

STATE OF VIRGINIA
COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

L. B. DIETRICK, DIRECTOR
V.P.I. Agricultural Extension Service
Blacksburg, Virginia

1954 ANNUAL REPORT
VIRGINIA DAIRY EXTENSION DEPARTMENT
December 1, 1953 -- November 30, 1954

- * Dr. G. C. Graf, Head, V.P.I. Department
- ** E. G. Connelly, Extension Dairyman, Project Leader
- M. F. Ellmore, Associate Extension Dairyman
- *** K. A. Huston, Associate Extension Dairyman
- G. J. Nageotte, Associate Extension Dairyman
- W. N. Patterson, Associate Extension Dairyman

- *Dr. G. C. Graf - 1/3 Dairy Extension time.
- **R. G. Connelly - on leave of absence from June 1, 1954 -
November 30, 1954.
- ***K. A. Huston - resigned effective October 31, 1954.

● STATISTICAL SUMMARY OF VIRGINIA DAIRY EXTENSION ACTIVITIES (Concluded)

C. FIELD ACTIVITIES :

		E. G. Connelly		M. E. Ellmore	
		No.	Attendance	No.	Attendance
902	Agent Training Meetings and Conferences	4	75	-	-
903	Leader Training	-	-	-	-
904	Community or County Meetings	-	-	19	640
905	Program Planning	-	-	-	-
906	Special Interest	17	510	2	160
907	Result Demonstrations	2	100	-	-
908	Local Associations	23	460	22	735
909	Field Days and Tours	4	450	3	340
910	Achievement Days	1	40	9	1310
Work With Individuals:					
911	Result Demonstrations Visited	28	35	42	56
912	Other Farms Visited	47	55	2	4
913	Consultations - County Office	66	75	24	37
914	Camps and Short Courses	-	-	-	-
915	Other	4	1805	6	12
916	Area or Statewide Meetings	5	1500	4	1300
917	Professional Improvement Meetings	3	60	1	1600
TOTALS		204	5165	134	6394

K. A. Hutton		W. N. Patterson		G. J. Nugotte		G. E. Graf		Composite for Staff	
No.	Attendance	No.	Attendance	No.	Attendance	No.	Attendance	No.	Attendance
7	19	106	106	8	19	2	30	127	269
-	-	36	106	4	33	-	-	40	498
-	-	11	330	2	39	4	190	36	1299
2	20	10	35	3	8	-	-	15	73
6	135	21	195	1	8	1	25	48	1043
-	-	-	-	5	9	-	-	7	109
38	1615	-	-	-	-	-	-	83	2810
1	100	8	394	2	8	5	765	23	2204
7	320	20	1219	1	-	-	-	38	2929
-	-	-	-	-	-	-	-	-	-
49	199	-	-	25	1	5	11	149	359
-	-	130	130	42	1	15	34	236	335
-	-	-	-	46	-	1	5	137	215
-	-	-	-	-	-	3	27	3	27
2	37	-	-	1	-	4	1805	17	3663
45	4870	12	1190	12	22	12	2085	90	13160
1	1500	-	-	4	29	2	1625	11	7935
158	8815	354	3694	156	628	54	6602	1060	36938

PERSONNEL AND RESPONSIBILITIES

Five extension dairymen and the Head of the Dairy Husbandry Department were engaged in carrying out the 1954 dairy extension program of work. The Head of the Dairy Husbandry Department worked with the dairy extension program on a one-third time basis; one extension dairyman, R. G. Connelly, was on six months' leave of absence from June 1, 1954.

- Dr. G. C. Graf, Department Head, Subject Matter Advisor.
- R. G. Connelly, Extension Dairyman, Project Leader.
- W. F. Ellmore, Associate Extension Dairyman, - "Dairy Herd Records, Feeding and Management"
- K. A. Huston, Associate Extension Dairyman, - "Dairy Cattle Improvement Through Breeding"; Resigned October 31, 1954.
- W. N. Patterson, Associate Extension Dairyman, - "4-H Dairy Clubs and Rural Youth Work".
- G. J. Nageotte, Associate Extension Dairyman, - "Dairy Products and Consumer Education"

The degree of inter-project collaboration is indicated as follows:

Project I. - Dairy Herd Records, Feeding and Management :

(306.0 total man-days): M. F. Ellmore, 215.0; R. G. Connelly, 43.0; G. J. Nageotte, 21.0; G. C. Graf, 18.0; W. N. Patterson, 5.3; and K. A. Huston, 3.5.

Project II. - Dairy Cattle Improvement Through Breeding:

(236.5 total man-days): K. A. Huston, 203.0; G. C. Graf, 24.5; R. G. Connelly, 7.5; W. N. Patterson, 2.5; and G. J. Nageotte, 1.0.

Project III. - 4-H Dairy Clubs and Rural Youth Work :

(294.0 total man-days): W. N. Patterson, 253.5; K. A. Huston, 14.5; G. C. Graf, 8.0; M. F. Ellmore, 7.5; G. J. Nageotte, 7.0; and R. G. Connelly, 3.5.

Project IV. - Dairy Products and Consumer Education:

(264.5 total man-days): G. J. Nageotte, 236.0; G. C. Graf, 13.5; and R. G. Connelly, 13.0.

Miscellaneous - Special and Emergency Dairy Extension Services

(250.5 total man-days): R. G. Connelly, 84.5; M. F. Ellmore, 58.5; K. A. Huston, 39.5; G. C. Graf, 32.0; W. N. Patterson, 24.5; and G. J. Nageotte, 19.5.

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AN ANALYSIS OF THE VIRGINIA DAIRY SITUATION, DECEMBER 1953.

I. FACTORS RESPONSIBLE FOR THE VIRGINIA DAIRY EXTENSION PROGRAM

A. Population and Dairy Trends :

Virginia continues to be a dairy deficit state. The per capita consumption of milk and dairy products is relatively low. The output of milk and dairy products is inadequate for minimum health requirements.

The yearly average per capita milk supply produced by Virginia dairy cows was 537 lbs. in 1952 and 558 lbs. in 1953, a 3.9% increase over 1952.

Nationally, the yearly average per capita milk supply was 606 lbs. in 1952; 624 lbs. in 1953, a 3.0% increase over 1952.

In 1953 the per capita milk supply for the United States was 66 lbs. or 11.8% greater than was the per capita supply of milk produced by Virginia milk cows for Virginia consumers. In order to equal the national yearly average per capita supply of milk, Virginia needs about 50,400 more cows, producing at the current average of 4480 lbs. of milk per cow annually.

The same objective would probably be attained more efficiently by improving the environment, feeding and care of the present 435,000 milk cows reported on Virginia farms so that they would average about 5009 lbs. milk production annually.

In the interest of better diets and greater self-sufficiency, there is need for greater milk production in Virginia :

- 1- The daily per capita fluid milk consumption should be increased; now estimated at 0.5 pint.
- 2- The resident population is increasing about 2% annually.
- 3- There is an ever increasing flow of tourists and transient population.
- 4- The District of Columbia and other out-of-state consumer areas draw heavily on the Virginia fluid milk supplies.
- 5- Steady employment and higher consumer incomes tend to sustain the demand for milk.
- 6- Military camps and industrial centers continue to call for steady supplies of milk and dairy products.
- 7- The school lunch programs call for more milk.

B. Economic Factors That May Affect Virginia Dairying in 1954.

- a. Economies in government spending may cause shrinkage in consumer purchasing power.

- b. Any declines in outlays for new industrial plant construction and new equipment.
- c. Any net benefits from tax cuts and any past savings will support consumer purchase of goods and services. Concurrently, any lower employment, plus the elimination of overtime pay in most industries, may threaten any tax cuts benefits.
- d. At present unemployment is insignificant. Any slackness in the labor market, we are told, probably reflects the past years transition from conditions of over-employment to a more normal utilization of bonafide workers. But it is worth noting that in recent months there have been employment declines in plants that manufacture durable goods.
- e. Although consumer income was at a record high level in 1953, it should be noted that Christmas shopping got off to a low start, shoppers were bargain-conscious, manifesting definite resistance to prices, and prices had to be slashed to boom sales in some stores. A flattening out of the consumer income level seems apparent as 1953 ends.
- f. Farm price supports are a matter of speculation. Whether the supports will be flexible or rigid at 90% of parity must be determined by Congress.
- g. The construction of new housing is somewhat dependent upon how much new money Congress may appropriate for the Federal National Mortgage Association. Milk sales increase with the establishment of new family units.
- h. Defense spending may be curtailed. Whether the cut will be as much as \$5-Billion depends upon Congress. This could affect Virginia milk sales appreciably.
- i. Agricultural prices continue to decline slowly. The prices which farmers pay for commodities may decline, but slower and to a lesser degree than the prices farmers receive for their products. Milk prices probably will follow the general agricultural price trend in 1954.

C. 1954 Virginia Dairy Production Prospects :

- a. The Feed Supply :
Although corn, hay and pasturage yields were greatly reduced by the 1953 drought, small grain yields were considerably above average. There are good prospects for a quick recovery from the roughage shortage in 1954 as winter rains and snow make up the ground water deficit.



Nationally, the feed supplies are adequate to permit high milk production. Much feed is being shipped to Virginia to offset the state shortage. The level of milk production exceeded past records in 1953 continuing into 1954, reflecting adequate feed for milk production. The price of 20% dairy feed, November 15, 1953 was 13% less than the November 15, 1952 price. Alfalfa hay at \$50 per ton November 15, 1953 was only 2% higher than a year earlier.

b. Milk Cow Numbers:

Virginia dairy herds tend to increase in size and number. There is little reason to believe that this trend will not continue in 1954. Dairying at present seems to offer one of the best market outlets for home grown feeds; and the gainful employment of farm labor.

c. Rate of Milk Production:

The average yearly milk production per cow has increased steadily since 1945, with a particular production spurt in 1953. Favorable milk prices and consumer demand are likely to encourage greater milk production per cow.

The 1952 milk production average was 4,500 lbs. per cow. An average production of 5,000 lbs. milk per cow would not be burdensome, if the present number of cows were not increased.

Year	Avg. Number of Milk Cows on Farms	Average Production Per Cow		Total Milk Production for Virginia Lbs.
		Milk Lbs.	R-Fat Lbs.	
1953*	432,000	4513	186	2,042,000,000
1952	424,000	4460	188	1,900,000,000
1951	427,000	4490	189	1,917,000,000
1950	440,000	4490	191	1,976,000,000
1949	433,000	4490	190	1,940,000,000

* All figures for 1953 are estimates based on "Virginia Crops and Livestock" reports.

d. In 1953 there was a 2% increase in the number of milk cows in Virginia accompanied by about 8% increase in total milk production for the state. The drought did not have a serious effect on total milk production.

e. Virginia dairymen are mechanizing their herd and farm operations so that one man can handle more cows, reducing the man-labor cost per unit of milk.

f. Further dairy expansion is expected in Virginia in 1954. Milk prices are favorable. Markets are good. There's more security in dairying than in some other types of farming at present. Milk production will probably exceed consumption in 1954.

D. 1954 Virginia Dairy Market Trends

a. Market Demand

Consumer demand for milk and dairy products to be well maintained in 1954, depending, of course, on continued consumer employment at good wages. No major decline in the demand for milk is indicated, January 1954.

b. Trends in Population, Employment, Wages:

The population of Virginia is increasing about 2% annually. The largest milk drinking segment of the population is the children under fifteen years of age. Since World War II employment, wages and the establishment of new families and the birth rate have been relatively high in Virginia.

c. Milk Prices:

Little or no change is expected in the retail price of fluid milk in 1954. The average or bleed price which farmers receive for milk, however, may decline in 1954 due to surplus production.

II. MAJOR DAIRY PROBLEMS IN VIRGINIA

- A. How to develop the aptitude and skill of farmers to assure their success with dairying in periods of intense competition.
- B. How to create a standard dairy farm environment that will assure efficient year around milk production; keeping in mind the need for reducing the overhead capital investment in dairying.
- C. How to increase the average annual level of milk production to 7500 lbs. per cow.
- D. How to increase the inherent milk production transmitting ability of Virginia dairy cattle.
- E. How to prevent and eradicate dairy cattle diseases.
- F. How to build up and maintain high standards of milk quality.
- G. How to create greater consumer demand for milk.
- H. How to create the desire for and the zeal to attain high standards of living on dairy farms.
- I. How to work more effectively through cooperative organizations.

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III. DAIRY PRACTICES RECOMMENDED FOR 1954.

- A. Adjust the size of the herd and the productiveness of the cows in order to make the most efficient use of the land, buildings and equipment; the labor; the feed; and the time and managerial skill of the operator.
- B. Keep production cost records to spot and correct causes of loss as they become evident. The Dairy Herd Improvement Association is recommended.
- C. Carry out a positive pasture management program that will assure maximum high quality grazing.
- D. Develop a quality hay production program that will assure an adequate supply of high quality hay when needed.
- E. Provide adequate facilities for ensiling corn and hay crops at optimum stages of growth.
- F. Produce as much corn grain, barley, and oats as sound land use practices will permit, and in keeping with the ration requirements of the herd.
- G. Use the services of the Virginia Artificial Breeding Association to have as many cows as possible to freshen in the late summer, fall and early winter.
- H. Adopt labor saving equipment and practices whenever economically feasible.
- I. Vaccinate calves regularly against Brucellosis and black leg. Follow a rigid program of disease prevention and control.
- J. Make high quality the hallmark of milk production.

DAIRY EXTENSION PROJECT ACCOMPLISHMENTS

December 1, 1953 - November 30, 1954

PROJECT I. -- DAIRY HERD RECORDS, FEEDING AND MANAGEMENT

Distribution of Time:

Staff Member	Headquarters Days	Field Days	Total Days	Percent of Total
W. F. Ellmore	168.0	47.0	215.0	70.3
R. G. Connelly	11.0	32.0	43.0	14.0
G. J. Wagetto	17.5	3.5	21.0	6.9
G. C. Graf	9.0	9.0	18.0	5.9
K. A. Huston	1.5	2.0	3.5	1.1
W. N. Patterson	1.5	4.0	5.5	1.8
TOTALS	208.5	97.5	306.0	100.0

This is an extension demonstration project. It includes:

1. The collection and analysis of Dairy Herd Improvement Association data.
2. The dispensing of information on milk production, dairy cattle feeding, costs of production, dairy cattle breeding, and improved herd management methods.
3. The preparation of DHIA progress reports.
4. The dissemination of dairy research results.
5. Recommendations for adjustments in farm and herd management.

A. The Goals for 1954

Activity Goals

1954 Goals	1954 Accomplishments
1. Continue the summarization and analysis of the DHIA data, preparing project accomplishments and analysis reports as subject matter and educational materials for County Agents, DHIA demonstrators and others concerned with teaching and promoting better methods of dairy husbandry.	1. A 5-year (1949-'50-'51-'52-'53) summary and analysis report was prepared for each of the 57 DHIA's that completed at least one year of demonstration work prior to December 1, 1953. These reports were the result of special study in 23 local DHIA's and were a source of reference for facts in many other meetings. Copies of the report were distributed among the respective DHIA members for subsequent

Activity Goals (Continued)

1954 Goals	1954 Accomplishments
2. Conduct DHIA demonstration analysis meetings as requested by county agents responsible for local county DHIA's.	1. study. This report was furnished to all DHIA members (1010) and to all county agents with DHIA's in their counties.
3. Conduct a series of DHIA demonstration planning conferences for county agents, DHIA officers and supervisors.	2. Twenty official DHIA analysis meetings were conducted at which 26 local associations were represented. At these meetings the data were discussed and recommendations based on the data were made. Membership participation was encouraged at these meetings through panel discussions and open forums.
4. Conduct inter-county "Dairy Institutes" at strategic locations as a means of reaching more people as effectively as possible within the time limitations of the winter months, and using the results of DHIA to the limit as teaching materials.	3. Plans for improvement and the setting up of production goals were incorporated into each analysis meeting. At each organization meeting, goals as recommended by the Virginia Federation of DHIA's were discussed and adapted to the local situation.
	4. Fourteen "Dairy Institutes" were held during the 1954 period which representatives of 31 counties attended. The programs for these institutes were arranged through consultations with the county agents involved and were developed to meet the particular needs and interests of the locality. Three or four specialists attended each meeting. Departments other than Dairy represented at these meetings were: Agronomy, Agric. Engineering and Veterinary Science. Facts obtained from DHIA analysis were used to good advantage in these meetings. Places and dates were as follows: 12-3-53 Norfolk 1-5-54 Charlotte C.H. 1-6-54 Warsaw 1-26-54 Leesburg 1-27-54 Culpeper 1-28-54 Warrenton 1-29-54 Floyd 2-18-54 Botetourt 2-19-54 Hillsville 3-2-54 Farmville 3-3-54 Richmond 3-10-54 Winchester 3-19-54 Wytheville

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Activity Goals (Continued)

1954 Goals	1954 Accomplishments
5. Conduct as many DHIA training courses at V.P.I. as necessary to meet the requirements of local DHIA's.	5. Four DHIA supervisor training courses were conducted at V.P.I.: Dec. 1 - 12, 1953 7 completions *March 1 - 13, 1954 4 completions Aug. 2 - 14, 1954 9 completions Nov. 8 - 19, 1954 4 completions *In addition to the 4 completions, refresher course was given to 2 former supervisors and to one who had received on job training.
6. Visit the county agents and DHIA officers and supervisors in as many counties as time will permit to give assistance and guidance to the demonstrational projects.	6. Ninety conferences were held with county personnel. These conferences included program planning, counsel with agents on subject matter teaching techniques; counsel with supervisors on testing procedures and problems; counsel with Boards of Directors and officers on matters of organization.
7. Conduct a state two-day DHIA work shop and conference at V.P.I., Blacksburg, Virginia for supervisors and county agents.	7. A two-day tour and conference was held August 30-31, 1954. Twenty-six supervisors, 3 dairy farmers, 3 county agents, and 2 dairy specialists participated. The tour visited the Dairy Records office of the United States Department of Agriculture, Washington, D.C.; the Agricultural Research Center, Beltsville, Maryland, and the University of Maryland, College Park, Maryland. A conference on August 31 dealt with the record keeping changes and with more uniform methods of obtaining and reporting records.
8. Conduct a state-wide DHIA Supervisors' Efficiency Contest.	8. The 1953 contest was completed during 1954. The awards were made at special local meetings during the spring of 1954. Winner of first award: J. G. Thomas, Botetourt; second award, L. R. Kirkwood, Madison.
9. Conduct a state-wide DHIA Demonstrators' Contest for the year ending November 30, 1953.	9. The contest was completed and was judged during early 1954. Awards were made in special local meetings held during the spring of 1954. First award winner was farm of I. Fred and Herman Stine, Winchester; 2nd place was farm of J. W. Eustace, Catlett, Va.

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Result Goals

<u>1954 Goals</u>	<u>1954 Accomplishments</u>
1. Increase the number of DHIA demonstration herds to 1125 herds.	1. On November 30, 1953 there were 1025 herds including 46,661 cows enrolled in the Virginia D.H.I.A. On November 30, 1954 there were 1065 herds including 49,356 cows enrolled in the Virginia D.H.I.A. Two new associations were formed during the year : one in Floyd and one in Rockingham. At the end of the year, two more were in the process of organizing; one in the Norfolk area and one in Grayson county.
2. Establish and maintain DHIA demonstrations in 95 counties.	2. Project reports were received from demonstration herds in 98 counties. Those counties with no demonstrations as of November 30, 1954 were as follows: Accomac, Arlington, Buchanan, Charles City, Craig, Dickenson, Greene, Highland, Nelson, New Kent, Northampton, and Scott.
3. Procure annual summary reports from 100% of the herds that complete 12 months of testing during the year ending November 30, 1954.	3. Summary data on DHIA annual reports will not be complete for the testing year of 1954 until January of 1955. 1953 reports were received on 887 demonstration herds. This represented approximately 85% of the herds that completed a full testing year.
4. Increase the 10 months' individual lactation reports to 80% of the possibilities.	4. A total of 19143 ten month DHIA lactation records were reported during the extension year out of an estimated possibility of 29,600. This was 65% of the estimated possibilities.
5. Increase the average yearly production per DHIA cow to either 10,000 pounds of milk or 370 pounds of butterfat per cow year.	5. The average DHIA cow year production for 1953 was 8350 pounds of milk, containing 343 pounds of butterfat. This was equivalent to 8485 pounds of 4% fat corrected milk, representing a 120% increase over the 1927 average of 7107 pounds of 4% F.C.M.

B. Some Economic Benefits Derived From The Virginia DHIA

The audit of Virginia Dairy Herd Improvement Association project data with the supporting analytical tabulations and summaries for 1954 will not be completed until the middle of January 1955. Therefore, the following project accomplishments are based largely on records submitted for the 1954 DHIA project year:

- 1) In November 1954 more than 11% of all Virginia milk cows (49,356 cows in 1065 herds) were enrolled in the Virginia DHIA project. Virginia ranks 12th in the nation with respect to the number of herds on test and is first among the southern states.
- 2) The 1065 DHIA herds were distributed among 88 of the Virginia counties, providing the respective county agents ready access to current monthly milk production cost data and dairy herd improvement facts.
- 3) The average size of the DHIA herds during 1954 was 46 cows (based on the monthly reports from all cows on test during any part of year). This is approximately the same as 1953 and represents an increase of 7% since 1950. This increase in herd size was probably not paralleled by increased labor on the farm, but was brought about by increased use of labor saving equipment, making it possible for one man to care for more cows.
- 4) The production of 8350 pounds of milk and 340 pounds of butterfat by the average cow in the DHIA herds was 7% greater than the production of 4660 pounds of milk by the average Virginia cow. On this basis, the 11% of all Virginia cows enrolled in the DHIA produced 16.3% of all milk produced in Virginia in 1953.
- 5) The farm value of all milk produced by the 434,000 milk cows in Virginia during 1953 was \$104,335,000 or \$240 per cow. The farm value of the milk produced by the 40,158 DHIA cows from which records were received equalled \$20,791,764 or \$518 per cow. The average DHIA cow in Virginia produced as much gross income as 2.2 average Virginia cows in 1953.
- 6) In 1953 complete feed consumption and cost records were obtained on 878 demonstration herds. These herds provided a market for 117,057 tons of silage and 67,049 tons of hay. This roughage was valued at \$3,922,584. 52,287 Tons of grain valued at \$4,071,583 were fed. In addition to the above, the animals were pastured an average of 198 days per cow during the year, valued at \$1,445,300.
The total market value of this feed was \$9,439,467. This averaged \$235 per cow. A summary of Virginia DHIA records is presented elsewhere in this report.

7) The feed cost is by no means the total cost of producing milk. The accompanying schedule shows an estimated cost of production and net return for the average DHIA herd for 1953. The actual DHIA figures have been used where indicated. Other figures are estimates based on various cost surveys. It should be borne in mind that all cost figures used are market values. Where economical agronomic procedures are used, there should be a profit realized between the cost of producing the feed and the value of this feed charged to the cow. This analysis does not represent the greatest efficiency possible, but represents the facts as they appear to be.

8) From 1933 to 1953 the average production of all Virginia milk production increased from 3485 pounds per cow to 4660 pounds per cow. This increase in average production has been due to improvement in methods of feeding, breeding and management.

The DHIA program has provided basic information over the years, which has proven invaluable in promoting improved dairy practices in the counties. Examples are as follows:

- Sound basis for feeding
- Sound basis for selecting of brood cows
- Sound basis for selecting and proving sires
- Sound basis for adjusting to economic changes in the industry

9) The fact that the DHIA program has grown steadily in Virginia attests to the fundamental importance of this program in the dairy development within our Commonwealth.

C. Extension Methods and Teaching Devices Used.

a. Monthly DHIA Project Summaries: Each herd in the Virginia Dairy Herd Improvement Associations is treated as an extension method and result demonstration. At the conclusion of each month's work, the DHIA supervisor files with the local county agent's office two copies of a detailed Monthly DHIA Summary Report (Exhibit A, Project I), one copy of which if forwarded to the State Extension Dairyman and the other is retained by the county agent. He also files a copy of the Monthly Barn Book Sheet for each herd with the respective county agent (Exhibit B, Project I). This report is designed to keep the county agent and the Extension Dairyman current regarding dairy production trends, costs, adjustments, and results in the project herds. Many county agents use these reports for :

- (a) Local dairy educational work.
- (b) Recommendations for dairy herd feeding and management adjustments.
- (c) Local dairy program planning.
- (d) Publicity to direct attention to demonstrated efficiencies in dairy farming.
- (e) As a means of measuring other types of project progress that can be evaluated in terms of milk yields.

- b. Monthly State DHIA Summaries : The monthly DHIA summary report from the respective county DHIA's are analyzed promptly and composited into a state DHIA summary and published by the middle of the succeeding month as a progress report in "The Virginia Dairymen" (Exhibit C, Project I). This report is mailed to all county agents, all Virginia DHIA members, all members of The Virginia State Dairymen's Association, certain vocational agricultural teachers, and others who apply for the information.

The Monthly State DHIA Summaries are used :

- (a) As a basis for dairy farm and herd adjustments.
 - (b) Dairy subject matter schools.
 - (c) In newspaper publicity.
 - (d) Local and state dairy meetings.
 - (e) DHIA promotion meetings.
 - (f) In identifying herds as sources of breeding stock.
 - (g) In commercial advertising.
- c. Yearly DHIA Record Analysis Meetings: These are one-day meetings, held in the winter, conducted under the joint direction of the local county agent, DHIA officers, and DHIA supervisors to analyze the DHIA project results, herd by herd for the year on a basis for herd and farm adjustments and to furnish substantial background for the County Dairy Extension Program. A typical DHIA Analysis Report is shown as Exhibit D, Project I. Complete yearly analysis reports were distributed among all DHIA demonstrators, through the county agents, with good results evident in improved practices. Twenty local meetings were held, attended by the membership of 31 local DHIA's.
 - d. Dairy Institutes : 14 meetings were attended during the course of the year upon requests of county agents. Usually specific dairy topics were treated to fill a particular need in the locality. Bulletins, mimeo reference sheets, charts, blackboard illustrations and exhibits were used as the occasion warranted.
 - e. Subject Matter Preparation and Project Promotion : The DHIA subject matter is based on routine monthly reports (Exhibit A) supplemented by an annual report from each DHIA. The data are processed at the state office and special studies are prepared with appropriate analytical tables and charts for the lectures at each field meet

Project promotion centers around:

- 1. Program planning conferences with the District and t/ County Agricultural Extension Agents and officers of local DHIA, and the officers and directors of The y Federation of DHIA's. Goals are set up; plans of w. are projected; subsequent field visits are made r

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2. Each local DHIA holds an annual business meeting to elect officers and deal with the fiscal affairs of the association and build up membership.
 3. Each local DHIA holds at least one record analysis or subject matter meeting as a basis for project adjustments. The extension dairymen usually attend these meetings, to present special reports gained from the DHIA reports.
 4. There is a general plan of follow-up with the county agent in any county where the work needs continuous study and encouragement.
 5. At least one group meeting is held annually with the DHIA supervisors either on a district or statewide basis to deal with DHIA methods and procedures.
 6. Local extension responsibility for the project rests with the county agent. He counsels with the demonstrators and the supervisor; he reviews reports; guides the project development; and issues the supplies and local extension recommendations. He handles the local publicity and educational program.

DHIA Supervisor Training

The need for new supervisors was not as great during 1954 as during the years of 1952 and 1953. Apparently, the general economical situation has raised the relative position of DHIA supervisor's job. Salaries for supervisors have not been lowered.

