dairy Week at Bronx Zoo permitted

Table 6

DCMNY FILM SUMMARY

	Educational	Consumers	Health Professionals	Total
		- Showings/Viewers -		
July 1974	38/2553	4/113	2/8	44/2674
August				0/0
September		1/24		1/24
October	82/7655		1/120	83/7775
November	171/11,110	37/742		208/11,852
December	58/996	3/60		61/1,056
January 1975	11/241			11/241
February	4/75	1/29		5/104
March	6/125		5/75	11/200
April	9/238			9/238
May	9/110	1/25		10/135
June	122/10,757	3/155	37/1797	162/12709
Total	510/33,860	50/1148	45/2000	605/37,008

DCMNY DISPLAYS OR EXHIBITS

	Days	Days	Days	Days
July 1974		31		31
August		31		31
September				0
October	5	35	1	41
November	1	35		36
December	30			30
January 1975		35		35
February	2	31		33
March	1	35	6	42
April	1 1/2	36	1/2	38
May		41		41
June	3	29	5	37
	43.5	339	12.5	395

18,000 second graders to milk a wooden cow, make butter, see a model dairy farm, use a quiz machine, have lessons on dairy products, and receive free milk. A great deal of media coverage was given the week's events. College students also sometimes view Dairy Council exhibits such as the one provided at a two-day dental health fair at the New York University School of Dentistry.

The DCMNY has been involved for many years with children's television shows--Sesame Street, Captain Kangaroo, and now Romper Room have produced dairy shows in conjunction with and the assistance of Dairy Council. Six new films developed from Romper Room Shows (aired on Romper Room in January of 1975) have been edited and now will be generally available with a teacher's booklet for about $200. During the five hours of nutrition and dairy-oriented filming, Dairy Council food models, posters, and workshop ideas were used and a visit to a dairy farm was included. The "Hey Cow" film from Sesame Street programming is still being sold across the U.S. to Dairy Councils, educational, and non-profit institutions. The Captain Kangaroo show has filmed a Dairy Show each year for 14 years in cooperation with the Dairy Council. The reportedly heavy demand by Day-Care and Head Start personnel for useable educational films on nutrition is one of the reasons for this activity. An additional five to six nutrition films are used by Dairy Council in workshops and shown to students and others throughout the year. Total viewers of such films are summarized in Table 6.

DCMNY also makes available certain loan projects to schools but this area is one which does not require much staff time. A multi-media dairy unit is available and is scheduled by individual school districts. School assembly programs are occasionally presented by DCMNY staff, but it

is not a high priority. A "canned" assembly program is also available--the school is provided with the necessary materials and visual aids so that Dairy Council staff need not participate in the actual presentation.

SECTION 3--HEALTH PROFESSIONALS

The thrust of the DCMNY health professionals program is to extend the nutritional knowledge of these influentials and hopefully to improve the quality of the advice they give to consumers. Toward this end, 13% of the workshops given in 1974-75 were for health professionals--almost 600 dieticians, nutritionists, nurses or dental health professionals were reached by this method. A variety of topics have been developed: basic nutrition, weight control, health foods/vegetarian diets, maternal and infant nutrition, and consumer education. These workshops are often presented in connection with professional association meetings. Among those organized in 1974-75 were workshops for hospital para-professionals on maternal nutrition, for a district meeting of the NYSHEA on dieting and "alternative diets," and for nurses on expectant parent education. Other examples are given in Table 7.

Programs other than workshops are also on occasion sponsored or co-sponsored by the Dairy Councils and presented to groups of health professionals or to medical or dental college students. Topics include weight control, maternal nutrition, and "alternative diets." For example, DCMNY was involved in the two-day Annual Nutrition Institute co-sponsored by NYSHOEA and the State Nutrition Council. Two hundred health professionals and medical school students attended.

Nutrition research information is also distributed via the free space that is provided by medical and dental associations for exhibits on general nutrition, health foods, weight control, and other topics. This serves principally to make more health professionals aware of Dairy Council as a provider of

Table 7

Health Professionals' Workshops--DCMNY

A. EFNEP aides.
B. Staff of St. John's Guild Floating Hospital.
C. Para-professionals in ob-gyn department of Bronx Jacobi Hospital in maternal nutrition.
D. 1/2-day workshop for Greater New York Dietetic Association (3 credits ADA).
E. Dietetic Association and a NYSHEA district-workshop for dieticians and health leaders on Long Island.
F. District 5, NYSHEA, workshop on dieting and "alternative" diets.
G. Brookdale Hospital Medical Center---workshop for dental health professionals.
H. Maternity Center (with Columbia University) workshops for nurses on expectant parent education.

information, and to offer novel ways of presenting patient health information to physicians, dentists, and other health professionals. For example, at the four-day NYS Medical Society Annual Meeting free space was provided for the Dairy Council exhibit concerning alternative diets.

A fourth aspect of Dairy Council's nutrition informational services is the mailing of Dairy Council Digest and Nutrition News to selected health professionals. These periodicals provide reports of recent nutrition research, technological advances, and other topics relating to nutrition and/or dairy products. The mailing is handled by DCMNY and the updating of mailing lists is required of the DCMNY staff.

The DCMNY staff is also involved with health professionals through their membership and attendance at organizations' meetings. This is thought of as appropriate and necessary both because of the exposure it gives the organization and because of the professional enrichment it allows the individual staff members. Organizations mentioned by staff members and the monthly "Scene" summary of activities include The NYS Nutrition Council, Food and Nutrition Council of Greater New York, Greater NYDA, NYSDA, Society for Nutrition Education, Home Economists in Business, AHEA, NYSHEA (Health and Welfare Section), and various community nutrition associations.

SECTION 4--CONSUMERS

The DCMNY's availability as a resource for nutrition information is an important part of the program. Their service reputation is a strong one--many consumers come to them with requests for nutrition and dairy industry information and materials. A recent staffing cut in the Department of Health has further increased the nutrition-related requests coming to DCMNY.

Dairy Council makes available information pertaining to the dairy industry through public service radio announcements, through radio, T.V., and newspaper coverage, and by answering individual requests or questions. The lack of an easily accessible and highly visible dairy farmer trade organization is one of the principle reasons that the Metropolitan Dairy Council makes available information pertaining to the dairy industry. Library research and reading about industry technology and production processes is necessary so that such questions can be competently handled. This area is handled almost exclusively by the executive director and assistant director/communications director.

A large part of Dairy Council efforts aimed at consumers is through the mass media. Public service radio and television spots are arranged and news releases for the media are produced. DCMNY writes and produces the 15 minute radio program, "Eating for Health" and additional five minute radio spots broadcast each week. Radio efforts also include interviews, debates, and ethnic media programming.

The Metropolitan Dairy Council also makes itself available to serve as a resource for magazine articles and television shows for consumers dealing with health, nutritional labelling, and milk. In 1974-75 the Dairy Council was involved as an expert reference with the Children's Television Workshop series "Feeling Good," a Family Health article on nutritional labelling, a New York Times Magazine article on milk, and other media projects. The publicity DCMNY received in this manner led to many requests by consumers for further information.

In general the information on food and health which the DCMNY staff makes available to adults, teenagers and children in the community is nutrition oriented; one of the organization's strengths lies in their acceptance as an expert resource on nutrition topics and developments in nutrition research. Family Circle Magazine recognized DCMNY's efforts in this area and also in the teaching area in presenting them with a "Gold Leaf" award in mid-1975; the award is given annually to 18 food companies and marketers of food related products who produce outstanding material for use in the classroom and by the consumer.

