

1936

A study of the present consumption of dairy products and suggestions for increasing the use of these products by Negroes in Nash County, North Carolina

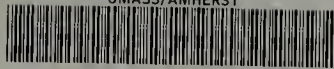
David Jasper Knight
University of Massachusetts Amherst

Follow this and additional works at: <https://scholarworks.umass.edu/theses>

Knight, David Jasper, "A study of the present consumption of dairy products and suggestions for increasing the use of these products by Negroes in Nash County, North Carolina" (1936). *Masters Theses 1911 - February 2014*. 1671.
Retrieved from <https://scholarworks.umass.edu/theses/1671>

This thesis is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Masters Theses 1911 - February 2014 by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

UMASS/AMHERST



312066 0015 5721 0

A STUDY OF THE PRESENT CONSUMPTION
OF DAIRY PRODUCTS AND SUGGESTIONS FOR
INCREASING THE USE OF THESE PRODUCTS
BY NEGROES IN NASH COUNTY, NORTH CAROLINA

KNIGHT - 1936

PHYS
SCI

LD
3234
M268
1936
K69

A STUDY OF
THE PRESENT CONSUMPTION OF DAIRY PRODUCTS
AND SUGGESTIONS FOR INCREASING THE USE OF THESE
PRODUCTS BY NEGROES IN NASH COUNTY, NORTH CAROLINA

BY
DAVID JASPER KNIGHT

THESIS
SUBMITTED FOR THE DEGREE OF
MASTER OF SCIENCE

AT
MASSACHUSETTS STATE COLLEGE
AMHERST, MASSACHUSETTS

JUNE 1936

TABLE OF CONTENTS

Part I	Page
Introduction-----	1
Review of Previous Literature-----	4
Results of Survey	
Area Selected-----	7
Supervisors Selected-----	8
Method used in Sampling Family-----	9
Consumption, Production, and Purchase of Milk-----	14
Daily per Capita Milk Consumption By Income Group-----	18
Daily per Capita Milk Consumption by Size of Family-----	19
Distribution of Families by Daily per Capita Milk Consumption-----	21
Consumption of other Dairy Products:	
(a) Condensed and Evaporated Milk-----	23
(b) Butter-----	24
(c) Butterfat-----	29
(d) Cheese-----	31
(e) Ice Cream-----	33
(f) Cream-----	35
Farm Production and Utilization of Dairy Products-----	37
Facilities for keeping Fresh Milk-----	39
Milk and its Relation to choice in Consumption-----	40
Publicity and Milk Consumption-----	42
Advertising Appeal-----	44

Part II	Page
Some Suggestions for Increasing the use of Dairy Products in Nash County North Carolina-----	46
Plans for Conducting Milk Campaigns in order to Increase Consumption of Milk and its Derivative Products-----	48
What Can be Said for Milk and other Dairy Products-----	67
Summary-----	71
Conclusion-----	73
Literature Cited-----	74

ACKNOWLEDGEMENTS

In presenting the information in this thesis to the Dairy Department, the author desires to express his gratitude to those who so willingly assisted in its preparation. He is particularly indebted to:

Professor J. H. Frandsen, Head of the Department of Dairy Industry, who suggested the problem and gave valuable assistance as the work progressed.

Mr. H. C. Lindquist, Instructor in the Department of Dairy Industry, for his untiring assistance in the general arrangement of the questionnaires.

Mr. M. J. Mack, Assistant Professor of the Department of Dairy Industry for his generous suggestions in the preparation of this thesis.

Mr. W. T. Johnson, Professor of Negro Vocational Agriculture in Nash County, for his painstaking work in supervising the survey.

Acknowledgement is also made to Mrs. F. E. Andrews for her assistance in the urban survey.

INTRODUCTION

Today the dairy industry is one of the largest and most vital industries in the world. The annual production of milk in the United States is over eleven billion gallons, and the annual value of dairy products is over two billion dollars. Distribution of these products makes this industry of great commercial and economic importance. People are ceasing to regard milk, butter, cheese, and ice cream as luxuries, to be used chiefly to please the taste.

Milk has long been an important part of the human diet and there is proof that the proportion of the diet supplied by milk and milk products is increasing in America. At the present time about 23 per cent of the total food supply is estimated to come from this source. This is probably due to the fact that each year brings more evidence of the very close relationship of milk and milk products to health. The per capita consumption of milk and cream by sections in 1933 was 29: North Atlantic section 42.9 gallons, South Atlantic, 22.7, North Central, 29.7, and Western, 40.1. The following figures show the trend of the per capita consumption of dairy products in the United States from 1922 to 1932:

Year	Milk and		Cheese	Ice	Condensed and
	Cream	Butter		Cream	Evaporated milk
	Gallons	Pounds	Pounds	Gallons	Gallons
1922	38.1	16.50	3.70	2.43	10.1
1923	38.0	17.00	3.90	2.63	10.1
1924	38.6	17.38	4.20	2.50	11.0
1925	38.9	17.39	4.26	2.80	10.5
1926	38.3	17.76	4.36	2.77	10.6
1927	39.7	17.49	4.36	2.85	10.6
1928	39.8	17.13	4.14	2.90	11.1
1929	40.8	17.29	4.11	3.00	12.1
1930	40.7	17.30	4.62	2.92	12.2
1931	40.0	18.00	4.71	2.42	12.3
1932	40.0	18.14	4.49	1.79	13.0

The annual per capita consumption of milk and cream in North Carolina in 1933 was 29.7 gallons. Other dairy product:- Butter 15.63 pounds, Cheese 3.12 pounds, Ice Cream .81 gallons, Condensed and evaporated milk, 20.38 pounds. Statistical services have been organized to estimate and publish, periodically, and in detail a great deal of information on present and prospective supplies of dairy products. The state supervisor of vocational agriculture has data such as number and age of cows and the production of milk by cows on Negro farms from all counties in the state of North Carolina.

Information of this type is very valuable and should be expanded and improved. However, even with a perfect and complete series of reports on the supply situation and prospects, dairymen would be lacking fundamental knowledge of market conditions unless they had reliable information about the demand for their products.

The common mistake made by Negroes is to use insufficient quantities of milk, and there can be no doubt that if their children should consume more milk they would have better health and become physically stronger and mentally more capable than they are now. In North Carolina, Negroes constitute 29 per cent of the population. Therefore a knowledge of the amount, kind, and quality of dairy products consumed by these people is of vital importance. The good feeding of a people is the foundation of their survival, their health, and their efficiency.

The primary divisions of the one hundred counties in North Carolina are known as townships. These townships include the secondary divisions which are incorporated into cities, towns, and villages. The writer is a resident of Nash County, and, since he is interested in the utilization of dairy products, has undertaken this study.

1st. To ascertain a representative per capita consumption of dairy products by Negroes in Nash County.

2nd. To determine the factors responsible for the variation in consumption of dairy products, with special reference to fluid milk.

3rd. To determine the present means of advertising milk and milk products, and what methods can be more effectively used in promoting the use of dairy products by Negroes.

REVIEW OF PREVIOUS LITERATURE

A review of the literature disclosed a wealth of data on the consumption of dairy products, but very little bore any direct relation to the specific problem of per capita consumption of dairy products by Negroes. Generally speaking, the material dealt with the consumption by nationality in the northeastern cities, which would not be representative of North in North Carolina.

Atwater (1) made a dietary study of Negroes in Alabama forty years ago. Descriptions found in his study would apply, as far as a few points are concerned, to Negroes of today. However such statements as, "In the country practically all Negroes live in cabins, generally built of logs, with only one, or for the most part two rooms. Only two of the families visited had cows," do not picture conditions as they now exist. In fact, many changes have been made since the Atwater study.

In a nutrition investigation of Negro tenants in the Mississippi Delta, Dickens (4) found that dietaries on the average per man per day basis included about one cup of milk (part of which was buttermilk). She concluded that the greatest differences found in the uses of any food were those found in the use of milk. White families used about three times as much milk as Negro families.

Lininger and Metzger (16) reported in their Philadelphia milk survey that 49 per cent of the Negro children up to 12 years of age, 69 per cent of those 13 to 18 years of age, and 27 per cent of the adults drink milk every day. They found that the per capita consumption of 363 Negro families was .47 pints of milk daily; .37 pints of buttermilk, .06 pints of cream, .04 cans of condensed milk, .10 pounds cheese, .18 pints of ice cream, and .27 pounds of butter weekly.

Laugh (27) found that the daily per capita milk consumption of 126 Negro families in Metropolitan Boston, was .428 pints. He stated that the per family milk consumption was 0.67 quarts per day. The study revealed that only 2.3 per cent of the families purchased Grade A Milk and these only did so because of physicians orders. The per capita consumption of other dairy products was: Cream .089 jars (one half pint), .52 pounds of butter, .003 pound of butter substitute. In addition there are consumed .39 cans of condensed and evaporated milk per family weekly. Twenty-nine per cent of the condensed milk used was for infant feeding.

AREA SELECTED

In Nash County, Negroes constitute about 42 per cent of the population and in Rocky Mount 38 per cent. The city of Rocky Mount is the largest trading center within a radius of one hundred miles.

The county is a rectangular strip of land thirty-six miles long and 20 miles wide (figure 1). It lies on the upper border of the Coastal Plain section of the state. Its entire western border is drained by the Tar river which empties its water into Pamlico Sound.

It has been well stated, in The North Carolina Farm Program: "The Coastal Plain is the garden spot of North Carolina. Nature knows not how to compound a more productive soil. It can no more lie idle than the sea can keep still. Every square foot of it is crowded with vegetable life."