Of the twelve supervisors who resigned during the year, three entered college, three took other jobs, two entered the armed services, and four were incompetent. There was some shifting of supervisors within the state.

The table on the following page indicates the supervisor turnover 1950 - 1954.

Year	Total No. DHIA's	Number of DHIA's and Frequency of Supervisor Changes				
		0-Change	1-Change	2-Changes	3-Changes	No Replacement
1954	59	49	6	5	0	2
1953	57	34	20	6	0	1
1952	57	37	15	5	0	0
1951	57	36	14	5	1	1
1950	59	34	16	8	1	0

Four 2-week DHIA supervisor training courses were held at V.P.I. in 1954. Applicants were carefully screened and only those applicants were trained who appeared to be best suited to the job of DHIA supervisor. This was accomplished by carefully investigating references and by analyzing a preliminary examination. All entrants passed the course successfully. Of the 24 men trained, two were 1-0 registrants. As of November 30, 1954, seven 1-0 registrants are employed as supervisors.

1954 D.H.I.A. Supervisor Training Course Enrollments

Date of Course	No. Candidates	No. Candidates Employed	No. Candidates Still on Job November 30, 1954
December 1-12, 1953	7	1	0
March 1-13, 1954	4	2	1
August 2-14, 1954	9	4	3
November 8-19, 1954	4	2	2
TOTALS	24	9	6



THE VIRGINIA FEDERATION OF DAIRY HERD IMPROVEMENT ASSOCIATIONS

SUPERVISOR ROSTER

December 1, 1953 to November 30, 1954

NAME OF DISTRICT	SUPERVISOR	DATE	
		Employed	Resigned
Albemarle-Louis	W. J. Duff	3-20-53	
Alleghany-Rockbridge	Dean A. Wright	4-1-49	
Amelia	J. H. Altice	8-11-48	
Augusta	Cletus M. Cupp	10-1-53	
Bedford	W. W. Sitton	12-15-53	8-31-54
	D. E. Bogle	9-1-54	
Bland	E. DeWilde	4-1-53	
Botetourt	J. G. Thomas	9-18-48	
Carroll-Grayson	Charles K. Henley	10-1-53	
Chesterfield-Manover	Sterling Simpson	12-1-48	
Clarke-Frederick	C. I. Cather	3-16-53	
Culpeper #1	Bryan J. Harouff	11-1-52	
Culpeper #2	W. J. Watkins	2-1-48	
Culpeper #3	J. L. Howell, Jr.	5-10-50	
Cumberland	J. A. Moyer	5-1-51	
Dinwiddie	Dennis W. Hayes	1-5-51	
Fairfax #1	Roy M. Phillips	6-5-53	
Fairfax #2	Daryl Johnson	7-1-53	
Fauquier #1	W. W. Smith	10-5-50	
Fauquier #2	C. W. Driskill	11-1-52	
Floyd	Andre; Whitlock	5-1-54	
Franklin #1	W. F. Jamison	7-1-48	
Franklin #2	Herschel Fike	6-20-53	
Franklin-Henry-Patrick	J. B. Gunter	5-1-53	
Fredericksburg	Mrs. Atlee E. Duff	4-8-53	
Halifax-Pittsylvania	C. P. Stephens	11-8-48	
Henrico	E. W. Stanley	1-1-49	
James River	J. P. Terrault (temp.)	3-1-53	8-31-54
	Lewis Burkholder	9-1-54	
King William	E. W. Stanley	1-1-52	
Lee-Wise	K. C. Frazier	1-1-53	
Loudoun #1	T. M. Dove	7-1-48	
Loudoun #2	L. K. Martin	7-1-48	
Loudoun #3	Jack Fleming	10-1-53	
Loudoun #4	Osborne Myers	7-1-48	
Loudoun #5	F. Mercer Love 3rd	1-1-54	
Loudoun #6	Smith Ward	3-1-52	
Lynchburg)	Gordon Hicks	9-1-52	
)	William S. Jones	10-1-53	

D.H.I.A. SUPERVISOR ROSTER (Continued)

NAME OF DISTRICT	SUPERVISOR	DATE	
		Employed	Resigned
Madison	L. E. Kirkwood	7-1-48	
Mecklenburg-Charlotte-	J. P. Terrault	6-1-51	
Lunenburg	Cyril W. Showalter	1-1-52	4-30-54
Montgomery	K. C. Dove	5-1-54	
Northern Neck	C. B. Cole	7-1-50	3-15-54
	W. S. Derrickson	4-1-54	
Nottoway	J. A. Meyer	11-1-52	
Orange	Fred Pugh	6-1-52	
Peninsula	Harlan Eller	10-1-53	
Powhatan-Goochland	James C. Sullivan	7-1-53	1-31-54
	W. T. Lipscomb, Jr.	2-1-54	7-31-54
	Hason Jones	9-1-54	
Prince Edward	Gus H. Hammond	1-10-53	12-3-53
	Robert Fields, Jr.	1-16-54	6-31-54
	Herman W. Miller	8-10-54	
Prince William #1	C. H. Gilbert, Jr.	7-1-52	8-31-54
	Walter L. Carney	9-1-54	
Prince William #2	(No one on 12-1-53)		
	Julian C. Welsh	2-15-54	7-31-54
	Paul Wakeman	9-1-54	
Pulaski-Montgomery	E. D. Batcliffe	9-3-48	
Roanoke	Walter Henry	7-1-48	
Rockingham #1	J. E. Wenger	2-26-51	
Rockingham #2	Norwood Zirk	4-1-54	
Shenandoah-Page	Ralph Fadeley	5-1-50	8-31-54
	Clifford J. Bacey	9-1-54	9-30-54
	(Deah Wright filled in to 11-30-54)		
Smyth	Carl Hopkins	11-1-53	
Southampton-Princess Anne	Milton H. Turner	10-1-53	
Tazewell	Walter L. Carney	10-1-53	8-31-54
	Ernest Smith, Jr.	9-1-54	
Tidewater	V. H. Ketcham	10-1-52	
Washington	E. P. Rose	1-1-48	
Wythe #1	Mike Swenchenis	9-15-53	3-30-54
	Ralph C. Scott	4-1-54	8-31-54
	Robert Fields, Jr.	9-1-54	
Wythe #2	Edward DeWilde	2-1-52	

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ELEVEN YEARS OF PROGRESS IN VIRGINIA
DAIRY HERD IMPROVEMENT ASSOCIATION WORK *

Year	No. of Associations	No. of Herds on Test	No. of Cows on Test	Percent 1953 is of 1943	Av. Production Per Cow Year		Percent 1953 is of 1943 in % F.C.M.	Pounds of % F.C.M. **
					Milk lbs.	F-fat lbs.		
1953	57	1010	46661	196	8350	343	111	8465
1952	57	1074	45412	190	8252	340	109	8400
1951	57	1042	45303	190	8246	347	111	8503
1950	64	1067	45560	191	8174	344	110	8430
1949	55	947	39348	165	7972	339	108	8274
1948	50	855	34437	144	7813	325	104	8000
1947	49	820	33410	140	7700	328	104	8000
1946	39	649	27593	116	7612	331	104	8010
1945	34	549	24197	101	7691	324	103	7936
1944	36	551	24217	101	7372	315	100	7674
1943	33	531	23864	100	7319	316	100	7668

* See 1952 Annual Report for tabulations back to 1927.

** % F.C.M. means % fat corrected milk production per cow year.

The following table shows the percentage change in the scope of the Virginia DHIA program since 1943:

	1943	1953	Percent Gain
No. of counties served	64	87	36
No. of DHIA Associations	33	57	73
No. of DHIA Demonstration Herds	531	1025	93
No. of Cows in DHIA	23864	46661	96
Percent of All Virginia Milk Cows in DHIA	5.1%	11.0%	116
Av. Yearly Milk Production Per DHIA Cow	7319	8350	14
Av. Yearly Fat Production Per DHIA Cow	316	343	9

HOW VIRGINIA DHIA RECORDS WERE USED IN 1954

1. The 1954 pattern of DHIA record usage differed very little from the 1953 pattern. The records were used extensively as the basis for improvement and adjustment in the feeding, breeding and management practices in the 1965 DHIA demonstration herds.
2. The county agents and extension dairymen drew constantly on the DHIA records for current teaching materials.
3. The records were the subject of special analyses and study in 34 DHIA record analysis meetings. Special statistical reports were prepared for each meeting, featuring the DHIA data in intelligible form, useful to the demonstrators.
4. Production cost studies were taken from the DHIA data and opened the way for consultations between DHIA members and the county agent, then with subsequent follow-up meetings and project visits that served to influence some non-DHIA members.
5. The Virginia Milk Commission and the Virginia Department of Agriculture used the DHIA results to determine dairy trends and milk production costs as a basis for establishing the market price for milk.
6. County agricultural planning committees and the county agents drew upon the local DHIA records for current information needed in planning their county agricultural extension programs.
7. DHIA records were used in measuring other demonstration project accomplishments, such as pasture improvement, use of the artificial breeding service, use of loose housing and the milking parlor systems.
8. Dairy progress in different sections of Virginia was compared by means of DHIA records; especially with respect to dairy production trends.
9. DHIA data are used as a basis for educational publicity. Feature articles were prepared from time to time from DHIA records and results. The records serve well as reference material at the college, in high schools, and as subject matter for general agricultural meetings.

THE VIRGINIA DHIA HONOR ROLL

This honor roll is an annual listing of those herds enrolled as DHIA demonstration projects that have completed the preceding testing year with outstanding records of production. This honor roll is published in the souvenir program of The Virginia State Dairymen's Association's Annual Convention. It occupies a prominent position in this publication and receives wide publicity as a result.

The average production of the DHIA cows in Virginia has steadily increased for 20 years. Because of this, it has been desirable from time to time to raise the Honor Roll standards in order that inclusion in this roll will represent signal achievement. Prior to 1950 the honor roll listed all herds that completed the preceding testing years with 300 or more pounds of butterfat per cow-year. In 1951 this minimum was raised to 350 pounds of butterfat per cow-year. In 1953 the standard was raised to 370 pounds butterfat per cow-year and in addition included all herds that produced 10,000 or more pounds of milk per cow-year.

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HONOR ROLL

THE VIRGINIA FEDERATION OF DAIRY HERD IMPROVEMENT ASSOCIATIONS

Herds that averaged at least 10,000 lbs. of milk or at least 370 lbs. of butterfat per cow-year as reported by the DHIA Supervisors for the testing year ending between September 1, 1954 and November 30, 1954.

Herds Averaging 500 Pounds or More Butterfat Per Cow

Owner	Address	Cow-Yrs.	Breed	Milk	B-Fat
N. B. Flora	Beones Hill	20.11	RH	12,752	526.9
H. W. Shaffer	Middle	43.85	REGH	13,046	511.2
W. M. Camp	Franklin	91.01	RG	9,973	505.7
A. J. Hershberger	Lynchaven	26.12	REGH	13,044	504.6
Charles Meyer	Chula	44.78	RH	12,745	504.5

Herds Averaging 450-499.9 Pounds of Butterfat Per Cow

Millard W. Turner	Timberville	27.40	REGGCRH	11,795	487.7
John A. Hunt	Calpeper	32.26	RH	12,229	466.2
C. R. Hope & Son	Parcellville	49.01	RH	12,065	478.6
W. L. Young	Franklin	33.52	RG	9,209	478.5
Frank S. Walker	Orange	93.22	RH	13,086	477.2
W. M. Kline	Manassas	52.34	Mixed	11,524	473.7
A. W. Luhrs	Parcellville	51.73	REGHEGJ	12,373	473.3
Riley Ikenberry & Son	Beones Hill	19.57	GH	12,046	470.3
Harris Steek Farm	Calpeper	78.68	REGH	12,755	463.3
Luck Bros.	Ashland	132.35	RH	12,703	463.0
E. H. Potts	Round Hill	39.03	REGHEGG	11,096	462.5
Fulton Farms	Stuart	83.76	REGH	12,619	462.0
Mrs. Sebeden S. Phifer	Lincoln	44.22	REGG	9,513	461.4
Welcher & Fairbanks	London Bridge	30.36	REGGCH	11,204	460.5
Mrs. F. S. Walker	Orange	44.11	REGJ	11,922	459.5
Layman Bros. Dairy	Daleville	39.25	REGH	13,099	456.3
O. W. Hertzler	Denbigh	21.79	GJREGH	12,110	456.1
E. E. Cobb	Rural Retreat	18.58	REGHERG	10,364	455.7
W. W. Sanford	Orange	68.37	REGHEREGJ	9,519	454.6
G. B. Lush	Chula	37.28	GHEG	11,186	454.1
J. E. Taylor	Orange	122.70	RH	12,098	454.0
Carrie B. Payne & Son	Parcellville	33.41	REGH	12,584	453.8
Calvin Mattox	Glade Hill	27.80	REGH	12,165	453.3
J. F. Hale & Sons	Nokesville	46.60	H	10,662	452.9
Clyde H. Weaver	Culpeper	32.41	REGHEGJ	12,566	451.1

Herds Averaging 400-449.9 Pounds of Butterfat Per Cow

Owner	Address	Cow-Yrs.	Breed	Milk	B-Fat
Bayville Farms, Inc.	Norfolk	330.19	RG	9,797	447.4
Mercy House, Inc.	Salem	12.03	Mixed	9,943	447.2
L. J. Crowley	Wytheville	41.07	HH	12,361	446.9
W. D. Evans & Son	Concord	27.42	Mixed	11,636	446.9
Kincheloe & Michael	Nokesville	49.98	REGH	11,447	446.8
F. M. Day & Sons	Midland	48.00	Mixed	10,740	446.6
T. E. Tabor	Dublin	16.00	REG	9,060	446.5
Joseph E. Wight, Jr.	Culpeper	30.80	BBS	10,420	446.4
Mrs. Charlotte B. Daniel	Spring Grove	60.19	REGGH	9,707	446.3
Scott & Bridges	Franklin	47.85	RG	8,401	445.8
E. T. Willis	Culpeper	70.70	REGHGG	12,429	444.5
A. C. Brown	Norfolk	52.16	REGGH	11,545	444.0
J. W. Bull & Sons	Nassassas	14.33	H	11,134	443.2
E. E. Brubaker	Rocky Mount	35.52	REGG	8,687	443.2
W. T. Piggott	Purcellville	31.90	REGG	9,226	441.7
W.D. & Ben F. Middleton	Herndon	28.85	H	12,103	441.5
Fritz J. Schroeder	Church View	26.78	REGH	11,756	440.5
Roy Groseclose	Marion	31.81	GGGHx	8,785	440.0
Morris H. Yoder	Denbigh	31.61	REGG	8,565	439.7
J. E. Flora	Boones Mill	21.73	REGH	11,069	439.4
E. T. Willis, Jr.	Culpeper	74.65	REGH	12,461	438.3
J. B. & W. T. Carwile	Madisonville	23.18	REGH	10,553	438.3
H. Ralph Fields	Purcellville	30.21	REGH	11,027	438.2
Allen Hertzler	Denbigh	27.01	REGHEGG	10,152	437.8
H. J. Raga #1	Bristol	46.93	RG	9,030	437.6
John C. Carpenter	Unionville	44.55	REGH	11,856	437.3
Frank S. Loyd	Monroe	60.26	RG	9,493	437.0
D. B. Whitaker	Amelia	37.81	GGGG	12,001	435.6
B. F. Johnston, Jr.	Waterford	59.13	REGH	12,496	435.0
T. T. Curtis	Orange	90.49	RJ	8,028	435.0
J. B. Franklin	Herndon	51.00	H	11,146	434.6
E. W. Thompson, Jr.	Woodbridge	30.30	RJGHx	8,193	433.8
R. L. Fletcher	Lovettsville	50.68	GGGG	10,871	433.5
H. L. Pittman	Sthobeth Church	14.55	REGGRGH	12,842	433.4
C. W. Hall	Purcellville	42.61	REGH	10,609	433.4
W. B. Knott	Dumfries	45.24	RG	8,931	433.4
James R. Green	Markham	32.00	REGHEG	10,706	433.3
Nichols & Reed	Purcellville	32.90	Mixed	9,603	432.4
W. D. Vinyard	Vinton	72.74	RH	11,014	431.5
Mrs. E. Economos	Haymarket	46.59	REGH	10,670	431.3
H. B. Ott & Sons	Remington	66.00	REGH	12,353	431.2
W. M. Johnson	Nassassas	54.27	RJ	8,225	431.1
Homewood Farms	Agricola	68.73	RG	8,605	429.8
E. C. Norman	Purcellville	63.67	GH	10,963	428.8
Gregg Bros.	Hamilton	42.99	Mixed	10,190	428.5
L. R. Cowns	Nokesville	25.97	RH	11,768	428.0
G. W. Wall	Cambria	37.76	REGHEGG	11,128	427.9
H. L. Young	Lightfoot	76.69	REGHEGG	10,640	426.7
D. Terpstra	Big Stone Gap	55.34	RH	11,379	426.5

Owner	Address	Cow-Yrs.	Breed	Milk	R-Pat.
E. C. Denton	Abingdon	35.15	Mixed	10,535	426.5
Heller Jersey Farm	Timberville	19.02	RJ	7,719	426.5
Hollins College	Hollins College	46.34	RH	12,088	426.3
W. P. Kingery & Sons	Rocky Mount	27.52	GMH	9,917	425.6
Lynchburg State Colony	Colony	68.61	RH	12,506	425.3
John H. Alger	Broadway	35.08	BS	8,013	425.0
J. S. Huffard & Son	Crockett	37.14	RJ	8,158	424.7
Lloyd Weaver	Denbigh	27.60	REGH	11,917	424.4
T. W. Jackson	Austinville	49.69	REGG	8,695	423.9
A. H. Henderson	Troutville	22.59	REGH	11,690	423.4
Robert Whitman	Leesburg	26.92	Mixed	11,234	423.2
E. T. & Carlton S. Jones	Aroda	33.78	REGHE-J	9,168	422.2
G. W. & Roy C. James	Hamdon	34.99	H	10,649	420.5
H. D. Sprague	Purcellville	37.59	REGH	10,902	420.2
J. F. Copenhagen	Glade Springs	35.02	Mixed	9,573	418.7
Fred F. Brown	Rural Retreat	28.16	REGJ	7,955	418.5
L. H. Clingenpeel	Boones Hill	34.41	REGH	10,959	417.9
M. S. Norman	Ashburn	40.68	Mixed	10,594	417.6
Chester McKinzie	Stuart	17.90	REG	10,110	417.6
Virginia Polytechnic Institute	Blacksburg	135.85	REGHE-J	9,753	416.6
S. B. Welsh	Leesburg	39.73	Mixed	10,078	416.3
James H. Vaughan	Burkeville	40.17	BS	7,992	415.5
Jennings F. Petts	Purcellville	30.55	Mixed	9,077	415.4
William P. Filippo, Jr.	Culpeper	28.49	Mixed	11,136	415.2
J. W. Euptace	Catlett	110.00	REGH	11,262	415.2
J. Stewart Smith #1	Lincola	51.74	Mixed	11,056	415.1
Carlin Inskeep	Rapidan	61.14	REGHE-J	11,515	414.3
J. S. Gee	Kenbridge	23.41	REGHEGG	10,681	414.0
E. W. Trenis	Catlett	58.46	H	10,465	413.5
Myers Bros.	Leesburg	20.66	Mixed	10,624	413.3
B. F. Salisbury	Fairfax	15.17	G	8,496	413.3
J. C. Eller	Culpeper	76.24	REGH	11,727	412.3
J. F. Chappell	Jonesville	31.02	BS	7,627	412.1
J. A. Weaver, Jr.	Culpeper	47.06	REGHOG	11,577	411.5
Earl S. Hawkins	Culpeper	78.47	REGHEC	10,358	411.4
Carl H. Barnhart	Rocky Mount	29.93	REGGH	8,968	411.2
Dr. J. S. Andrews	Orange	31.32	RJ	7,670	411.1
John J. Cocchiandro	Norfolk	39.53	Mixed	10,432	410.9
C. M. James	Purcellville	50.67	GJRH	9,990	410.8
Gardner Bros. & Wampler	Bridgewater	57.12	REGG	8,871	410.8
Carson Bros.	Callea	32.25	REGG	8,320	410.7
J. W. Leach	Martinsville	26.90	REGH	11,027	410.4
W. G. Welsh	Purcellville	37.22	Mixed	8,881	409.8
G. O. Pettus	Keysville	95.37	RH	11,157	409.6
J. D. Thomas, Jr.	Round Hill	30.44	Mixed	10,278	409.6
J. G. Seibel & Sons	Roanoke	30.15	REGH	11,703	409.2
John Arthur	Hastburg	48.17	Mixed	10,694	409.1
Waddell & Vaught	Rural Retreat	34.78	REGH	11,141	408.7
Horsee C. Fisher	Rocky Mount	20.20	REGH	10,867	408.5

Cowmer	Address	Cow-Yrs.	Breed	Milk	R-Fat
J. A. Naff	Boones Mill	25.98	BGHH	10,753	406.4
Bernard Inskip	Rapidan	77.67	BGGHEG	10,913	407.9
S. W. Sawls	Franklin	40.47	BGGG	8,470	407.9
J. C. Sawls	Franklin	41.94	BG	8,296	407.4
H. K. Bertsler	Denbigh	29.01	BH	11,126	407.3
Edwin Lynch	Burke	36.00	BGHH	11,430	407.1
J. B. Traat	London Bridge	70.83	BGGG, HGJ	10,762	407.0
Albert Flora	Boones Mill	15.40	BGHH	10,647	407.0
Baker & Bowman	Woodstock	41.40	BGHH	11,135	406.3
Dou F. Hale	Rapidan	24.14	Mixed	8,335	405.7
Ralph Wetzel	Bassett	31.84	BGHH	10,530	405.3
M.C. Garst & H.M. Craun	Ronoke	42.28	BH	11,703	404.8
C. C. Vaughan III	Franklin	62.67	BG	8,424	403.8
L. V. Rawlings	Lovettsville	23.49	BGGHEG	10,412	403.5
Mrs. M. H. Paddock	Marshall	38.00	BG	7,950	402.6
Mrs. Louise Warner	Hamilton	38.30	BGHH	10,419	401.2
Smith Bros.	Howlett	70.36	BG	8,048	400.9
Dr. Wm. P. Frazier	Hamilton	44.32	Mixed	10,554	400.8
H. B. Townsend - Riverside Farm	Manquin	86.12	BGGG	10,610	400.6
John Middleton & Son	Herndon	48.11	B	11,138	400.3

Herds Averaging 370-399.9 Pounds Butterfat Per Cow

Fort Collier Farm	Winchester	85.56	BGHH	11,307	399.9
J. Byron Clark	Stuart	64.94	BG	8,128	399.9
Gordon Beavers	Round Hill	41.61	BGGG	9,543	399.8
Hollywood Farm	Herndon	64.79	Mixed	11,358	399.2
Shumate & Shumate	Calverton	39.41	B	11,040	399.2
Va. Methodists Children's Home	Richmond	26.61	BG	7,931	399.2
W. J. Smith	Culpeper	66.18	BH	11,186	398.3
J. W. Trumbo	Calverton	72.26	B	10,192	396.2
J. C. Painter	Draper	41.00	BGGGHH	8,791	396.1
Cuzles Neck Farm #3	Richmond	163.29	BGHH	10,570	397.8
C. W. Smith	Howlett	151.01	BH	11,553	397.7
L. N. Woodson	Remington	39.29	B	10,607	397.6
F. W. McComb	Blumont	162.73	BGGHEG	10,143	397.2
Mrs. C. Leith Speiden	Somerset	59.23	BH	10,506	396.8
C. Thomas Sollenberger	Woodstock	44.67	BGHH	10,291	395.4
N. H. DeFord	Norfolk	85.18	BGH	10,466	395.2
J. T. Wilkinson	Chilhowie	28.06	BH	10,117	394.7
Willie Francis	Covington	23.36	BGHH	10,379	394.1
Bridgewater College	Bridgewater	22.19	BGGHEG	9,456	393.6
B.H. Kornhaus	Denbigh	37.48	Mixed	10,306	393.3
F. E. Barnhart	Boones Mill	20.57	BGHH	10,934	393.1
Alice Dix Patterson	Furcoellville	25.59	BGGH	9,453	393.1
John N. Willis	Culpeper	69.63	BGGGHEGJ	10,754	392.8
J. E. Dodson & Sons	Chula	37.48	BGGHEG	9,474	392.5

Owner	Address	Cow-Yrs.	Breed	Milk	R-Fat
R. G. Guenter	Abingdon	52.30	Mixed	8,955	392.4
J.R. Baker & Son	Bristol	24.26	BG	7,916	392.4
Douglas S. Hill	Orange	59.58	NJ	7,211	392.3
C. N. & L. D. Flora	Rocky Mount	18.71	REGH	10,164	391.9
Frank Aigner	Richmond	40.01	BG	7,680	391.4
J. B. Hein & Son	Round Hill	51.60	REGH	9,918	391.0
E. L. Stables & Son	Crews	27.92	REGH	10,245	390.3
Wm. H. Logan	Woodstock	28.62	H	11,274	390.1
J. T. Bowman & Sons	Harrisonburg	39.43	REGH	10,503	390.0
C. M. Warner	Purcellville	34.04	BH	10,151	389.8
E. L. Clark	Bealeton	40.47	H	10,649	389.8
W. H. Battersworth	South Hill	32.10	REGG	8,272	389.6
G. Ray Harrison	Herndon	30.24	H GSH	10,179	389.2
N. D. Menken	Upperville	74.33	REGG	8,251	388.7
E. B. Orange	Richmond	126.99	BGGHGG	10,781	388.4
E. P. James	Purcellville	40.89	REGH	10,357	387.2
W. H. Jaxrell	Chula	46.61	GHEG	9,965	387.2
J. O. Beard	Ltaviile	27.65	BH	11,367	387.1
O. H. Sisk & Sons	Rocky Mount	26.29	REGG	7,805	387.1
Roy F. Handrickson	Purcellville	50.99	GCGH	9,819	386.6
W. S. Rhoads, Jr.	Gloucester	42.84	BG	7,768	386.2
Ralph Horney	Speedwell	43.44	BG	7,708	386.0
G. A. Barlow & Sons	Smithfield	76.18	Mixed	9,079	385.4
William Wood	Graper	11.00	REGH	10,826	385.1
Clifford L. Case Estate	Purcellville	54.22	Mixed	10,097	384.9
Thomas V. Eagle	Woodstock	33.06	H	11,028	384.7
O. S. Kilby	Boston	43.81	GHEGG	10,209	384.1
W. J. Morris & Sons	Amelia	115.89	BG	7,835	384.1
J. H. McDevitt	Culpeper	55.53	REGH	10,410	384.0
L. N. Agee	Farmville	22.55	RHEJ	8,714	384.0
Sidney Bauserman	Toms Brook	31.42	GHEG	10,394	383.3
H. B. Townsend					
Hanstin Lodge	Hanquin	90.45	GHEG	10,302	383.0
G. L. Bowman	Boones Mill	21.36	BH	10,105	383.0
E. F. Barnhart	Boones Mill	31.22	BG	7,532	383.0
J. M. Couldin & Son	Tappahannock	47.30	BG	7,462	382.7
W. E. Flora	Boones Mill	20.96	REGH	10,361	382.2
Masonic Home	Richmond	20.16	BG	7,309	382.1
Frank Bruce	Rice	45.10	REGG	7,754	382.0
W. B. Gates #2	Rice	73.86	BG	7,706	382.0
Fairview Farms Inc.	Winston	67.56	BGGHEG	10,194	381.9
L. R. Whipple	Brownsburg	20.94	BGGHEG	10,145	381.9
W. B. Bass	Rice	34.42	REGG	7,737	381.9
W. E. Fletcher & Son #1	Ashburn	60.03	Mixed	10,205	381.7
J. G. Kinzie	Troutville	36.41	BGGJ	6,845	381.6
J. M. Jackson	Staunton	55.99	BG	7,548	381.3
Roy F. Handrickson	Purcellville	24.64	Mixed	9,223	380.8
E. L. Reeves & Bro.	Dimiddie	34.12	GHEG	9,560	380.6
R. N. Griggs & Son	Brunington	48.32	BGGGH	7,847	380.4
Ralph E. Brown	Grange	51.92	BGGJ	6,816	379.9