Workshops and related programs are also used to disseminate nutrition information to consumers. Topics covered with parent and PTA groups have included dieting, positive food habits for pre-adolescents, health food and labelling, and health fairs. Workshops are also conducted for homemakers' aides, consumer leaders, social workers, and recently bulletins have been written and workshops given for senior citizens' groups. Through consumer displays giving information on dairy products and general nutrition, Dairy Council is able to perform a valuable public relations service for the dairy industry. For example, "Eating Lower on the Food Chain" was displayed at 1974-75 Food Day activities and DCMNY exhibited at a one-day festival in Lincoln Center that was sponsored by city health organizations.

SECTION 5--COMMUNICATIONS WITH DAIRY INDUSTRY MEMBERS

DCMNY personnel attend producer and farm cooperative meetings in order to discuss their activities, present a display, or give a slide program showing various facets of their program. Dairylea, Metropolitan Dairy Institute, District 19 (Pa.) and ADA/DC of NY meetings are among those attended. Dairy farmers are invited to attend DCMNY's annual meetings and newsletters are mailed out for the same reason: to encourage a greater understanding of why Dairy Council activities are important to the dairy farmer. As the August, 1974, "Scene" pointed out, "The more they (farmers) learn about Dairy Council objectives and techniques for helping the public realize the importance of their product in a balanced diet, the more enthusiastic they become." At the four or five meetings of the DCMNY Board of Directors each year, staff members demonstrate teaching techniques used and discuss the budget and future plans.

News releases and articles for the dairy press are researched and written, primarily concerning nutrition research and its applications to dairy products. The DCMNY also prepares the monthly publication "Scene", mailed to 52 dairy farmers, 22 handlers and 12 dairy press at a yearly cost of approximately $450 in order to describe the Dairy Council's activities during that month. Workshops given, exhibits presented, meetings attended, and special awards or activities are explained; a calendar of major events is also included.

In order to effectively answer questions and discuss issues with consumers and dairy farmers, Dairy Council staff (principally the executive director and assistant director/communications director) read current periodicals and do library research when necessary on industry problems, production and processing techniques, and innovations in dairying. They summarize this information for other staff members so that they also are able to remain current on industry matters.

NUTRITION EDUCATION SURVEY OF ELEMENTARY TEACHERS NEW YORK AND NEW JERSEY

Since teachers are an important intermediary through which Dairy Council attempts to influence the current and future dietary behavior of children, a study of elementary teachers was undertaken to:

1. Estimate the amount of time teachers currently spend on nutrition and assess their use of teaching aids and information sources.

2. Estimate the use of films and filmstrips by subject matter areas.

3. Estimate past and likely future attendance of teachers at workshops by subject areas.

Procedures

Regions surveyed included New York City, northern New Jersey, and upstate New York (with the exception of Niagara, Erie, Orleans, Monroe, Livingston, and Wayne counties.) A random five percent sample of full-time public school teachers in kindergarten through Grade 6 was drawn by the New York and New Jersey State Departments of Education. Approximately one month prior to the survey all district superintendents were sent a letter describing the purposes of the study and inviting questions. While several replies were received expressing interest, no superintendent requested that his teachers be withdrawn from the study.

The questionnaire and cover letter were mailed to New York teachers on January 9, 1976, and to those in New Jersey on January 23. One week after the questionnaires were mailed a second letter was sent as a reminder. A self-addressed postcard was enclosed to enable teachers to request a summary of the results by filling in the card and returning it. A second reminder letter was mailed two weeks later, with another copy of the questionnaire enclosed.

Characteristics of the Sample

Of the questionnaires mailed to each region, 40% were returned from New York, 46% from New Jersey, and 59% from upstate New York[1/]. The respondents included teachers in approximately three-fourths of all school districts in upstate New York and New Jersey, and all districts in New York City.

Slightly more of the New York City and upstate New York responses were from K-3 teachers than were from 4-6 teachers, with approximately equal numbers in New Jersey from each grade level. The New York City teachers were better educated: three fourths had an M.S. degree, whereas only 42% in upstate New York and 31% in New Jersey had an M.S. degree.

Formal training in nutrition was infrequent--approximately one-fourth of those in New York and one-third in New Jersey had attended a high-school nutrition course while fewer than one-fourth in either state had had a college course in nutrition.

Nutrition Education--Amount, Frequency

Approximately three-fourths of the teachers responding had taught nutrition in their classrooms during the last school year (Table 1). Almost

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[1/] Responses from New York City = 726; upstate New York = 715; New Jersey = 719.

Table 1. Nutrition Teaching: Proportion of Teachers and Number of Hours

	Grade	New York City	Upstate New York	New Jersey
Proportion of teachers that taught nutrition 1974 - 1975	K-6	76.4%	79.0%	68.2%
Mean number of hours of nutrition taught 1974 - 1975	K-3	11.8 hrs.	10.7 hrs.	10.5 hrs.
	4-6	8.9	9.5	7.5

Table 2. Comparison of Mean Class Hours of Nutrition Taught Between Those Teachers Who Had and Those Who Had Not Attended a Nutrition Workshop

Region	Grade	Had Attended	Had Not Attended	T Value	Significance at 95%
		-hours-			
New York City	K-3	13.1	12.3	.27	NS
	4-6	21.2	9.8	3.05	S
Upstate N.Y.	K-3	12.8	11.0	.89	NS
	4-6	15.7	9.5	2.06	S
New Jersey	K-3	14.3	10.3	.73	NS
	4-6	24.1	7.7	2.96	S

half of those who had not taught nutrition said that another teacher (home ec, school nurse, etc.) did teach nutrition, so most school children are exposed to some amount of nutrition and foods each year.

Teachers taught an average of nine hours of nutrition per year in New Jersey and over ten hours in New York (Table 2). In both New York City and New Jersey, K-3 teachers taught significantly more hours of nutrition than did 4-6 teachers.

Figure 1 shows more clearly the distribution of nutrition hours across the teachers in the sample[2/]. It shows that 25% of the teachers do not teach nutrition at all and that there is an uneven distribution across the remaining teachers. For example, approximately 80% of the teachers are teaching less than 40% of all class hours of nutrition. Thus many teachers actually are teaching much less than the ten hour mean.

Factors Related to Amount of Nutrition Taught

Neither the number of years of teaching experience nor the teacher's degree appears to influence whether the teacher taught nutrition or not. A college nutrition course did increase the likelihood that nutrition would be taught in an elementary classroom: more of those having taken a college nutrition course were teaching nutrition than those without such college training. Also, those who had attended such a course were likely to teach more hours.