Because of the intensive type of farming, the farms vary from fifteen to one hundred acres. On some of these, the proportion of Negroes to whites runs as high as 20 to 1. Bright leaf, flue cured tobacco is the chief crop in this area. Cotton, peanuts, and a little corn are raised on practically all farms. In the cultivation of these crops the county has nearly every system of land tenure to be found in the South, though crepper labor is most common.

NASH COUNTY

NORTH CAROLINA

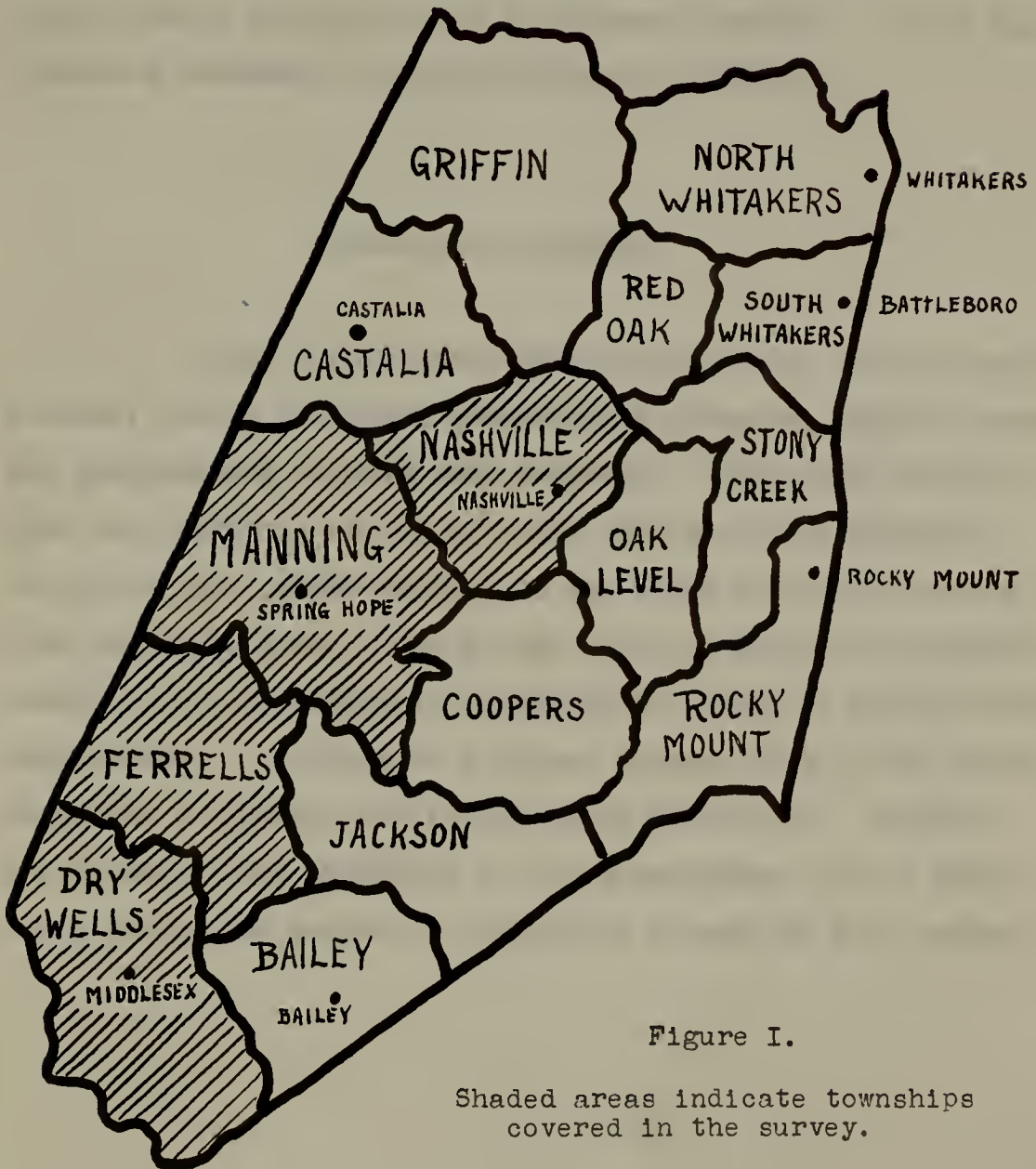


Figure I.

Shaded areas indicate townships covered in the survey.

Rocky Mount is the headquarters of the Atlantic Coast Line Railway Company. It has several warehouses which handle over a million pounds of tobacco annually. These two important industries employ hundreds of Negroes.

SUPERVISORS SELECTED

Eight typical occupations, hired men, share croppers, renters, common laborers, semi-skilled laborers, skilled laborers, and professional workers were selected. Even idle families that were formerly in one of these groups were considered. The first four groups constitute the rural area and the last four the urban area. The county negro vocational agriculture teacher of was employed to supervise the study of dairy products consumption. He employed a former teacher in the high school to supervise the study made in the urban districts. Emphasis was placed on the selection of the supervisors, for in their hands rested the success or failure of a study of this nature.

METHODS USED IN ENROLLING SWILINGS

The data used in this study are from 304 questionnaires circulated by eight enumerators from April first to May fifteenth 1935 (table 1). Each enumerator was instructed to fill in twelve questionnaires from each group of families in his particular locality: He checked for bias in the house wives statement by asking other members of the family and even questioned the neighboring family.

Two types of questionnaires were sent out to secure information for this study and each questionable sheet was sent back to the enumerator by the supervisor to be rechecked. For Nashville, Manning, Terrells and Drysell townships (figure 1), the form of the questionnaires used is shown on page 11.

TABLE I

NUMBER AND CHARACTERISTICS OF FAMILIES SURVEYED

TOTAL

Hired Men-----	40
Share Cropper-----	40
Renter-----	40
Landowners-----	12
Total-----	192

URBAN

Common laborers-----	48
Semi skilled laborers-----	48
Skilled laborers-----	48
Professional workers-----	48
Total-----	192
	<u>192</u>
Grand total-----	384

There were 2,815 families in Wash County in 1930 (17) One thousand three hundred and fifty-nine of these families live in the Urban district. There were 509 tenant farmers and 115 owners.

QUESTIONNAIRE FOR RURAL FAMILIES

- A Township-----Name-----Address-----
Day laborer-----
Share cropper-----
Renter-----
Landowner-----
- B Mother--Father--Children--Boarders--Children age--: Infant
1--2--3--4--5--6--7--8--9--10--11--12--13--14--15--16--17--18--
Family annual income: \$0--500--1000--1001--1500--1501--
2000--over 2000-----
- C Quarts of milk used in home daily?---Produced?---Pur-
chased?---
1 No. of Milk cows?---Average production?--- Quarts of
milk used to drink daily?--- Milk used for live-stock
feeding?---Butter making?---Cheese making?---
2 Do you have milk through out the year?--- What season?--
Is milk purchased when not produced?--- How much?---
Quarts of milk sold weekly?--- pounds of butter?---
Pounds of cheese?---
3 Do you use sweetened condensed milk?---Evaporated
milk?--- No.of cans weekly?---For what purpose?---
1-----2-----3-----4-----

A similar questionnaire was used in the first, second, third, fourth and sixth districts of the city (figure 11). The four groups of families described in table 1 were used in A. The production phase in C was eliminated.

CONSUMPTION, PRODUCTION, AND PURCHASE OF MILK

Based on the replies from 364 Nash County families, the consumption of milk in these families was slightly more than one half quart of milk per family (table 2). Of this amount, 53 per cent was purchased from dealers or at stores; the remaining 48 per cent was produced and utilized by farm families.

Only 37 per cent of the farm families visited had cows. Practically two thirds of the families secured milk from a neighbor or bought it direct from dealers.

North Carolina dairy statistics show that there is only one cow for each 24 persons in 41 Coastal Plain Counties and that the milk production is only about one half pint per person daily (7). This report indicates that there is one cow to each 32 Negroes in Nash County.

On the average there were 5.89 persons per family in these 364 families. According to the fifteenth census (1930) the average size of the Negro family in North Carolina was 5.14 and, in Nash County, 5.48 person per family.

TABLE 11

MILK CONSUMPTION, PRODUCED AND PURCHASED

Number of families-----	384
Number of persons-----	2,263
Number of persons per family-----	5.89
Number of children 18 years and under-----	1,401
Number of children per family-----	3.65
Quarts of milk per family-----	.585
Quarts of milk produced-----	232.30
Number of Milch cows-----	71.
Average production (qts)-----	3.26
Quarts of milk purchased by-----	<u>117.32</u>
Urban families	222.72
Rural families	117.32

RELATION OF INCOME TO MILK CONSUMPTION

For the 554 families studied, the average daily consumption reported from all owners was .56 of a pint per person, or slightly over one half of a pint daily. The rural families consumed more than twice as much milk as the urban families (table 111). The per capita consumption of milk in Becky Mount in March 1935 was 0.3 of a quart per day. (4) It was found that milk was furnished by the city welfare agency to some of the families who do not have any income.

The annual incomes of the rural families were figured on a monthly basis in order to be comparable to urban families.

There was considerable difference in the consumption of milk in the different income groups. The (\$140 to \$159) group consumed the most milk in the rural area (1.15 pint per person) while in the urban area the consumption reached its peak in the (\$180 to \$200) group, which was .59 of a pint daily. In the low income group only .42 and .12 of a pint daily was reported for rural and urban families respectively.

Families in the high income group reported smaller milk consumption than families in the medium income group.

(table 111) An explanation of this may be found in the fact that they are large consumers of cream and of a greater variety of high priced foods. Also for high income families the per capita figures for milk consumption are somewhat low because these families have more boarders and the milk must be divided among all. The milk consumption of boarders in some cases probably was not reported in the family's milk consumption.