Owner	Address	Cow-Yrs.	Breed	Milk	R-Eat
Allen Bradley	Herndon	61.54	H	10,557	379.7
C. & A. D. Clark	Orange	73.08	RJ	7,540	379.5
M. M. Sterrett & Son	Kaphine	65.56	RSEGHEGG	8,971	379.4
F. E. & Paul Coffman	Harrisonburg	24.69	RH	11,566	379.3
K. D. Hutcherson	Boones Mill	11.71	GGH	8,865	379.1
W. D. McNair & Son	Herndon	30.29	HEG	9,236	378.7
E. W. Clements	Manquin	73.38	RGH	10,347	378.5
E. P. Rodes	Lexington	59.55	RSEGHEGG	9,759	378.5
Hynson & Miller	Manassas	55.49	GH	9,523	378.2
Gray Bros.	Saluda	43.64	REGG	7,707	378.1
Plainview Dairy Farm	Chula	54.29	REGG	8,081	377.7
M. A. Ankers	Sterling	32.14	H	10,201	377.1
H. H. Williamson & Son	Fineastle	20.57	RGH	9,858	377.0
Maurice D. Laprade	Rocky Mount	13.83	REGG	7,747	377.0
James Kegley	Wytheville	19.63	RGH	10,429	376.9
F. E. Peck & Sons	Herndon	42.87	H	10,488	376.3
Gertrude Heare	Lincoln	43.92	REGH	10,280	375.9
L. P. Cole & Son	Stephenson	21.33	RSEGHEGG	9,126	375.9
Roy Thompson	Herryville	22.39	GGGGH	10,172	375.8
E. A. Farmer & Sons	Gloucester	34.38	RG	7,587	375.8
W. A. Kite	Culpeper	46.58	Mixed	9,576	375.6
B. Alexander Lipscomb	Fairfield	30.29	GHEG	8,534	375.1
L. W. Kipps	Arede	60.52	REGJ	7,106	375.1
B. L. & H. C. Reuntree	Suffolk	93.14	REGGHH	9,021	375.0
F. P. Wickline	Buchanan	45.91	RG	7,693	374.9
E. L. Talbot	Gloverdale	38.82	REGG	7,569	374.8
S. D. Scott	Marion	31.92	Mixed	7,256	374.6
Gwathmey Brothers	Walkerton	27.37	REGG	7,208	374.5
Hack Ward	Leesburg	40.62	Mixed	9,998	374.2
Harvey A. Young	Manassas	31.72	GHEG	8,975	374.0
Hillandale Farm #2	Purcellville	27.52	GHEGG	7,825	374.0
H. H. Moffett	Staunton	30.92	Mixed	9,732	373.9
J. A. Hazelgrove	Farmville	82.50	GHEGG	9,279	373.9
Carr Bros.	Waterford	52.71	Mixed	9,030	373.9
E. Lyle Clark	Stuart	62.24	REGG	7,450	373.3
F. V. & E. E. Stables	Crewe	64.42	RSEGHEG	9,913	373.2
R. F. Mill, Jr. & Son	Orange	75.95	REGJ	6,867	372.8
E. N. Crowgey	Wytheville	82.19	RG	7,821	372.6
N. L. Lowry & Son	Hamilton	37.27	GH	9,756	372.1
J. E. Hawkins	Middlethian	51.46	RG	7,628	372.1
James G. Alexander	Fairfield	43.58	GGGH	8,321	371.8
Western State Hospital	Staunton	114.25	RGH	10,639	371.3
Burwell Bros.	Wirtz	25.50	REGH	9,576	371.3
B. C. Bagg & Son	Rice	28.64	REGG	7,590	371.0
R. E. Jeter & Sons	Richmond	85.20	REGH	9,984	370.9
Sharon Farm	McLean	97.69	REGH	10,450	370.8
Mrs. E. C. Wright	Waynesboro	33.12	GHEGG	3,336	370.8
Howard W. Beintott	Rocky Mount	19.65	REGG	7,527	370.7
A. Dean Sumner	Brandy	33.88	RGGH-J	9,516	370.4
D. C. Sands	Middleburg	74.94	REGG	7,734	370.2
Tucker & Smith	Rawlings	28.73	GHEG	9,130	370.1
Thomas Weaver	Radiant	51.85	Mixed	8,815	370.0

Herds Averaging Under 370 Lbs. of Butterfat but Over 10,000 Lbs. of Milk

Owner	Address	Conc-Yrs.	Breed	Milk	B-Fat
Ted J. Shephard	Nokesville	45.02	BH	10,401	369.8
Edna M. Bready	Herndon	36.04	BEGHEGG	10,090	360.8
Sam W. Swope	Harrisonburg	31.76	BEGH	11,073	368.6
A. K. Hardy	Boones Mill	30.14	BEGH	10,908	358.4
C. E. & C. W. Bolton	Troutville	24.16	BEGH	10,448	367.0
W. S. Barksdale #1	Randolph	51.59	BEGH	10,357	366.5
R. B. Suddith	Locust Dale	57.05	BEGJ	10,084	366.2
F. O. Dorey	Richmond	63.19	BEGH	10,255	363.9
Joe H. Wenger	Norge	96.66	GH	10,306	365.6
Mike S. Liskey & Sons	Harrisonburg	39.33	BEGH	10,069	365.5
Norman, Neal, Norman	Chatham	53.70	BEGH	10,318	365.2
J. B. Franklin (Dairylen Farm)	Herndon	86.97	BEG	10,165	364.1
R. H. Forman	Ashburn	35.88	GH	10,062	360.3
P. C. Huff	Roanoke	78.86	GH	10,527	359.9
Gross Brothers	Vinton	28.06	BEGH	10,398	359.1
O. P. Yowell	Culpeper	60.14	BEGH	10,057	355.6
Stuart Land & Cattle Co.	Rosedale	53.44	BH	10,173	353.6
S. P. Spalding	Herndon	53.56	BH	10,384	352.8
G. K. Miller	Herndon	50.50	BEGH	10,090	352.0
Sweet Briar College	Sweet Briar	63.91	GH	11,062	349.9
H. J. Heatwole & Sons	Harrisonburg	31.97	GH	10,244	347.7
J. B. Andrews Estate	Roanoke	78.52	BEGH	10,383	342.9
Spangler Farms	Harrisonburg	29.82	BH	10,463	341.2
Lewis C. Flower, Jr.	Oak Grove	22.72	BEGH	10,207	339.3

HONOR ROLL OF LIFE TIME PRODUCERS

Cows that have completed life time records of at least 100,000 pounds of milk or 4,000 pounds of butterfat. Records were made under the supervision of the Virginia D.H.I.A. Supervisors.

HOLSTEIN

<u>Name</u>	<u>No.</u>	<u>Born</u>	<u>Living or Dead</u>	<u>Days</u>	<u>Milk Lbs.</u>	<u>Fat Lbs.</u>
<u>Eulton Farms, Stuart, Virginia</u>						
Ormsby Eliza Lou	2526415	8-44	D	2103	100149	3429
<u>Hollins College, Hollins, Virginia</u>						
Hollins Havoc	1952230	10-37	L	4644	204073	7397
Hollins Hamlet II	1709736	9-33	D	4654	201700	6436
Hollins Hansel 2nd	1754125	1-34	D	4146	177476	5746
Hollins Hab 7th	2163661	2-40	L	3004	164015	5714
Hollins Hazir 2nd	1754135	12-34	D	3419	156230	5281
Hollins Hoylton 3rd	2506535	11-45	L	2666	141781	4372
Hollins Hab	1264127	6-28	D	3534	139905	4403
Hollins Haggal III	2486667	7-43	L	2702	136721	4119
Hollins Havoc II	2184006	9-40	D	3005	135488	4742
Hollins Heartherk	2495125	8-43	L	2803	133706	4641
Hollins Helkath 2nd	1952232	12-37	D	2807	117618	3671
Hollins Heath II	2478758	10-43	L	2623	113005	3639
Hollins Haziter	2478763	1-44	D	2188	106729	3536
Hollins Heath	2201153	8-40	D	2581	106177	3559
Hollins Hoylton 4th	2558674	11-44	D	2211	105442	3242
Hollins Handicap III	1884275	8-36	D	2591	104965	3655
Hollins Hearth	2153360	11-39	D	2120	103596	3436
Hollins Hoferkerk	2495126	8-43	D	2465	103139	3564
<u>H. B. Ott & Sons, Restington, Virginia</u>						
Brentown Homestead Fannie	2505348	5-44	L	2284	102390	3554
<u>H. D. Winard, Vinton, Virginia</u>						
Timberidge Woodchuck	2406373	12-42	L	2932	138330	4823
Miniabora Model Ormsby	2339232	9-42	L	2944	120136	4905
Miniabora Korndyke Bessie	2334468	9-42	L	2772	107577	3795
Tim Syke Harken	2471459	8-43	L	2744	103830	3548
Rex Victoria Aggie	2481518	10-43	L	2569	102854	3673
Pansy Artis Trinket	2401521	12-46	L	2579	102384	3161

HONOR ROLL OF LIFE TIME PRODUCERS (Continued)

<u>Name</u>	<u>No.</u>	<u>Born</u>	<u>Living or Dead</u>	<u>Days</u>	<u>Milk Lbs.</u>	<u>Fat Lbs.</u>
<u>Harry A. Walton, Covington, Virginia</u>						
Victoria Girl Artis	1831147	6-36	L	4425	153015	5032
<u>Virginia Polytechnic Institute, Blacksburg, Virginia</u>						
V.P.I. Homestead Neon Fairy	2393152	2-43	D	2246	106695	3296
V.P.I. Homestead Alpha Destiny	2262746	8-41	L	2253	107270	3586
V.P.I. Homestead Nugget Esther	2298275	2-42	D	2174	106694	3738
V.P.I. Homestead Apple Dixie	2262741	7-41	D	2338	114173	4188
<u>M. C. Garst and H. W. Cross, Roanoke, Virginia</u>						
Piebe Dot Colantha	2409132	4-41	L		113090	3634
<u>Charles R. Hops & Son, Parcellville, Va.</u>						
Brackel Farm Montvic Evelyn	2292061	8-44	L	2485	115727	4897
Brackel Farm Inka Rag Apple	2047532	10-38	D	1974	100017	3778
Brackel Farm Rag Apple Clara	2022990	5-38	D	2564	120013	4865
Brackel Farm Montvic PF Emily	2436698	12-43	L		104760	4286
Bonheur Rag Apple Clara B	2580390	5-44	L		101465	4103
<u>GRADE MILKSTEINS</u>						
<u>Fulton Farms, Stuart, Virginia</u>						
Diane	5289566 4821035	1-41	D	1761	104281	3614
<u>W. D. Vinyard, Vinton, Virginia</u>						
Grade Sue				3424	155452	5336
Grade Lena				3264	130960	4359
Grade Cub				2714	117050	4131
Grade Lady				3004	111976	4178
Grade Bill				2619	111595	3773

THE VIRGINIA OFFICIAL TESTING SERVICE

(Administered by the V.P.I. Dairy Extension Service)

The following table shows the trends in the official testing in Virginia during the past 5 years :

<u>GHERNSEY</u>		1950	1951	1952	1953	1954
Advance Registry	No. Herds	53	47	36	27	27
	No. Cows	644	704	542	495	379
Herd Improvement Registry	No. Herds	41	39	31	27	30
	No. Cows	625	854	757	859	926
<u>HOLSTEIN</u>						
Advance Registry	No. Herds	2	4	1	1	1
	No. Cows	7	8	11	19	1
Herd Improvement Registry	No. Herds	14	15	13	13	12
	No. Cows	369	490	478	517	471
<u>JERSEY</u>						
Advance Registry	No. Herds	1	-	-	1	1
	No. Cows	7	-	-	1	4
Herd Improvement Registry	No. Herds	13	16	15	13	10
	No. Cows	413	588	607	504	447
<u>AYRESHIRE</u>						
Herd Improvement Registry	No. Herds	4	4	2	3	3
	No. Cows	91	125	71	93	89
<u>BROWN SWISS</u>						
Herd Improvement Registry	No. Herds	1	-	-	-	1
	No. Cows	6	-	-	-	27
<u>GOATS</u>						
Advanced Registry	No. Herds	1	1	1	-	-
	No. Goats	9	1	10	-	-
Herd Improvement Registry	No. Herds	-	-	-	1	3
	No. Goats	-	-	-	10	16

THE VIRGINIA OFFICIAL TESTING SERVICE (Continued)

Trends in Official Testing - table continued:

TOTALS

		1950	1951	1952	1953	1954
Advanced Registry	No. Herds	57	52	37	29	29
	No. Animals	667	713	553	515	364
Herd Improvement Registry	No. Herds	73	74	62	57	59
	No. Animals	1526	2047	1923	1993	1976
<u>TOTAL OF ALL OFFICIAL TESTING :</u>						
	No. Herds	130	126	99	86	88
	No. Animals	2193	2760	2476	2498	2360

The official testing program is sponsored by the various purebred dairy cattle associations, under uniform rules established by the Purebred Dairy Cattle Association. It is administered by the State Superintendent of Official Testing, who represents the state agricultural college. In Virginia the D.H.I.A. supervisors conduct the actual tests. Only milk and butterfat production figures are collected. A booklet on the policies and procedures of the program in Virginia was prepared during the year. A copy of this is attached.

FIGURE I

The Milking Herd Analysis

I.	Feed Costs (DHIA Yearly Summary)	
	A. Burn-fed Roughage (3339# hay and 5030# silage).....	\$98.00
	B. Concentrates (2604#).....	101.00
	C. Pasture (190 days)	36.00
II.	Labor per Cow (Based on 1 man load of 20 cows plus 10 heifers. Salary of \$2400 per year. Total labor bill minus labor for heifers, divided by the number of cows in the herd. $\$2400 - \$270 = \$2130 \div 20 = \106.50 per cow	106.50
III.	Overhead	
	A. Buildings and Equipment (based on estimate of \$400 per cow)	
	1. Interest on investment @ 5%.....	20.00
	2. Depreciation and repairs @ 4%	16.00
	B. Cattle (Based on average investment of \$350 per cow)	
	1. Interest on investment @ 5%	18.00
	2. Depreciation (based on following formula)	
	$\frac{\text{Highest Value } (\$400) - \text{Salvage } (\$100)}{\text{Cow turnover (DHIA average of 5 yr.)}}$	60.00
IV.	Miscellaneous Charges (Estimated at 40% of total overhead).....	46.00
	TOTAL COST OF PRODUCTION PER COW	\$501.50
	TOTAL COST OF PRODUCTION PER CWT OF MILK *	\$ 6.00

Net Profit

I.	*Value of milk sold (DHIA Summary)	\$518.00
II.	Value of calf dropped and manure produced	25.00
	Gross Income	\$543.00
	Net profit per cow	\$ 41.50
	Net profit per cwt. of milk	\$ 0.497

*Note : 8350 lbs. milk sold, testing 4.12% @ \$6.20/cwt.

THE VIRGINIA DAIRYMAN

THE VIRGINIA STATE DAIRYMEN'S ASSOCIATION

GARDNER BUILDING, MAIN STREET

BLACKSBURG . . . VIRGINIA

TELEPHONE 7611

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THE SPECIAL SCHOOL MILK PROGRAM

By: R. G. Connelly, Secretary

Congress provided in the Agricultural Act of 1954 funds to assist in increasing milk consumption by school children and in expanding dairy markets. The Act states:

"Beginning September 1, 1954, and ending June 30, 1956, not to exceed \$50,000,000 annually of funds of the Commodity Credit Corporation shall be used to increase the consumption of fluid milk by children in nonprofit schools of high school grade and under."

A total of \$100,000,000 has been made available for this program over the next two years to make additional milk available to school children, above the amounts normally used in the school lunch program.

According to a U. S. D. A. Agricultural Marketing Service report; in order to increase milk consumption by children, nonprofit schools of high school grade and under are reimbursed in connection with the cost of additional milk served to children.

School officials are given wide authority to encourage consumption along lines best suited to individual needs. The additional milk may be served at any time during the school day. A child may drink as many additional half pints as he desires.

The AMS report states further that a milk-consumption base, established for each participating school, will represent normal consumption of milk by children in the school. Reimbursement will be made for all milk served to children in excess of this base, if the school agrees to:

1. Operate its food or milk service on a nonprofit basis.
2. Serve only fluid milk meeting applicable state and local standards as to butterfat content and sanitation.

Reimbursement payments to schools are made monthly. The rate of reimbursement for each additional half pint of milk served to children depended upon such factors as the level of normal milk consumption in the school and the cost of milk to the school. In no event, however, shall the rate of reimbursement for each half pint of milk served in excess of the monthly base be higher than four cents, except that the rate for schools have no service of milk in the 1953-54 school year be no higher than three cents.

Success of the Special School Milk Program depends upon the cooperation of many groups in the local community--schools, dairy industry, and all other interested in using the abundances of our farms to improve the diets and health of our children.

Schools can start a milk service program--a new one, or one in which the additional milk will be served at new times during the school day, such as just after arrival on the school bus; mid-morning or mid-afternoon.

Dairymen—Can work with schools in planning delivery schedules, providing refrigeration, and in helping schools to overcome other milk service problems.

Other Groups—Can stimulate community interest in the program, possibly leading to the establishment of standard school lunch programs in schools so denied such programs and in providing health building milk for all children regardless of circumstances that are now denying milk to children in adequate daily amounts.

Virginia Public Schools To Use More Milk

Representatives of the Virginia Department of Education; Department of Public Health; Department of Agriculture and the Virginia Milk Producers Federation have collaborated in formulating plans for administering the Special School Milk Program in Virginia. When finally approved by Governor Stanley, the program is to go into effect under the Virginia Public School authorities. The key administrative people at the local level will be the County Superintendent of Schools; School Principals and Teachers.

Today about 1336 Virginia schools representing about 309,000 students have school lunch programs. Between 1700 and 1800 other Virginia Schools representing about 386,277 students have no school lunch programs. The total number of school children in Virginia is about 695,277 with an average daily attendance of 612,140 students in the 1953-54 school year. Probably 90 per cent of the 309,000 students in the schools provided with school lunches participate in the program.

It appears that all members of our Virginia dairy industry—producers and distributors—could cooperate most effectively with our public school officials in the development of the Special School Milk Program in all of our 3100 public schools. The program will make excellent use of any surplus milk—establishing sound food habits in our people.

The Burkeville Guernsey Farm Dispersal

On Tuesday and Wednesday, October 26 and 27, 1954, W. L. Boswell, Owner, Burkeville Guernsey Farm, Burkeville, Virginia, will sell 190 head of Guernseys, including: 7 bulls, 99 cows, 21 bred heifers, 63 open heifers. These Guernseys represent some of the best breeding in the country, high production, good breed type, healthy. Burkeville Guernsey Farm is a noted source of foundation Guernseys.

Why We Must Advertise And Promote The Sale Of Milk

High milk prices alone will not make a dairy farmer prosperous. It's the quantity of milk sold multiplied by the price per unit that determines his income. Of course if most or all of his income must be spent to pay the costs of production, the dairyman may not prosper. Furthermore, if the income per unit of milk shrinks enough and he can't increase his milk sales he must stop buying all those commodities that fail to decline in price commensurate with the decline in his income from milk, or go into debt.

The line of direct attack on this problem lies in increasing the per capita consumption of milk. Today milk must compete with many foods and beverages for its proper place in the human diet. To assume that milk will set itself is erroneous. Many people in Virginia do not consume enough fluid milk to maintain good health, for example:

In 1944, according to "Marketing Research Report No. 77", May 1954, the United States Department of Agriculture, AMS, Washington, D. C., the daily per capita consumption of fluid whole milk was: District of Columbia, .69 pint; Richmond, Va., .54 pint; Roanoke,

.49 pint; Norfolk-Portsmouth-Newport News, .43 pint.

In the array of 114 urban markets, Portland, Maine, lead with .96 pint of whole milk per capita, daily. Jackson, Mississippi, was last with .39 pint per capita. The Virginia milk markets ranked: District of Columbia 67th; Richmond 92nd; Roanoke 99th; Norfolk-Portsmouth-Newport News 108th. This was the array in 1944 when we were at war. In the light of these data and the current tendency to greater milk production, it should pay Virginia farmers to advertise and promote the sale of milk.

Natural Resources Conservation Week

The week of October 17-23, 1954 is Virginia Natural Resources Conservation Week. The economic strength of Virginia lies in the condition of her soils, waters, forests and wild life resources. These resources contribute materially to the development of the industry, business, and agriculture of the state.

Progress in the conservation of Virginia's natural resources is evident in our soil erosion control projects, improved use of our farm lands and forests; the establishment of 28 Soil Conservation Districts including 97 counties, complete soil and water conservation plans being developed on more than one-fourth of the farms of Virginia, the planting of more trees and forest protection and development programs, and the propagation of many forms of wild life. In view of these accomplishments and untold benefits yet to be derived, everyone is urged to support the conservation program wholeheartedly.

THE ANNUAL VIRGINIA DAIRYMEN'S CONVENTION

The 43th Annual Convention of The Virginia State Dairymen's Association will be held:

JANUARY 20 AND 21, 1955

HOTEL ROANOKE, ROANOKE, VIRGINIA

Mark Your Calendar

Make Your Hotel Reservations Now

An Excellent Program Will Be Presented

The Virginia dairy cattle breeders' associations will hold their annual winter meetings on January 19, 1955. Write your breed secretary for details.

Corn Silage Can Displace Some Hay

Hay is premium feed on some Virginia farms due to drought. Corn silage may also be a premium feed. However, if a dairyman has more silage than hay on hand he may feed his dairy cows forty pounds or more of silage per 1000 pounds live weight of cow along with only six to seven pounds of good hay daily to provide enough roughage for efficient milk production. Although cows may eat silage at the rate of six pounds of silage per hundred pounds live weight, it is wise to see to it that the cows get at least a little good quality hay every day.

When corn silage is fed liberally, the protein content of the grain feed should be adjusted to offset the relatively low protein content of corn silage. Also, it is important to take into account the amount of grain that may be present in the corn silage. A research report from Michigan State College, August, 1954, indicates that silage from one cornfield contained one pound of corn grain in each 7.5 pounds of silage. Cows that consumed 55 pounds of silage ate 7.5 pounds of corn grain in the silage. The leaves and stalks in the 55 pounds of silage were equal to 9.9 pounds of hay. In four different years the cornfield yielded silage containing 13 to 17 pounds of corn grain per hundred pounds of silage. This same silage was equivalent to 22 to 27 pounds of hay.

This research showed that the grain in corn silage contributes the unidentified grain factor which is needed to balance the Total-Digestible-Nutrients in roughage, therefore, corn silage should not be considered a true roughage, but a mixture of roughage and grain. The point to be considered is, why feed a grain mixture high in corn grain when the cows may be getting seven or more pounds of corn grain when they eat fifty pounds or more of silage.

Apple Pomace For Dairy Cows

Wet apple pomace, the residue left after juice is pressed from apples, may be fed fresh or it may be ensiled and fed like corn silage. Sometimes the pomace is dried and fed like dried beet pulp as part of the grain mixture.

Wet apple pomace contains about 21 per cent dry matter, corn silage about 27 per cent, and both are very low in protein. Apple pomace silage does not contain quite as much total-digestible-nutrients as average corn silage, but the pomace is worth about as much as corn silage as feed for dairy cows.

Can Calves Become Infected with Mastitis Germs?

Calves should never be permitted to suck the udders of other calves. First such a vicious habit may cause the udders to become ill-shaped and pendulous, detracting from the beauty and value of the animal when it has grown up.

In the second place, sucking may cause a calf's udder to become infected with mastitis; producing germs, which can cause acute mastitis even in calves, resulting in damaged or lost quarters.

When milk from mastitic cows is fed raw to calves there is a possibility of the mastitis germs being introduced in to other calves' udders by sucking. These germs may lie dormant until the udder is fully developed and then making its presence known by a flare up of mastitis. To discourage calves from sucking keep the young calves in individual pens and always feed the calves some dry grain feed immediately after the calves have drunk milk. Calf weaners may be used also--as a last resort.