In some cases attendance at nutrition workshops also appeared to be related to a greater amount of in-class nutrition teaching. In all regions, the 4-6 teachers attending a nutrition workshop taught significantly more hours of

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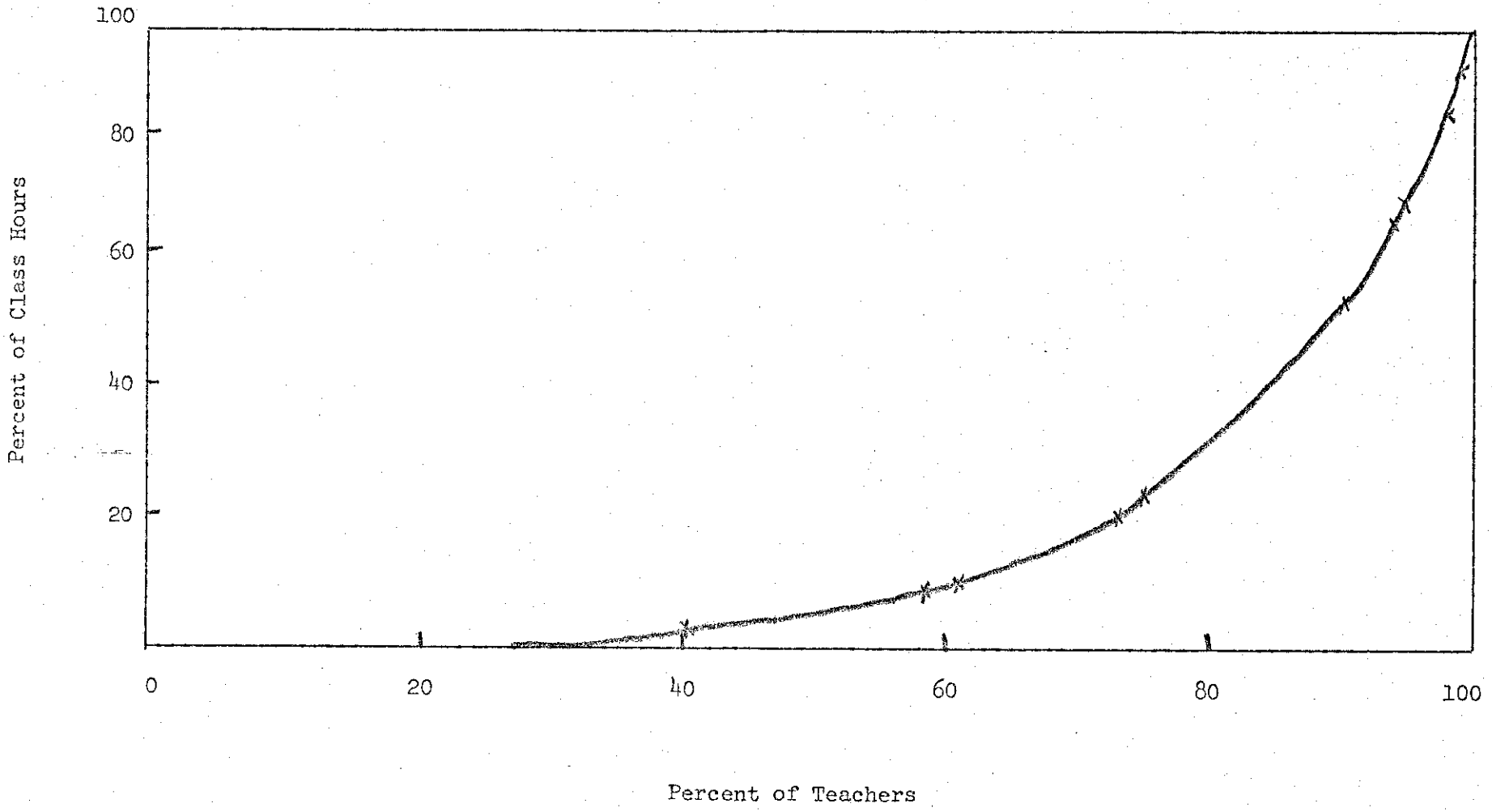
[2/] If each teacher taught the same amount, the curves would be straight and on the diagonal.

Figure 1. Percentage of Elementary Teachers by Percentage of Class Hours of Nutrition Taught 1974-1975 New York City, Upstate New York, New Jersey



nutrition than those never having attended such a workshop (Table 2). Attendance at a workshop was not significantly related to the hours of nutrition taught by K-3 teachers, however.

Information Sources

The sources from which teachers obtained their nutrition information were varied. The most frequently consulted (by one-third or more of the teachers) were the school nurse, textbooks and magazines, and Dairy Council (Table 3). The teachers also obtained information from fellow teachers, trade associations and companies, college courses and the state nutrition curriculum. The teacher who taught the most had consulted significantly more information sources (average about 4.5 sources) than had the teacher giving very little nutrition instruction (average about 2.5 sources).

Films and Other Teaching Aids

Films and filmstrips are a very common teaching tool: more than 80% of the teachers surveyed had used films in their classrooms during the past year. The range of subjects is shown in Table 4, and the depth of use is evident: the average teacher used about 39 films and filmstrips in one year in New York City and about 52 in upstate New York and New Jersey. Nutrition accounted for 5% of these. Nutrition films had been used by one third of the teachers during the past year. Teachers obtained most of their films from within their own school, although in upstate New York, almost half rated the local BOCES as their primary source of films.

Classroom food experiences were used by almost half of the teachers as a teaching technique. Posters, booklets, and leaflets were also used by about half of the teachers but many of these teachers had not found such aids to be

Table 3. Percent of Elementary Teachers Using Various Sources for Nutrition Information New York City, Upstate New York, New Jersey

	New York City	Upstate New York	New Jersey
School nurse	35.0%	57.6%	37.7%
Text books	36.0	42.0	48.0
Dairy Council	33.3	43.8	33.8
Magazines	31.6	31.5	34.4
Other teachers	18.7	23.6	17.0
Trade associations	23.8	15.4	17.7
College class	15.7	13.8	17.2
Private companies	15.6	10.6	14.6
State health division	9.2	8.7	11.5
State nutrition curriculum	11.2	11.5	5.7
Cooperative extension	4.5	18.9	4.7
BOCES	9.4	14.3	1.1
Workshops (any)	5.6	11.9	6.4
Home economics teacher	2.9	8.1	7.6
Other sources	11.2	8.8	9.9
(n)	726	715	719

Table 4. Mean Number of Films and Filmstrips Used by Elementary Teachers during 1974-75

Subject	New York City		Upstate N.Y., N.J.	
	Films	Filmstrips	Films	Filmstrips
English	2.0	5.1	3.7	5.3
Math	.7	1.6	1.4	2.2
History	5.2	8.1	8.4	8.7
Science	3.2	4.7	5.8	5.6
Health	1.5	2.1	2.6	2.8
Nutrition	.7	1.2	1.2	1.4
Other	1.2	1.3	1.9	1.3
Total	14.5	24.1	25.0	27.3
	38.6		52.3	

very helpful. Worksheets and other student activity pieces were used by about 1/3 of the teachers responding; other options such as the school feeding program, animal feeding experiments, multi-media kits, and community professionals were seldom tried. Some teachers cited a lack of available materials or difficulty in obtaining materials for the right age group; however the majority of the teachers mentioned no specific problems with aids and saw many advantages in the use of such teaching aids. By far the most common benefit derived from their use was the "hands on" approach afforded--students learned best by doing and seeing rather than by being lectured.

When Should Nutrition Be Taught

Three-fourths of the respondents felt that nutrition education could be taught most effectively at the elementary level--divided almost equally between those favoring Grades K-3 (33%) and Grades 4-6 (37%). Only 10% felt pre-school children could be taught most effectively and 18% rated high school as the most effective grade.

Over half of the teachers considered a grade other than their own to be the most effective for teaching nutrition (Table 5). More important, such an opinion made a significant difference in the amount of nutrition taught--New York City and upstate teachers who considered their own grade as most effective averaged two to three hours more per year than did those who ranked another grade level more highly.