It is significant that families of medium income (\$80 to \$140) reported consumption 27 per cent above that of all families receiving less income, and 13.6 per cent higher than urban families of higher income. It is doubtless true that those families of high per capita consumption recognize to a greater degree the nutritive value and health giving qualities of whole milk. People in less favorable economic circumstances, while perhaps recognizing this, do not appreciate the economy of milk as an article of food. The unemployed urban families consumed more milk than the very low income group, which was due to the distribution of milk by the relief agency.

TABLE III.

Daily Per Capita Milk Consumption by Income Group.

Income Group Monthly	Number of Families	Av. Person Per Family	Composition of Families			Daily Per Capita Milk Consumption		
			6 yrs. & 7 to 10: Adults			Rural ; Urban ; Average		
			Under ; Years :	Per Cent	Per Cent	Pints	Pints	
Unknown	22	5.67	28.6	23.30	51.9	.37	.14	.235
Below 20	26	5.24	24.7	35.50	39.8	.42	.12	.265
20 - 39	30	4.91	21.0	40.80	38.2	.46	.15	.315
40 - 59	16	4.39	16.5	40.50	44.2	.71	.41	.56
60 - 79	64	7.72	14.5	42.00	43.5	.70	.34	.61
80 - 99	59	5.24	13.8	35.45	50.8	.82	.52	.67
100 - 119	8	6.70	21.4	33.00	40.6	.88	.32	.60
120 - 139	16	5.70	34.7	36.45	28.8	.49	.30	.395
140 - 159	13	7.31	21.7	30.70	47.6	1.15	.54	.615
160 - 179	12	4.91	16.2	63.30	20.5	.95	No report	.760
180 - 199	7	7.35	24.5	55.50	14.0	.86	.59	.725
200 and over	3	6.50	33.7	30.3	36.0	1.50	.44	.97
Total or Average	304	5.89	22.63	38.83	38.54	.86	.313	.560

SIZE OF FAMILY AS AFFECTING MILK CONSUMPTION

As the size of the family increases, the reported per capita consumption of milk decreases (table 4). With a higher percentage of children in the large families, it would appear that, from the stand point of health, the amount of milk used by each person should be the reverse of that shown. The per capita consumption was lowest at eleven persons per family, and highest in the families of two children for the rural and one for the urban.

There is a decided relation between the size of family and income, the larger families on the average being found among the low income groups. Since poor families are small consumers of milk, the low consumption in large families is partly due to the low incomes obtained by these families. It was noticed in the report that in families with high incomes, per capita milk consumption is fairly stable regardless of the number in the family.

The examiners reported 6 families having over 12 persons. Three families had 13 persons per family, two 14 and one 16.

TABLE IV.
Daily Per Capita Milk Consumption by Size of Family.

Number Children in Family	Number of Families	Composition of Family			Daily Per Capita Milk Consumption	
		6 years and under (Per Cent)	7 - 18 years (Per Cent)	Adults (Per Cent)	Rural (Pints)	Urban (Pints)
1	7	--	--	100.00	1.26	1.00
2	18	--	12.50	87.50	2.00	.41
3	53	9.67	23.40	66.30	.95	.53
4	37	23.30	38.00	38.70	.89	.33
5	60	13.30	39.90	46.80	.63	.22
6	39	14.20	46.40	39.40	.62	.19
7	51	15.70	45.20	37.10	.93	.23
8	60	17.90	52.30	29.80	.60	.29
9	26	21.00	51.30	22.70	.64	.22
10	11	31.70	46.60	21.70	.66	.20
11	9	25.60	48.70	25.70	.26	.22
12	5	20.80	41.20	30.00	.95	.42
Total or Average	376	16.19	37.21	45.90	.87	.35

DISTRIBUTION OF FAMILY AND PER CAPITA CONSUMPTION

Size alone is not a suitable measure of the composition of families as it affects milk consumption. It was reported that twenty-four per cent of the families consumed less than one half pint of milk daily (table V). For thirty-six per cent of the urban families, the per capita consumption was only .2 of a pint. Only 0.8 per cent of the families consumed over one and one-half pints of milk daily. Therefore these people are far behind in the quantity of milk that Tobey (24) and other milk authorities advocate: "A quart of milk daily for every child and at least a pint for every adult."

Although the per capita milk consumption of a family of five is somewhat different from that of the family of four size, the composition of the family of five is different when the family is composed of five adults and three children, or there may be a slight variation according to sex of the children. Adults in all groups appear to drink about the same amount of milk.

TABLE V.
Distribution of Families by Daily Per Capita Milk Consumption.

<u>Daily per Capita Milk Consumption (Pints)</u>	<u>Rural Families</u>	<u>Urban Families</u>	<u>Total Number of Families</u>	<u>Per Cent of Families</u>
0.0	17	19	36	9.4
.2	15	69	84	21.8
.4	36	56	92	24.0
.6	27	19	46	12.0
.8	30	20	50	13.0
1.0	31	3	34	8.9
1.2	11	2	13	3.4
1.4	9	1	10	2.6
1.5	5	3	8	2.1
Over	3	---	3	0.8
Total or Average	192	193	384	100.0

THE CONSUMPTION OF OTHER DAIRY PRODUCTS

CONDENSED AND EVAPORATED MILK

The use of condensed or evaporated milk was relatively slight (table VI). According to the survey made by Smith (28) and others, Negroes use more condensed and evaporated milk than do other nationalities. It was observed that many of the Negro families had no facilities for keeping fresh milk. Of the 237 housewives using condensed or evaporated milk more than one half (52 per cent) replied that it was used "for coffee" as a substitute for cream. The per cent answering for other reasons are as follows: like it 17 per cent; costing 13 per cent; convenience 5 per cent; price 3 per cent; and miscellaneous 7 per cent.

It was reported that 94 per cent of the urban families and 50 per cent of the rural families used "canned" milk. The total per capita consumption of large size cans of evaporated milk was .53 per family or 0.14 per person weekly. The annual per capita was 7.28 pounds as compared with 12.5 for the United States in 1934.

Table VI indicates that the high income groups (\$120 and over) of the rural families consumed nearly twice as much condensed and evaporated milk as the medium and low income groups. The highest consumers being in the (\$120-\$139) family group whose weekly per capita consumption of condensed and evaporated milk was 2.40 lbs. The lowest per capita consumption was in the unknown income groups.

The weekly per capita consumption of condensed and evaporated milk was highest in the medium income groups of the urban families. It was slightly higher than the high, and twice as high as the low income groups.

Table VI.

Condensed and Evaporated Milk: Weekly Per Capita Consumption by
Income Group and Family.

Income Group	RURAL			URBAN		
	Number of Families	Average Persons Per Family	Large Cans (14½ oz.)	Number of Families	Average Persons Per Family	Large Can (14½ oz.)
Unknown	3	5.67	.201	7	5.11	.103
Below 20	2	5.29	.248	4	5.36	.159
20 - 39	9	3.25	1.750	19	6.00	1.77
40 - 59	17	5.25	1.750	56	5.25	1.46
60 - 79	8	5.78	1.500	33	6.64	1.57
80 - 99	5	5.66	1.670	28	5.25	1.54
100 - 119	---	---	---	19	5.19	1.50
120 - 139	2	7.50	2.400	5	5.00	2.00
140 - 159	4	7.50	1.834	4	4.50	.75
160 and over	8	7.25	2.250	4	8.00	1.00
Total or Average 58	---	---	1.512	179	5.63	1.26
All Families	192	---	.45	192	---	1.18

BUTTER

According to the report of the U. S. Department of Agriculture, Americans consume in some form or other less than two hundred million pounds of butter annually. That is to say they eat butter at the rate of 17 to 19 lbs annually per person; a poundage greatly in excess of any other fat, and with a corresponding excess of cost.

Table VII shows approximately what part negroes had in the country's butter consumption. It was reported that 88 per cent of the rural and 94 per cent of the urban families used butter. Even though more of the latter use butter, the per family consumption is higher among the rural families than the urban. This is due to the fact that farm families which have cows and methods of keeping fresh butter, use it for seasoning foods as well as for a spread. The people who do not have the means and facilities for keeping butter use it only on special occasions.

It was reported that a total of 65 pounds of butter was produced on the farms surveyed which evidently is responsible for the high per capita consumption in those rural families.

The variations in consumption by groups were similar to the per capita consumption of fluid milk. The medium income group(\$60 to \$120) had a higher family per capita consumption of butter than either the low or high income groups. The weighted averages of per capita butter consumption were reported as 1.90 pounds per week for each rural family and urban 1.07 pounds.

The estimated per capita consumption of butter in the survey was 13 pounds annually as compared with 17.69 pounds in 1933 by the United States.

TABLE VII.

Batters Weekly Per Capita Consumption by Income Group and Family.

Income Group	Per Capita Consumption by Groups			
	RURAL		URBAN	
	Number of Families	Average Persons Per Family	Number of Families	Average Persons Per Family
		Pounds		Pounds
Unknown	5	6.11	4	5.24
Below 20	9	5.31	7	4.25
20 - 39	15	4.84	17	4.38
40 - 59	38	6.21	58	5.32
60 - 79	29	6.28	44	6.26
80 - 99	39	6.00	25	5.77
100 -119	2	7.75	12	5.50
120 -139	11	8.20	5	5.00
140 -159	10	7.60	5	4.50
160 and over	16	7.90	4	8.50
Total or Average	174	6.62	161	5.53
All Families	192	---	192	---

BUTTERMILK

Table VIII reveals the fact that Negroes are very fond of buttermilk. According to reports, a number of women in the study stated that their children preferred buttermilk to sweet milk. The writer knows many farm families who make their supper meal, during the idle season, from corn bread and buttermilk. The question of increasing buttermilk consumption among them seems to involve making the supply accessible rather than making it popular.