THE VIRGINIA DHIA SUMMARY - SEPTEMBER, 1954

	Aug. '54	Sept. '53	Sept. '54
Active DHIA's in Virginia	59	58	60
DHIA's Submitting Complete Reports	51	40	50
Total No. Herds in DHIA's	1059	1333	1069
Herds Reported Tested	899	680	903
Total No. Cows in DHIA's	48618	47510	49023
Number Cows Reported Tested	40549	31510	41731
305-Day Reports Submitted in Sept.	2349	1497	1897
305-Day Reports Submitted to Date	11631	15111	14196

ASSOCIATION AVERAGES FOR SEPTEMBER, 1954

ASSOCIATION	SUPERVISOR	NO. OF COWS		AVG. PER COW		NUMBER HERDS	305-Day Reports	
		Assn.	Dry	Milk Lbs.	Fat Lbs.		TESTED	Sept. to Date
Goutham-Pr. Anne	H. M. Turner	1216	211	705	31.7	16	24	257
Culpeper #4	Roy M. Phillips							
	Daryl Johnson	101	12	817	31.0	3	-	-
Powhatan-Gooch.	Mason B. Jones	942	227	783	30.4	17	56	531
King William	Earl W. Stanley	404	77	815	30.0	4	-	-
Chest.-Hanover	Sterling Simpson	965	189	746	28.9	12	-	850
Botetourt	J. G. Thomas	679	127	709	28.8	20	119	459
Loudoun #1	T. M. Dove	1032	213	712	28.3	22	-	163
Allgny-Rockbr.	Dean A. Wright	939	181	724	28.1	21	53	354
Nottoway	J. A. Moyer	655	130	677	27.9	13	37	412
Lynchburg	Gordon W. Hicks							
	William S. Jones	963	164	649	27.6	20	21	247
Orange	Frederick K. Pugh	995	212	619	27.1	18	72	410
Franklin #1	W. F. Jamison	704	156	642	27.1	25	-	204
Madison	L. R. Kirkwood, Jr.	1030	218	667	27.0	21	56	612
Fairfax #1	Roy M. Phillips	1210	257	741	26.9	22	129	1036
Rockingham #1	John R. Wenger	807	181	707	26.8	23	-	20
Northern Neck	Billy Derricksen	344	67	645	26.7	12	25	460
Rockingham #2	Norwood L. Zirk	178	38	731	26.7	7	-	-
Clarke-Fred.	G. I. Cather	458	112	723	26.7	11	63	229
Loudoun #3	Jack Fleming, Jr.	1162	291	657	26.5	23	-	152
Loudoun #6	Smith Ward	1032	285	683	26.4	24	55	125
Augusta	Cletus M. Cupp	1045	213	656	26.4	23	6	58
Dinwiddie	Dennis W. Mayes	669	158	610	25.9	14	38	522
Henrico	Earl W. Stanley	1042	228	622	25.8	11	50	50
Roanoke	W. L. Henry	797	145	718	25.7	18	18	215
Franklin #2	Herschel Fike	553	121	599	25.3	23	55	371
Fauquier #1	William S. Smith	1267	273	645	25.2	26	51	51
James River	L. A. Burkholder, Jr.	677	133	588	25.2	14	41	470
STATE AVERAGE				642	25.3			
Wythe #2	E. DeWilde	438	104	613	25.0	13	8	80
Culpeper #1	Bryan J. Harouff	1452	315	700	25.0	21	91	565
Culpeper #3	James L. Howell	1275	275	670	25.0	22	-	121
Loudoun #2	L. K. Martin	1117	240	635	24.9	24	32	318

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ASSOCIATION	SUPERVISOR	NO. OF COWS		AVG. PER COW		NUMBER HERDS TESTED	305-Day Reports	
		Assn.	Dry	Milk Lbs.	Fat Lbs.		Sept.	to Date
Fairfax #2	Daryl Johnson	925	239	688	24.9	21	130	782
Loudoun #5	F. Mercer Love, III	1023	233	669	24.9	24	93	93
Fauquier #2	C. W. Driskill	1200	279	645	24.8	27	-	41
Fat-Hen-Frank	J. B. Gunter	992	232	596	24.7	26	104	890
Montgomery	Kenneth C. Dove	703	180	629	24.6	16	5	80
Culpeper #2	W. J. Watkins, Jr.	1496	340	701	24.6	22	5	174
Amelia	J. H. Altice	1065	242	581	24.4	22	109	869
Tazewell	Ernest Smith, Jr.	415	90	652	24.3	10	6	17
Pulaski-Mont.	Robert D. Ratcliffe	899	189	580	24.2	21	31	290
Prince Edward	Robert Fields, Jr.	981	306	545	24.1	17	-	140
Bland	E. DeWilde	164	45	570	23.8	5	-	47
Shen.-Page	Clifford J. Racey	777	180	599	23.8	22	-	338
Pr. William #2	Walter Lee Carney	656	185	646	23.7	14	-	-
Halifax-Pitts.	Calvin P. Stephens	826	188	595	23.5	21	-	414
Floyd	Andrew Whitlock	388	73	532	23.1	17	-	-
M-C-L	J. P. Terriault	735	180	561	22.9	19	37	114
Bedford	Dwight E. Bogle	807	178	589	22.7	23	41	110
Pr. William #1	Paul Wakeman	1006	325	611	22.4	21	214	362
Lee-Wise	K. O. Frazier	525	148	545	22.3	12	22	93

HIGH HERD, AVERAGE BUTTERFAT PRODUCTION PER COW
EACH ASSOCIATION - September, 1954

ASSOCIATION	HIGH HERD	NO. OF COWS			AVG. PER COW	
		Herd	Dry	BREED	Milk Lbs.	Fat Lbs.
Albemarle-Louisa	Report not received					
Allgny.-Rockbr.	H. W. Martin	26	1	R&GH&GG	1087	37.5
Amelia	Charles Moyer	46	5	RH	1103	43.4
Augusta	Valla V. Wilson	21	0	R&GG	867	39.6
Bedford	N. A. Boone	11	2	R&GG&H	717	32.9
	Wonder Farm	11	0	Mx	811	
Bland	Bland Correctional Farm	17	2	H&G	1014	35.7
Botetourt	N. L. Brown	65	6	R&GG	774	37.4
Carroll-Grayson	Report not received					
Chest.-Hanover	Luck Brothers	139	31	RH	884	32.7
Clarke-Fred.	H. W. Shaffer	46	8	R&GH	1006	37.4
Culpeper #1	Harrus Stock Farm	87	13	R&GH	1097	39.2
Culpeper #2	Clyde H. Weaver	36	7	HG&J	981	34.4
Culpeper #3	J. E. Wight, Jr.	43	4	FB&SH	924	39.9
Culpeper #4	J. A. Compton & Son	45	3	H&G	911	34.9
Cumberland	Report not received					
Dinwiddie	W. B. Knott	46	11	R&GG	781	36.3
Fairfax #1	John Middleton & Son	50	11	H	916	34.2
Fairfax #2	Hollywood Farm	60	3	Mx	977	33.7
Fauquier #1	James R. Green	32	2	R&GH&G	1153	45.4
Fauquier #2	E. L. Clarke	42	1	H	985	37.3
Floyd	R. N. Phillips	17	1	Mx	761	37.2
Franklin #1	Albert Flora	15	1	R&GH	987	39.0
Franklin #2	Riley Ikenberry & Son	20	1	GH	1070	41.6
Fredericksburg	Report not received					

ASSOCIATION	HIGH HERD	NO. OF COWS			AVG. PER COW	
		Herd	Dry	BREED	Milk Lbs.	Fat Lbs.
Halifax-Pitts.	Jasper Stack Farm	28	2	R&GG	700	33.8
Henrico	Holly Brook Farm	25	2	R&GG&GH	890	37.7
James River	J. J. Cogliandro	41	9	Mx	948	36.6
King William	H. B. Townsend					
	Manskin Lodge	104	16	H&G	851	32.3
Lee-Wise	D. Terpstra	59	14	RH	836	32.4
Loudoun #1	C. R. Hope & Son	52	12	RH	844	33.7
Loudoun #2	Roland G. Cochran	24	0	Mx	977	36.0
Loudoun #3	Carrie B. Payne & Son	33	5	R&GH	1155	42.0
Loudoun #4	Report not received					
Loudoun #5	R. H. Foreman	37	3	Mx	1129	39.8
Loudoun #6	R. P. James	42	9	R&GH&G	897	35.2
Lynchburg	W. D. Evans & Son	26	5	Mx	901	35.5
Madison	Frank S. Walker	97	11	RH	1055	38.1
M-C-L	Millbrook Farm	57	13	RH&GG	942	34.9
Montgomery	Sidney C. Teel	30	4	Mx	976	40.2
Northern Neck	M. L. Pitman	16	2	R&GG&RH	926	37.0
Nottoway	Jack & Willy Irby	19	2	Mx	937	36.8
Orange	John G. Carpenter	45	4	R&GH	1049	39.1
Pat-Hen-Frank	Fulton Farms	91	15	R&GH	1052	39.6
Peninsula	Report not received					
Powhatan-Gooch.	R. J. Willis	106	33	RH	1118	39.3
Prince Edward	B. G. Bass & Son	30	1	R&GG	801	36.9
Pr. William #1	Whitehall Farm	48	8	R&GG&H	874	34.8
Pr. William #2	Mrs. Edith M. Latham	56	10	H	837	28.9
Pulaski-Mont.	R. F. Morgan	34	4	H&J	636	29.5
Roanoke	Report not received					
Rockingham #1	Millard Turner	28	1	R&GG&RH	1069	42.2
Rockingham #2	Roy T. Arey & Sons	32	2	GH	1010	33.6
Shenandoah-Page	Cecil Fravel	22	3	H	1005	34.8
Smyth	Report not received					
Southam.-Pr. Anne	W. L. Young	38	2	RG	921	45.0
Tazewell	T. R. Barrett	47	4	Mx	800	32.7
Tidewater	Report not received					
Washington	Report not received					
Wythe #1	Report not received					
Wythe #2	J. S. Huffard & Son	33	5	R&GJ	762	39.3

FIVE HIGH PRODUCTION HERDS - BUTTERPAT

Fauquier #1	James R. Green	32	2	R&GH&G	1153	45.4
Southam.-Pr. Anne	W. L. Young	38	2	RG	921	45.0
Amelia	Charles Moyer	46	5	RH	1103	43.4
Rockingham #1	Millard Turner	28	1	R&GG&RH	1069	42.2
Loudoun #3	Carrie B. Payne & Son	33	5	R&GH	1155	42.0

FIVE HIGH PRODUCTION HERDS - MILK

Alleghany-Rockbridge	Va. Hot Springs, Inc.	54	5	R&GH	1174	36.8
Loudoun #3	Carrie B. Payne & Son	33	5	R&gh	1155	42.0
Fauquier #1	James R. Green	32	2	R&GH&G	1153	45.4
Loudoun #5	R. H. Foreman	37	3	Mx	1129	39.8
Powhatan-Goochland	R. J. Willis	106	33	RH	1118	39.3

FOUR YEAR RECORD SUMMARY & ANALYSIS OF HERDS IN WITHE #2 DHIA 1954

OWNER'S Name	YEAR	COW YEARS No.	COW TURN OVER No.	AVG. LENGTH OF DRY PERIOD Days	PRODUCTION PER COW			VALUE OF PRODUCT		AV. WT. PER COW	FEED CONSUMPTION PER COW				LBS. of MILK per LB. OF GRAIN	FEED COST PER COW					% of TOTAL FEED COST		COWS NEEDED TO MAKE \$5,000 OVER FEED COST No.
					Milk lbs.	Test %	B. F. lbs.	Per Cow \$	Per Cwt Milk \$		Sil- age lbs.	Hay lbs.	Grain lbs.	Pas- ture Days		Pas- ture \$	Barn		Total		Rough- age %	Grain %	
																	Rough- age \$	Grain \$	Per Cow \$	Per Cwt Milk \$			
G. F. Brandt	54	40.8		117	7952	3.2	251	293	3.68	900	5860	2478	1644	183	4.8	30	70	66	166	2.09	60	40	39
	53	37.9	9	137	4557	4.6	210	289	6.34		4649	2292	1516	195	3.0	32	58	62	152	3.34	59	41	36
	52	35.5	6	120	4509	4.8	215	294	6.52		5367	3851	1699	158	2.6	25	83	65	173	3.84	62	38	41
	51	33.7	-	-	5223	4.8	251	286	5.47		4314	3516	1510	178	3.4	19	73	47	139	2.66	66	34	34
H. Winsten Clark	54	25.7		75	7547	4.1	308	418	5.54	950	6298	3410	2288	146	3.3	24	80	85	189	2.50	55	45	22
	53	22.1	5	40	7794	4.2	330	478	6.13		6194	2900	2458	207	3.2	33	82	103	218	2.80	53	47	19
John R. Crowgey	54	20.1		44	7677	3.9	301	429	5.59	1000	3663	3040	2088	183	3.7	30	68	84	182	2.37	54	46	20
	53	17.9	5	46	7536	4.0	301	457	6.06		-	3600	1978	219	3.8	36	77	88	201	2.67	56	44	20
	52	19.6	3	36	9594	4.2	401	612	6.38		-	4056	2917	185	3.3	19	77	117	213	2.22	45	55	13
	51	19.2	1	50	10068	4.5	456	552	5.48		890	3862	2854	184	3.6	21	69	119	209	2.08	43	57	15
R. R. Crowgey	54	19.7		98	7578	4.2	320	420	5.54	900	5638	3362	2433	172	3.1	28	76	101	205	2.71	51	49	23
	53	15.2	2	102	6438	4.1	261	394	6.12		4644	3285	2331	193	2.8	33	63	105	201	3.12	48	52	26
D. W. Hounshell & Sen	54	19.2		51	7259	4.5	327	402	5.54	900	-	4088	2153	194	3.4	36	61	87	184	2.53	53	47	23
	53	20.8	9	43	6498	4.6	297	403	6.20		-	3912	2256	185	2.9	28	75	86	189	2.91	54	46	23
	52	20.6	2	73	5960	4.9	294	385	6.46		-	3542	2163	225	2.8	21	58	85	164	2.75	48	52	23
	51	18.7	2	59	7490	5.0	378	440	5.87		-	3286	2480	288	3.0	25	53	88	166	2.21	47	53	18
J.S. Huffard & Sen	54	37.1		58	8158	5.2	425	476	5.83	900	4061	2451	2367	171	3.4	28	57	95	180	2.21	47	53	17
J. C. Kelly	54	44.5		75	6800	3.8	257	361	5.31	900	6224	3194	1774	145	3.8	22	79	72	173	2.54	53	42	27
	53	39.3	6	81	7322	3.8	280	432	5.90		6360	3696	1880	153	3.9	25	90	76	191	2.61	60	40	21
	52	42.3	7	62	6660	4.3	284	413	6.20		5478	4232	1291	190	5.3	31	89	70	190	2.85	63	37	22
	51	49.4	10	66	6784	4.9	300	354	5.72		2520	2807	1790	194	3.4	22	57	62	141	2.28	55	44	23
N. C. Kelly	54	21.8		64	7285	3.6	262	371	5.09	900	5277	2501	185	203	3.8	33	66	75	174	2.39	57	43	25
	53	23.5	5	33	6540	3.6	237	378	5.78		7059	3099	2307	175	2.8	28	95	75	198	3.03	62	38	28
	52	22.6	3	54	6421	3.9	250	389	6.06		4921	3170	1862	191	3.4	20	74	63	157	2.45	60	40	22
	51	24.4	10	51	7003	4.3	301	354	5.05		3156	3086	1946	170	3.6	20	59	60	139	1.98	57	43	23

FOUR YEAR RECORD SUMMARY & ANALYSIS OF HERDS IN WYTHE #2 DHIA 1954

OWNER'S Name	YEAR	COW YEARS No.	COW TURN- OVER No.	AVG. LENGTH OF DRY PERIOD Days	PRODUCTION PER COW			VALUE OF PRODUCT		AV. WT. PER COW	FEED CONSUMPTION PER COW				LBS. of MILK per LB. OF GRAIN	FEED COST PER COW					% of TOTAL FEED COST		COWS NEEDED TO MAKE \$5,000 OVER FEED COST No.
					Milk lbs.	Test %	B. F. lbs.	Per Cow \$	PerCwt Milk \$		Sil- age lbs.	Hay lbs.	Grain lbs.	Pas- ture Days		Pas- ture \$	Barn Rough- age \$	Grain \$	Total		Rough- age %	Grain %	
																			Per Cow \$	PerCwt Milk \$			
R. N. Kincer	54	31.3		82	9227	3.7	339	471	5.10	1000	1996	4395	2463	159	3.7	26	99	98	223	2.42	56	44	20
	53	32.2	8	72	9038	3.8	347	545	6.03		4593	2947	1256	211	7.2	41	80	108	229	2.53	53	47	16
	52	30.5	5	63	8259	4.1	341	513	6.21		6894	3640	2093	181	4.0	18	102	82	202	2.45	59	41	16
	51	32.4	9	66	8723	4.3	375	470	5.38		1615	3781	2792	189	3.1	20	74	102	196	2.24	48	52	18
T. E. Simmerman	54	51.4		90	5605	4.0	227	306	5.46	800	6236	3112	1211	182	4.6	20	75	49	144	2.57	66	34	31
	53	37.4	16	95	5772	4.3	251	355	6.15		7408	3062	1535	147	3.8	24	87	63	174	3.01	64	36	28
	52	33.9	6	88	4743	4.6	217	306	6.45		4535	3447	1532	184	3.1	22	81	59	162	3.42	64	36	35
	51	31.8	14	97	7903	4.9	287	338	5.72		1751	3328	1605	218	3.7	21	53	51	125	2.11	59	41	23
T. A. Turley	54	50.8		87	7198	4.3	311	438	6.09	900	2554	2698	2001	217	3.6	33	53	82	168	2.33	51	49	19
	53	48.6		83	6952	4.5	312	441	6.34		3534	3120	1975	193	3.5	32	82	88	202	2.91	56	44	21
Waddell & Vaught	54	34.8		64	11141	3.7	409	565	5.07	1300	6210	4801	2708	192	4.1	43	107	115	265	2.38	57	43	17
	53	37.1	8	51	11192	3.7	419	649	5.80		3663	3167	3002	179	3.7	54	94	148	296	2.64	50	50	14
	52	40.1	8	62	10148	3.8	389	563	5.75		7191	3547	2536	168	4.0	63	112	125	300	2.96	58	42	18
	51	39.7	6	66	10933	4.0	433	582	5.32		5186	3243	2620	212	4.0	24	87	119	230	2.10	48	52	14
G. Williams	54	37.0		94	6065	4.8	291	334	5.51	900	5369	2326	1737	175	3.5	29	58	70	157	2.59	55	45	28
	53	40.6	5	83	6609	4.9	327	435	6.58		7119	3169	2277	181	2.9	28	83	89	200	3.03	55	45	21
	52	38.3	8	76	6340	5.1	325	429	6.77		4932	3027	2036	195	3.1	29	73	69	171	2.70	60	40	19
	51	39.9	4	84	7002	5.1	358	423	6.04		4430	3930	2294	200	3.0	20	86	70	176	2.51	60	40	20
ASSOCIATION AVERAGE	54	33.4		80	7556	4.0	306	400	5.29	935	4736	3155	1992	179	3.8	29	73	80	182	2.41	56	44	23
	53	30.3	6	74	7270	4.2	304	445	6.12		4925	3163	2061	177	3.5	33	96	105	233	3.20	55	45	24
	52	29.4	5	71	6847	4.4	302	465	6.79		4849	3612	1978	186	3.4	29	85	82	195	2.85	58	42	19
	51	29.6	7	61	7516	4.7	356	426	5.67		2883	3408	2232	203	3.3	22	67	81	170	2.26	52	48	20

VIRGINIA DHIA SUMMARY REPORT
1952 and 1953

Prepared by: M.F. Ellmore
Associate Ext. Dairyman

The data included herein has been prepared from the annual summary reports of herds that completed a full testing year and were submitted by the supervisors for the years of 1952 and 1953.

	<u>1952</u>	<u>1953</u>	<u>Change</u>
Number Associations Reported	56	57	+ 1
Number cow years reported	38,395	40,158	+1763
Number herds represented	881	878	- 3
Number cows per herd	44	46 52	+ 2
Number cows removed per herd	9	10	+ 1
Number dry days per cow year	60	74	+ 14
<u>Performance of average DHIA cow</u>			
Pounds of milk produced	8252	8350	+ 98
Pounds of butterfat produced	340	343	+ 3
Average % of butterfat	4.12	4.12	-----
<hr/>			
Value of product	\$495	\$518	+ \$23
Price per cwt of milk	\$6.00	\$6.20	+ \$.20
<hr/>			
Pounds of silage fed	5346	5830	+ 484
Pounds of hay fed	3313	3339	+ 26
Pounds of concentrate fed	2563	2604	+ 41
Days of pasture	184	198	+ 14
<hr/>			
Cost of pasture	\$ 34	\$ 36	+ \$ 2
Cost of barn fed roughage	\$ 93	\$ 98	+ \$ 5
Cost of concentrate	\$103	\$101	- \$ 2
<hr/>			
Total feed cost	\$230	\$235	+ \$ 5
<hr/>			
Value of product above feed cost	\$265	\$283	+ \$18
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THE V. P. I. OFFICIAL TESTING SERVICE

POLICIES AND PROCEDURES

Effective January 1, 1954



PREPARED BY

M. F. ELLMORE, SUPERINTENDENT

SAUNDERS HALL, V. P. I.

BLACKSBURG, VIRGINIA

INTRODUCTION

The V. P. I. Official Testing Service was established to administer the Official Testing program in Virginia. This program is sponsored by the various Purebred Dairy Cattle Clubs. The V. P. I. Official Testing Service has been charged with the responsibility of providing supervision and authenticating the records that are made as a result of the test.

This outline has been prepared as a guide for supervisors, breeders and others who are concerned with the Official Testing program in Virginia.

Responsibility — The rules and regulations governing this testing program have been formulated by the Purebred Dairy Cattle Association which is an organization composed of representatives of each Purebred Dairy Cattle Club. They have been published in a pamphlet entitled "Unified Rules for Official Testing." This pamphlet carries the approval of the American Dairy Science Association. It is the mutual responsibility of the breeder, supervisor and State Superintendent to comply with these rules at all times.

Special Test — It should be understood by all breeders that the Official Test is a special test. It is approved and supervised but **not** sponsored by the State Agricultural College and receives no financial support from the State. Because of the restrictive nature of the test, it is necessary that the full expense of conducting the program be borne by the participating breeders of purebred dairy animals.

Organization — The Official Testing Service maintains its headquarters in Saunders Hall, V. P. I., Blacksburg, Virginia. The headquarters employs one full time secretary who handles the details of receiving and processing the records, records the necessary information, forwards the records to the Breed Clubs, prepares the supervisors' payroll, bills the owners, handles all correspondence and routine matters coincidental to the conduct of the business. The secretary is under the direction of the superintendent, who assumes all administrative responsibility for the conduct of the program.

Supervision — The supervision of the Official Test is performed by regular licensed employees of The Virginia Federation of DHIA's, Inc. These supervisors have been approved by the Virginia State Agricultural College and are its authorized representatives for the conduct of the test when so authorized in writing by the Superintendent of Official Testing.

There is no direct connection between the Dairy Herd Improvement program and the Official Testing program. Because both tests are supervised by the same personnel, the Official Test is often performed in conjunction with the DHIA test. It is necessary that specific policies be established regarding the program in order that there will be no infringement of the rules governing the two types of test.

Basis for the Charge

The "Unified Rules for Official Testing" are quite specific on the number of milkings which may be supervised per day by the supervisor. These rules form the basis upon which service charges are made. These rules are quoted as follows:

1. AR Rules 4. "**Number of Supervised milkings** — Not less than 2 different supervisors shall be employed in the conduct of a record. The number of milkings a supervisor can supervise daily shall not exceed 48. Preliminary dry-milkings are considered as one of the regular milking periods with respect to the number of milkings supervised daily."

2. HIR Rule 13. "**Number of cows supervised per day** —

A—When the tests are used solely for the HIR report the average number of milkings a supervisor may supervise daily shall not exceed 90.

*B—When the herd is enrolled in a dairy herd improvement association and the tests are used for both the HIR and the DHIA; the average number of milkings a supervisor may supervise daily shall not exceed 60."

In no case shall a supervisor conduct tests on more cows per day than allowed under the rules and in no case shall a breeder ask the supervisor to break the rule. Evidence of non-conformity shall be reported to the Breed Club and the records shall not be approved. The supervisor will not be paid for the time spent in conducting such a test.

In so far as possible the regular DHIA supervisor for the herd will be authorized to conduct the Official Test, but in no case shall any supervisor conduct any Official Test without authorization from the State Office. HIR surprise tests must be conducted by a supervisor other than the regular DHIA supervisor in order to comply with HIR Rule 16. In the case of AR check tests, AR Rule 4 shall apply, which requires that not less than 2 different supervisors shall be employed in the conduct of a record.

Explanation of Charging System

1. **Travel Charges**—The charges for travel appear to be one of the most misunderstood phases of the billing system.

A—No travel is allowed for herds in which the Official Test is done in conjunction with DHIA with the following exception: in the event that the DHIA test is completed before the Official Test and it becomes necessary for the supervisor to remain one or more days in order to

*Jersey and Brown Swiss permits average of 90 milkings daily.

complete the Official Test, then travel incurred for the **convenience of breeder** in securing board and lodging is chargeable to the breeder at the rate of 6¢ per mile. This applies **only** to the travel incurred after the regular DHIA test has been completed.

B—Travel is charged when a supervisor conducts an Official Test that is not conducted in conjunction with DHIA. This applies to herds not enrolled in DHIA and also to surprise or check tests.

C—Travel where allowed is based on the following schedule. All travel shall be charged at 6¢ per mile. The supervisor shall enter the mileage either from his home or from the last place of test, to the farm to be tested, and as the case may be, to the next farm or to his home.

In the event that other herds in the area have been assigned to the supervisor, travel between farms shall be allowed, but not a round trip to his home between herds. Travel incurred while at a farm for the convenience of the breeder is chargeable to the breeder and should be shown separately from travel to and from the farm.

Example of travel reported by supervisor:

Supervisor lives at A. He has been authorized to make special tests at Farms B, C, and D. His travel from A to B is 50 miles. Farm C is 10 miles from B. Farm D is 5 miles from C. Supervisor's home A is 45 miles from Farm D.

Farm B provides board and lodging at the farm. Farm C wishes supervisor to provide his own lodging which he finds 5 miles away. Farm D has suitable board and lodging available but supervisor wishes to stay elsewhere for his own convenience.

The travel charges which the supervisor should show for each farm would be as follows:

Farm B—50 miles home A to Farm B; 10 miles from B and C (it is immaterial whether this 10 miles appears on the bill of B or C but it must not appear on bill of each).

Farm C—5 miles from C to D. Actual mileage necessary in procuring board and lodging—this mileage is shown separately as it is a direct charge to Farm C (See Sec. II).

Farm D—45 miles from D to supervisor's home at A.

All travel incurred by supervisors in conducting these check or surprise tests is pro-rated among all breeders receiving these tests. In the above example the travel which would be placed in the state pool would be $50 + 10 + 5 + 45$ or a total of 110 miles. Farms B, C, and D would then be billed for a proportionate share of the total state travel.

If any breeder should refuse the service of the regular supervisor for the DHIA association in his area and it becomes necessary to authorize a supervisor from outside the area, the pro-rata system of travel charge shall **not** be enjoyed by that breeder.

Each supervisor should plan his trip so that a minimum of travel is necessary.

In so far as possible the supervisor conducting special tests should try and reach the farm at or near the DHIA center date. However, two or more herds assigned to a special supervisor in a given area should be tested consecutively on the same trip in order to minimize travel.

II. Board and Lodging—

It is the responsibility of the breeder to provide board and lodging for the supervisor who is conducting the Official Test. It is the breeder's responsibility to inform the supervisor each month regarding arrangements for board and lodging. The supervisor should, however, inquire as to the arrangements in order to prevent any misunderstanding.

Meals and lodging provided by the supervisor for the convenience of the breeder are to be charged to the breeder. These charges are to be at actual cost but must be reasonable. Meals and lodging provided by the supervisor for his own convenience are not chargeable to the breeder. Meals and lodging where provided by the breeder at some place other than his own home must be of a quality which he (the breeder) would be willing to accept under the same circumstances.

III. Preparation of Statement by Supervisor—

This section has been prepared for the convenience of the supervisor in order that a standard procedure will be followed in reporting the time spent and amount of work performed. It is from this monthly statement that information is obtained for billing the breeder and for preparing the payroll of the supervisor. It is suggested that the breeder review this section with the supervisor, so that there will be a complete understanding of the system. A copy of the form is attached.

A—The first portion dealing with the herd identification is self-explanatory.

B—The second section describing the time spent on the farm and cows on test is very important. It is from this information that the State Office is able to establish the exact time spent in relation to the Official Test rules. It is sometimes necessary to recreate the conditions existing during a test in order to insure that the correct billing procedure be followed. Accuracy in completing this section is for the protection of both supervisor and breeder.

The number of days required to make the DHIA test is important because it has a direct bearing on the calculation of the correct charge.

The number of cows expected to be on test next month is highly desirable as information to furnish the supervisor who may be assigned next month.

V. P. I. OFFICIAL TESTING SERVICE
 DAIRY EXTENSION OFFICE
 BLACKSBURG, VIRGINIA

DO NOT WRITE IN THIS SPACE

Month to which these tests apply:

Name of Owner

Owner's P. O. Address

TIME OF ARRIVAL		TIME OF DEPARTURE		NUMBER OF COWS ON TEST	
Hour	Date	Hour	Date	This Month	Next Month
A.M.		A.M.		A.R.	
P.M.		P.M.		H.I.R.	
<input type="checkbox"/> This is a CHECK TEST. Days required to conduct DHIA Test.				NUMBER DRY	

A.R.

CHARGES FOR SERVICES

(No.) tested with DHIA @ 10¢ per milking

(No.) days required in excess of DHIA @ \$10 per day

H.I.R.