Teacher Workshop Attendance

A majority of the teachers had attended at least one teacher training workshop during the past two years. Table 6 illustrates the variety of subjects which are covered, and the predominance of the "basic" subjects: reading, math

Table 5. Hours of Nutrition Taught (1974-1975) by the Rank Given by Teachers to the Teaching of Nutrition New York City, Upstate New York, New Jersey

	New York City	Upstate New York	New Jersey
Percent of Teachers			
Ranked other grade most important	63.2%	55.4%	55.8%
Ranked own grade most important	36.8	44.6	44.2
Class Hours of Nutrition			
Ranked other grade most important	8.9 hrs.	9.1 hrs.	8.0 hrs.
Ranked own grade most important	12.3	11.2	9.5

Table 6. Proportion of Elementary Teachers that Attended Workshops in Twelve Categories During 1973-74 and 1974-75

	New York City	Upstate N.Y. & N.J.
Language arts	21.8%	31.5%
Math	17.0	18.4
Science	14.3	14.2
Other Subjects	15.0	11.0
Curriculum Dev.	15.1	15.4
Resources	9.6	13.0
Special Problems	11.0	7.8
Psychology	7.6	8.3
Health	7.1	7.4
Nutrition	.9	4.5
Miscellaneous	1.3	1.9
Attended no workshops	39.1	31.1

and science. Few of the elementary teachers responding had attended a teacher training workshop specifically dealing with foods and nutrition--less than 5% mentioned a recent nutrition workshop.

Teachers attended these workshops primarily to obtain general nutrition information and to learn new teaching methods. Attendance was required in about one-fifth of the cases. Most of the nutrition workshops attended were comparatively short--half were under five hours and almost three-fourths were under ten hours in length.

Teachers were explicit about their reactions to the nutrition workshops they had attended. One-third of the participants had found the new ideas presented helpful and one-third liked the teaching materials provided. Most had no complaints to make about the workshop, although some said their workshop either had been aimed at the wrong age group or was too short or limited in content.

Most of the workshop participants said their teaching had changed in some way afterwards. The majority had used student activities described at the workshop, and one-third of those who had attended found they taught more hours of nutrition or used a more student-centered approach. Some covered different subject matter or used films from the workshop.

Sponsorship of nutrition workshops was largely the responsibility of Dairy Council and the Board of Education (or some other School District body). Each had sponsored one-third of the nutrition workshops. The remaining third was split between Cooperative Extension, universities, health organizations, the local BOCES, and others.

Teacher Interest in Future Workshops

Teacher interest in continuing education was demonstrated in that three-fourths of the teachers surveyed mentioned at least one subject in which they would like additional training. Again, most interest was in the basic courses such as math, science and reading (Table 7). When unprompted, only 6% of the teachers said they wanted a nutrition or foods workshop[3/].

When specifically asked whether they would attend a nutrition workshop, over half said they "probably" or "definitely" would attend a 3-hour nutrition workshop (Table 8). Understandably, teachers preferred a short workshop on release time. As the length of the proposed workshop increased, it became more important to offer the workshop on release time if teachers are to attend: over half would attend a six-hour workshop on release time, but only 40% would attend it on their personal time[4/].

Summary

Elementary teachers are in favor of nutrition education, and yet they frequently view another grade as the most effective time to reach children with nutrition education. They currently teach an average of 9 - 10 hours of nutrition and foods each year in their classrooms. Over half of the 75% who teach nutrition use films to aid their work. Wide use of information sources and teaching aids is frequent among those who do teach nutrition. A college nutrition course as background also tends to be a characteristic of the teacher who includes more nutrition in her curriculum. While elementary teachers are interested in continuing education in general, few have attended a nutrition workshop.

[3/] 83% of those requesting a nutrition workshop already teach nutrition.

[4/] Of those likely to attend a six-hour or twelve-hour workshop, three-fourths are currently teaching nutrition in their classrooms.

Table 7. Proportion of Elementary Teachers that Requested Workshops Last Year in Each Category

	New York City	Upstate N.Y. & N.J.
Science	20.8%	23.1%
Language Arts	18.3	23.0
Math	16.7	16.6
Other Subjects	16.7	13.8
Health	8.1	13.0
Curriculum Development	7.6	10.4
Special Problems	7.6	4.3
Psychology	5.0	6.3
Nutrition	5.7	5.9
Resources	4.4	4.8
Miscellaneous	2.1	2.9
Requested no workshops	26.7	25.6

Table 8. Proportion of Elementary Teachers Likely to Attend a Nutrition Workshop

	New York City	Upstate N.Y. & N.J.
3 Hour Workshop		
Personal Time	48.3%	57.3%
Release Time	58.7	65.0
6 Hours Workshop		
Personal Time	37.6	43.1
Release time	53.2	60.2

REVIEW OF NUTRITION EDUCATION LITERATURE

Is There a Need

In the ten year period 1955 to 1965 the nutritive value of family diets in the U.S. showed a decrease. This is in spite of numerous programs by both national and local agencies (37). The reasons for this poor nutrition in the U.S. are basically threefold. First, the problem of poverty. Many federally funded projects such as commodity foods, food stamps, free school lunches and free school milk address the need of those lacking funds for foodstuffs (18, 34, 44). For this population, "education programs without food would be insulting. Food is the first priority." (34)

Inadequate knowledge of proper eating habits and food purchasing is the second problem "...malnutrition due to ignorance--the lack of basic information as to what foods are needed for good health--can and does occur to a significant extent in all segments and at all socio-economic levels of our population" (italics added). (37) Numerous programs by Cooperative Extension (in particular EFNEP) (4, 12, 13, 26), Administration on Aging (19), mass media campaigns (41), trade associations and industry, among others, have concentrated on informing the public. State and local education, BOCES programs and funding for school teaching aids and materials aim at increasing children's knowledge (13, 16). A major problem in this area is the confusion often generated by the sheer mass of information available and the often contradictory statements of available literature (34, 44). In addition, the nutritive value of foods is often in question especially in restored or fortified products (8).

The third problem in U.S. nutrition, and perhaps the most important though least obvious, is the problem of motivating people to purchase and consume the right foods. "The problem centers on the question of how to make people want to learn...the problem of motivation..people are spectacularly uninterested in nutrition education. Not only must their interest be aroused but many of their deep-seated behavior patterns must be changed" (34). "Americans, like many students in elementary courses, have memorized the catchwords and truisms of nutrition education with no real comprehension or application of nutritional principles" (44). Since our interests are within the realm of possible Dairy Council influence in nutrition education and habits, we will address ourselves to the latter two problems--education and motivation.

Background

Recognition of the need for nutrition education is not new. Nutrition was first taught formally in the U.S. in 1908 by Dr. W. R. P. Emerson. New York State first appointed a Supervisor of Nutrition in 1918 and New Jersey followed in 1924 by establishing a Department of Nutrition (47). Since then programs in both adult education and child nutrition education have been initiated by such agencies as the Children's Bureau, the U.S. Public Health Service, U.S. Office of Education, Cooperative Extension, professional societies, and industry as well as state and local agencies. These programs are for adults, both lay and professional, children, and socially well-to-do and the deprived. Interestingly, the problems of nutrition twenty years ago resemble those of today. A 1956 study of Ellen Semrow (35), another in 1958 by Justine Smery (38) and a third in 1967 by M. Catherine Welsh (45) seem to indicate that despite efforts to the contrary the nutrition problems that existed in our schools twenty years ago are very similar to those that exist today--lack of a graded curriculum, time and training to mention several.