The table indicates that 80 per cent of the rural and 73 per cent of the urban families use buttermilk. The (\$120-\$130) income group in the rural area has the highest family per capita consumption with an average of 16.40 quarts of buttermilk per family. The group (\$100-\$119) leads in individual consumption with 3.125 quarts of buttermilk per week.

It seems as though the urban families purchase buttermilk for its economic value. The highest urban family per capita consumption was in the low income group (\$20-\$39) having an average of 3.25 quarts per family. The high income group (\$140-\$159) averaged .75 quarts of milk per person.

Table VIII.

Batterwalk: Weekly Per Capita Consumption by Income Group and Family.

Income Group	Per Capita Consumption by Groups				Number of Families	Average Persons Per Family	Quarts	Average Persons Per Family	Quarts
	RURAL	Number of Families	Average Persons Per Family	URBAN					
Unknown	6	4.50	1.15	7	5.66	1.12			
Under 20	8	5.15	1.65	5	6.00	1.56			
20 - 39	14	5.00	1.27	18	5.00	3.25			
40 - 59	35	6.24	5.82	46	4.80	1.68			
60 - 79	35	6.16	5.26	37	5.75	1.44			
80 - 99	25	5.75	7.25	19	4.44	2.11			
100 -119	2	6.50	6.25	9	4.50	1.50			
120 -139	11	8.60	16.40	3	5.25	1.75			
140 -159	6	7.00	6.25	2	4.00	1.50			
160 and over	11	7.18	8.31	4	7.33	1.80			
Total or average	152	6.21	6.17	140	5.20	1.69			
All Families	192	---	5.51	192	---	1.20			

CHEESE

The per capita consumption of cheese in America in 1933 was 4.52 pounds. Table IA shows the weekly per capita consumption of cheese in Wash County to be .37 pounds per family or 3.48 pounds per person annually. The urban families consumed 24 per cent more cheese per family than the rural. High income families show the highest consumption of cheese in the rural area, but in the urban area, low income families lead.

The enumerators asked all families about the use of cottage, cream, and other soft cheeses. It was reported that 27 of the urban families used cottage cheese occasionally, and only 9 used cream cheese. The latter was used for making picnic sandwiches. Thirtieth-three per cent of the rural housewives had never tasted cottage cheese but the majority of them had heard of it at lectures on nutrition.

It was also reported that only eleven of the farmers who had cows could make cheddar cheese, but stated that they lack equipment and never bother about processing. When questioned about cottage cheese, a few stated that buttermilk is just as good. "My better!"

Table IX.

Chesee: Weekly Per Capita Consumption by Income Group and Family.

Income Group	RURAL		URBAN		Pounds
	Number of Families	Average Persons Per Family	Number of Families	Average Persons Per Family	
Unknown	4	5.50	---	---	---
Under 20	3	6.00	6	5.25	.75
20 - 39	5	4.50	14	5.00	1.62
40 - 59	2	5.40	40	4.62	1.86
60 - 79	16	7.12	22	5.50	1.00
80 - 99	9	4.75	24	6.27	1.45
100 -119	---	---	15	5.66	.67
120 -139	10	7.25	5	5.25	1.50
140 -159	---	---	4	4.50	.53
160 and over	16	8.43	---	---	---
Total or average	67	6.05	130	---	1.20
All Families	192	---	192	---	.61

ICE CREAM

Ice cream consumption by families in the survey in Nash County is shown in Table X. A decided seasonal variation will be noted with high consumption during late Spring, Summer and early Fall months.

It was reported that most of the rural families made their ice cream, and the basic cream solids were sweetened condensed milk. A large number of the urban families in question also made ice cream.

The table shows that 34 per cent of the rural families and nearly 40 per cent of the urban families reported the amount of ice cream consumed. The consumption of the high income group is 54 per cent higher than the low and 23 per cent higher than the medium income groups. It is shown that the income group (\$120- \$139) has the highest family per capita consumption in the rural area, while the (\$160 and over) group leads in the urban area.

The per family consumption of ice cream in both areas was 1.26 pints weekly. This figure indicates that the per capita ice cream consumption is .21 ($1.26 \div 5.89$) pints weekly or 1.35 gallons annually providing that the low average does not interfere. In 1934, it was estimated by the International Association of Ice Cream Manufacturers consumption of ice cream in North Carolina was .83 gallons.

Table X.

Ice Creams Weekly Per Capita Consumption by Income Group and Family.

Income Group Monthly	RURAL		URBAN		Pints
	Number of Families	Average Persons Per Family	Number of Families	Average Persons Per Family	
Unknown	5	6.33	4	4.50	.95
Under 20	6	5.75	7	5.25	1.10
20 - 39	3	7.80	18	5.75	1.46
40 - 59	15	5.86	40	5.53	1.48
60 - 79	11	7.40	15	5.71	2.56
80 - 99	9	5.50	7	5.00	2.00
100 -119	--	--	8	8.33	1.66
120 -139	8	8.75	7	7.25	1.50
140 -159	9	8.25	3	6.50	3.24
160 and over	--	--	7	7.33	3.33
Total or average	66	6.95	76	6.17	1.93
All Families	192	--	192	--	.76

CREAM

The average reported weekly cream consumption is shown in Table 31. It will be noted that in the case of cream variation is more pronounced in consumption among high income families than in the case of milk, varying from 3 one-half pint jars a week for the high group income in the rural area to .65 jars for the low income group (10-19) in the urban area. Using the same figures, the weighted average consumption reported for both areas was .097 one-half pint jars each, weekly, per person or .573 one-half pint jars each, weekly, per family. Waugh (23) reported in his survey that Negro cream consumption was .029 jars per capita and 0.28 per family weekly.

The table indicates that the income group (150-159) of the rural families has the higher cream per family consumption of 1.35 pints weekly. The lowest cream consumption per family is in the groups (10-19) of the urban family which averages .25 pints.

Of the 50 farmers who own cows, 55 per cent used the cream immediate household purposes and 35 per cent made butter.

Table XI.

Cream: Weekly Per Capita Consumption by Income Group and Family.

Income Group	RURAL		URBAN		Total
	Number of Families	Average Persons Per Family	Number of Families	Average Persons Per Family	
Unknown	2	5.00	---	---	---
Under 20	---	---	1	3.00	1.00
20 - 39	2	3.50	7	7.66	1.00
40 - 59	17	7.14	12	8.80	1.40
60 - 79	15	6.59	5	3.50	1.50
80 - 99	2	5.00	7	8.00	1.67
100 -119	7	6.12	5	3.80	.75
120 -139	5	7.50	4	5.50	1.75
140 -159	3	6.50	3	4.25	2.00
160 and over	9	7.50	6	7.50	1.80
Total or average	63	6.32	50	5.44	1.43
All Families	192	---	192	---	.37

WAGE PRODUCTION AND UTILIZATION OF DAIRY PRODUCTS

The amount of milk produced daily in each of the townships surveyed, and the percentages of the milk which is sold, fed to live stock, and used in the home as fluid milk and for butter are shown in Table XII. Not much of the milk produced is sold, because of the fact that in this section of the state the dairy enterprise attains little importance in the production of the few cows kept solely for home use is quite overshadowed by the large production of the few dairies making market milk.

There were 71 milch cows reported in the survey, five of which were dry. The production of these 36 freshened cows was 899.45 pounds of milk daily, averaging 5.12 pounds per cow. The highest producer was 15.35 pounds of milk daily, and the lowest was 2.43 pounds. According to the 1930 census, the daily yield per cow in North Carolina was 5.5 pounds daily. It must be remembered that the production figures given indicate the yield of cows during the time the survey was made. Fifty per cent of the cows were milked only 4 months of the year; Twenty-five per cent were milked 9 months and the remaining 25 per cent productive all the year.

TABLE XII

MILK: PRODUCTION AND UTILIZATION

USE OF MILK PRODUCED

MILK
Produced

USED IN HOUSE

TOWNSHIP	In Pounds	Used to		As Whole	
		Sold	Live	Milk	For
		Pounds	Per cent	Percent	Percent
Manning	217.12	74.25	2.3	2.7	1.1
Nashville	153.18	60.90	.6	4.0	1.7
Ferrells	127.08	53.75	.2	5.8	2.3
Dry Wells	102.67	49.45	.5	2.8	4.9

FACILITIES FOR KEEPING FRESHNESS

The various methods of refrigeration of milk and milk products are shown in table VIII. Sixty-seven per cent of the cooling facilities in the rural area are wells. Refrigerators constitute 25 per cent of the cooling facilities. It was reported that facilities which use water pails for cooling milk only kept it 12 hours. More than 90 per cent of the urban milk and milk products cooling facilities were refrigerators.

TABLE VIII
FACILITIES FOR KEEPING MILK FRESH

Methods	Rural	Urban
	No. of units	No. of units
Refrigerator	36	140
Well	96	---
Spring	13	---
Cellar	6	11
Water-pail	<u>5</u>	<u>3</u>
Total	157	150

MILK AND ITS RELATION TO CHOICE IN CONSUMPTION

The reasons given for drinking milk and for not drinking more are listed in Table XIV. It will be seen that the largest number of people gave as their reason for drinking milk the rather intangible one they "like it." While the most important reason for not drinking more milk was that they "disliked it." It was reported that in the case of children, particular young children, a large percentage of mothers gave the reasons for milk drinking as "health" and, "good for children." A few mentioned food value. Of those who told why they did not drink more milk some definite reasons were given in addition to "dislike". A number of adults, especially women, had the notion that milk was fattening and they went without it for that reason. Very few said it disagreed with them. A few said it was too expensive.