(No.) tested with DHIA @ 10¢ per cow

(No.) days required in excess of DHIA @ \$10 per day

MISCELLANEOUS CHARGES

Postage:

Travel: Allowable when test is NOT conducted in conjunction with DHIA:

miles from _____ to this farm.
 miles to _____ Total @ 6¢ per mile

Accommodations supplied by supervisor for convenience of breeder by request of breeder or agent:

Travel: _____ miles traveled in providing board and lodging @ 6¢ per mile

Meals: _____ @ _____ per meal

Lodging: _____ nights lodging @ _____ per night

Tolls: (Bridge and/or Ferry)

TOTAL

SUPPLIES: Acid and equipment used on tests on portion of tests NOT in conjunction with DHIA. Charged to owner and paid to DHIA by State Office.

Amount: \$

(Do not include this item in Total)

Supervisor's Signature:

C—It will be noted that the section entitled "Charges for Service" is divided into two parts—AR and HIR.

AR Charges—

_____ (No.) tested with DHIA @ 10¢ per milking.

This refers to the actual number of milkings supervised for the AR test during the period covered by the DHIA test.

_____ (No.) days required in excess of DHIA @ \$10 per day.

The AR rule requiring a preliminary milking frequently makes it necessary for the supervisor to remain at the farm for a greater length of time than is required for the DHIA test. Such time should be reported in this space. One day is defined as the time necessary for the supervision of a 24 hour test. The days time required for the DHIA test should be deducted from the total days of time required for the AR test and the difference reported as time in excess of DHIA. The total time spent on the farm for the conduct of a check or surprise test should be reported in this space.

HIR Charges—

The charges in this section should be recorded similarly to those in the AR section. It should be noted that HIR Rule 13-A and Rule 13-B set limits on the number of **milkings** that may be supervised per day. The dry or nurse cows in the herd shall not be used as cause for remaining an extra day on the farm. When a test is conducted in conjunction with DHIA, a charge of 10¢ per cow shall be made for all cows listed except those animals that have died or been sold since the previous test. These animals shall be listed on the HIR report form but no charge shall be allowed.

IV. Miscellaneous Charges—

1. **Postage**—This is to reimburse the supervisor for postage necessary to mail reports to the State Office.

Important—Do **not** mail Official Testing reports in franked envelopes secured from the County Agent's office. Such a procedure is against the law and may result in loss of the County Agent's franking privilege. Envelopes for mailing this material may be secured from the State Office. DHIA reports should not be mailed in the same package with Official Test reports. Supervisors shall not be reimbursed by the Official Testing Service for postage used in mailing DHIA reports.

2. **Travel**—The method of charging for travel has been explained in Section I.

3. **Meals and lodging**—This is explained in Section H.

4. **Tolls**—Toll charges required in reaching a farm are direct charges to the owner of that farm and are not included in the pro-rata travel.

5. **Supplies**—A uniform charge of 2¢ per sample tested should be charged for all samples **not** tested in conjunction with DHIA. This charge is **not** paid to the supervisor but is paid at periodic intervals to the DHIA association whose equipment and acid was used.

V. Statement prepared by State Office for Breeder:

A—All charges that appear on the supervisor's statement are charged to the breeder as they appear except the following items:

1. **Travel**—Travel incurred to conduct tests not in conjunction with DHIA where surprise or check tests are made are charged as outlined in Section I.

2. **Postage**—This is paid by the State Office.

B—Other charges to the breeder are as follows:

1. AR office fee of \$2.00 per cow, due the 3rd month that the cow is on test.

2. HIR office fee of 5¢ per cow per month.

VI. General—

1—In no case shall the milk weights and butterfat tests obtained on the first day of the DHIA test be applied to HIR tests conducted on subsequent days.

2—It is the responsibility of the supervisor to conform to "The Unified Rules for Official Testing" at all times and to follow the outline contained herein for the preparation of statements.

3—It is the responsibility of the breeder to be familiar with the "Unified Rules for Official Testing" and to insist that they be enforced.

4—In no case will a supervisor be authorized to conduct an Official Test if the breeder is more than two months in arrears with his account.

5—Any breeder refusing an authorized test shall be billed directly for the travel incurred by the supervisor and for the supervisor's time lost at the rate of \$10.00 per day.

6—The breeder who desires to stop Official Testing must notify the State Office at least 2 weeks before the center date of his herd in order to allow time for the cancellation of the supervisor's authorization. Otherwise the breeder may be subject to the charges outlined in 5 above. This notice of cancellation should be sent to the Superintendent of Official Testing.

7—Payment to supervisors and bills rendered to breeders will be based on the number of cows tested in accordance with AR Rule 3 and HIR Rule 12. It is the responsibility of the breeder to see that these rules are observed. Otherwise the supervisor may be paid for time not spent and the breeder may be charged for service not rendered.

8—It is the desire of the State Office to handle the affairs of the service as efficiently as possible. This can be done only if the following procedures are observed:

a—promptness on the part of the supervisor in submitting reports and statements. Each report should be mailed to the State Office immediately upon its completion. The Breed Clubs have requested that the reports be forwarded to them as quickly as possible in order that the results may be reported promptly.

b—completeness and accuracy of all reports from supervisors.

c—promptness on the part of breeders in the payment of bills.

PROJECT II -- DAIRY CATTLE IMPROVEMENT THROUGH BREEDING

Distribution of Time:

<u>Staff Member</u>	<u>Headquarters Days</u>	<u>Field Days</u>	<u>Total Days</u>	<u>Percent of Total</u>
K. A. Huston	112.25	90.75	203.0	85.1
R. G. Connelly	1.0	6.5	7.5	3.2
M. F. Ellmore	0.0	0.0	0.0	0.0
W. N. Patterson	2.0	0.5	2.5	1.0
G. J. Nageotte	1.0	0.0	1.0	0.4
G. C. Graf	12.5	12.0	24.5	10.3
Totals :	126.75	109.75	236.5	100.0

This is a continuous method and result extension demonstration project designed to encourage the use of genetic methods for creating improvement in Virginia dairy cattle. The project includes the following phases:

1. The discovery and evaluation of heritable dairy cattle traits.
2. The adaptation of the results of genetical analyses of dairy cattle records in a practical program of dairy cattle improvement.
3. The teaching of dairy farmers how to make effective use of dairy cattle breeding principles to improve the genetic qualities of their herds.
4. The promotion of the principle of improved dairy cattle breeding through the Virginia Dairy Bull Registry, dairy cattle breeding schools and meetings, Cooperative Breeding Associations, sales and shows.

Activity Goals

<u>1954 Goals</u>	<u>1954 Accomplishments</u>
1. Organize 3 regional dairy cattle breeding schools.	1. No regional dairy cattle breeding schools were organized. However, dairy cattle breeding information was presented at dairy schools, DNIA meetings and Artificial Breeding Association annual and quarterly meetings.

Activity Goals (Continued)

1954 Goals	1954 Accomplishments
2. Prepare cow family analyses and bull proofs.	2. Ten pedigrees and analyses were completed. Bull proofs for bulls in artificial insemination at the Virginia Artificial Breeding Association were revised twice during the year.
3. Collaborate with managers of bull studs in planning of and assisting with quarterly educational meetings for artificial insemination technicians, county agents, and directors.	3. Quarterly educational meetings for Artificial Insemination Technicians and county agents were held during the year.
4. Prepare monthly educational news letters featuring latest artificial breeding information for all artificial breeding technicians, directors, and county agents.	4. Twelve monthly educational news letters were prepared and distributed to directors, technicians and county agents. These featured the latest artificial breeding information available.
5. Assist county agents with planning and conduct of tours and field days designed to demonstrate the effectiveness of artificial insemination in herd improvement.	5. Assistance was given to county agents planning four tours of local demonstrations and tours to the Breeding Center.
6. Train A.B.A. technicians in a short course at V.P.I.	6. Two technician short courses were offered - one in the spring, and one in the fall. Three of the men were trained during the fall short course. Materials for the short course were prepared.
7. Promote an A.B.A. standard of procedure and code of ethics for Virginia.	7. No Virginia Artificial Breeding Association standard of procedure and code of ethics was developed. Such a code of ethics and standard of procedure has been developed by the National Association of Artificial Breeders for their associations.
8. Promote regulatory standards for the production, processing and dispensing of semen.	8. State laws were enacted during the year to regulate semen importation, production, dispensation and processing in the state. Regulations concerning licensing of technicians were also adopted.
9. Hold one state conference for all inseminators operating in Virginia.	9. One state conference was held for all technicians of the Virginia Artificial Breeding Association, at V.P.I.

Result Goals

1954 Result Goals	1954 Accomplishments
1. Increase the number of cows bred artificially in the state to 52,000.	1. The estimated number of first services during 1954 throughout the state was 46,752 cows.
2. Increase the number of artificial breeding associations to 39.	2. The number of artificial breeding associations was increased to 40 during the year.
3. Increase the number of bull proofs issued to farmers to 175.	3. A total of 256 bull proofs were issued to farmers during the year.
4. Expand the number of Virginia dairy bull entry requests to 25.	4. A total of 8 Virginia dairy bull entry requests were made during the year.
5. Assemble 75% of the possible 10-month lactation reports on Virginia D.H.I.A. cows for the D.H.I.A. year ending November 30, 1954.	5. Ten-months DHI lactation records were reported on 65% (19,143) of the estimated possible number of cows. (See No.4 of the Result Goals in Project I.)

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72

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The Artificial Breeding phase of Project II again received most attention in 1954. Much time was given to the strengthening of the local associations. Through the technicians' quarterly meetings, the annual conference of technicians and local board meetings, every effort was made to see that the locals were on a sound financial basis and were participating in some sort of promotional campaign.

The Central Association received much attention, and it too aided in strengthening its own operations. During the year a new sire book was issued, which was received with much enthusiasm over the state. During the year, a \$33,000 issue of certificate of indebtedness was initiated. This capital should furnish to the Central Association, when it is all collected, sufficient working capital to enable the management to meet any situation arising.

During the year regulations governing the production of semen and the insemination of cows were ordered by the Virginia Department of Agriculture. These laws should prevent recurrences of the 1953 difficulties. They should also help to establish artificial breeding in the state on a sound basis.

During the year an attempt was made to consolidate The Virginia Artificial Breeding Association, The West Virginia Artificial Breeding Cooperative and the Maryland Artificial Breeding Cooperative. After careful study of the advantages and disadvantages of the consolidation, the Virginia Board of Directors voted not to consolidate at this time. However, the board requested the Consolidation Committee to continue negotiations.

During the year one new artificial breeding association was organized in Louisa county. Arrangements are being made to provide the association with a technician. At the close of the year, there were 40 artificial breeding associations in Virginia, with about 54 artificial breeding technicians, receiving semen from 5 studs performing services in the state.

Discussions were held with dairy farmers and leaders throughout the year, in an attempt to discover what the dairy cattle breeding needs of the farmers are. Because of a wide range of interests and knowledge, it was concluded that dairy cattle breeding information can be developed best in the proposed dairy cattle breeding schools or through the artificial breeding association annual meetings and dairy schools. By careful attention to a discussion of : 1) evaluation of production records, 2) fundamentals of pedigree reading, many suggestions were received that a more careful analysis of the bulls in the artificial breeding program should be developed. Also, a more careful analysis of the young sire proving program should be conducted by extension workers.

The Virginia Dairy Bull Registry

A total of 256 proved sire records were received, of which 73 were listed as out of state. In addition, proofs and pedigrees were prepared for the Artificial Breeding Center and for many individuals in the state.

The Virginia Dairy Bull Registry

County	No. of Bulls Entered			No. of Bulls Proved		
	1936-1953	1954	1936-1954	1936-1953	1954	1936-1954
Accomac	7	-	7	1	-	1
Albemarle	61	-	61	33	3	36
Allegheny	11	-	11	-	-	-
Amelia	57	-	57	42	4	46
Amherst	11	-	11	18	3	21
Appomattox	1	-	1	1	-	1
Augusta	48	-	48	32	1	33
Arlington	2	-	2	-	-	-
Bath	6	-	6	-	1	1
Bedford	13	-	13	10	1	11
Bland	6	-	6	-	-	-
Botetourt	43	-	43	43	2	45
Campbell	6	-	6	20	2	22
Caroline	3	-	3	-	-	-
Carroll	9	-	9	-	-	-
Charlotte	10	-	10	18	6	24
Chesterfield	24	-	24	10	1	11
Clarke	1	-	1	1	-	1
Culpeper	83	-	83	77	11	88
Cumberland	6	-	6	4	-	4
Dimwiddie	18	-	18	15	1	16
Elizabeth City	-	-	-	1	-	1
Essex	-	-	-	2	-	2
Fairfax	92	2	94	83	6	89
Fauquier	58	-	58	29	5	34
Franklin	59	-	59	41	5	46
Fluvanna	2	-	2	1	-	1
Frederick	6	-	6	4	1	5
Giles	4	-	4	3	-	3
Gloucester	10	3	13	4	2	6
Gooseland	10	-	10	10	-	10
Grayson	4	-	4	1	-	1
Greensville	-	-	-	-	1	1
Halifax	-	-	-	1	2	3
Hanover	29	-	29	33	3	36
Henrico	67	-	67	87	6	93
Henry	1	-	1	2	-	2
Isle of Wight	1	-	1	-	-	-
James City	3	-	3	4	1	5
King George	-	-	-	7	-	7
King and Queen	2	-	2	-	-	-
King William	8	1	9	3	-	3
Lancaster	1	-	1	-	-	-
Lowdown	147	-	147	175	11	186
Louisa	9	-	9	10	-	10
Lunenburg	3	-	3	4	2	6
Lee	1	-	1	1	-	1

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The Virginia Dairy Bull Registry (Continued)

County	No. of Bulls Entered			No. of Bulls Proved		
	1936- 1953	1954	1936- 1954	1936- 1953	1954	1936- 1954
Madison	31	-	31	47	2	49
Mathews	8	-	8	8	-	8
Mecklenburg	4	-	4	-	1	1
Middlesex	15	2	17	5	2	7
Montgomery	12	-	12	8	1	9
Nansemond	4	-	4	1	-	1
Norfolk	11	-	11	1	4	5
Northampton	2	-	2	3	1	4
Northumberland	1	-	1	1	2	3
Nottoway	26	-	28	35	13	48
Orange	75	-	75	128	14	142
Page	2	-	2	-	-	-
Patrick	14	-	14	17	6	23
Pittsylvania	2	-	2	1	2	3
Powhatan	14	-	14	22	3	25
Prince Edward	1	-	1	17	5	22
Prince George	-	-	-	5	2	7
Prince William	45	-	45	30	3	33
Princess Anne	31	-	31	34	2	36
Pulaski	40	-	40	41	1	42
Rappahannock	-	-	-	8	-	8
Roanoke	40	-	40	66	5	71
Rockbridge	15	-	15	7	-	7
Rockingham	48	-	48	35	3	38
Russell	1	-	1	-	-	-
Shenandoah	1	-	1	5	3	8
Smyth	42	-	42	24	2	26
Southampton	19	-	19	12	3	15
Spotsylvania	16	-	16	24	3	27
Stafford	17	-	17	9	-	9
Surry	-	-	-	-	1	1
Sussex	-	-	-	1	-	1
Tazewell	33	-	33	7	2	9
Warwick	11	-	11	23	2	25
Washington	40	-	40	20	2	22
Westmoreland	1	-	1	-	2	2
Wise	8	-	8	3	1	4
Wythe	18	-	18	21	4	25
York	-	-	-	8	-	8
Statewide (A.B.A.)	3	-	3	23	5	28
Total	1596	8	1604	1565	183	1748
Out of state					73	73
TOTAL	1596	8	1604	1565	256	1821

Bulls Proved and Reproved by Breeds in the Virginia Dairy Bull Registry

Year	Holstein	Guernsey	Jersey	Shorthorn	Ayrshire	Brown Swiss	Total
1954	59	86	18	3	2	-	168
1953	40	75	15	2	3	2	137
1952	32	27	10	-	-	-	69
1951	21	26	13	2	3	-	65
1950	35	52	16	2	-	-	105
1949	74	74	21	7	1	1	178
1948	79	85	29	3	3	-	199
1947	54	72	12	1	2	-	141
1946	11	6	1	1	-	-	19
1945	21	30	6	1	-	-	58
1944	32	46	6	2	-	-	86
1943	48	53	14	2	-	-	117
1942	10	11	3	-	-	-	24
1941	26	30	18	1	-	-	75
1940	55	59	22	2	1	-	139
1939	45	31	24	1	1	-	102
1938	37	23	19	-	-	-	79
1937	25	14	12	-	-	-	51
1936	40	19	14	-	-	-	73
TOTAL	744	819	273	30	16	3	1885

DAIRY BULLS PROVED IN VIRGINIA DHIA HERDS IN 1954

D.H.I.A. Proved Bulls - Each Having Five or More Dam-Daughter Comparisons

GUERNSEYS

Production Requirements : 9,000 lbs. milk or 425 lbs. butterfat

Owner, Name and Address	Name and Number of Sire Proved	No. of Daughters	Production of Daughters	
			Av. Milk Lbs.	Av. Fat Lbs.
Proven Sires: (10 or more daughter-dam comparisons)				
John H. Alger and Rhodes C Whissen, Broadway W. H. Camp, Franklin	McDonald Farms Pre Kelvin, 391938	33	9,024	466
	Holliknoll Maxim Noble Majesty, 396029	12	8,514	448
Preliminary Proven Sires : (5 but less than 10 daughter dam comparisons)				
J. E. Clemens Estate, Leesburg	Willomere Elite, 340256	11	9,199	418
J. E. Hawkins, Midlothian	Graceland Max Peg, 340022	9	8,038	436
W. L. Boswell, Burkeville	McDonald Farms Steadfast Emory, 412729	8	8,847	440
Bayville Farms, Inc., Norfolk	Hunterdale Master Maxim, 423884	8	8,542	438
Brandon Farm, Spring Grove	Charles Champion's Major, 420887	7	9,350	442
J. H. Vaughan, Burkeville	Hamburst Danny Boy's Tyler, 409693	5	8,935	464
Homewood Farm, Agricola	Homewood Golden Prince, 423540	8	8,141	435
W. H. Garst, Roanoke	McDonald Farms His Artist, 421818	6	8,747	444
Va. Artificial Breeding Assn., Rocky Mount	Midview Majesty's Royal, 390623	12	8,079	432

JERSEYS

Production Requirements : 8,500 lbs. milk or 425 lbs. butterfat

Proven Sires : (10 or more daughter-dam comparisons)

Clover Hill Farm, Manassas	Siegfried H. L. Triumph, 455385	21	8,206	439
Wyatt A. Williams, Orange	Mary Interested Rowdy Fox, 496901	17	7,974	430
James McGee, Fredericksburg	Five-Ply-Soph Interested Tid, 461872	14	7,959	434

JERSEYS

Production Requirements : 8,500 lbs. milk or 425 lbs. butterfat

Preliminary Proved Sires (5 but less than 10 daughter-dam comparisons)

<u>Owner, Name and Address</u>	<u>Name and Number of Sire Proved</u>	<u>No. of daughters</u>	<u>Production of Daughters</u>	
			<u>Av. Milk Lbs.</u>	<u>Av. Fat Lbs.</u>
L. W. Kipps, Aroda,	Eve's Sybil Cadman of Mt. Air, 501198	11	8,408	454
T. T. Curtis, Orange	Basil Observer of Homewood, 500908	6	10,120	535
W. W. Sanford, Orange	Basil Model of Homewood, 500909	5	9,244	502
Dr. J. S. Andrews, Orange	Courageous Tarsus, 496094	6	8,757	478
J. F. Yager & Son, Somerset	Bercense Golden Duke of K, 446337	7	7,944	435

MILKING SHORTHORNS

Production Requirements : 9,000 lbs. milk or 350 lbs. butterfat

Preliminary Proved Sires (5 but less than 10 daughter-dam comparisons)

Z. R. Lewis, Shelby	Rock Hill Redcoat, 8385	6	8,610	358
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HOLSTEINS

Production Requirements : 12,000 lbs. milk or 425 lbs. butterfat

Proved Sires

Fulton Farms, Stuart	Segis Imperial Ormsby, 900744	26	11,727	432
Meadow Farm Dairy, Orange	Broad Rock Nobleman Luddie 956534	22	12,626	460
Va. Industrial School for Boys, Beaumont	Rosni Letitia Ormsby, 936778	21	13,683	459
C. W. Smith, Hewlett	Rosni Veeman Vale Bess Burke 15th, 976796	19	13,431	479
Dr. John L. Maahan, Scottsville	Bellevue Usnad Veeman Pontiac, 885613	16	12,490	444
F. S. Walker, Orange	Rosni Letitia Ormsby Vale, 963048	12	12,938	458

HOLSTEINS

Production Requirements : 12,000 Lbs. milk or 425 lbs. butterfat

Proved Sires (10 or more daughter-dam comparisons)

Owner, Name and Address	Name and Number of Sire Proved	No. of Daughters	Production of Daughters	
			Average Milk Lbs.	Average Fat Lbs.
E. T. Hynson, Oak Grove	Line-Bark-Gerben-Col Douglas Piche, 940559	12	11,175	425
L. J. Crowgey, Wytheville	Admiral Finky Pauline Ormsby, 942262	11	13,005	464
B. Terpstra, Big Stone Gap	Illehee Supreme Pat, 1077763	11	12,596	442
G. O. Pettus, Jr., Keysville	Spitfire Reg Apple Chieftain, 907169	11	11,137	425

Preliminary Proved Sires (5 but less than 10 dam-daughter comparisons)

Bernard Inskeep, Rapidan	Chief Reg Apple Spitfire, 907170	19	11,704	435
W. D. Vineyard, Vinton	Oakmulgee Marie Ormsby Joe, 922652	16	11,237	439
James Kegley, Wytheville	Piche Aggie Ormsby Segis Pontias, 942706	8	11,526	435
H. Ralph Fields, Purcellville	Fayne Ormsby Jewel Segis, 971611	7	13,070	486
Mrs. C. Leith Spelden, Somerset	Bell-Gates Conqueror Excellence, 950786	7	11,217	465
H. H. Willis, Culpeper	Herbert Aggie Cyrns, 923530	6	12,724	422
W. S. Barksdale, Randolph	Apple Betty, 944653	6	12,480	425
Mrs. J. E. Fawcett, Brookneal	Locust Plain Imperial Homestead, 1003287	6	11,591	434



The first five cows shown here are artificially sired. They are in the herd of E. B. Orange, Richmond, Virginia. They are averaging over 10,000 pounds of milk each.

Artificial Breeding Comes of Age

By DR. KEITH HUSTON, *Extension Service, V. P. I.*

WELL worth the effort and money," That's the opinion of many dairymen in central Virginia after four years of artificial breeding in their dairy herds. Faith in the merits of the program is bringing its rewards after a long wait.

Central Virginia, like many other areas of the South, was not ideally suited for artificial insemination. There are relatively few dairy cattle in the area and these

who own them think of these artificially sired heifers.

Out on Norwood Drive in Richmond, C. P. Palmore and his son, Bill, own a herd of 75 Holsteins. In the milking herd are 5 ABA heifers—an "Adwood," two "Commanders," and two heifers by other sires. Several more will freshen this fall.

Clear cut — no pine seed source left. Only sprout hardwoods will return. This picture, taken in Eastern Virginia, is typical of too much Southern timber land.



nothing to be proud of. The cause of We hold the answer in our hands.

COOPERATIVE EXTENSION WORK

IN

AGRICULTURE AND HOME ECONOMICS

STATE OF VIRGINIA

VIRGINIA POLYTECHNIC INSTITUTE
AND UNITED STATES DEPARTMENT
OF AGRICULTURE, COOPERATING

EXTENSION SERVICE

May 7, 1953

To: County Agents, Assistant Agents, and Artificial Breeding Association
Technicians and Directors of Virginia

Gentlemen:

We in Virginia should be proud of the bulls in the four studs supplying semen in this state. A recent report from Washington furnishing production averages of daughters of 67 bulls is quite enlightening. The 1126 daughters average 10,655 pounds milk, 4.61%, and 474 pounds fat (305d-2x-ME). On a butterfat basis, this production is exceeded in only 8 states, all of which have less than 45 bulls in service.

The table below gives you some idea of how we stand in the national artificial breeding production reports.

COMPARISON OF DAUGHTER PRODUCTION AVERAGES OF
SIRE IN USE IN THE STATE OF VIRGINIA AND THE UNITED STATES

BREED	NO. SIRE	NO. DAUS.	NO. RECORDS	DAUGHTERS' PRODUCTION		
				MILK	TEST	FAT
Holstein						
Va.	26	487	869	12740	3.8	477
U.S.	442	14981	24544	12591	3.7	464
Guernsey						
Va.	23	351	676	9108	5.0	457
U.S.	238	3804	6238	8721	5.0	432
Jersey						
Va.	18	288	500	9016	5.5	490
U.S.	221	3855	6659	8202	5.3	437
All Sires						
Va.	67	1126	2045	10655	4.6	474
U.S.	1044	25027	41870	11114	4.1	452

REGIONAL TECHNICIAN CONFERENCES END

The last five of a series of Regional Technician conferences were held on the evenings of April 13 through 17. W. H. Armstrong, Dr. S. L. Kallison, and Keith Huston discussed various phases of the artificial breeding work. Attendance was good and much interest in display of the newest artificial breeding equipment was evidenced by the technicians present.

After listening to the discussions at the various meetings, the following weak spots in our program for improving dairy cattle became quite evident.

COOPERATIVE EXTENSION WORK

- (1) The need for a sustained promotional campaign within each local association's area by each association.
- (2) The need for a continued educational campaign by extension workers to emphasize proper feeding and management of dairy herds to secure the best results from artificial breeding.
- (3) The need for several very informal regional conferences each year where technicians can air their gripes, get the up-to-date subject matter information needed most and supply extension workers, stud personnel, and directors with the unvoiced trends in the business as they occur in the field.

TECHNICIANS EFFICIENCY REPORTS

Some technicians in some associations are not forwarding their reports to this office. We urge each of you to take the time necessary to complete these reports. In addition to the usual letter and statistics, publicity releases are also prepared from these reports. You may miss an opportunity to have the work of your association brought to the attention of farmers in your area if you fail to keep the reports coming in.

FEBRUARY'S TECHNICIAN OF THE MONTH

Competition for February's honors was stiff with 16 technicians reporting sizeable increases over last year's breedings. John Stanley of the Albemarle Association takes first with an even 100% increase over February, 1952. John started work in the spring of 1951. Congratulations, John!

FEBRUARY'S ASSOCIATION OF THE MONTH

The Brunswick Artificial Breeding Association leads the state in percentage increase over last year's breedings with a two-month average of 44.7%. Officers for the year are C. L. Mosely, President; John Seymour, Vice-President; J. M. Fleshood, Secretary-Treasurer. Technician Calvin Latta and County Agent Marshall have worked closely with the directors in encouraging growth of the association.

Three other associations, Wythe, Albemarle, and Peninsula have pushed into the leaders' ranks with increases of 36.7%, 30.2% and 28.5%.

NEW DEVELOPMENTS IN ARTIFICIAL INSEMINATION AND PHYSIOLOGY OF REPRODUCTION RESEARCH

Wisconsin workers studied non-return data from 830 bulls in 10 different studs. They found that non-return data is subject to considerable variation but that it is possible with a sample of 300 to 400 breedings to estimate what fertility can be expected from a bull in the calendar year following the sample breedings.

Louisiana workers have demonstrated that pasture for bulls in artificial insemination is an economical, sound management practice. There was no real differences in fertility of bulls fed hay and grain; hay, pasture, and grain, or pasture and grain.