Ironically, although informal education programs do have their place (41) it is this same problem-ridden school system that nutritionists have come to see as the main avenue for nutrition education. Cornacchia points out that "...it is practically impossible to reach even a small percentage of the adult population in organized instruction of any type /which/ indicates the great importance of making certain that extensive and effective health education programs be conducted in the schools where it is possible to reach a large percentage of the future adult population." (6) Children are the best targets for nutrition education not only because they are easily accessible through the schools but also because food habits are not yet firmly established so children's actions are in general more easily influenced than those of adults. Children are often easier to motivate than adults (43). Early practices, once established, will probably influence behavior for life (6). There is also evidence to suggest that long term education is most effective (46, 47, 48). The school, with its captive audience, is perhaps the best media to carry out any long-term projects. In addition, as a child grows and matures, nutrition education materials can also grow and change to match the child at his own level (16, 29, 33). ".../O/ne needs to start on the student's own level of interest and talk to him in terms with which he is familiar and comfortable" (41).

Education programs generally strive for two hopefully related but not synonymous objectives: improved knowledge and a change in behavior. It is generally agreed now that the end goal of nutrition education is to effect a change of food habit (29, 33, 34, 47).

However, in recent years there has been disagreement between educators on how to teach nutrition. Some educators feel that behavior cannot change until a sound education base has been established (23, 28, 33) while others feel that ideas and attitudes should be emphasized initially with knowledge of facts following naturally (29). In any case, behavioral change is often difficult to measure while factual knowledge is more easily quantified and verified. Thus, the literature is divided into those studies measuring a change in learning or knowledge and those attempting to measure a change in behavior.

Effectiveness

Is nutrition education effective? There is little empirical data to substantiate the hypothesized connection between education and behavior (6, 24, 25, 44). However, numerous studies have been conducted on nutrition education both for the adult and the child. When speaking of these studies it must be remembered that innumerable things can affect the results of such studies. Without complete reports it is impossible to judge the objectivity and methodology of most research. This is not to say that such reports should be disregarded but to indicate that often disagreement between researchers on the success or failure of many education programs depends on the methods used and the circumstances at the time (25). In general, the more recent programs are better documented.

Adult Education

Adult education is here intended to define that body of education disseminated outside the formal classroom to lay adults. As mentioned above,

there are numerous nutrition education programs, many of which are aimed at the adult consumer. However, there seems to be little coordination among these programs. Mass media efforts through radio, TV, magazines and newspapers are on-going but again seldom coordinated (41). Many federally funded programs such as Food Stamps and Food Distribution are aimed at alleviating immediate hunger rather than teaching the proper use of the foods distributed (18).

Numerous studies have been conducted on the effectiveness of adult nutrition education programs. McKenzie and Mumford (25) reviewed early studies and found Bovee and Downes (1941) (3), Lewin (1943) (22), Downes (1943) (7), Ecoma (1962) (9), and Pinder (1962) (32) reporting that some short term improvements in knowledge or food habits had resulted from nutrition education programs. However, other studies by Shower et al. (1948) (36), Greenberg et al. (1953) (14), Ornee (1957) (30) and others could find no appreciable change. In a study by Gassie and Jones (1972) homemakers were tested before eight nutrition sessions and again four months afterward (12). They concluded that while knowledge increased and homemakers chose a larger variety of foods, there was no change in the number of minimally adequate diets. The authors suggest that a more extensive program providing repeated learning experiences was probably needed. In a 1972 article, Holmes concludes that the "Outreach Program" of the Administration of Aging in New York City was able to make a meaningful positive impact on the food habits of participants (19). However, this followed an extensive and time-consuming effort to interest the aging and a person-to-person approach on the part of the staff nutritionists.

A second type of adult education is that aimed at the health or education professional. "A national program cannot be accomplished without a major increase in manpower with competence and commitment in the field of nutrition...." (34) However, physicians, dentists, nurses and other health

personnel often lack a sound background in nutrition (15, 27, 42). "The teaching of nutrition in schools of medicine, dentistry and nursing is most inadequate at the present time; in some schools it is almost non-existent." (34) Reasons for this include the growing problem of specialization. Dieticians and nutritionists are specialists and as such are highly regarded by other health professionals (15). Thus, the perceived need for others to study nutrition is often diminished (27). This, combined with the lack of qualified and interested personnel presents a problem in disseminating nutrition education at the community level.

Nutrition education for educators faces many of the same problems as for health professionals. As recently as 1974 few states required nutrition education for teachers (8). Although nutrition education has been available in higher education in New York since 1932 (47) it is not a required course. A 1972 study by Petersen and Kies attempted to determine the nutrition knowledge of first, second, and third grade teachers. Their results show "/O/verall nutrition knowledge scores were low" (31). In addition, little relationship was found between knowledge scores and attitudes. "If attitudes are to be an important factor in changing behavioral patterns in relation to food consumption, traditional means of preparatory nutrition instruction for classroom teachers must be revamped" (31). This would include in-service training. In-service programs are one way of teaching nutrition (11, 39) but this need is closely related to formal curriculum needs and "...they require coordination in order to maximize their potential for upgrading health instruction" (11).

Others in the school systems such as parents, school nurses, food management personnel and administrators can help the teacher, but in the long run it is the teacher's responsibility to see that nutrition is taught (21, 34, 48). These same teachers are the ones who in the past and present are

constrained by time pressures, availability of current text materials, availability of specialists, availability of current A-V materials and aids, articulation of health instruction with health services, availability of curriculums and guidelines, and lack of coordination from one grade to another (11, 31, 35, 38, 45). Although a state health curriculum guide is available in New York, a 1972 study found that only 10% of the teachers surveyed were using it and only one-fourth of the sample had even heard of it (40). Other curriculum guides are also available from Dairy Council, BOCES and other agencies such as the Bureau of Science and the Division of Home Economics. However, little of this is coordinated or integrated for the teacher's use.

In the Schools

If teachers are trained and provided materials, what is the effect of nutrition education on students? This is a much contested problem. Many educators maintain that nutrition education in elementary and/or high school improves the students' eating habits and health later in life (2, 23, 28). However, "...nutrition information is valuable only to the extent that it is practiced, /so/ the relationship of knowledge to practice is of key importance" (10).

Lovett, Barker and Marcus (1970) chose to study second graders since "this grade level is generally accepted as the first point where testing is practical and yet a child is still at the entry point in nutrition education" (23). The 1720 students tested were divided into three groups: one whose teachers had received training during DC nutrition education workshops, one whose teachers had simply been given the DC materials to use, and a control group whose teachers were given only general objectives. After 15 hours of

instruction, students in the first groups improved in test results significantly more than did those in the other two groups; no attempt was made to observe or measure behavior changes. Niedermeyer and Moncrief (1975) also studied the effectiveness of teacher training workshops in nutrition (28). Students in Grades 1 - 3 reportedly performed better on written tests following the ten 30 - 40 minute lessons taught by the pre-trained teachers; no examination of behavior change was made.

A 1952 article by F. E. Whitehead indicates what might be accomplished given the correct environment and stimuli (48). This four-year project was able to show a sustained influence on food habits for at least three years after the end of the initial project. The outstanding qualities of this project included extensive administration, teacher, and community interaction; was based on needs as determined by food habits; included all children in five schools; and was correlated and integrated with the total school program. Many of these characteristics carry through on recommendations for extensive nutrition education over a lengthy period of time. These characteristics are not found in most other nutrition education programs.

McKenzie, Mattinson, and Yudkin (1967) chose to assess the effects of several types of nutrition education on milk consumption because of the lack of hard evidence that education and behavior were indeed related (24). A total of 4600 students, ages 11 to 19 participated in the study for two school terms. Posters, pamphlets, 30 minute lectures, and films were used in the experimental group to persuade students to drink milk. In spite of the fact that milk was free to the students, none of the methods used showed an increase in consumption. The authors conclude that while their efforts were ineffective, the causes lie more with factors outside of the education/ attitude of the child: "The amount of time available, the existence and nature

of competing interests and activities at the same time." So "nutrition education may not change eating behavior if there co-exist strong factors that militate against the change." (24) It is in this area of discovering such "outside" factors and how to deal with them that the authors urge further research. Borenstein agrees that "nutrition education...can never be a panacea because of specific problems. These include strong food likes and dislikes, ethnic habits, and poverty" (8).