It is significant that not a single person stated other reasons than those given in the questionnaires unless the enumerators suggested something. A few admitted that milk is an economical food, though none said it is a perfect food.

Table XIV.

Number of Persons Giving Various Reasons for Drinking or Not Drinking More Milk.

(Rural and Urban Families)

Age Group	Reasons for Drinking Milk				Reasons for Not Drinking More Milk			
	Lake	Good for Children	Health	Food Value	Dislike	Expensive	Disagree	Pertaining
Rural								
0 - 4	62	45	71	3	8	22	1	0
5 - 10	140	51	55	7	27	16	3	0
11 - 18	83	11	64	18	10	23	2	0
Adults	212	0	40	35	254	45	12	34
Urban								
0 - 4	54	30	57	6	5	10	4	0
5 - 10	120	25	60	4	12	0	1	0
11 - 18	96	13	72	9	14	7	0	3
Adults	160	0	53	21	227	23	15	51
Total	948	176	400	108	565	154	36	85

PUBLICITY AND MILK CONSUMPTION

During the last years much time and money have been expended in advertising milk by both distributors and producers. At present, educational and health authorities are taking part in promoting the use of milk and milk products.

When the enumerators asked, "Where have you seen the use of fresh milk advertised or advocated?" "Schools" were mentioned most frequently in both rural and urban areas. (table XV).

Moving Pictures and radios rank second and third respectively, in the urban area, compared with busses and magazines in the rural area. Newspapers, bill boards, restaurants, and stores were also important places where advertisements were seen, according to reports of housewives and members of families. Milk advocacy was seldom heard at informal meetings or at lectures.

The reason for the increasing importance of schools and "movies" in comparison with dealers' wagons or trucks is not that the vehicles have rather, that schools and movies advertising has been used more intensively.

TABLE XV

RESULT OF QUESTION, "WHERE DO YOU SEE TRUCKS MOST ADVERTISED?"

(Figure indicates the number of times the different places were mentioned)

Place	March	April	Total
Schools	104	174	278
Trucks	54	141	195
Dealers' signs	39	135	174
Movies	29	105	134
Radio	31	100	131
Newspapers	21	21	42
Restaurants	42	43	85
Stores	30	30	60
Signs	40	19	59
Bill boards	31	27	58
More than one source	113	249	362

ADVERTISING APPEAL

In judging the relative value of different advertising mediums, it is important to know not only how many people see or hear the various kinds media in teaching the facts to consumers. The enumerators reported that 38 per cent of the rural and 43 per cent of the urban persons interviewed knew about milk advertising, could remember definite relevant facts about milk which were learned from advertising.

"Quality," "health," and "cleanliness," appeal most frequently to housewives, but on the whole, "quality," "good for children," "food value" and "health," appeal the greatest number of times (table XVI). It was reported that advertising appeared to be remembered most often by school children. Those interviewed did not appear to be convinced of the economy of milk for there had been little advertising of this point even during the business depression. With lower wages and payrolls it would seem that some effective advertising is badly needed to show consumers that milk is an economical food to use.

Table XVI.

RESULTS OF THE QUESTION, "WHAT DO YOU REMEMBER
ABOUT ADVERTISEMENTS YOU HAVE SEEN?"

Points Remembered	<u>Urban</u>	<u>Rural</u>
	Percent remember- ing relevant points	Percent remember- ing relevant points
Quality	16.1	19.3
Good for children	15.7	17.2
Food value	14.4	15.5
Health	12.5	12.4
Build bones	10.7	9.1
Appetizing	9.2	8.9
Safety	7.7	8.7
Price	3.2	6.3
Economy	5.1	2.5
Vitamins	<u>0.4</u>	<u>.1</u>
Total Percentage	100.0	100.0

JOHN SUGGESTIONS FOR INCREASING THE USE OF
DAIRY PRODUCTS IN WASH COUNTY, NORTH CAROLINA

It is with some hesitancy that one adds another to the already fairly large list of articles which have been written on the subject of increasing milk and milk products consumption. The author is fully aware of the fact that he could present nothing new in the way of suggesting the increased use of dairy products. There are no apologies offered for the repetitions of the same ideas in different words which occur in many places. One had best think up still other ways of saying these as they will probably be necessary to drive the thought home.

The writer has already reviewed, in the earlier part of this paper, the general character of Wash County, North Carolina. Knowing the nature of the people and of the surrounding country, he has endeavored to limit his suggestions for increasing dairy products consumption to the extent that such suggestions can be practical and feasible. No attempt has been made to introduce suggestions which would be outside the reach of the people in Wash County if they were to carry on a "drink-more-milk" campaign or anything of that nature. With this view in mind, the writer has gathered and systematized various plans which can be launched successfully with Negroes in Wash County.

However, there is a limiting factor to be taken into consideration. To increase the use of milk to a total more nearly adequate for the community would require much persistent effort and the best cooperation of all those who are interested in public welfare. This would require a knowledge of the nutrition of children in particular our future citizens. In a county like the one in question, where the financial resources are limited, one must have recourse to other means of sponsoring milk campaigns. The author sees the necessity of adopting whatever means are available to conduct a milk campaign without incurring added expenses which would be unreasonably high to the county and its citizens.

PLANS FOR CONDUCTING MILK CAMPAIGNS IN ORDER TO INCREASE
CONSUMPTION OF MILK AND ITS DERIVATIVE PRODUCTS

That a real need for the education of adults on the food value of milk exists, there is little doubt. Considering the civic aspects of Nash County, the number of unemployed, the actual type of adult to be reached, it is necessary to hire a small group of trained experts who can handle the masses of people effectively. These experts should be able to direct a milk campaign in such a way that interest in it will increase rather than dwindle as time goes on. They must be capable of awakening the public and making it "milk-conscious." They must be trained nutritionists, and good and interesting speakers. "Loose talk" and misinformation must be condemned at the start. They should be able to instill confidence in the public and be enthusiastic in their work.

This small group of experts would have several lines of advance in starting and conducting its educational program. With the cooperation of town or city officials, public halls such as school auditoriums, openair meeting places, and churches can be secured free of charge. At these places, various talks--illustrated or otherwise, can be presented for the edification of the public mind. There are many ways in which interest to these talks can be obtained and maintained. (1) Educational "milk" films can be shown; (2) debates on subjects pertinent to milk consumption can be held;

(3) invitations to prominent athletes or other popular men and women can be extended so that by their presence and discussion their positive views on milk consumption can be followed and adopted by the people; (4) various games and health contests can be conducted which would get the younger folks interested; (5) picnics can be arranged to which both old and young can attend and at which the subject of milk can be discussed effectively; (6) an intensive educational week or month can be carried out with good results, when that week or month is given some official name, such as "Milk Week" or "Milk Month;" (7) groups of people can be organized and conducted through dairy farms and milk plants. Persuading the groups about milk and its beneficial effects and telling the truth about it interestingly is sure to rally many of the so-called "doubt-ing Thomases" on the side of milk.

Similar campaigns can be conducted so that those people who deal with milk, whether they be producers or dealers, can be educated to a better knowledge of milk and its relation to the public. Too many dairy farmers and milk dealers think of themselves as being such rather than as merchants. They think of themselves only as people whose business is to leave milk on the doorstep and not as people whose business it is to put out a good product in order to attract new customers and to increase consumption. They must be educated in salesmanship, also. They must be trained to make the consumer want to buy not only milk and cream, but other dairy products as well,

from the milk wagon or farm.

They must train the route men to want to sell, not only a quart of milk or a half-pint of cream, but also a balanced line of dairy products. The people who produce and distribute more milk must be trained to acquire confidence, good-will, friendship and respect among themselves as well as among their customers. If they advertise their products, they must forget the existence of competition. Their advertising must have good manners. They must build confidence in all milk, their competitors as well as their own. They must think well of the industry as a whole. Their motto must be "Build--don't destroy." They must not chisel for themselves and must not exaggerate the values of their own products, or the common response on the part of the customer or fellow competitor will be that sarcastic snarl, "Oh, yeah!" If a trained group of experts such as have been previously mentioned, would have charge of a milk campaign could instill some "common sense" in people engaged in the dairy industry, they would be able to free a great deal of potential energy locked up in seemingly "dead" salesmen. Certainly, dairymen in all phases of the industry are the basic advertisers of milk and "hired advertising" is almost entirely an economic loss, with certain exceptions, such as radio advertising.

Farmers and milk dealers can be brought together so that various plans could be adopted by them in helping the people to consume more milk. Many details could be profitably discussed which would further their ends as far as greater milk consumption is concerned. Some expert advice must be available at the

time when such meetings are held. Trained men will also be able to lead the group in open forum discussion. In short, such a get-together would aid greatly in mobilizing the necessary forces for conducting a milk campaign. Such an organization could hardly exist if unifying agents were absent. There must be present especially trained people, said if necessary through some common fund, to follow up discussions, carry out plans, and manage all necessary details, if the milk campaign is to be successful. The author makes it a special point to emphasize the necessity of hiring a trained man or men for carrying out the campaign. He knows that the spirit of cooperation is not keen around and among dairy people in Wash County so that the campaign could be managed by them with any great measure of success. At least, the element of initiative is so noticeably lacking among the dairy farmers and milk dealers as to inhibit any cooperative motive. The nature of the various peoples of Wash County and the general environment of the section requires some outside force which would give "push" and "drive" to dormant masses of people. Furthermore, this outside force must live up to a certain responsibility which is a vital part of the job.