Swanson and Boatman of Tennessee have found that thioracil does not have a harmful effect on normal sperm. Arkansas workers have found that terramycin in amounts of 20 milligrams per 100 milliliters of diluted semen does not kill sperm but does kill or reduce bacteria concentration in sperm.

MONTHLY REPORT OF VIRGINIA ASSOCIATION OF DAIRYMEN

Non-Return Rate for Months of

January, 1933 - 50-60 Day Returns

February, 1933 - 30-60 Day Returns

Antrup and Rasbeck of Demark bred 293 cows during the bleeding period which follows in some animals about 2 days after the end of heat. About 30% of the animals conceived. This indicates that conception can occur in some animals 30 hours after the end of heat.

STATION	RECEIVED	REPORT RECEIVED	NO REPORT RECEIVED	TOTAL	PERCENT
Albemarle	15	75	67.5	82.5	81.8
Appalachian 1	20	80	70.8	90.8	78.0
Appalachian 2	20	80	60.0	80.0	75.0
Appalachian 3	20	80	60.0	80.0	75.0
Appalachian 4	20	80	60.0	80.0	75.0
Appalachian 5	20	80	60.0	80.0	75.0
Appalachian 6	20	80	60.0	80.0	75.0
Appalachian 7	20	80	60.0	80.0	75.0
Appalachian 8	20	80	60.0	80.0	75.0
Appalachian 9	20	80	60.0	80.0	75.0
Appalachian 10	20	80	60.0	80.0	75.0
Appalachian 11	20	80	60.0	80.0	75.0
Appalachian 12	20	80	60.0	80.0	75.0
Appalachian 13	20	80	60.0	80.0	75.0
Appalachian 14	20	80	60.0	80.0	75.0
Appalachian 15	20	80	60.0	80.0	75.0
Appalachian 16	20	80	60.0	80.0	75.0
Appalachian 17	20	80	60.0	80.0	75.0
Appalachian 18	20	80	60.0	80.0	75.0
Appalachian 19	20	80	60.0	80.0	75.0
Appalachian 20	20	80	60.0	80.0	75.0
Appalachian 21	20	80	60.0	80.0	75.0
Appalachian 22	20	80	60.0	80.0	75.0
Appalachian 23	20	80	60.0	80.0	75.0
Appalachian 24	20	80	60.0	80.0	75.0
Appalachian 25	20	80	60.0	80.0	75.0
Appalachian 26	20	80	60.0	80.0	75.0
Appalachian 27	20	80	60.0	80.0	75.0
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Appalachian 34	20	80	60.0	80.0	75.0
Appalachian 35	20	80	60.0	80.0	75.0
Appalachian 36	20	80	60.0	80.0	75.0
Appalachian 37	20	80	60.0	80.0	75.0
Appalachian 38	20	80	60.0	80.0	75.0
Appalachian 39	20	80	60.0	80.0	75.0
Appalachian 40	20	80	60.0	80.0	75.0
Appalachian 41	20	80	60.0	80.0	75.0
Appalachian 42	20	80	60.0	80.0	75.0
Appalachian 43	20	80	60.0	80.0	75.0
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Appalachian 70	20	80	60.0	80.0	75.0
Appalachian 71	20	80	60.0	80.0	75.0
Appalachian 72	20	80	60.0	80.0	75.0
Appalachian 73	20	80	60.0	80.0	75.0
Appalachian 74	20	80	60.0	80.0	75.0
Appalachian 75	20	80	60.0	80.0	75.0
Appalachian 76	20	80	60.0	80.0	75.0
Appalachian 77	20	80	60.0	80.0	75.0
Appalachian 78	20	80	60.0	80.0	75.0
Appalachian 79	20	80	60.0	80.0	75.0
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Appalachian 88	20	80	60.0	80.0	75.0
Appalachian 89	20	80	60.0	80.0	75.0
Appalachian 90	20	80	60.0	80.0	75.0
Appalachian 91	20	80	60.0	80.0	75.0
Appalachian 92	20	80	60.0	80.0	75.0
Appalachian 93	20	80	60.0	80.0	75.0
Appalachian 94	20	80	60.0	80.0	75.0
Appalachian 95	20	80	60.0	80.0	75.0
Appalachian 96	20	80	60.0	80.0	75.0
Appalachian 97	20	80	60.0	80.0	75.0
Appalachian 98	20	80	60.0	80.0	75.0
Appalachian 99	20	80	60.0	80.0	75.0
Appalachian 100	20	80	60.0	80.0	75.0
TOTAL	2000	8000	6000	10000	75.0

Sincerely yours,

Keith Huston
Keith Huston
Associate Extension Dairyman

KH:nm

* Not included in non-return totals for 30-60 day
 ** Not included in 30-60 day non-returns
 *** 30-60 day non-returns
 **** 0-30 day non-returns

MONTHLY REPORT OF VIRGINIA ARTIFICIAL BREEDING ASSOCIATIONS

Non-Return Rate for Months of

January, 1953 - 60-90 Day Returns

February, 1953 - 30-60 Day Returns

ASSOCIATION	JANUARY		FEBRUARY			
	1st SERVICES	TOTAL 60-90 RETURNS	% NON RETURNS	TOTAL 30-60 RETURNS	% NON RETURNS	
Albemarle	92	30	67.4	72	15	79.2
Appalachian I	113	33	70.8	80	20	75.0
Appalachian II			No Efficiency Report	Received		
Augusta	131	70	46.6	80	34	57.5
* **Bedford I	71	50	29.6	No Efficiency Report	Rec'd.	
Bedford II			No Efficiency Report	Rec'd.	59	32
Eland	38	14	63.2	15	4	73.3
Brunswick	43	18	58.1	25	15	40.0
Carroll			No Efficiency Report	Received		
Central	104	51	51.0	81	32	60.5
Charlotte			No Efficiency Report	Received		
Culpeper I	218	68	68.8	149	44	70.5
Culpeper II	169	75	55.6	109	44	59.6
Fairfax	206	95	53.9	132	50	62.1
Fauquier	257	114	55.6	150	41	72.7
* **Floyd	47	14	70.2	No Efficiency Report	Rec'd.	
Franklin I	186	97	69.4	109	24	78.0
Franklin II	136	35	74.3	76	19	75.0
Frederick-Clarke	99	53	46.5	74	25	66.2
*Fredericksburg	101			66	11	83.3
Grayson			No Efficiency Report	Received		
Hallfax			No Efficiency Report	Received		
Loudoun I	220	99	55.0	177	61	65.5
Loudoun II	167	72	56.9	115	38	67.0
Montgomery	123	59	52.0	76	33	56.5
Nottoway			No Efficiency Report	Rec'd.	55	4
Orange-Madison	203	79	61.1	131	26	80.2
Patrick	76	29	61.8	47	15	68.1
Peninsula	118	35	70.3	85	20	76.5
Piedmont	103	37	64.1	66	23	65.2
Pittsylvania			No Efficiency Report	Received		
Prince William	248	79	67.9	137	32	76.6
Richmond	121	50	58.7	149	49	67.1
Ro-Bot	156	85	45.5	146	60	58.9
Rockbridge	82	31	62.2	73	31	57.5
Shenandoah Valley	151	57	62.3	182	68	62.6
Tazewell	40	22	45.0	28	12	57.1
Tidewater 5			No Efficiency Report	Received		
Tidewater 7			No Efficiency Report	Received		
Wythe	123	31	74.8	104	34	67.3
TOTAL	3723	1478	60.3	2848	916	67.8

* Not included in non-return totals for 60-90 days

** Not included in 30-60 day non-returns

*** 30-60 day non-returns

**** 0-30 day non-returns

MONTHLY REPORT ON BULLS USED IN THE VIRGINIA ARTIFICIAL BREEDING ASSOCIATIONS

Report for Months of

January, 1953 - 60-90 Day Returns

February, 1953 - 30-60 Day Returns

BULLS IN ASSOCIATION	JANUARY 1st SERVICES	TOTAL 60-90 RETURNS	% NON RETURNS	FEBRUARY 1st SERVICES	TOTAL 30-60 RETURNS	% NON RETURNS
GUERNSEYS						
Pacer, 304445	11	6	45.5			
Panorama, 328741	89	32	64.0	59	13	78.0
Rolie, 350780	130	40	69.2	120	53	55.8
Ben, 366204	94	50	46.8	100	37	63.0
Max, 368488	113	26	77.0	74	12	83.8
Pioneer, 382230	123	59	52.0	36	20	44.4
Huntsman, 393672	150	74	50.7	90	35	61.1
Preeminent, 403128	183	94	48.6	119	45	62.2
Demonstrator, 429310	26	10	61.5	32	9	71.9
Tribune, 449924	91	40	56.0	97	41	57.7
Viking, 469213				33	9	72.7
TOTAL	1010	431	57.3	760	274	63.9
HOLSTEINS						
Adwood, 760474	57	28	50.9	156	57	63.5
Korndyke, 860768	341	141	58.7	57	31	45.6
Elmaster, 863709	253	111	56.1	189	64	66.1
Peanut, 944516	133	57	57.1	68	19	72.1
Admiral, 947963	115	41	64.3	118	36	69.5
King, 950314	237	99	58.2	210	83	60.5
Commander, 969743	241	85	64.7	171	62	63.7
Twelve, 1009092	29	11	62.1	42	9	78.6
Emerald, 1033112	167	69	58.7	120	35	70.8
Count, 1062763	157	74	52.9	73	27	63.0
TOTAL	1730	716	58.6	1204	423	64.9

PROJECT III -- 4-H DAIRY CLUBS AND RURAL YOUTH

Distribution of Time:

Staff Member	Headquarters Days	Field Days	Total Days	% of Project Days
W. N. Patterson	144.5	109.0	253.5	86.2
R. G. Connelly	0.5	3.0	3.5	1.2
K. A. Huston	1.5	13.0	14.5	4.9
M. F. Ellmore	2.0	5.5	7.5	2.6
G. J. Nageotte	1.5	5.5	7.0	2.4
G. C. Graf	5.5	2.5	8.0	2.7
Totals:	155.5	138.5	294.0	100.0

The primary objective of the 4-H Dairy Club and Rural Youth project is to give good citizenship training and improve the standards of rural living through training programs for Virginia 4-H club boys and girls. A systematic teaching program is followed, containing improved dairy husbandry methods for training Virginia youth.

Activity Goals

1954 Goals	1954 Accomplishments
<p>1. Continue the progressive lesson 4-H dairy training program in the 32 counties through local extension personnel and dairy leaders. Special subject matter assistance is to be given these leaders as quarterly preparation for instructing local 4-H dairy club members.</p>	<p>1. Thirty-two counties participated in the progressive step 4-H dairy club training program during 1954 with an additional 4 counties entering during the year. Nineteen other counties used the course materials in regular 4-H club meetings. Subject matter materials and plans for 4-H Dairy Club activities were discussed with extension agents in all of the counties and with volunteer local leaders in the 36 counties having organized dairy clubs. These local leaders share the responsibility with county extension personnel for instruction and supervision of club members.</p>

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Activity Goals (Continued)

1954 Goals	1954 Accomplishments
<p>2. Prepare a new subject matter training course on a progressive lesson basis. This material to be presented to county leaders at quarterly training meetings.</p>	<p>2. New subject matter training course outlines were prepared for the 1954-1955 season. These outlines were discussed with county extension workers and local leaders in quarterly leader training conferences prior to their instruction of 4-H Dairy Club members.</p>
<p>3. Continue monthly publication of the 4-H Dairy Club Notes including 4-H dairy project news and current subject matter information. Release 4-H dairy publicity through newspapers, magazine articles, radio and television.</p>	<p>3. Publication of the 4-H Dairy Club Notes was continued through 1954. This news letter contains timely subject matter material and project news. Distribution was by group mailings to county extension workers for redistribution to 4-H dairy club members. Nine radio and television programs were presented and several news articles prepared on 4-H dairy project activities in Virginia.</p>
<p>4. Conduct organized demonstrations and project evaluation during the summer to supplement subject matter training course. These activities would include the fitting and showing demonstrations, judging team training, project tours, contests, and Jr. dairy shows judged.</p>	<p>4. Several fitting and showing demonstrations, dairy cattle judging clinics and demonstrations, and project inspection tours were held during the spring and summer months to supplement the subject matter training program. These activities were planned to give special help to county workers prior to district judging contests, fairs and shows, and evaluation of project work for achievement awards.</p>
<p>5. Continue to work and cooperate with State and National dairy organizations who sponsor 4-H dairy awards and incentive contests. Encourage 4-H dairy club members to participate in the programs provided.</p>	<p>5. The department cooperated with other extension workers in arranging for and selecting recipients of 4-H dairy awards. Scholarships, financial support, and special awards are made available by state and national dairy breed associations, the National Dairy Products Company, and other farm service organizations. Eligible 4-H Club members were informed of these awards to stimulate competition and encourage the girls and boys to use these opportunities.</p>

Activity Goals (Continued)

1954 Goals	1954 Accomplishments
6. Expand 4-H dairy project inspection and grading program through the use of a uniform score-card by county workers with object increased achievement.	6. The use of a project evaluation score card combined with home inspection of projects by county workers was adopted by several of the counties. This method was used to stimulate interest, improve the quality of management practices followed and encourage project completion.

Result Goals

1954 Goals	1954 Accomplishments
1. Increase 4-H dairy project enrollments by 10%. Get 80% project completions.	1. The enrollment in 4-H Dairy project work in 1954 was 2206 club members. This is a slight increase over last year's enrollment of 2197. Project completions numbered 1405 or 63.7% which is a slight decrease from last year. (See Tables I & II).
2. Extend 4-H dairy project work to 94 of the counties with 10 or more members in at least 75 of the counties.	2. 4-H Dairy project work was reported by 88 counties. 68 counties reported 10 or more members with dairy projects. (See table I.)
3. Train ten dairy demonstration teams.	3. 4-H Club members presented dairy demonstrations at many local and county meetings. A number of these demonstrations were put on for adult groups as well as in club meetings. Interest is developing for future area and district contests with plans for a state dairy demonstration contest during the 4-H club short course.
4. Develop at least 25 judging teams for participation in area and district elimination contests prior to the state 4-H dairy cattle judging contest.	4. Eligible dairy cattle judging teams from 24 counties participated in 4 area elimination contests prior to the state contest at Blacksburg. An additional 84 club members from 28 counties participated for training purposes. Fifteen of these county teams participated in the state contest with the winning team from Gloucester county. The two high members of this team and the two high individuals made up the state team.

Result Goals (Continued)

1954 Goals	1954 Accomplishments
<p>5. Promote local 4-H dairy shows in at least 35 counties with at least 300 animals exhibited, 8 district or area shows with 500 animals shown, and encourage participation in the Atlantic Rural Exposition to have Virginia 4-H Dairy Club members exhibit 75 carefully selected animals.</p>	<p>4. (Continued) Gilbert Birdsall and Bernard Blake of Gloucester county, Sidney Spahr of Patrick county and Bobby Albrite of Rockingham county represented Virginia in the Regional 4-H dairy judging contest at the Atlantic Rural Exposition in Richmond and the National 4-H Dairy Judging Contest in Waterloo, Iowa. County Agent A. G. Birdsall of Gloucester county was co-coach of the team.</p> <p>5. Local dairy shows were held in 39 counties with approximately 1200 animals shown. Six area or district shows were held at which approximately 350 animals were exhibited. Virginia juniors exhibited 78 of the 130 animals entered in the Regional Junior Dairy Show at the Atlantic Rural Exposition.</p>

Subject Matter Training Program for 4-H Dairy Clubs

The progressive-step training program for 4-H Dairy Club members initiated in 1949 was continued in the five extension districts. A total of 32 counties followed the plan throughout the year with 4 additional counties adopting the procedure during 1954. These 36 counties hold regular meetings of 4-H club members enrolled in dairy projects on a monthly basis, or bi-monthly or quarterly basis for purposes of instruction in good dairy husbandry practices. County extension workers and local dairy leaders share responsibility for instruction and supervision of 4-H dairy club members under this plan.

An additional 19 counties used the prepared instructional material in regular 4-H club meetings and project supervisory work. They also participated with the standard 4-H Dairy Club counties in inter-county clinics and meetings on such phases as dairy cattle judging training, fitting and showing demonstrations and other Dairy Club activities.

The distribution of these counties by extension districts is as follows:

1954 4-H Dairy Club Organization by Extension District

District	District Agent	No. Counties Having Standard 4-H Dairy Program	No. Counties Using 4-H Dairy Subject Matter Only
Southeastern	J. W. Rogers	7	5
Eastern	J. D. Hutchinson, Jr.	5	4
Northern	G. H. Clark	10	5
Central	E. W. Carson	9	3
Southwestern	P. B. Douglas	5	2
T-o-t-a-l:		36	19

4-H dairy project enrollment in the 36 standard Dairy Club counties includes over 60% of the total dairy project work in the state this year. An additional 10% of the state enrollment is represented in the other 19 counties using instructional materials in their regular 4-H Club program and inter-county 4-H Dairy Club training meetings.

Lesson plans and dairy subject matter outlines were prepared for use by county extension workers and local dairy leaders. These materials were discussed with agents and leaders in quarterly training and planning conferences prior to use in 4-H Dairy Club meetings. Local leaders as well as county extension workers serve as instructors in local club meetings.

The instructional program is designed to teach 4-H Club members the basic principles of good dairy husbandry and to initiate improved methods in dairying on their home farms. Educational information is included on the nutritional value and uses of milk and milk products, production of high quality milk, and the preparation of milk products. The purpose of this training program is to develop good dairy practices on Virginia farms and encourage the use of high quality milk and milk products in the homes of Virginia 4-H club members.

The major responsibility for carrying on the 4-H Dairy Club program rests upon the local county agents and assistant agents. Their ability to analyze the local situation, balance their 4-H club program and enlist the help of local leaders determines the success or failure of the program. These agents assist dairy extension personnel in planning general 4-H dairy activities which suit their local needs.

Adequate local leadership and the low average age of 4-H club members are the major problems in dairy project work. Local leaders should be good dairymen and interested in the 4-H Club program. Such personal traits as honesty, integrity, and dependability are equal in importance to willingness to assume responsibility. The low average age of 4-H Club members in general presents a serious problem. The need to challenge older boys and girls and encourage participation through high school age is of vital concern. The number of these older club members continuing in dairy project work is not sufficient to meet the needs for qualified junior leaders and increasing high quality dairy project work.

4-H Dairy Project News Letter

Publication of the "4-H Dairy Club Notes" was continued in 1954 as a monthly news letter containing dairy subject matter and 4-H dairy activities news. Approximately 2600 of these monthly publications were issued to county extension workers in 95 counties for distribution to 4-H club members. MAP II designates the number of copies distributed to each of the counties.

4-H Dairy Club Production Records Reported

The Virginia 4-H Dairy Club Production Honor Roll is a part of the monthly publication "4-H Dairy Club Notes". The purpose of this Honor Roll is to encourage systematic record keeping on producing cows owned by 4-H club members. A minimum level of production based on at least 800 pounds of milk or 25 pounds of butterfat produced per month is used to qualify the record of a cow for publication.

Participation in this feature during the year is as follows:

Number of 4-H Club members reporting records	:	33
Number of counties represented	:	12
Total monthly records reported	:	220

4-H Dairy Cattle Judging

Inter-county 4-H Dairy Cattle Judging demonstrations were held in 17 scattered locations throughout the state prior to the district contests. Dairy extension personnel served as instructors in these meetings, making arrangements to visit dairy herds in the several counties through local county agents. In addition to work with the 4-H Club members, two one-day clinics for county agricultural agents were held in northern district. Participation by county workers in these events was excellent with 20 of the 21 counties represented by one or more agents. This professional improvement training was used by the agents in preparing their county 4-H Dairy Judging teams for the district contests.

District 4-H Dairy Cattle Judging contests were conducted in the vicinities of Culpeper, Lynchburg, Richmond and Wytheville in the early summer.

Twenty-four counties entered eligible teams in these events with 28 counties bringing younger club members to participate as trainees. Fifteen of the eligible county teams were selected on a district quota-participation basis to compete in the state contest at Blacksburg in June. The three member team from Gloucester county coached by county agent A. G. Birdsall was winner in the state event. On the basis of procedures adopted in 1952, the two high members of the winning county team, Gilbert Birdsall and Bernard Blake, along with the two high individuals in the state contest, Sidney Spahr of Patrick county and Bobby Albrite of Rockingham county comprised the State 4-H Dairy Cattle Judging Team for 1954. This team was entered in the Regional 4-H Dairy Judging contest at Richmond, and the National 4-H Dairy Judging contest at Waterloo, Iowa. Mr. A. G. Birdsall and the 4-H dairy extension specialist co-coached this team. Six days additional training was given team members, using the V.P.I. dairy herd and other representative herds of all five dairy breeds located throughout the state.

In the Regional Contest at Richmond, the Virginia 4-H Dairy Judging team won by a comfortable margin over teams entered from six other states. Gilbert Birdsall was top individual followed closely by Sidney Spahr. At the National Contest the team ranked 18th in a field of 32 states competing. Individual high scores were made by Gilbert Birdsall who ranked 4th high individual in Brown Swiss judging and 9th in Ayrshires. Sidney Spahr was 5th high individual in Guernsey judging. The team tied for 2nd place in Ayrshire breed judging and ranked 7th in Guernseys. Enroute to the National Contest at Waterloo, Iowa training stops were made at the University of West Virginia and the University of Illinois.

Dairy Shows

Local dairy shows were held in 39 counties with approximately 1200 animals exhibited. Six area or district junior shows were held with about 350 animals entered. Virginia boys and girls exhibited 78 of the 130 animals entered in the Regional Junior Dairy Show held at the Atlantic Rural Exposition in Richmond. This is an increase of about 20% over participation in this show in 1953.

Four of our 4-H Dairy Club members exhibited their five animals in the National Junior Guernsey Show at Waterloo, Iowa as a Virginia Junior Guernsey herd. Thelma Carlton of King and Queen county exhibited her cow and a heifer, David McKesson of Chesterfield county showed his cow, Alfred F. Mistr, Jr. of Henrico county showed his dairy heifer, and William S. Wright of Loudoun county his 2 year old cow. Four of these animals as the Virginia State Herd placed eighth in a class of 11 state herds competing. Final selection of these animals to compete in the National Show was made at the Atlantic Rural Exposition. Financial aid and arrangements to transport the animals and club members to the National Show were made by the State and National Guernsey Breed associations assisted by extension personnel.

Dairy Organizations Sponsoring the 4-H Dairy Program

The Virginia Guernsey Breeders' Association, the Virginia Holstein-Friesian Club, the Virginia Jersey Cattle Club, and the National Dairy Products Company each make available to qualified 4-H Club members \$150.00 college scholarships. Former 4-H club members who have completed at least three years of dairy project work and are enrolled in Dairy Husbandry at V.P.I. are eligible for these awards. Applications are made by the individual student, including a story of dairy project work, records of achievement and biographical information. These applications are evaluated by a committee composed of representatives from the 4-H Club Department, Dairy Husbandry Department and Dairy Extension staff. Awards are made on the basis of scholarship, records of achievement, need of the individual, and general worth.

The Virginia Holstein-Friesian Club recommended Ben Middleton and Margie Ann Sutphin, both of Fairfax county, as candidates for National Champion 4-H Club boy and girl. As a result of this recommendation, Ben Middleton was named National Champion 4-H Club boy by the National Holstein-Friesian Association and was given an all expense trip to the annual meeting held in Michigan.

The Virginia State Dairymen's Association sponsored a trip to the National 4-H Club Congress held in Chicago for one of the state 4-H Dairy Achievement award winners. Margie Ann Sutphin was awarded this trip in 1964. In addition, Ben Middleton, also of Fairfax county, attended the meeting sponsored by the National 4-H Club Foundation. Ben was named first alternate National 4-H Dairy Achievement winner at the National 4-H Club Congress.

The Virginia State Dairymen's Association and several members companies of the Virginia State Feed Association provided funds for expenses of the state 4-H Dairy Cattle Judging team on their trip to the regional and national contests.

4-H DAIRY PROJECTS
Enumerated by Counties

1954

TABLE I

COUNTY	Project Members	Completions	Animals			Total Animals
			Calf	Heifer	Cow & Calf	
Accomac	2	2		2		2
Albemarle	4	2		2	1	3
Alleghany	20	12	4	6	5	15
Amelia	16	15	6	7	4	17
Amherst	25	5	2	3		5
Appomattox	26	3	2	1		3
Augusta	59	44	14	24	6	44
Bedford	97	46	33	8	7	48
Bland	23	15	3	6	20	29
Botetourt	35	32	11	16	7	34
Brunswick	11	6	1	1	5	7
Buchanan	2	2	2			2
Buckingham	12	9	7	3		10
Campbell	34	27	12	20	4	36
Caroline	17	12	10	2		12
Carroll	25	15	5	6	4	15
Charlotte	70	54	16	32	18	66
Chesterfield	14	8	4	4	3	11
Clarke	4	3		3		3
Culpeper	62	42		38	4	42
Cumberland	30	24		21	8	29
Dickenson	36	6	5		1	6
Dimwiddie	15	8	5		3	8
Essex	3	2		1	1	2
Fairfax	50	47	21	25	19	65
Fauquier	47	32	9	22	11	42
Floyd	62	33	9	8	35	52
Fluvanna	17	11	9	2		11
Franklin	134	77	53	42	34	129
Frederick	27	25	6	9	30	45
Giles	22	6	6			6
Gloucester	17	17	10	15	9	34
Goochland	12	8	9	1		10
Grayson	16	10	3	7	2	12
Greene	7	4	3	1	2	6
Halifax	38	21	20		16	36
Hanover	13	6	1	8		9
Henrico	12	12	1	10	9	20
Henry	71	46	20	6	27	53
Highland	1	1		1		1
Isle of Wight	6	5		6		6

4-H DAIRY PROJECTS CONTINUED

COUNTY	Project Members	Completions	Animals			Total Animals
			Calf	Heifer	Cow & Calf	
King and Queen	12	8	6	4	6	16
King George	1	0				0
King William	12	9		7	3	10
Lee	10	9	3	2	4	9
Loudoun	73	70	24	36	25	85
Louisa	16	5		4	2	6
Lunenburg	25	4	1	1	2	4
Madison	32	25	7	15	6	28
Mathews	1	1	2			2
Mecklenburg	25	22	4	10	11	25
Middlesex	4	2	2			2
Montgomery	57	43	16	14	13	43
Nansemond	3	3		2	1	3
Nelson	26	9	4	3	3	10
Norfolk	11	8	1	3	6	10
Northumberland	9	2	1		1	2
Nottoway	31	22	7	10	10	27
Orange	10	8	12	2	4	18
Page	10	9	6	3		9
Patriek	75	37	27	2	9	38
Pittsylvania	66	16	9		5	14
Powhatan	13	10	5	3	3	11
Prince Edward	12	4	2	2		4
Prince George	13	13	4	4	5	13
Prince William	64	37	16	18	18	52
Princess Anne	13	13	6	1	6	13
Pulaski	11	8	2	4	6	12
Rappahannock	14	12	15			15
Richmond	20	12	4	6	5	15
Roanoke	24	16	6	10		16
Rockbridge	14	12	12			12
Rockingham	33	29	12	9	10	31
Russell	19	7	3	3	1	7
Scott	8	4	6			6
Shenandoah	32	22	14	16		30
Smyth	19	8	2	6		8
Southampton	22	15	5	7	7	19
Spotsylvania	3	2		1	1	2
Stafford	9	5	5		5	10
Tazewell	34	24	9	4	20	33
Warren	5	5	5			5
Warwick	9	7	6	1		7
Washington	43	34	13	9	12	34
Westmoreland	30	17	2	9	18	29
Wise	6	5	8			8
Wythe	30	20	7	3	10	20
York & City of Hampton	1	1			1	1
Totals :	2206	1405	623	603	533	1759

1954 - Negro 4-H Dairy Club Enrollment

Type of Project	No. of 4-H Members Enrolled	No. of Project Completions	No. of Animals Enrolled
Calf Projects	37	26	27
Heifer Projects	12	8	11
Cow and Calf Projects	3	3	7
Totals:	52	37	45

PROJECT ANALYSIS BY YEARS

TABLE II

	NO. COUNTIES WITH PROJECTS	ENROLLMENT	COMPLETIONS	NO. ANIMALS	% COMPLETIONS
1954					
Calf	73	976	550	623	56.4
Heifer	70	702	509	603	72.5
Cow & Calf	60	528	346	533	65.5
Total	88	2206	1405	1759	63.7
1953					
Calf	65	917	552	627	60.4
Heifer	75	780	510	615	64.5
Cow & Calf	59	500	343	564	69.6
Total	87	2197	1405	1806	64.0
1952					
Calf	51	896	484	554	54.0
Heifer	44	605	424	484	70.1
Cow & Calf	46	869	574	954	66.1
Total	91	2370	1482	2002	62.5
1951					
Calf	45	576	415	479	72.0
Heifer	50	813	578	729	72.0
Cow & Calf	59	782	593	862	75.8
Total	89	2171	1586	2070	73.1

4-H Dairy Club Course Outline

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Milk and Milk Products

I. Milk

A. What is milk?

- a) Milk is the liquid normally secreted by the female mammal for nourishment of its young.
- b) In the dairy industry milk is the whole - clean - fresh liquid secreted by the mammary glands of one or more healthy cows. This excludes the colostrum milk produced by the cow fifteen days before calving and five days after calving.
- c) Virginia law states that milk must contain no less than 3.25% fat and at least 8.5% of solids not fat.