Baker conducted a study in which 200 fourth and fifth grade students participated; after 13 30-minute lessons in three weeks on nutrition and diet, the students scored significantly higher on a nutrition test but "no significant changes in diet due to the program were observed" (1). Boysen and Ahrens (1972) found that the 30 second-grade students receiving 30 minute lessons during four weeks of nutrition education improved their test scores but no carryover to diet quality was observed (5).

Bell and Lamb (1973) studied the effect that a six-week Dairy Council nutrition module had on diet and cognitive learning among 1500 fifth grade students in five states. While the experimental group had significantly higher scores on the nutrition knowledge test, and vegetable consumption rose, milk consumption did not show a significant change. The authors state that "nutrition educators cannot be satisfied with teaching that never leads to action" but also speculate that <u>in spite</u> of their results, "we can expect that nutrition education <u>can</u> modify dietary behavior" (2). Under most circumstances, it is difficult to accurately measure the effects that education has on behavior; there "is no certain way of knowing if what is being taught is being practiced" (6), and especially since the behavior changes may be long range ones. The time lag between learning and application makes the effect hard to measure.

Head (1974) examined the extent of application of nutrition principles learned by 5th, 7th and 10th grade students (17). 4700 students participated in the study. In fifth grade classes, nutrition was integrated into other courses, in 7th grade it was taught during health, and in 10th grade in biology. Teachers used personal discretion in how to teach though overall content was similar. Test scores improved after the nutrition program among the fifth graders and one seventh grade class. Dietary results were different from written test results: while the seventh graders who were taught nutrition improved their diets more than the seventh grade controls, among fifth graders there was no such significant difference. At the tenth grade level nutrition education showed no effects.

Summary

Significant nutritional problems due to improper eating habits have been with us for some time. Efforts to improve the quality of diets in New York State through nutrition education have been underway since the early 1900's. However, the ability of nutrition education to affect dietary behavior has, for the most part, only been empirically scrutinized in the past quarter century. These studies have focused on short term nutrition education efforts. The conclusion one reaches from these empirical studies is that nutrition education while substantially improving the level of nutrition knowledge has no consistently demonstrable effect on dietary behavior in general or milk consumption in particular.

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ONTARIO MILK MARKETING BOARD

Introduction

The fluid milk market expansion budget of approximately $1.8 million (in 1975) is appropriated across five areas: advertising, promotion, publicity, product/market development, and nutrition communications. The goal of the entire effort is explicitly defined as an increase in consumption of fluid milk. Toward this end, the nutrition communications area was allocated $300,000 (1975) for a small nutritional advertising campaign aimed at the 20-35 year old female plus an extensive nutrition education series of teacher workshops.

Prior to 1972, nutrition education efforts included only the distribution of printed materials to teachers and schools. (Some from NDC and some from the Associated Milk Foundation of Canada.) In 1972 a task force examining the educational efforts of the Ontario dairy industry learned of a study in California which showed that students of teachers who had attended a workshop had higher post-test scores than did the students of teachers who were simply given the packet of teaching materials, or of those who were given only a list of teaching objectives[1/]. Subsequently, the OMMB changed its nutrition education program to concentrate on teacher workshops, using first the Dairy Council of California program and later modifying it to meet their particular needs. The emphasis of the educational program is on general nutrition with milk comparatively de-emphasized.

1/ Lovett, Barker and Marcus, Journal of Nutrition Education, Fall 1970.

Educators

The Ontario staff is responsible for reaching approximately 59,000 elementary teachers and, through them, 1.4 million students. Four nutritionists in the Toronto office handle these nutrition education efforts. One of the four oversees soliciting and scheduling of workshops and all four participate in program revision and development work during spring and summer. Some media appearances connected with workshops are also made. A bachelor's degree in home economics is required of staff members and presently all have further credentials such as a teaching degree or dietetic internship plus related work experience.

Workshops are given for teachers of Grades K-3 and 4-6, and a preventive weight control program for teachers in Grades 7-9 is also being pilot tested. Workshops are scheduled on the Professional Development Days provided Ontario teachers each year, during which various continuing education workshops are offered. (Ten to twelve such days are given each year.) Since the teachers are free to choose whichever workshop they prefer, attendance at all OMMB workshops is voluntary. As each school district has different development days, it is possible to schedule almost all OMMB workshops on these days. Few evening or weekend workshops need be given. Credit is not offered.

Materials are provided only to participants in workshops. Each participant receives an outline of the objectives of the nutrition unit and student worksheets and is later sent an appropriate set of materials. These include food models, mimeographs (games and other activities), a poster, and bar graphs (comparable to NDC Comparison Cards). These are primarily teacher resources which can be duplicated by the teacher if desired for

individual student use. An effort is made to avoid supplying excessive materials that will never be used, or supplying libraries with materials that will be filed and not used.

During the 1974-75 school year, 209 workshops were given for K-6 teachers with an average attendance of 20. Since the 1972 introduction of the workshop program, nearly 12,000 Ontario teachers have participated.

Since the Nutrition Communications staff is aware that their primary goal is an increase in fluid milk sales, evaluations of their success have been attempted. In two studies (K-3 and 4-6) conducted in schools participating in the workshops, students taught by teachers who had attended OMMB workshops reported a somewhat increased consumption of milk at breakfast. The K-3 report noted that students may have simply reported what they thought they should have eaten; in this case the results reflect a change in knowledge rather than in behavior. The students' increased knowledge of nutrition facts is similar to results documented in other such research studies. (See Review of Literature.)

Health Professionals

Professional association participation exists, dependent upon the individual's interests and work schedule, but such involvement does not have high priority. While these activities are recognized as valid, the decision was made that with the given budget it was better to focus efforts and produce a significant impact on a single area (teacher workshops) than to scatter efforts across all the possible audiences. Furthermore, the task force reported that given the extent to which many health professionals are inundated with information, an exceptionally expensive effort would be necessary to produce any significant effect here.

Dairy Industry Communications

The Nutrition Communications staff is not involved in the reporting of activities to producers. Since most of the budget is aimed at media advertising, the promotion staff is responsible for all contacts with industry members, and with reports of their activities they include a summary and description of the Nutrition Communication program. This avoids duplication of efforts.

DAIRY COUNCIL OF CALIFORNIA

The overall goal of Dairy Council of California (DCC), determined by the staff with approval of the Board of Directors, is to "meet the needs of the community, the teacher, and the student" as well as the needs of the dairy industry. However, it was decided that dairy products should not be emphasized beyond their place in normal nutrition. In other words, convincing people to use the four food groups would in the long run promote dairy products without having to do so overtly.

DCC worked with an operating budget of about $1,800,000 for the 1975-76 fiscal year. Of the 38 staff members, 25 are professional staff and 20 of these promote and conduct teacher workshops full time. This trained staff works out of six regional offices around the state: Los Angeles, Oakland, San Diego, Sacramento, Fresno, and Santa Ana. The professional staff responsible for working with teachers or with other health professionals all have nutrition backgrounds, and as of July 3, 1975, one-fourth had a master's degree. The Education Division Manager and the Manager both have degrees and experience in education.