This so-called outside force might well be named "The Milk Publicity Bureau." Educational methods for publicizing the values of milk and its derivative products would be the working basis for this bureau. Various representatives could be sent to the schools, religious organizations, civic, fraternal, and service clubs and the like to carry on health programs in the

form of lectures and contests. Timely advice on the uses of milk could be sent out in circular form during certain intervals to the people, and to housewives in particular. The agents representing this bureau must not present dry-as-dust facts in a stereotyped fashion which would bore the people. There should be a flavor of "locality," a wholesome, home-town tone which would strike a responsive chord in the presentations of the milk campaigners. Cusackentash (21) contended that at least three concrete facts must be stamped indelibly on the people's minds, viz., (1) Milk is the most nearly perfect food; (2) Milk is the most economical food; (3) A quart of milk for children daily and at least a pint of milk for adults daily are the prerequisites for a healthy life. The people must lose the idea that milk is mere chalk water. They must be made to think of milk as something very complex and something which Nature alone can produce. They must be made to realize that milk is a God-given food.

Children and grown-ups should be taken through dairies and milk plants. A trip through one of these plants is a real selling force. The milk-sales promotional value is tremendous.

It is important to reiterate to people engaged in the dairy industry the necessity of proper treatment of the customer. A small customer should never be slighted. Complaints must be taken care of in a manner satisfactory to buyers of milk. It must be remembered that each customer presents an individual problem. Personal appearance and uniform are important anywhere, even in the poorer districts and slums of Nash County.

Customer loyalty is a thing that must be developed. A satisfied customer will advertise her satisfaction to friends and neighbors. Dr. Thurman Rice (22) of Indiana says, "It takes care and character to produce milk. It takes training and equipment, too. It takes faith to drink a glass of milk-- faith in reputation, character, ideals, training, and a lot of other things that a milk distributor should carefully cultivate in himself and in his employees."

Plans can be made by the milk publicity bureau to educate the workers in the factories. The advantages of milk service in factories can be elaborated upon by the bureau. The bureau can help establish milk dispensaries at various convenient places in or about factories. Circulars can be distributed, motion pictures can be shown, and various other schemes can be adopted in order to carry over the idea of increasing milk consumption among factory workers. Milk service in factories has many advantages, some of which can be stated as follows:

- (1) Milk acts as a tonic to the worker--it refreshes one and makes one feel comfortable.
- (2) Employees can do work with greater ease, accuracy, and efficiency when light, nourishing foods like milk and milk products are consumed at various intervals during the day's work.
- (3) Consumption of dairy products helps a great deal to eliminate undernourished workers. This fact tends to do away with doctor's bills and bed-ridden days.
- (4) The sale of milk in factories helps to build factory morale;

directly, by bringing workers together at the milk dispensary; indirectly, by putting the people in a more cheerful mood-- the psychological aspect.

(5) Consumption of dairy products by factory workers makes these people feel better at the end of a day's work.

Beall, Laird, and Stradline (12) claim that carbohydrates in the diet lessen the workers' feelings of fatigue and increase their productive capacity. This indicates the possibilities of getting factory and office employers to help encourage milk and ice-cream consumption during the working day on the grounds of increased efficiency of the workers. What has been said for factory workers can be well applied to office workers and others who may be engaged in routine work.

A very valuable aid in educating the people to use more milk and milk products is through the medium of motion pictures. Motion pictures have a tremendous power to drive home messages into minds of both young and old. This power can be utilized with great efficiency in the milk campaign. One can make friends with children through the use of moving pictures. There is a good old Chinese proverb that always rings true to the ears of advertising people. It is, "One good picture is better than ten thousand words." Pictures will get attention from the public. The silver screen exercises a strong magnetic attraction on people. Educating the public through the use of the public moving pictures can very well be brought about if, for example, pictures are shown of champions, great athletes,

and other idols of the day drinking milk for health and proclaiming the good qualities of milk. Most of the boys and girls who want to be like their heroes and their heroines would try to follow the examples set by them.

Other forms of motion picture entertainment could be offered to the public by running contests. That is, milk contests could be set up and prizes offered daily or weekly in the form of free tickets to the theatre. The work to be done in such contests can be of varied nature. For example, families which could increase their daily milk supply and bring proof of the increase to the milk bureau either through a certified note from their dairy or dairy or by having their daily supply checked by some established local milk station of the publicity bureau, would receive free tickets to the theatre weekly for a period of a month. Any feasible plan for rewarding increased consumption of dairy products can be executed without incurring too much expense. Perhaps the local theatre manager might be civic-minded or enterprising enough to issue a certain percentage of free tickets. Plans for increasing milk consumption such as outlined briefly above may seem short sighted and short-lived. But, even if a very few families can be convinced to increase their milk consumption through such means, this phase of the milk campaign will have gained enough attention from the people as to eliminate one more barrier in conducting effectively a milk educational program and awakening the sleeping public to a mild degree of interest. Keeping at the job in

the campaign, pounding in ideas in the public mind from every angle, and arousing a little interest, are the stepping stones to success. Washburn (27) says very aptly, "In selling anything to anyone we must approach through the avenues that are open." One must have a high and sustained determination to put over any plan, in the face of adverse circumstances.

The writer wishes to discuss briefly another phase of the educational program that could be carried out in order to increase dairy products consumption by cooperative advertising. The cooperation rendered by various allied groups can be made very effective in conducting a milk campaign.

County fairs are important media through which dairy knowledge can be very effectively disseminated to the public. At these fairs, exhibits or displays can tell the salient facts about milk as a food and as an economic factor of great importance. Milk parlors or bars may be set up as an aid in making people see the value of milk. At these fairs, milk chocolate, auto windshield stickers, and stationery stickers, can be made available for free distribution.

Retail food stores can also help in this campaign. The owners or managers of these stores should run at least one "special" on milk each week. Window displays which have reference to increasing milk consumption could be installed. The displays could be arranged in very attractive ways by grouping milk and other dairy products with different foods usually consumed with them. All clerks could be induced to suggest to each customer the trial of the combinations featured in these displays.

Enlisting the aid of religious institutions in supporting the campaign to increase the consumption of milk could be a tremendous aid in achieving success. Religious institutions have a great power to influence the public mind. Devoting some part of the services to express the need for greater milk consumption would prove extremely helpful to the campaign. The objectives of campaigning in this way would be non-commercial in nature. So far as they concern health, they are humanitarians.

There are other suggested advertising schemes deserving of mention which should prove very helpful in conducting a campaign of this nature. Local newspapers could run campaign slogans at the top and bottom of various advertisements or at other conspicuous sections of the paper. Special open air stands or booths could be set up on the streets with an attendant in nurse costume to distribute literature about dairy products. Insurance companies may incorporate editorial material regarding the value of milk in health bulletins. Slogan folders or posters could be enclosed in direct mail and premium notices.

Cooking schools could be stages in collaboration with public utilities, such as the gas or electric companies. When it is realized that food is above and brought to the attention of several thousand women each year through the forceful method of demonstration by an expert home economist, the value of such schools is obvious. Women clamor for new ways of attracting the appetites of their families.

People must not be made to lose sight of the fact that dairy products are not only splendid foods in themselves but they also make other foods more appetizing and palatable.

The writer could end on the subject of advertising in no better way than to remind his readers what Philip K. Wrigley once said: "Our business was built on advertising and lives on advertising. It is the most important part of our business today."

The subject of school training is exceedingly important in conducting a milk campaign. The author realizes that the school is one of the best media for educating the public and for promoting the sale of dairy products. A school can do the following things in furthering the effectiveness of a milk campaign:

(1) A school can post slogan streamers and posters on bulletin-boards and in class rooms.

(2) Poster contests can be initiated among the children on the subject of milk.

(3) Essays on milk written by students may be published in school papers.

(4) Milk and milk dishes may be featured in school cafeterias for the entire school year.

(5) Experiments and study on the chemistry side of milk may be introduced into chemistry classes; cooking classes can be instructed about the values and uses of milk.

(6) Motion pictures which have to do with milk programs can be shown to great advantage in the school.

- (7) Milk clubs may be organized very easily in school.
- (8) Physical instructors, trainers, and coaches may emphasize the value of milk in building sound and healthy bodies.
- (9) Milk may be stressed in all the teaching and writing activities of home economists and teachers of domestic science.
- (10) School nurses may be asked to stress the food value of milk in assembly talks.
- (11) Dramatization of milk in school pageants, sketches and charades can be carried out with tremendous success.

M. O. Moughan (14) stresses the value of the school as an aid in conducting milk campaigns. He believes that milk service in schools deserves more attention than is now being given to it. He emphasizes that the use of milk in school and the education of pupils in the values of milk should definitely be tied up with a health program that is correlated with the school curriculum. He outlines two plans which may be adopted by schools in carrying out such health programs:

- (1) Supervision by school teachers

The health program may be conducted in regular class work. The teacher may receive reports from each pupil as to how they are progressing in the work. Such a program, it is claimed, produces good and uniform results.

- (2) Supervision by a paid woman leader.

This person is especially hired by the administration. She must be particularly well equipped to instruct the pupils about milk. Such a plan works out satisfactorily

in most cases.

The milk service is more or less a milk dispensing service which is definitely tied up with the milk educational program; the following are claimed to be the advantages in having a milk service established in schools:

- (1) Milk keeps normal children in a healthy condition.
- (2) Milk helps to overcome undernourishment.
- (3) Children who drink milk do better school work.
- (4) A bottle of milk in mid-forenoon prevents children from getting hungry before lunch time and thus prevents eating to excess--a factor which very often causes slowness during the afternoon.

No greater opportunity can be had to further the consumption of dairy products than through educational institutions.