B. What does milk contain?

1) Water	87.0%
2) Solids not fat	
(a) Proteins	
Casein	3.0%
Albumin	0.5%
(b) Sugar	
Lactose	4.8%
(c) Minerals	0.7%
3) Fat	<u>4.0%</u>
	100.0%

C. What value does each of the nutrients found in milk have?

1. Water is a carrier for the other food materials which are found either in solution or suspension. Milk is the only source of water for infants and very young animals.
2. Proteins are the body building and repair nutrients. The kinds of proteins found in milk are:
 - (a) Casein, which gives milk the white color. When milk sours, most of the white curd is casein. It is one of the important nutrients from milk which is used to make cheese.
 - (b) Albumin is dissolved in the water portion of the milk. Pure albumin is very similar to the white of an egg. It forms the "skin" on the top of milk that has been heated or boiled.
3. Sugars are energy foods. The sugar in milk is called lactose. It is a very digestible simple sugar which is especially important for infant feeding. Table sugar is 100 times sweeter than lactose.
4. Fats are also high energy foods. Milk fat is present in milk in the form of very tiny globules or ball-like drops. These globules are so small that over 100 million of them can be included in a single drop of milk.

Fat is the lightest portion of milk, so the globules clump together and rise to the top to form a layer of cream.

5. Minerals in milk are in the best possible form for human food. Milk provides all of the necessary minerals except iron. The calcium in milk is especially important, as almost 75% of our calcium requirements must come from milk or milk products. In order to build strong bones and teeth, and to meet the other body needs for calcium, all children need to consume at least a quart of milk each day. Adults need 3 glasses of milk to meet their calcium needs.
6. Other substances found in milk include the vitamins which are necessary in the diet for proper growth and good health. One of these substances is carotene, which breaks down to form Vitamin A. It is found in large quantities in the fat and gives butter the characteristic yellow color. The cow obtains her carotene from green feeds, which accounts for the deeper yellow color of butter made from milk produced by cows grazing on green pastures.

II. Producing High Quality Milk

Good milk is good food. High quality milk comes from clean, healthy cows and must be properly cared for from the cow to the table.

A. Animal Health

1. Tuberculosis
2. Brucellosis or Bang's disease
3. Mastitis
4. Udder injuries

B. Clean Milking Habits

1. Milk handlers
 - (a) Free from disease
 - (b) Wear clean clothing
 - (c) Avoid dirty habits such as wet hand milking.
2. Cow preparation
 - (a) Clip udders and flanks
 - (b) Remove loose dirt from flanks and udder
 - (c) Wash teats and udder with a sanitizing solution
 - (d) Use a strip cup
3. Milking barns and milk houses
 - (a) Clean
 - (b) Cement floors
 - (c) Well ventilated
 - (d) Free of flies
 - (e) Adequate light

C. Milking Machines and Utensils

1. Clean, free of rust, dents, deep scratches and open seams.
2. Properly cleaned and sanitized. (Rinse-Clean-Rinse method)

D. Straining and Cooling

1. Straining removes visible dirt
 - (a) Check on poor milking habits
 - (b) Use single service straining pads
2. Cooling
 - (a) Cool to below 50°F. within an hour.
 - (b) Reduces bacterial growth.
 - (c) Set cans in cold water - cooling in air takes 20 times as long.

E. Pasteurization

1. Kills disease-causing bacteria
2. Methods of pasteurization
 - (a) Long time - low temperature
 - (b) Short time - high temperature
3. Pasteurized milk must be cooled promptly.

F. Storage

1. Store in refrigerator in tightly covered containers.
2. Serve only amounts needed and replace container in refrigerator.

III. Uses of Milk and Milk Products

A. Milk, as a beverage or with cereals and fruits. No other beverage is so satisfying all year round and yet is so good for health, well-being and so economical as is milk. Popular forms of fluid milk are:

1. Whole milk
 - (a) Raw
 - (b) Pasteurized milk
 - (c) Pasteurized, homogenized Vitamin D milk
 - (d) Premium milk - high butterfat milk - above 4.2% fat
2. Skim milk
 - (a) Plain skim milk - all the butterfat is removed
 - (b) Fortified skim milk - plain skim milk with added non-fat dry milk solids.
3. Cultured Milks
 - (a) Buttermilk - a skim milk product
 - i) Churned buttermilk
 - ii) Cultured buttermilk
 - (b) Other cultured drinks - Yogurt, Acidophilus milk, Bulgaricus milk, etc.
4. Milk drinks -
Whole milk, skim milk, or cultured milks in combination with ice cream, carbonated beverages, fruits, fruit juices, or flavoring materials.

B. Cream

1. Half-and-half - generally contains about 11% butterfat - used sometimes as coffee cream, but mostly on cereals and fruits.
2. Coffee cream - contains at least 16% butterfat. Used mainly in coffee and sometimes on cereals and fruits.
3. Whipping cream - a heavy cream containing at least 35% butterfat. Can easily be whipped and used as a topping for desserts.

C. Butter

Butter is a product made from the cream portion of the milk. To meet legal requirements, it must contain at least 80% butterfat. Butter is used mainly as a spread, but it is also used in a great variety of ways in cooking, where it adds much flavor to the food.

D. Dried and Concentrated Milks

1. Dried Whole Milk and Dried Skim Milk - are concentrated dairy products containing less than 5% water. They are first concentrated to 35 - 40% total solids in a vacuum pan and then further dried by either of two methods.
 - (a) Roller process - dried in a thin film on a hot rotating drum. This type of dried milk is used mainly by bakeries.
 - (b) Spray process - dried by spraying into a heated chamber. As the spray falls in the chamber to the floor, the moisture is evaporated. This type of milk powder is sold in grocery stores for home use in cooking and for reconstitution as a milk beverage. Much of it is also used by the dairy industry to make cottage cheese when supplies of milk are low.
2. Evaporated Whole Milk, Condensed Whole Milk and Condensed Skim Milk - are made by heating under vacuum. Under a high vacuum, milk will boil at a low temperature. Water is removed from the milk without overheating the milk. The difference between evaporated milk and other condensed milks is that evaporated milk is a sterile product and will not spoil in a sealed container.
3. Sweetened Condensed Milk - is concentrated milk, either whole or skim, containing a high sugar content. The high sugar content acts as a preservative to keep the milk from spoilage. Sweetened condensed milk products are used for making candies, ice cream and in cooking.
4. Fresh Concentrated Whole Milk - is fresh Grade A milk with $\frac{1}{2}$ of the water removed by evaporation under low heat at a high vacuum. Temperatures of evaporation are too low to cause a cooked flavor in the milk, and therefore the fresh flavor of the milk is retained. This product is sold to the public in ordinary glass or paper milk containers, as is the regular Grade A milk. One quart when added to 2 quarts of cold water will make about 3 quarts of whole fresh-flavored milk for home use.

Fresh Concentrated Whole Milk is a relatively new product and has been sold during the past three years in only a few markets, where its acceptance by the public has not been great enough to warrant its spread to other markets. Reasons for the slow acceptance are:

- (a) The product has been offered at a price too close to the prevailing price of home-delivered milk to make any substantial savings for the housewife to buy it in preference to home-delivered milk. Prices cannot be lowered any appreciable amount since the milk to be used for the concentrated product must be produced and bought at Grade "A" prices. Also, the process of concentrating the milk adds additional cost to the finished product.
- (b) The product requires reconstitution with water in the home. (1 part of concentrated milk to 2 parts of water.) Generally, the water in the home is not sufficiently cool to produce a cool, fresh flavor in the reconstituted milk. Also, city water supplies sometimes carry too much chlorine which can be readily detected in the milk. This added labor of reconstituting the product at very little savings has overweighed any advantage that the product has over milk delivered to the home.

E. Cheeses

There are many different kinds of cheeses made throughout the world. They may be classified under 4 types. The following are the types and well-known examples of each type:

1. Very hard (grating)

- (a) Ripened by bacteria: Parmesan, Romano, Sapsago

2. Hard

- (a) Ripened by bacteria, without eyes or gas holes: Cheddar and American cheeses.
- (b) Ripened by bacteria, with eyes or gas holes: Swiss and Gruyere

3. Semi-soft

- (a) Ripened by bacteria : Brick, Muenster
- (b) Ripened by bacteria and surface micro-organisms: Limburger, Trappist, and Port-du-Salut
- (c) Ripened mainly by blue mold in the interior: Roquefort, Gorgonzola, and Blue cheeses.

4. Soft

- (a) Ripened : Bel Paese, Brie, and Camembert
- (b) Unripened : Cottage, Baker's, Cream, and Neufchatel cheeses.

Cheeses listed here are just a few of the many known. The U.S.D.A. Handbook No. 54, entitled "Cheese Varieties" lists and describes more than 400 different cheeses.

F. Frozen Dairy Desserts

1. Ice Cream - includes those frozen products made from a combination of one or more of the following: sweet cream, milk, condensed or dried skim or whole milk and butter. Other ingredients added are sugar, coloring, flavors, and stabilizers. Minimum requirements for ice cream in Virginia are:
 - (a) Plain ice cream - not less than 10% butterfat and not less than 35% total solids.

- (b) Fruit, Nut and Chocolate Ice Creams - not less than 8% butterfat and not less than 35% total solids.
 - (c) Frozen Custards and French Ice Cream - not less than 8% butterfat and not less than 33% total solids. Must contain egg yolk.
2. Milk Sherbet - a frozen dairy product that must not contain more than 3% butterfat.

Suggested Activities and Dairy Demonstrations

Milk

Compare milk food value with other foods.
Demonstrate proportions of milk constituents.
Use posters or charts to demonstrate use and value of nutrients found in milk.

Producing High Quality Milk

Survey home farms for disease control programs.
Prepare a clean milking habit scorecard.
Demonstrate Rinse-Clean-Rinse method of washing milk utensils and machines.
Demonstrate the difference between proper and improper cooling.
Demonstrate use of milk strainer pad as a check on clean milking habits.
Demonstrate pasteurization method.
Demonstrate cow-clipping of udder and flanks.
Demonstrate good milking procedure.

Milk Products

Demonstrate the making of one of the following:

Ice Cream	Cream Cheese	Milk Drinks
Butter	Cottage Cheese	

Reference Materials

I. Milk

- 1. U.S.D.A. Farmer's Bulletin No.1705, "Milk for the Family".
- 2. Virginia State Milk and Cream Law.

II. Producing High Quality Milk

- 1. U.S.D.A. Farmer's Bulletin No.2017, "Clean Milk Production".
- 2. U.S.D.A. Farmer's Bulletin No.1705, "Milk for the Family".
- 3. V.P.I. Bulletin No.113, Revised, "Dairy Production Manual".
- 4. V.P.I. Circular No.482, "How Safe Is Your Milk Supply".
- 5. V.P.I. Bulletin No.193, Revised, "For Your Health - Dairy Foods You Can Make at Home".
- 6. V.P.I. Bulletin No.221, "For Quality Milk Control: The Microscope".

III. Milk and Milk Products

- 1. U.S.D.A. Farmer's Bulletin No.1705, "Milk for the Family".
- 2. V.P.I. Bulletin No.193 Revised, "For Your Health - Dairy Foods You Can Make at Home".
- 3. V.P.I. Circular No.618, "Milk Drinks - Any Way You Like Them".
- 4. U.S.D.A. Farmer's Bulletin #1979, "Making and Storing Farm Butter For Home Use".
- 5. U.S.D.A. Agr. Handbook #54, "Cheese Varieties and Descriptions", for sale by Superintendent of Documents, U.S. Govt. Printing Office, Washington 25, D.C. Price 45 cents.

COOPERATIVE EXTENSION WORK
in
AGRICULTURE AND HOME ECONOMICS
STATE OF VIRGINIA

Virginia Polytechnic Institute
and United States Department of
Agriculture, Cooperating

EXTENSION SERVICE

WHOLESOME MILK FOR HEALTH

Milk is nature's most nearly perfect food. Insure a safe supply of milk for your daily use. Make certain that your milk comes from clean, healthy cows. Proper care of milk from the cow to the table is necessary to protect your health and the quality of milk for home use.

Animal Health

Good quality milk comes only from healthy cows. All milking animals must be free of such diseases as tuberculosis, brucellosis, and mastitis. These diseases may be carried in the milk from the cow to man. Protect your health and the health of your family. Be sure that your home milk supply comes from animals that are tested periodically and found free from disease.

Clean Milking Habits

Milk can become contaminated by the person handling it. Milkers and milk handlers should always wear clean clothing and be free of communicable diseases. Always milk in clean surroundings. Each cow must be prepared by removing loose dirt from the flanks and udder. Wash the teats and udder with a sanitizing solution. Materials for making sanitizing solution are available at your local dairy plant or drug store. Use a strip cup to detect abnormal milk.

When milking is done by hand, milk with clean, dry hands. When milking machines are used, all parts must be kept clean, in good condition, and be properly sanitized. Rinsing the teat cups in lukewarm water followed by a dip in sanitizing solution between cows helps prevent contamination and the spread of udder diseases.

Milk must be kept in covered containers to keep out flies, dust, and other dirt.

Utensils

Use only clean pails, strainers, and cans that are free from dents, deep scratches or pits, open seams and rust. Clean all utensils by the "Rinse-Clean-Rinse" method:

First - Rinse all surfaces with cool or lukewarm water to remove the milk film.

Second - Wash in hot water using a dairy detergent or scapless cleaner. Use a brush! Cloths soon become sour and are a source of contamination.

Third - Rinse in scalding water and turn all utensils upside down on clean racks to drain and dry. Before the next milking, rinse with sanitizing solution.

milking machine, rinse by drawing two or more gallons of the machine from a pail. Dipping the teat cups in and out in effect which removes the milk film.

To properly cool or lukewarm of the water

Disassemble the machine apart and wash all parts in hot water containing a dairy disinfectant. The teat cups should be stored in sanitizing solution or special disinfectant until the next milking. Before using again, put the machine in a bucket containing about two gallons of sanitizing solution through the teat cups. This solution should be used to wash the cows' udders and teats before milking.

Milk does not improve the quality, it only removes the large particles from sloppy milking methods. Single-service strainer pads change the pads frequently. Check your milking methods by observing the strainer pad after milking.

Proper Cooling

Milk must be cooled to a temperature below 50° F. within an hour after milking. Prompt cooling helps to maintain high quality by reducing the growth of bacteria which make milk spoil. Set cans of milk in cold water. Never cool milk in the open air, even in cold winter weather. It takes almost 20 times as long to cool milk in air at 32° compared to water at the same temperature. If the milk is to be pasteurized immediately, it is not necessary to cool the milk before pasteurization.

Pasteurization

● Safeguard your health and the health of your family by pasteurizing the home milk supply. Pasteurization kills all disease-causing bacteria. This prevents the spread of disease carried by milk to humans.

Methods of pasteurization:

- 1. Long time, low temperature method:

Heat milk to 143° F. and hold at that temperature for one-half hour. Cool the milk immediately.

- 2. Short time, high temperature method.

Heat the milk to 165° F. and cool immediately.

Use an accurate dairy or cooking thermometer. Never overheat the milk, as it causes a burned or cooked flavor. Use a double boiler to prevent scorching. If double boiler is not used, stir constantly.

After pasteurization is completed and milk cooled to 50°F., pour into of scalded containers and store in refrigerator until needed.

Storage

Store milk in the refrigerator in tightly closed containers to prevent picking up flavors from other stored foods. When serving milk at mealtime is needed, and set the container back in the refrigerator. Put left over in a new container; never pour it back into the original container. No

ever be allowed to drink from the storage container.

As soon as the container is emptied, rinse with cool or lukewarm water to prepare for washing.

Suggested Dairy Demonstrations:

Demonstration or Activity

Reference

- | | |
|------------------------------|--|
| 1. Pasteurization of Milk | V.P.I. Circ. 482, "How Safe Is Your Milk Supply" |
| 2. Cleaning Milk Utensils | U.S.D.A. Bull. 2017, "Clean Milk Production" |
| 3. Cleaning Milking Machines | U.S.D.A. Bull. 1315, "Cleaning Milking Machines" |
| 4. Milk Drinks | V.P.I. Circ. 618, "Milk Drinks" |
| 5. Care of Milk in the Home | V.P.I. Circ. 482, "How Safe Is Your Milk Supply" |
| 6. Tour a Dairy Plant | |

Other references:

Va. Bull. 113, "Dairy Production"
U.S.D.A. Farmer's Bulletin 1705, "Milk For the Family"
V.P.I. Bulletin 193, "Dairy Foods You Can Make at Home"

* * *

Prepared By:

Guy J. Nageotte,
Dairy Products Specialist

William N. Patterson,
4-H Dairy Specialist

GJN/WNP/vb

10/28/54

DAIRY CATTLE JUDGING

Prepared By:
V.P.I. Dairy Extension Staff
Blacksburg, Virginia
Summer 1954

Dairy cattle judging is a careful analysis of animals measuring them against a standard. The ideal type of the breed should be well in mind and comparison of the individual animals to the ideal made. Once this is accomplished, animals in a class or group may be ranked according to their merit as compared to the ideal. Accurate, systematic observation and analysis of the points of strength and weakness of an animal are necessary to give proper emphasis to the overall merit of any individual animal.

For purposes of standardizing the emphasis placed on the various parts of dairy anatomy your attention is directed to the Purebred Dairy Cattle Score Card which is the result of many years of research by the various dairy breed associations. This score card puts a value on the various parts of the dairy cow as follows:

General appearance	30 points
Dairy character	20 points
Body capacity	20 points
Uddery system	30 points

Total 100 points

For a complete analysis of the parts of anatomy included under the points listed above consult the score card.

Judging Training

The first step in judging training is to bring about a thorough understanding of the anatomy of the animal. It is very necessary that the judge know these parts if he is to recognize weaknesses and be able to give the proper value to points of strength according to the score card evaluation. Once these points of anatomy are known, they should be given their proper value and place in terms of the score card arrangement.

For instance:

Body capacity -	
Barrel - 12 points	
Spring of rib and capacity of barrel	
Heart girth - 8 points	
Width of chest floor	
Well sprung foreribs	
Fullness at point of elbow	

Secondly, the judge needs to understand the breed characteristics of each of the dairy breeds. These characteristics of color, size, and horns are clearly defined on the P.D.C.A. score card.

Thirdly, look for any defects which may mean that an animal would be slightly discriminated against or in some instances disqualified. These defects are listed on the P.D.C.A. score card and should be studied carefully.

A Plan for Evaluating a Class of Animals

In national dairy judging contests the plan and procedure when judging a class of four dairy animals is as follows:

- 1- Four animals of the same breed and age classification are selected for a class. Some attention needs to be given to the stage of lactation, uniformity and overall quality in selection of such classes. Animals with obvious defects should be avoided.
- 2- Time allowed for placing a class is 12 minutes. When either written or oral reasons are to be made for the class, 8 additional minutes are allowed to write written reasons or to take notes for oral reasons.

Suggested plan for examination of class in judging -

- (a) Parade around ring, contestants observing from a distance of 15-20 feet. At this time observe animals for breed type, general lines of conformation, blending of parts, balance, symmetry, and carriage; also, length and depth of barrel, body size, and the squareness and levelness of udder.

End parade by lining animals up head to tail. Time: 5 to 7 minutes.

- (b) Line animals up side by side, numbering 1,2,3,4 from left to right as viewed from the rear. Contestants move in for close examination. Pass along the rear observing:

- 1) Spring of rib and capacity of barrel
- 2) Width between hips and between pin bones, width of loin
- 3) Degree of refinement and clean cut appearance.
- 4) Sharpness over withers and fullness of crops
- 5) Height of rear udder attachment and teat placement

Moving in front of the animals observe:

- 1) Heads and necks, breed type and character - indicators of strong constitution indicated by bright eye, open nostrils, and width of muzzle.
- 2) Width of the chest floor
- 3) Spring of fore ribs
- 4) Refinement over withers and general blending of body parts.
- 5) Clean cut appearance and degree of refinement overall.

For a close inspection move in to determine:

- 1) Texture of udder, size and spacing of teats. (Contestants are not allowed to handle animals in contests. However, for training purposes some handling may be desirable to permit visual evaluation by comparison with palpation.)
- 2) Size of milk veins and milk wells.

- 3) Quality of skin and hair.
 - 4) Openness of ribs and backbone
 - 5) General dairy temperament
- c- Contestants move back for final inspection and preparation of placing cards. Time : 3 minutes
- d- For reasons classes an additional 8 minutes is allowed for taking notes for oral reasons or for written reasons. Suggest animals be viewed from a distance except as some point needing re-evaluation or review makes necessary close inspection.
- Time: 8 minutes

Note: When planning practice judging training the classes used should be uniform and easily placed. Animals with defects which would warrant serious to slight discrimination should not be used.

Reasons

Oral and written reasons are given to justify the placings made. Of course, written reasons will be handed in as soon as they are finished and these graded by the designated persons, preferably the official judge of the class. These should be judged on the basis of :

Accuracy : Correctness of stated facts reflecting accuracy of observation.

Completeness: Including all of the essential differences between the animals of the pair discussed, omitting no important point.

Emphasis : Giving proper weight to the important differences between the animals.

Presentation : (Oral reasons)

Delivery: factual, clear, concise statements, well organized and given in good conversational manner. Avoid reciting of reasons.

Terminology and choice of words: Use accepted terms which apply to the class in question.

Personality attitude and approach : Be natural, avoid giving the impression of belligerence on the one hand or indifference on the other. Stand straight, relaxed, and address your speech to the judge.

Organization of reasons :

Make your comparisons in pairs; (1) Top pair, (2) middle pair, (3) bottom pair. Cover the major points of difference between the animals in each pair briefly, but completely. If the animal in the lower placing has some outstanding strong points make these admissions. Take up each of the three pairs in like order.

Remember that time is limited to 2 minutes so keep your reasons short and to the point. Use the present tense in giving reasons.

Things to avoid :

1. Use of such words as "good", "better" or "best"
2. Incorrect statements
3. General terms which you do not support
4. Statements which give a value to the class or animal.
 "I consider this a poor class-" or
 "The top animal is an easy winner"
5. Do not mention anything you are not positive of.

Some Examples of Favorable Descriptive Terms:

1- General appearance

(a) Size

- 1- More closely approaching the breed average
- 2- Larger, showing more scale

(b) Head

- 1- Wider muzzle, more open nostril
- 2- More dishd in the face (Jerseys)
- 3- Brighter, more prominent eye
- 4- Cleaner cut about the head
- 5- Stronger jaw
- 6- Wider between the eyes
- 7- More feminine head

(c) Shoulder Blades

- 1- Elending in more smoothly to the body
- 2- Finer or sharper over the withers

(d) Back

- 1- Straighter and stronger in the back
- 2- Straighter over the topline (withers to tailhead)

(e) Loin

- 1- Stronger in the loin, straighter
- 2- Wider in the loin

(f) Rump

- 1- Squarer in the rump
- 2- Leveler from hocks (hips) to pins
- 3- Wider in hocks (hips) and pins
- 4- Higher and wider at the thurls
- 5- Longer from hocks to pins
- 6- Neatly laid in at the tail setting
- 7- Cleaner about the tailhead
- 8- Higher at the pins

(g) Legs and Feet

- 1- Stands on straighter hind legs
- 2- Stands squarely on her legs
- 3- Cleaner about the hocks and pasterns
- 4- Moves with a strong, easy stride

2. Dairy Character

(a) Neck

- 1- Longer and leaner neck
- 2- Cleaner cut about the throat and dewlap
- 3- Neck blends smoothly into the shoulders

(b) Withers

- 1- Sharper over the withers
- 2- Neck blends in smoothly with the withers

(c) Ribs

- 1- More open ribbed
- 2- Longer, flatter ribs

(d) Flanks

- 1- Deeper in the flank
- 2- Cleaner in the flank

(e) Thighs

- 1- Thinner in the thighs
- 2- Room for udder development between thighs

(f) Skin

- 1- More pliable hide
- 2- Smoother, finer hair

3. Body Capacity

(a) Barrel

- 1- Deeper, wider barrel
- 2- Longer barrel
- 3- Greater spring of ribs, fore and rear

(b) Heart girth

- 1- Fuller, deeper heart girth
- 2- Wider floor of chest
- 3- Fuller at point of elbow
- 4- Fuller in the crops

4. Mammary system

(a) Udder and Teats

- 1- A more evenly balanced udder
- 2- Longer, more nearly level floor
- 3- Extends farther forward
- 4- Strongly attached fore udder
- 5- Rear attachment higher and wider
- 6- A more capacious udder
- 7- Teats squarely placed
- 8- Teats more desirable size and shape

(b) Mammary veins

- 1- More prominent veining
- 2- Longer, more tortuous veins

Giving Reasons

Reasons should be comparative rather than descriptive between the animals. Avoid making a description of the top animal in a pair. The bottom animal in a class may be described.

An Example Set of Reasons

I place this ring of aged Jersey cows 4 - 2 - 1 - 3.

I placed 4 over 2 because she has a more desirable mammary system and greater body capacity. Her udder shows more capacity extending farther forward and higher in the rear attachments. The floor of the udder is more level and teat placement is more desirable. She indicates a great deal of capacity and ability to utilize large amounts of feed by a wide spring of ribs and great depth of body.

I grant that #2 exhibits more dairy character as indicated by clean cut appearance about the throat and dewlap, sharper over the withers and more refined in overall appearance.

I place 2 over 1 because she excels in dairy character. She is longer and leaner in the neck, sharper over the withers, more open ribbed and shows more refinement in condition of hair and hide.

I place cow #1 over #3 because she shows more body capacity. She is wider and deeper in the barrel because of a greater spring of rib and deeper body. The mammary system shows greater capacity and is stronger in its rear attachments.