The population of California in 1970 was 19,953,000. Of these 4,925,500 were enrolled in public or non-public K-12 programs. Since the population was so large it was decided that in order to best meet their goals, target audiences would be selected. Elementary schools were chosen because these are the "formative" years and because large numbers could be reached.

Thus, the allocation of time and budget heavily emphasizes work in formal education with 65% of time and expenditures going toward education, 12% toward health professionals, 18% to the mass media, and 5% into research. Within the elementary schools, three grades were selected as primary audiences--pre-school, second grade and fifth grade. It is estimated that by the end of the 1976 fiscal year 80% of the 28,000 teachers in second and fifth grades will have attended a nutrition workshop.

Dairy Council professional staff are assigned specific areas of the state in which to "sell" workshops and then conduct them. This is generally accomplished by an initial contact--a 30-minute salespitch--with the school superintendent. Each staff member is responsible, with the aid of a supervisor, for scheduling workshops. In most cases an attempt is made to offer workshops to teachers within one district but this may not always be feasible in the more rural areas. Workshops generally range from 12 to 15 participants and take about three hours to complete. Lessons are completely laid out and materials are provided so that no additional teacher preparation is needed. Each workshop is designed to provide the teacher with ten 40 - 45 minute lessons. (This provides about 6.7 hours of nutrition for students each year, over twice as much as they currently receive.) Teachers are urged to teach the nutrition course soon after the workshop is completed. Students of workshop-trained teachers are expected to complete the unit with high test scores and a final grade of A or B, 80% of the time.

Most workshops are now being taught on release time though this is not necessarily a constraint. It is hoped that workshops can be repeated for these teachers every three years. DCC material is only made available to those teachers taking a workshop. Each year a letter is sent to those

teachers having completed a workshop to enable them to re-order materials. In the third year of the second-grade program, 90% of the teachers still teaching at that grade level re-ordered DCC materials.

DCC staff members are expected to observe some teachers who have attended their workshops every year. While the number of observations is now relatively small, it is hoped that this activity can be increased in the future. This observation allows DCC staff to see how materials are being used and presented and gives ideas for renovations of workshops. The DCC is also actively working to develop its role as a nutrition consultant within the school districts. Currently this activity is carried on in a small way with teachers already participating in a DCC program, and it is hoped that teachers at other grade levels will also become involved.

Program development is a very important part of the DCC program. In addition to updating the present elementary workshops, other programs are in the developmental stage. The Jr. High Education Workshop Program is being introduced currently and a 40% participation level is expected. Other programs include consumer education and preventive dentistry.

Although DCC spends most of its energy and resources on education, some effort is made in other areas. 12% of the DCC time and budget is devoted to professional liaison. This includes work with doctors, dentists, dieticians, public health nutritionists and other professionals. One portion of this is the placement of ads in medical magazines. A program being developed on the prevention of dental carries will place information in dental offices. An additional 18% of time and resources is spent on the mass media or "nutrition communications." This effort is to get the four basic food groups in front of the public. To this end, DCC utilizes press conferences and direct

communication with newspapers, radio and television, including public service spots. Consumer education has been limited to nutrition communication in the past, but a new consumer education program on the skills of food purchasing has just been validated and is ready for use. Five percent of the budget is spent on research in the field of food technology related to milk and dairy foods.

There is no time accounting system though each person turns in a weekly report outlining the last week's events and anticipating their work for the coming two weeks. It is expected that after the initial training in DC goals and organization the staff members will be able to make the best decision on her individual time.

DCC staff are encouraged to be active members of their professional associations and several members hold office. DCC pays dues for one organization per staff member.

OTHER SOURCES OF NUTRITION EDUCATION IN NEW YORK STATE

Within New York State there are several agencies or programs other than Dairy Council that are directly or indirectly involved in nutrition education. These include:

State Department of Education

The Division of Health and Drug Education

The Bureau of Home Economics

The Science Division

State Office of the Aging

Cooperative Extension (including EFNEP)

Of necessity these organizations or agencies have diverse interests and different audiences depending upon the major aim of the program.

New York State has a mandated Health Education program passed by the Legislature in 1967. This regulation calls for health education for all pupils from kindergarten through Grade 6 by the individual classroom teacher. At both the junior high and senior high levels separate half-year courses must be offered. The courses offered at the secondary level must be taught by a certified health teacher and each school district must have a designated health coordinator to facilitate the teaching of health.

Health education, however, is a very broad field. Included are numerous topics: smoking, drugs, alcohol, safety education, mental health, first aid, survival and nutrition. The only required "strands" are smoking,

drugs, and alcohol. Thus, while nutrition is included under the health education mandate, there is no provision to require that it in particular must be taught. The health topic to be covered in the classroom is left to the discretion of the school districts, individual health coordinators, or teachers. In practice, there is no effective way to enforce such a broad and sweeping mandate and currently there are no figures on the amount of health being taught nor on the quality of such programs.

The State Department of Education is in charge of Health Education. The Division of Health and Drug Education and Services is one agency within the Department that is involved with nutrition, although it currently is without benefit of a nutrition specialist. The nutrition strand of the new health curriculum is available from the Division to K-12 teachers. This strand was developed in the late 1960's by the Department of Human Nutrition and Food at the New York State College of Human Ecology, Cornell University under contract to the Department of Education.

The curriculum is presented to the teacher as a series of concepts for the children to understand with teaching aids and learning activities to accompany these concepts and supplementary information and references for the teacher's use. The curriculum is segmented for teachers of K-3, 4-6, junior high and senior high school.

The curriculum was computerized in an effort to make the material readily available. However, schools must pay for use of the system. To date, the computerized system has had low usage though it has great potential since individualized programs suited to teacher and student needs could be made available. The system is 5-6 years old and while the mandated strands of drugs, tobacco, and alochol have been updated, the nutrition strand has not.

The Division of Health and Drug Education is also responsible for the education of school nurse teachers who attend training sessions and often take health education directly into the classroom. In addition, the curriculum and various other publications the Division has are available to all teachers. However, for specific problems or aid, inquiries are directed to several other organizations around the state--Cooperative Extension, Dairy Council or, in the past, BOCES. If these contacts do not prove fruitful the Division will then try to find the desired information elsewhere.

Another division within the Department of Education that is involved in nutrition is the Division of Home Economics. Again, nutrition is only a portion of their curriculum. This Division deals with Grades 5 - 12 and has developed a curriculum guide of its own. Although home economics is not required at any grade level, it is required to be taught in every school. Concentration has focused on preparing, storing, and serving foods as well as correct financial budgeting. BOCES courses in food service are also under the Division of Home Economics. The Division of Science also does some work with nutrition education--concerning vitamins, nutrients and how these are used by the body.

Another current nutrition program in New York State is the Program for the Elderly through the Office of the Aging. This is mainly designed as a feeding program but has provision for nutrition education and requires that milk be served. Dairy Council of Metropolitan New York has been working with this agency.

Cooperative Extension has been active in nutrition education though again nutrition is only a small part of the agency's job. Cooperative Extension cooperates with Dairy Council and the Department of Education on school programs

but most of their materials are used through 4-H, Cooperative Extension and BOCES programs. Little coordination exists between Dairy Council and Extension in the development of materials in nutrition.

In 1969 the Expanded Food and Nutrition Education Program was funded in New York. EFNEP was designed as a family oriented approach to providing nutrition education opportunity to low income families. The goal of the program is to help families and youth make sound food choices based on existing constraints of food habit and income.