Perhaps one of the greatest qualifications for a Canadian manager is an understanding of human nature. He must be psychologically fit to adapt himself to men, women, and children. He must realize that the education of parents is indispensable. Their attitudes of indifference must be changed to those of interest and tolerance. Parents must be taught how to act with their children if the latter are to drink milk regularly and in proper amounts. If a mother is going to say to her child, "Drink that milk or go to bed," that child is going to dislike milk altogether and acquire a prejudice against milk. Threatening children is bad practice, especially if it is desired that a child should accustom itself to certain healthful practices.

Children will, also, favor coffee and tea because of a desire to emulate their elders.

Parents must discourage the widespread use of tea and coffee among children by not drinking these beverages in the presence of their children. If children do acquire a prejudice against milk, the milk may be modified and made to please these particular youngsters. There is a wide variety of syrups, flavors, appetizers, and the like which have been offered on the market to improve the taste of milk. Milk need not be consumed in the form of fluid milk. Science has plied vigorous search for new dairy products, or variations and refinements of the old. Today's list of such products provided for the milk wagon is staggering.

In order to win over the parents to the side of the milk campaign, they must be considered very carefully. Appeal must be made to both women and men. The status of women in modern society must be realized. The woman plays the major role in the drama of life: as housewife and as mother. Only in recent years has it become apparent that women mold public opinion in their clubs and forums. Women must be won to the campaign, for without their active aid, a milk movement would be vitally handicapped. More important is the fact that women are purchasing agents of the community.

The men also have a share in this campaign. As the fathers of families, to them milk should mean more than dollars and cents. Without milk their children would not have the foundation of health so essential in life. Only such an appeal to men can make them aware of the necessity of milk to their children.

It might seem very strange to the reader that the author dares to set forth such a seemingly elaborate milk campaign for

a none-too-wealthy section of the country like Nash County, North Carolina. The question of financing such a campaign comes up. Who are going to be the sponsors of such a campaign? The author does not wish to commit himself by answering this question. He has, however, carefully considered a possible solution to this delicate query. Before attempting the answer, he wishes to remind the reader that his proposed solution is adapted to regions like Nash County only. Realizing that Nash County is primarily rural in nature, the writer immediately eliminates in his mind many factors which would handicap an urban section in increasing the use of dairy products. That is to say proportionally many people in the rural section of Nash County have their own cow or cows. Milk here, does not have to be bought directly as much as in the more populated sections of the country. To get people to consume something which they do not have at hand is much more difficult than to get people to consume things which they do have at hand. This is the author's premise in getting a step nearer to the point of answering the above question. The author sincerely believes that milk consumption could be definitely increased in Nash County at a small expense. Two people or at most three people may be hired by the county to conduct milk campaigns. Printed material can be acquired very inexpensively--I, E. mimeographed sheets can be issued at small expense. Motion pictures and other miscellaneous material of the same nature can hardly be considered an item of cost, for such material is usually obtained free of charge from national educational institutions such as the National Dairy Council and the United States Department of Agriculture. Public school cooperation with the campaign is of inestimable value and does not carry a charge item.

The author estimates liberally the cost of running an efficient milk campaign in Nash County for one year to be within the ten thousand dollar limit. The author desires to emphasize the point that any plan for increasing dairy products consumption must entail an expenditure of money. One cannot expect to get everything gratis.

In the more thickly populated sections of Nash County where people do not produce their own milk an effective milk campaign can be carried out, chiefly two ways: (1) by help from the county as in the rural sections (2) By milk producers' and distributors' cooperative efforts in helping to finance and to finance such a campaign. Financial help through such cooperation could be obtained by a tax of one or two cents per hundred quarts of milk processed. In the long run milk dealers and producers would be repayed doubly the amount of this initial investment through increasing sales.

If the impetus of creating a milk publicity bureau by the county or milk producers and distributors is lacking, then the author must of necessity turn his attentions to governmental agencies, other than the county. State and local public institutions are always available and can render very important aid in making people realize the importance of milk in life; the author has in mind such institutions as the state department of agriculture, the department of education, public health, and of social welfare. Through the coordinating efforts of the extension service of the departments of agriculture with those of the people of Nash County, much can be done in furthering the consumption of milk and other dairy products. These agricultural agencies

can make possible milk exhibitions, milk talks and demonstrations which will make direct and almost intimate contact with the people of the county. The state and local departments of health can cooperate by means of its publications and personnel. Through the departments of health, support can be enlisted from hospitals, clinics, dispensaries, physicians, dentists, nurses and the like. From the department of social welfare, paid or voluntary social workers can aid greatly in disseminating knowledge among the people.

The author suggests the enlistment of aid from governmental agents regardless of the economic situation of Nash County. These organizations have long given impressive evidence of their active interest in promoting the health of the people. In their work they have always accorded milk a most important place. These public organizations always reach that cross-section of the working population which needs "milk" education most. The concern of various public officials, welfare workers and health departments is a strong factor in clarifying the problem of financial support and crystallizing the ever-needed truth.

The author desires merely to mention briefly one other possible source of help in conducting a milk campaign without incurring public expenses. That is, the possibility of engaging public spirited people in this milk campaign. Very often public benefactors and philanthropists will gladly aid such a worthy cause. Nathan Straus was an example of the kind of man that is needed in this effort to increase dairy products consumption. Through his erection of public milk stations in New York, Straus greatly aided in educating the public about milk. A writer mentions

the possibility of enlisting the aid of public benefactors for he realizes that a milk campaign engenders the good-will and cooperation of all.

The writer now approaches a very important problem which he feels should deserve much more attention than has been given to it. It entails the distribution of milk through emergency relief organizations. Here is a set-up which can aid greatly in increasing milk consumption without carrying out elaborate milk campaigns. No added expense need be involved, so long as it is realized that milk consumption is economical in emergency relief. Some welfare agencies are not sufficiently "sold" as to the food economy of fresh milk. Welfare authorities should accept the dictum of nutritionists that milk is the all-important food which helps most in balancing the welfare budget. Where a grocery list is set up from which the family can choose within limits, it is more difficult to insure the consumption of an adequate diet, particularly when the amount of the allowance per week is reduced to a very low level. The introduction of milk to the diet will help solve many of the problems of the budget.

Dr. Henry C. Sherman of Columbia University stresses the economic value of milk. He has made studies of the comparison of the nutritive value of milk with its cost and has demonstrated that milk is a very economical food. He claims that milk is the best bargain in the food market. Expenditure for milk is justified in high-income families, medium-income families; and low-income families; in fact, the more restricted the diet, the greater is the importance of milk. If only one food could be purchased, that one food should be milk. So essential is milk for children and

for adults and so high are the returns it makes in relation to its cost, that the leaders of the best managed charitable organizations who plan to provide a maximum amount of nutrition for a minimum expenditure of money place liberal amounts of milk in the diets of the families for which they are caring. Dr. Sherman states, "When shortness of money forces expenditure for food to an abnormally low level, more than one-fifth (perhaps one-third) should, therefore, be spent for milk in some form."

Frandsen (8) says that during times of depression it is often necessary to make drastic cuts somewhere in the family budget, but because of what we now know of the minerals, vitamins, and in general the remarkable food value of milk, it is urged that no reduction be made in the family's milk supply during bad times. He further states that the use of milk, one of our most valuable foods, is so closely tied up with the general health of all families whether rich or poor, that a special effort should be made to continue the normal consumption of milk and other dairy products during times of economic stress.

It should be remembered that while the nutritive value of milk for children and for adults has been taught for many years, its economic value has not been given the attention it deserves. It is sincerely recommended to welfare authorities that milk be given its rightful place on the food budget. Milk is a "wilt edge" investment. It gives the greatest nutritive return for the money and pays dividends in health and vigor.

WHAT CAN BE SAID FOR MILK AND OTHER DAIRY PRODUCTS

The author has attempted to give some suggestions for increasing the use of dairy products in Nash County, North Carolina. He has tried to popularize the use of milk by conducting milk campaigns. But he has not told fully why milk should be given such serious consideration. There must be something peculiar to milk if it deserves such widespread attention. A great deal has been written about the values of milk. A more search through the literature would reveal the fact that milk has been studied very intensively. The author almost hesitates to review some of the things that have been said about milk. However, in view of the fact that he is writing about increasing the consumption of milk, he takes this opportune occasion to put in a notice for the reasons for conducting a campaign centered about milk.

It would not be amiss to list very briefly here the components of milk which make it so valuable as a food. Milk, as many are aware, contains proteins, fats, and carbohydrates which supply the body with heat and energy; it contains, also, phosphorus and lime, potassium, sodium and magnesium in a proportion closely resembling the proportion of these minerals as they exist in the human body. All five of the recognized vitamins are included in milk, also.

Washburn (20) said that milk is a barmin food. It contains more of the elements that the body needs than does any other food. The body's need for calcium can not be supplied in any ordinary diet without it. Milk provides a large share

of the day's needs for phosphorus and protein and important amounts of the vitamins. Milk helps to make children grow rapidly and helps to build strong flesh for children and to keep the flesh of adults strong and firm. It increases vigor and resistance to disease. Milk carries vigor on into old age, and extends life.