Originally under the Cooperative Extension Administration, EFNEP was transferred to the Division of Nutritional Sciences at Cornell in 1974. The program began with 22 counties and had grown to 53 counties by 1974. Most of the program is carried out under the sponsorship of Cooperative Extension except in New York where three sites have been established in cooperation with community based organizations. (No Cooperative Extension Association exists in New York City.)

Para-professional aides, taught and supervised by home economists are the main contact with the community and both individual and group activities are involved. In April of 1974 some 400 nutrition aides were employed and worked with 11,000 families individually, reached three times that many in group sessions and involved over 50,000 youth each year (ages 6 - 19 years). Education concentrates on managing money for food, practical advice on food preparation and preservation, making food choices with nutritional understanding and others. Often the aide serves as supporter for the family and connector to community services.

Other agencies have potential for involvement in nutrition. In 1974-1975 BOCES had a health coordinator that worked extensively with teachers

as a resource person. Funds were later cut. The same is true of the School Food Service Program when in 1974 funds were not renewed for the State Nutrition Education specialists.

In summary, although nutrition education is the concern of several programs across the state, few can devote themselves entirely to the problems of nutrition. While some effort is made to keep other agencies informed of progress in each agency, programs, their goals, and the means for achieving those goals across the state are generally not coordinated.

AMERICAN DAIRY ASSOCIATION
AND
DAIRY COUNCILS OF NEW YORK

The American Dairy Association & Dairy Councils of New York (ADA DC NY) office renders a valuable public relations service for the dairyman in its efforts to keep consumers informed on dairy-related matters and to keep the "milk" name constantly in the public eye. While the information service necessarily includes discussion of the nutritional benefits of dairy products, this is on an elementary level only and is a secondary goal. A second important role ADA DC NY fulfills is that of reporter to dairymen concerning the promotional programs they fund.

In the public relations realm ADA DC NY serves as a source of information to consumers concerning the dairy industry by using the mass media to disseminate such information. Most ADA meetings and special events (the annual meeting, district annual meetings, June Dairy Month ceremonies) are primarily for dairy producers, yet stories about these are oriented towards milk information that will be of interest to the consumer and will aid in selling milk. In 1975, for example, June Dairy Month Proclamation Day was attended by former Commissioner Dyson and approximately 150 news media guests who were provided with news stories and facts about milk. The ADA DC NY staff coordinated the month-long statewide publicity efforts for milk and the dairy industry. The reporting of Dairy Princess events and milk promotion committee meetings also incorporates milk information and publicity. Dairy Princesses log many hours of school presentations, in-

store appearances, and local media coverage, and ADA DC NY aids the princesses in these contacts by providing them periodically with information on NYS dairying, care of dairy products, and recipes.

Interviews also serve to spread information relating to the dairy industry. ADA DC NY staff give broadcast interviews on news and talk shows concerning the dairy industry; dairy farmers also are interviewed and articles are written on individual producers and their farms to communicate the economical importance of the industry, the nature of rising costs to the farmer, and to describe various technological advances.

Public service announcements provided to over 100 radio stations in New Jersey, New York and Pennsylvania cover quality control, industry news, care and uses of milk products, and many other subjects. In late 1975 three minute programs were being used by 70 stations and 30-second taped or live announcements were being used by approximately 80 stations.

The exhibits presented for consumers by ADA DC NY also offer both industry and food-oriented information. Shopping malls and fairs are the most commonly used sites for the four-unit exhibits. One unit consists of enlarged milk advertisement story boards; one presents the economical aspects of dairying, one is a child-oriented section with dairy farm pictures, animals, or recordings from NDC, and one is nutrition information from Dairy Council. News stories about these exhibits also help to keep consumers conscious of milk and dairy products.

Newspaper editors periodically receive information on milk-related subjects and dairying from ADA DC NY. The purpose of these informational kits is to communicate the benefits of dairy products (nutrition information is kept relatively simple) and to give an economic picture of the industry.

Immediate stories are generated by these kits and they later serve as reference and background for future use.

"General interest" stories designed to encourage milk sales and enhance the image of dairying are also written and distributed. Subjects have included milk packaging and care, the metric system, and the history of dairying. News and milk publicity releases are written and UDIA food publicity and dairy information is sent bimonthly to selected newspapers, radio and TV stations, supermarkets and extension agents. The care and uses of dairy products are also discussed during radio interviews on news and talk shows. An effort is made to generate publicity that would be of special interest by featuring local people: local chefs have been surveyed concerning their use of real dairy products; local dairy farm wives are interviewed as well. Recipe books from ADA and UDIA are also used. Information "kits" are provided quarterly to the county promotion committees for use locally; newspaper stories, radio interview outlines, and suggestions on effectively working with local media are included.

A series of Dairy Food Demonstrations is filmed for use by state television stations; approximately 50 shows (including radio) are completed each year. Throughout the interviews, articles and food demonstrations, the ADA DC NY staff stress the nutritious nature of dairy products by stating that they are one of four food groups, but further nutrition-oriented details are left for the Dairy Council staff.

A second responsibility of AD DC NY is to report to dairy farmers concerning the organization's activities and accomplishments. Representatives of ADA DC NY attend numerous meetings of the grange, farmers' cooperatives, farm bureau, and other industry groups in order to fulfill this responsibility. Letters are also sent to each farmer in the 19 districts informing him of his district's annual ADA DC NY meeting, at which the promotion program

is discussed. News releases on program activities are sent to dairy industry as are cooperative extension publications such as Dairy News.

Three written reports have also been used to describe the ADA DC NY program more fully to farmers. The one page "News Memo" is sent to approximately 600 dairy leaders several times each year. It includes news on advertising, dairy case seminars, mass media news and milk publicity releases, newspaper feature articles written by ADA DC NY staff, the Dairy Princess Program, public service radio, exhibits and special events.

The pamphlet "Fluid Milk Promotion in 1975" summarizes all promotion activities of the year and is mailed to all dairy farmers on the ADA DCNY lists once a year. Topics cover Dairy Council, media advertising, sales trends, public service, dairy princesses, supermarket promotions and dairy case seminars. The investment in each major program area is given.

The "Milk Promotion Report", mailed to dairy farmers two or three times a year, summarized specific activities of ADA DC NY, Cornell University, and the Dairy Councils but because of its cost (approximately $5000 per year) it will be discontinued in 1976.

KEY POINTS

Nutritional inadequacy of diets is a major problem throughout the United States.

Dairy Councils attempt to improve the quality of diets through nutrition education.

There are substantial overhead costs which must be incurred if an organization is going to attempt to use nutrition to influence milk consumption. Dairy Council personnel have invested and continue to invest substantial effort to maintain a rapport with the health professional community. While not always directly productive, this relationship has allowed them to function as "professional" nutrition educators.

Nutrition education involves more than giving information on milk. Thus, Dairy Council personnel must spend a substantial portion of their time on non-milk related material in order to have an opportunity to extol the virtues of milk.

However, while studies have demonstrated improvements in nutrition knowledge, they have shown no consistently demonstrable relationship between a child's exposure to nutrition education and his dietary behavior or milk consumption.

In addition to nutrition education, Dairy Councils provide favorable P.R. for the dairy industry. They are respected by health professionals, their materials are appreciated by educators, and they are always available to offer information and defend milk.

Dairy Councils are only one possible approach to meeting the promotion objectives of dairy farmers. In order to maximize dairy farmers' returns the performance of Dairy Councils in meeting these promotion objectives must be compared to the performance of alternative promotion activities.

It has been estimated that in 1973 the marginal rate of return on fluid milk advertising in New York City was 70%.