Dr. E. V. McCollum (15) of John Hopkins University made an interesting study on a group of negro children (1919-1920) in an orphanage in Baltimore, which brought out very clearly the deficiencies of a diet lacking in milk but consisting essentially of products derived from cereal grains and including hominy, rice, barley, white flour, cornstarch, corn meal, oatmeal, bread, dried beans, mackerel, beef, ham, pork, potatoes, string beans, carrots, onions, turnips, beets, cabbage, squash, Zohi rabi, preserves, apples, bananas, animal fats, and sugar. Approximately four to five percent of the calories of the diet were derived from meat, and much less than this of the leafy type of vegetable. The institution contained 236 children of all ages up to 14. Their history showed clearly that the dietary was insufficient to produce satisfactory physical development notwithstanding its wide variety and the fairly appetizing quality. The children were all more or less stunted, many very badly. Over a period of 15 months two groups of children in this orphanage were compared, one being maintained on the institutional diet supplemented with one quart per child daily of whole milk made by dissolving a high-grade milk powder (Merrell-Scale) in cold water. The extraordinary gains made by a number of the children on the

supplemented diet, and the good gains made by nearly all who were not handicapped by tuberculosis, presented a very marked contrast to the children who continued to subsist on the institutional regimen. This classic study certainly emphasizes the food value of milk.

Consideration must also be given to the food values and goodness of other dairy products.

Cheese: Right now when incomes are reduced, cheese should be given preference over meat, for the latter is comparatively expensive. Cheese is a real food and is not sufficiently appreciated and used. The National Dairy Council asserts that cheese contains nearly twice as much protein as average beef, and its fuel value is more than twice as great. It does not require cooking, is easy to keep and can be served in many ways.

Butter: There is no substitute for natural cow's butter. Bouška (3) states that besides the heat and energy giving properties of butter, it aids in the growth and quality of bones, and helps in the digestion and assimilation of other foods. Nothing adds more to the palatability and enjoyment of a meal than butter. It should be used freely not as a spread but in cooking and preparation of other foods.

Ice Cream: This dairy product has been characterized as one that makes every meal a banquet of health. Dr. James A. Tobey (23) eminent authority on milk has referred to ice-cream as "health in frozen form." Tobey (23) says of ice-cream: "Ice-cream resembles milk in that it is a good food for energy but it is more than a mere source of fuel. Because of its

added sugar, it is superior to milk as an energy food, and it also often contains a slightly higher proportion of certain minerals, particularly lime salts, or calcium phosphates, which are necessary to the construction of strong bones and sound teeth." Palmer (19), showed that white rats fed on ice-cream as the sole diet gained in weight more rapidly and developed more satisfactorily than rats fed partially on ice-cream, or those whose diets were lacking in this product. Similar favorable results on an ice-cream diet were obtained by Prof. A. W. Hombarger (10) at the University of Louisville. Ice-cream is virtually the equivalent of milk as a desirable component of the well-balanced diet, and it deserves an ever increasing popularity in our nutritional scheme.

Buttermilk: This product is the most popular of our fermented drinks. It is easily digested and has a tonic value as well as a food value. Mack (12) asserts that buttermilk may be more easily digested than milk itself, for the curd is present in a precipitated and finely divided form. He claims that in some gastric disorders in which it is difficult to find a food that will be retained by the patient, fermented milks such as buttermilk are frequently used with good results. Buttermilk is a good source of vitamin B, which is very important to growth and health. It is also valuable in baking as every good cook knows. Buttermilk has a definite and valuable place in the diet. It is appetizing and has a clean, sharp, slightly acid taste.

SUMMARY

A summary of the data obtained from dairy production records for a period of six weeks from 384 negro families (192 farm families and 192 urban families) living in Nash County follows:

(1) the 384 families averaged 5.89 persons per family. The daily per capita milk consumption was .16 pints. Rural families consumed two and one half times more milk than urban families. Only 27 percent of the rural families own cows. The average milk production of cows was 3.28 quarts daily.

(2) Income and size of families have great influence on the consumption of dairy products. The high income families use twice as much dairy products as low income families and large families use less dairy products than smaller families. Age distribution in families also affects the consumption of dairy products.

(3) Rural families consume two-thirds less condensed and evaporated milk than urban families. Eighty-eight percent of the rural families and ninety-four percent of the urban families use butter. The consumption of butter was 1.07 pounds per family per week. On the average, negroes consume more butter-milk than they do any other dairy product. The consumption of cheese was .67 pounds per family per week. Soft cheeses are not popular among the families surveyed. The consumption of ice-cream was very low in comparison with the

state per capita consumption. Very little cream was used among these families.

(4) The largest number of people stated, as their reason for drinking milk, (1) that they liked it, (2) it was good for health and, (3) it was good for children. Some adults said that milk is fattening. Only a few of the families know the food value of milk.

(5) The school was the best publicity agency in the rural and urban areas. Milk trucks, radio and newspapers were important means of advertising dairy products. "Quality," "Health," and "Cleanliness," appealed most frequently to housewives, but on the whole, "Quality," "Good for children" and "Health," appeared the greatest number of times.

(6) There is a real need for the education of adults on the food value of milk and milk products. Milk campaigns can be sponsored by civic officials to encourage the use of dairy products. A Milk Publicity Bureau can be organized to publicize the value of milk and its products. Farm dairies and city milk plants can cater to children and sell them the idea of the importance of milk in the diet. Motion pictures, county fairs, retail food stores, and religious institutions are important media through which milk education can be publicly disseminated.

CONCLUSION

In the author's concluding remarks, he again wishes to emphasize the need for educating the people in regard to the consumption of milk. Any educational work is slow at its very best. It is hoped that all forces are willing to join hands and speed up this process of training so necessary to the physical and economic future of the negro race. Such united effort will result not only in improved conditions among the negro people but, also, among the whites. Surely, this is a goal worth working for.

The author sees no better way in concluding this writing than to quote from Seneca Egbert (6), "For a long time to come the best results in developing the extended and greater personal use of milk and its products will probably come from continuous and wisely directed publicity of all legitimate kinds and by all concerned in advancing human welfare."

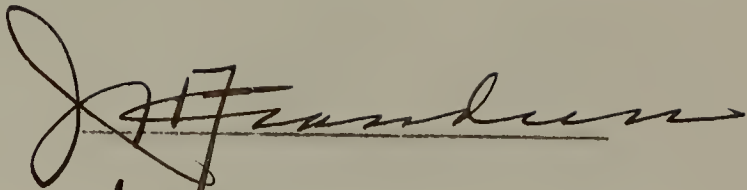
LITERATURE CITED

1. Atwater, W. O., Foods of Negroes in Alabama, Ala. Agri. Exp. Station Bul.38
2. Booker, W. H., Milk Sanitation in North Carolina. The Pub. Health Bul. Vol. 50, No. 3
3. Bouska, F. W., Butter as an ingredient of Commercial Food. Food Ind. 6: 446-8 O. '34
4. Dickens, D. A., A Nutrition Investigation of Negro Tenants in the Yazoo Mississippi Delta. Miss. Agri. Exp. Station. Bul. No. 254
5. Dugdale, H. K., Children are Future Milk Drinkers. Dairy World. Feb. 1935
6. Egbert, S., Significant Aspect of a Recent Official Survey Concerning the Household Use of Milk in Philadelphia. Am. Jour. of Pub. Health. Vol. 25 No.7.
7. Evaporated Milk Association. Some facts about Evaporated Milk and Other Dairy Products. Copyright 1935.
8. Frandsen, J. H., The Food Value of Milk, Some Unpublished Manuscripts. Dept. of Dairy Ind. Mass. State College.
9. Finch, A. S., A Quart of the Most Perfect and Cheapest Food. Milk Plant Monthly 20: 40-1 '29
10. Homberger, A. W., Food Value of Ice Cream. Ice Cream Trade Jour. J. '27.
11. In. Ass. of Ice Cream M.F.G.S. Abstracts of Literature on the Manufacturers and Distribution of Ice Cream. Vol.4
12. Laird, D. H. S. Ice Cream as an Aid in Overcoming Fatigue Ice Cream Review 16: 20-41 S. '32

14. Maughan, M. C., Effect of Milk on the Health of Children. Creamery and Milk Plant Month 18: 523 Mar. '29
13. Mack, A. J., Cultured Buttermilk. Address at the 18th Annual Convention of the International Association of Milk Dealers. 1925.
15. McCollins, E. V., Nutritional Value of Milk and the Importance of Milk in the Human Dietary. Dairy Congress. 1928.
16. Mutzler, H., The Consumption of Dairy Products by 1370 Families in Philadelphia. Penn. State College. Bul. No. 245.
17. Nash County. A Survey of Nash County. Nash Co. Pub Service 1924.
18. N. C. Farm Program. Dairy Farming in Northeastern Section of N. C. N. C. State College. Ext. Cir. No. 190
19. Palmer, L. S., Nutritive Value of Ice Cream. Am. Jour. Pub. Health No. 6 601 June 1929
20. Pyrtle, T. A., A Hand Book of Dairy Statistics. U. S. D. A. 1933.
21. Quackenbush, E. H., Increasing Milk Drinking by Consumers Education through Industrial Cooperation. Milk Dealers. 24-5 June '33.
22. Rice, T. H., Learning to Like Milk. Hygeia 334-5 Ap '23.
23. Tobey, J. A., Health in Frozen Fats. Hygeia Apr. 1 '27.
24. Tobey, J. A., The Most Nearly Perfect Food. Published by the author in 1929.
25. U. S. Dept. of Agri. Bureau of Home Economics. The Consumption likely of Dairy Products in U. S. 1934 Statistics.

26. Waite, W. C., The Consumption of Dairy Products in Six New Jersey Townships. N. J. Agri. Exp. Station. Bul 503.
27. Washburn, What is Milk Worth As a Food? Milk Dealer 20: 45-9 F. '31.
28. Waugh, F. V., The Consumption of Milk and Dairy Products in Metropolitan Boston. Dec. 1930. Mass. Agri. Exp. Station 1931.
29. Wilson, C. B., A Narrative Report on Food Products in Alausance County N. C. N. C. Agri. Ext. Service. 1933.

Approved by


J. H. Frank
Walter S. Essmenger


R. A. Van Meter
Committee

August 12, 1935