The number 3 cow exhibits strength in her back as indicated by a strong straight top line from the point of her withers to the tail head. I placed #3 last in this class because she lacks body capacity and mammary development.

WNP/vb
6/9/54

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
State of Virginia

Virginia Polytechnic Institute
and United States Department of Agriculture Cooperating

EXTENSION SERVICE

4-H DAIRY CLUB NOTES



Dear 4-H Dairy Club Members:

October 7, 1954

You and your friends have really been busy this month. Read the notes for information about some of the events that you have made possible.

Sincerely yours,

County Agent
Assistant County Agent

34
72

TO THE 4-H DAIRY CLUB MEMBERS OF VIRGINIA

Dear Club Members :

The Fair season is almost over. You have worked hard all summer getting ready for these shows. Many of you have made your first try at fitting and showing an animal for the dairy show. I hope that you have remembered your mistakes so that you can do a better job next year. You older showmen have shown the judges that you are learning from your experiences in previous years.

This month may finish the shows but it doesn't finish your job with your dairy project. You should bring all of your record books up to date this month. Your county agent is going to ask for them soon. Be sure that yours is ready.

Don't forget your animals either. They deserve special care for all of the awards they have won for you. If you turn your calf out on a poor pasture now and neglect her, next year's job will be much harder. Besides this, calves need to be well grown and healthy to become good cows. Lack of feed and proper care often doesn't show up until your animal enters the milking herd. Be sure that your heifer is given a good start.

Sincerely yours,

William N. Patterson

William N. Patterson
Associate Extension Dairyman
(In Charge of 4-H Dairy Club Work)

Dairy Shows and Fairs

County Shows

County fairs and dairy shows were scheduled in about thirty-eight counties this year. Some of these were one day shows, a few were several days long with judging of Dairy, Livestock, Poultry and other farm products on different days. All of these shows have been fine events and the participation by 4-H dairy club members was outstanding. County agents, local dairy leaders and parents are to be complimented for the fine help which they have given the boys and girls. Nearly all of the calves, heifers, and cows exhibited by 4-H dairy club members at the county shows have been carefully selected, well fitted and well shown.

District and Area Shows

At the Southern Piedmont District Show in Martinsville, 48 animals were exhibited. These entries were shown by club members from Franklin, Henry, Patrick and Pittsylvania counties, including four breeds.

The Champion in the Guernsey breed was exhibited by Charles Wingfield from Henry county and Reserve Champion was shown by Eddie Spahr from Patrick county. In the Holstein breed, Billie Shelton exhibited the Champion and Johnny Bowman Reserve Champion. Both boys are from Franklin county. Wanda Bowman, Franklin county, showed

the Champion Jersey and Winslow Goins, Henry County, the Reserve Champion, James East, Pittsylvania county, showed both the Champion and the Reserve Champion in the Ayrshire classes.

Galen Fisher, Franklin county, was awarded the top honors for fitting, and Eddie Spahr, Patrick county, was judged best showman.

The Southeastern District Show was held at Courtland with 23 Guernseys and one Jersey shown. Chirpie Branch, Southampton county, exhibited both Grand and Reserve Champion animals. Gordon Matthews, Isle of Wight county, exhibited the Jersey entry. Phillip Raeford, Southampton county, took top honors in the fitting contest for the best fitted animal, and Walter Luther Young, Jr., Southampton county, won out in showmanship in a close contest. Entries from Isle of Wight, Nbrfolk, Princess Anne and Southampton counties, were exhibited by their 4-H dairy club owners.

The Tidewater District Show at West Point included entries from several counties in the Tidewater area. About 30 animals were exhibited by juniors in the junior show, with Gilbert Birdsall, Gloucester county, selected as top showman.

Northern Virginia 4-H Dairy Show was held at the Warrenton Horse Show grounds with 164 animals from ten counties shown. Champion winners were shown by:

Dickie Griffith	Culpeper	Ayrshires
John Hardie	Fauquier	Brown Swiss
Jerry Faller	Fauquier	Brown Swiss
Patricia Davis	Prince William	Guernseys
Lillian Smith	Prince William	Holsteins
Gordon Yager	Orange	Jersey
Lester Armstrong	Fauquier	Jersey
Claude Price	Fauquier	Milking Shorthorn
Lucy Grohs	Fauquier	Milking Shorthorn
Charles Mills	Culpeper	Jr. Fitting
Mary Jane Benedum	Loudoun	Sr. Fitting
Paul O'Meara	Prince William	Jr. Showman
Charles Young	Prince William	Sr. Showman

The Champion in the Guernsey breed was exhibited by Charles Matthews from Henry County and Reserve Champion was shown by Edna Gault from Patrick County. The Holstein breed, Edna Gault exhibited the Champion and James East Reserve Champion. Both boys and from Franklin County, James East, showed

Regional Junior Dairy Show

Atlantic Rural Exposition

Entries from four states were led before the judges in the Junior Dairy Show at Richmond. A report of this show and breed winners is as follows:

<u>Breed</u>	<u>Total Number</u>	<u>Virginia Exhibits</u>	<u>Winners</u>
Guernseys	55	49	Jr. Champion - Alfred Mistr - Henrico Sr. & Gr. Champion Thelma Carlton-King & Queen
Holsteins	36	19	Jr. Champion - Roscoe Harbough- Md. Sr. & Gr. Champion - David Browning - Md.
Jerseys	39	10	Jr. Champion - Howard Stiles -Maryland Sr. Champion - Clifford Stiles - Md.
	<hr/> 130	<hr/> 78	

These are the major junior shows held to date. Virginia 4-H dairy clubbers have done a fine job all the way through, and it is a compliment to them and their leaders to see these fine animals in the show ring.

VIRGINIA 4-H DAIRY CLUB PRODUCTION HONOR ROLL FOR AUGUST 1954

(Over 800 lbs. milk or 25 lbs. butterfat)

<u>CLUB MEMBER</u>	<u>COUNTY</u>	<u>BREED</u>	<u>Lbs. MILK</u>	<u>% TEST</u>	<u>Lbs. B-FAT.</u>
John D. Yowell	Culpeper	J	1006	6.0	60
Peggy Apperson	Culpeper	J	1050	5.5	58
John R. Carlton	King and Queen	G	1103	5.2	57
Betsy Feaganes	Culpeper	J	1150	4.6	53
Elizabeth Clark	Culpeper	H	960	5.0	48
Betty Apperson	Culpeper	H	1450	3.2	46
Patricia Lupton	Princess Anne	G	790	5.3	42
Thelma Carlton	King and Queen	G	783	5.4	42
John R. Carlton	King and Queen	G	762	5.4	41
Patricia Lupton	Princess Anne	G	772	5.2	40
Leann Myers	Rockingham	H	1070	3.7	39.6
Gregory Smith	Culpeper	H	970	3.5	34
Danny Myers	Rockingham	H	1190	2.7	32
Narvin Minor, Jr.	Culpeper	J	430	6.8	29
Charlie Harlan	Culpeper	H	750	3.7	28

PROJECT IV -- DAIRY PRODUCTS AND CONSUMER EDUCATION

Distribution of Time :

Staff Member	Headquarters Days	Field Days	Total Days	Percent of Total
G. J. Nageotte	154.0	84.0	238.0	91.4
H. G. Connelly	3.5	9.5	13.0	4.2
G. C. Graf	9.0	4.5	13.5	4.4
Totals :	166.5	98.0	309.5	100.0

This is a continuous, longtime demonstration project. The objectives are:

1. To improve the quality of milk and dairy products produced in Virginia.
2. To teach home demonstration agents, local leaders and rural home-makers methods of pasteurizing milk in the home, methods for making good butter, cheese and frozen desserts from home produced milk.
3. To promote consumer educational programs that will encourage the proper use of milk and dairy products in the human diet.
4. To provide technical assistance to dairy plant operators, milk sanitarians, milk producers, dairy regulatory agencies, and dairy marketing organizations.
5. To promote public favor toward Virginia milk and dairy products.

The 1954 goals and accomplishments are presented as follows :

Activity Goals

1954 Goals	1954 Accomplishments
1. To continue the promotion of improved methods of laboratory control of milk quality.	1. Quality improvement programs, based on laboratory control with field supervision, were initiated as demonstrations through Farmer's Creamery, Fredericksburg, and through the Valley of Virginia Coop Milk Producers Plant, Harrisonburg, Virginia. Existing programs were continued through Leatherwood Farms Dairy, Bluefield; Augusta Dairies, Staunton; Southern Dairies, Christiansburg; Monticello Dairy, Charlottesville; Clover Creamery, Roanoke; Garst Bros. Dairy, Roanoke; Quality Dairy Products Co., Lynchburg; and Lynchburg-Westover Dairy, Lynchburg, Virginia.

Activity Goals (Continued)

1954 Goals	1954 Accomplishments
2. To create the desire of rural people for milk and dairy products in their diets.	2. Methods of dairy products manufacture were promoted through method demonstrations and illustrated lectures before women's clubs, local leaders and Home Demonstration Agents in Wythe county, Bland county, Southampton county, and at V.P.I. Home Agents in other counties were contacted in order to promote greater activity in this project phase.
3. To increase the consumption of milk and milk products in Virginia.	3. Assistance was given to the annual June Dairy Month program held in Virginia in cooperation with the Virginia Dairy Products Association and the Virginia State Dairymen's Association. One TV program and two radio shows were presented. Also, throughout the year, three radio shows were presented and 3 news articles were written and published to stimulate the per capita consumption of Virginia produced milk.
4. To develop a better public understanding of the nutritive value of milk and dairy products.	4. Radio and newspaper releases were written and submitted on the following subjects: "Dairy Foods for Taste, Health, and Economy"; "Use of Surplus Milk at Home"; "Store Milk Products at Home"; "Keep Cool With Dairy Products"; and "Misconceptions About Milk Dollars".
5. To promote the adoption of improved methods of milk handling in regards to quality and economy.	5. Three talks were given on the production of good quality milk. In all meetings with groups and individuals the methods of quality production and handling of milk were emphasized to the greatest extent.
6. To promote the adoption of more efficient methods of processing and distributing milk.	6. Assistance was given to dairy plants in the drawing of construction plans, selection of equipment, and problems related to bulk milk dispensers, butter making, cheese making, milk and cream quality, ice cream, iced milk, sherbets and ices, laboratory control, cleaning pipelines in place, and general plant management.

Result Goals

1934 Goals	1934 Accomplishments
<p>1. Establish comprehensive quality improvement programs in two additional dairy plants.</p>	<p>1. Two new quality improvement demonstrations were initiated with the Valley of Virginia Coop Milk Producers Dairy, Harrisonburg, Va., and with Farmer's Creamery, Fredericksburg, Va. Assistance was given to quality improvement demonstrations previously set up in 9 other dairy plants.</p>
<p>2. Contact at least 25 dairy plants to promote the adoption of approved methods for processing and handling milk and dairy products.</p>	<p>2. Special assistance was given to 23 dairy plants in the drawing of construction plans, selection of processing equipment, and problems related to cultured products, butter-making, milk and cream quality, ice cream, iced milk, sherbets, ices, laboratory control, bulk milk dispensers, cleaning of permanent pipe lines, milk and butterfat losses, and general plant management. Additional assistance was given to 26 milk producers and two Producer Associations.</p>
<p>3. Present at least 20 talks on the production of good quality milk to groups of dairymen.</p>	<p>3. Three talks on the production of high quality milk were presented to groups of dairymen. Attendance at these meetings totalled 235 dairy farmers and dairy plant fieldmen. In other meetings with groups and individuals, the methods of high quality production and proper milk handling were stressed. Five radio tape releases were presented on the subject of high quality milk production. In cooperation with the Extension Veterinarian, Mastitis Control Demonstrations were initiated on 11 dairy farms in four counties. The purpose of these demonstrations is to point out the value of good dairy management practices and clean milking methods in mastitis control, and in the production of high quality milk.</p>

Rural Goals (Continued)

1954 Goals	1954 Accomplishments
<p>4. Revise and bring to date Bulletin 193 entitled "Dairy Foods You Can Make at Home", and prepare 2 subject matter circulars pertaining to milk and dairy product quality improvement on the farm and in the home.</p>	<p>4. Bulletin 193, entitled "Dairy Foods You Can Make at Home" was revised to include making cream cheese. 5,000 copies were printed. Additional new subject matter materials prepared and printed were: Bulletin No. 221 "For Quality Control - The Microscope" - 5000 copies; Circular No. 618, "Milk Drinks" - 5000 copies; leaflet "Store Milk Products At Home" - 1500 copies; and leaflet entitled "Cultured Cream". The latter, along with methods for making cultured buttermilk and yogurt was assembled under a colored cover and entitled "How To Make Cultured Milk Products" - 1500 copies. 1000 mimeographed leaflets containing recipes for cottage cheese salads and milk drinks were prepared and assembled for distribution at the dairy products section meeting of the Institute of Rural Affairs. Methods for making frozen desserts, cheeses and butter were also mimeographed and assembled under colored covers for distribution at the Institute of Rural Affairs and on request to the Dairy Extension Office. A total of 4,000 of these sets was prepared.</p>
<p>5. Hold 10 inter-county Home Agent and leader training meetings to promote home pasteurization of milk and milk quality improvement in rural areas.</p>	<p>5. One home pasteurization demonstration was presented in Wythe county. Attendance at this demonstration included 56 home-makers, representing 15 home demonstration clubs. At other meetings with rural people, pasteurization of the home milk supply was stressed. In contacts with 15 Home Agents in other counties, the need for milk pasteurization demonstrations was discussed in an effort to promote greater interest in this project phase.</p>
<p>6. Hold 10 county dairy products clinics to improve the quality of farm butter, cheese and other dairy products.</p>	<p>6. Seven home dairying demonstrations were presented at meetings in Wythe, Bland and Southampton counties. Methods demonstrated were : Cream Cheese 2; American Cheese 2; Cottage Cheese 2; and Butter making 1.</p>

34
72

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Result Goals (Continued)

<u>1954 Goals</u>	<u>1954 Accomplishments</u>
	6. (Continued)
	Attendance for all demonstrations totalled 259 Home Agents; Home Demonstration Club Leaders and others. A total of 70 Home Demonstration Clubs were represented.
	Home Agents in 13 additional counties were contacted in an effort to schedule similar demonstrations in their counties. Cottage cheese salads and milk drinks were demonstrated to 300 Rural Homemakers, Home Agents and others at the annual Institute of Rural Affairs, V.P.I. The Extension Food Specialist and two Dairy Council Directors assisted in putting on this program.

1. In line with the general plans to set up complete laboratory control over the manufacture of dairy products in Virginia, including the development of quality control of milk and dairy products from their producer to the consumer, two quality improvement demonstrations were set up in cooperation with the Valley of Virginia Coop Milk Producers' Dairy, Harrisonburg, and with Farmers' Creamery, Fredericksburg. Both plants, prior to the development of these demonstrations had complete laboratory control of quality on the processing end of their operations, but none on the procurement end.

Working on the fact that no dairy can elevate the quality of milk through its processing methods, the specialist obtained the cooperation of the laboratory technicians in each plant to set up plans for quality improvement of raw milk supplies with the use of the direct microscopic bacterial count on each producer's milk once a month. The microscopic count method, when used properly by a competent technician, can give the dairy laboratory technician and the dairy fieldman such valuable information concerning the quality of each producer's milk. In the case of high bacteria counts, the laboratory technician can determine, with high accuracy, the number and probable source of bacteria. Such information passed on to the dairy fieldman enables him to assist the producer in correcting the trouble before it can cause serious loss to the producer and to the dairy plant.

Several days were spent with each technician to instruct him on taking samples, making the stained slides and interpreting the information obtained from the microscopic examinations.

Assistance was also given to existing quality improvement demonstrations at Leatherwood Farms Dairy, Bluefield; Augusta Dairies, Staunton; Clover Creamery, Roanoke; Garst Bros. Dairy, Roanoke; Monticello Dairy, Charlottesville; Southern Dairies, Christiansburg; Quality Dairy Products Co., Lynchburg; Lynchburg-Westover Dairy, Lynchburg; and with the Southside Milk Producers' Association.

Assistance was given in the instruction of two students enrolled for one week in the Advanced Dairy Laboratory Technicians' Short Course. In addition, much of the Specialist's time was spent in planning and in the preparation and presentation of the annual Ice Cream Conference and Clinic and the annual Cottage Cheese and Buttermilk Conference and Clinic. Enrollment at these conferences and clinics totalled 40, representing 26 dairy companies.

2. Assistance was given to 23 dairy plants in the drawing of construction plans, selection of proper equipment and problems related to in-place cleaning of pipelines, bulk milk dispenser operations, milk and cream quality, cottage cheese making, production of ice cream, iced milk, sherbets and ices, plant laboratory control methods, and general plant management (See Table II).
3. Three talks were presented on the production of high quality milk at meetings of dairymen. Attendance at these three meetings totalled 235 dairy farmers and dairy plant fieldmen. At other meetings with groups and individuals, the methods of high quality production and proper milk handling were stressed. In addition, throughout the year, 5 radio tape releases were prepared and presented on subjects dealing with the production of high quality milk.

In cooperation with the Extension Veterinarian, the Specialist initiated mastitis control demonstrations on 11 dairy farms in 4 counties scattered throughout Virginia. The purpose of these demonstrations is to point out, at some future time, the value of good dairy practices and clean methods in controlling mastitis and in the production of high quality milk. Dairy farmers were selected in the counties of Nottoway, Washington, Rockingham and Roanoke on the basis of cooperation that could be expected from each dairymen. Only those who were willing to give full cooperation to the project were selected. In addition, full cooperation of the county agent and local veterinarian was obtained. Each demonstration consists of a series of surveys of the milking herd with intervals of three months between surveys. Each survey includes information questionnaire forms on udder infection incidence, milking machine condition and operation, and existing milking procedures. The survey is conducted as follows:

1. Samples of milk are drawn aseptically from each quarter of each cow's udder and delivered to the nearest state diagnostic laboratory for analysis on the type or types of bacteria present.

The results are returned to the local veterinarian who can then treat each infected quarter with the type of drug most effective against the particular organism present.

2. The milk from each quarter is tested for abnormalities with the use of the brom-thymol-blue test and the strip cup.

3. Each animal's udder is palpated to determine its condition with regard to scar tissue from previous infections.

4. Milking equipment and milking machine system are checked for cleanliness and imperfections.

5. A time study is made on the milking operations during the regular milking period. In addition, other information is obtained by observation of the treatment of the milking herd, feeding practices, care of equipment, condition of the loafing area and barnyard, and methods of handling young heifers.

At the completion of each survey after study of the information obtained, recommendations are sent to the dairymen suggesting methods for improving the situation. Copies are sent to the county agent and the local veterinarian who will assist the dairyman in making the appropriate changes.

The information on each survey is retained by the investigating team to measure progress when future surveys are made.

A series of four surveys will be made on each herd to complete the demonstration. When completed, area-wide field days are planned to demonstrate to dairy farmers the value of proper care and procedures for mastitis control and high quality milk production.

4. V.P.I. Bulletin No. 193, entitled "Dairy Foods You Can Make At Home", was revised to include making of cream cheese. 5,000 copies were printed. V.P.I. Bulletin No. 221, entitled "For Quality Control : The Microscope", was written and printed. 5,000 copies were printed and distributed to county personnel, dairy plants, Dairy Fieldmen and Milk and Food Sanitarians in Virginia. The primary purpose of this bulletin is to promote the adoption by plants of the Direct Microscopic Method for determination of quality in raw milk supplies.

V.P.I. Circular No. 618, entitled "Milk Drinks" was written and printed. 5,000 copies were printed. The purpose of this new circular is to increase the consumption of milk in Virginia by suggesting new uses for milk.

Two new mimeographed leaflets were prepared entitled "Store Milk Products at Home" and "Making Cultured Cream". The latter leaflet, along with methods for making cultured buttermilk and yogurt, was assembled under a colored cover and entitled "How To Make Cultured Milk Products."

1500 copies of these sets were prepared for distribution along with 1500 sets of the Frozen Desserts leaflet, Cheese leaflet and Butter-making leaflet. 1000 mimeographed leaflets containing recipes for making cottage cheese salads and milk drinks were prepared and distributed at the dairy products section meeting of the Institute of Rural Affairs.

Assistance was given to the 4-H Dairy Specialist in writing the dairy section of the 4-H Health Project Outline.

5. One home pasteurization demonstration was presented in Wythe county. Attendance at this demonstration included 56 homemakers representing 15 home demonstration clubs within the county. At other meetings with rural people, pasteurization of the home milk supply was stressed. In contacts with 15 Home Agents in other counties, the need for milk pasteurization demonstrations was discussed in an effort to promote greater interest in this project phase. Though the incidence of milk-borne diseases has decreased tremendously during the last two decades due to disease eradication programs, quality improvement measures and commercial and home pasteurization of milk supplies, there is yet much need for further promotion of home pasteurization in Virginia.

6. Seven home dairying demonstrations were presented at meetings in Wythe, Bland, and Southampton counties. Methods demonstrated were : Cream Cheese 2; American Cheese 2; Cottage Cheese 2; and Butter making 1. Attendance for all demonstrations totalled 259 Home Agents, Club Leaders and others. A total of 70 Home Demonstration Clubs were represented. (See Table I).

Home Agents in 13 additional counties were contacted in an effort to schedule similar demonstrations in their counties.

Cottage cheese and milk drinks were demonstrated to 300 rural homemakers at the dairy products section meeting of the V.P.I. Institute of Rural Affairs. The Extension Food Specialist cooperated with the Specialist in conducting the demonstrations. The Specialist also received cooperation from two Directors of Virginia Dairy Councils who discussed nutritional values of milk and milk products.

SUMMARY OF HOME DAIRYING DEMONSTRATIONS
For 1954 For Leader Training

PLACE	TYPE OF DEMONSTRATION	TYPE OF AUDIENCE	NO. OF CLUBS REPRESENTED	TOTAL ATTENDANCE
Wythe	Home Pasteurization	Club Leaders	15	56
Wythe	Buttermaking	Club Leaders	15	56
Wythe	Cream Cheese Making	Club Leaders	15	56
Wythe	Cottage Cheese Making	Club Leaders	15	56
Bland	American Cheese Making	Club Leaders	7	26
Southampton	Cottage Cheese Making	Club Leaders	1	3
Southampton	Cream Cheese Making	Club Leaders	1	3
Southampton	American Cheese Making	Club Leaders	1	3
V.P.I.	Cottage Cheese Salads	Institute of Rural Affairs	-	300
V.P.I.	Milk Drinks	Institute of Rural Affairs	-	300
TOTALS :			70	865

Assistance in Quality Improvement and Dairy Manufactures
Given to Virginia Dairy Farmers and Plants in 1954

Date	Assistance Given To:	County	Assistance Given By Contact or Correspondance	Nature of Assistance Given
1953				
Dec.15	Quality Dairy Products Co.	Campbell	Contact	Ice Cream Quality
Dec.15	Lynchburg-Westover Dairy	Campbell	Contact	General Plant Prob- lems
Dec.16	Roanoke Valley Cheese Coop.	Montgomery	Contact	Laboratory testing
Dec.31	Roanoke Valley Cheese Coop.	Montgomery	Contact	Laboratory testing
1954				
Jan. 6	Leatherwood Dairy Farm	Tazewell	Contact	Laboratory testing with cryoscope
Jan.8	Southern Dairies	Henrico	Contact	General Ice Cream Problems
Jan. 29	C. A. Read	Pulaski	Contact	Utilization of milk on farm
Feb.9	Augusta Dairies	Augusta	Contact	General plant and laboratory problems
Feb.17	D. O. Hunt	Necklenburg	Correspondence	Cup Cheese making
March 19	Mercy House	Roanoke	Contact	Pasteurization of milk
March 27	C. A. Walker	Tazewell	Correspondence	Personal problem
March 29	R. L. Sutphin	Pulaski	Correspondence	Off-flavor milk problem
March 31	Four Farms	Lunenburg	Contact	Butter-making problems
April 2	Curles Neck Dairy	Henrico	Contact	General plant problems

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Assistance in Quality Improvement and Dairy Manufactures
Given to Virginia Dairy Farmers and Plants in 1954

Date	Assistance Given To	County	Assistance Given By Contact or Correspondence	Nature of Assistance Given
1954				
April 2	Virginia Dairy Co.	Henrico	Contact	Laboratory testing
April 8	Ham Dairy Farms	Wythe	Contact	General Plant Problems
April 9	Pet Milk Company	Washington	Contact	Laboratory testing
April 13	Valley of Va. Coop. Dairy	Rockingham	Contact	Laboratory work
April 17	Masonic Home of Va.	Henrico	Correspondence	Pasteurization of milk
April 22	Clover Creamery Co.	Roanoke	Contact	Quality testing and culture problems
April 27	A. K. Kristselis	Halifax	Correspondence	Feta Cheese making
May 3	G. C. Palmer II	Albemarle	Correspondence	Bulk Milk Storage Problems
May 4	Pinemont Dairy	Washington	Contact	General Plant Problems
May 11	Piedmont Tractor Co.	Albemarle	Contact	Bulk Milk Storage Problems
May 11	Moore's Dairy	Albemarle	Contact	Pasteurizing problems
May 12	Miller's School	Albemarle	Contact	In-place Pipeline Cleaning Problem
May 19	C. K. Rockefeller	Norfolk	Correspondence	Plant milk and fat losses
May 20	Fearless Creamery	Alleghany	Contact	Buttermaking problems
May 26	Roanoke Valley Cheese Coop	Montgomery	Contact	Cheese quality problems
June 2	Tri-State Milk Producers Assn.	Washington	Contact	Examination of milk testers
June 8	C. A. Taylor	Tazewell	Correspondence	Buttermaking problems
July 12	Crescent Ice Cream Co.	Montgomery	Contact	Ice cream making problems
July 15	Quality Dairy Products Co.	Campbell	Contact	Quality control problems

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Assistance in Quality Improvement and Dairy Manufactures
Given to Virginia Dairy Farmers and Plants in 1954

Date	Assistance Given To	County	Assistance Given By Contact or Correspondence	Nature of Assistance Given
July 15	Lynchburg-Westover Dairy	Campbell	Contact	Ice Cream Making Problems
July 16	Crescent Ice Cream Co.	Montgomery	Contact	Ice Milk and Sherbet Composition Problems
July 26	Dr. Fred Wheeler	Henry	Correspondence	Problem on sweet curdling of milk
July 30	Clover Creamery Co.	Roanoke	Contact	Quality Control Work
August 12	Farmer's Creamery	Spotsylvania	Contact	Assistance on Dairy Exhibit
Aug. 17	Norval Boone	Bedford	Contact	Dairy Plant Plans
Aug. 18	Southside Milk Producers' Assn.	Amelia	Contact	Quality Control Work
Aug. 23	Quality Dairy Products Co.	Campbell	Contact	Ice Cream Problems
Aug. 23	Lynchburg-Westover Dairy	Campbell	Contact	Milk Dispenser Problems
Sept. 4	John E. Hutcheson	Halifax	Contact	Quality Milk Production Problems
Sept. 8	Staunton Creamery	Augusta	Contact	General Plant Problems
Sept. 8	Augusta Dairies	Augusta	Contact	General Plant Problems
Sept. 8	Imperial Ice Cream Co.	Rockingham	Contact	General Plant Problems
Sept. 8	Valley of Va. Coop	Rockingham	Contact	Buttermilk problems
Sept. 9	Early Dawn Dairy	Augusta	Contact	Milk dispenser problems
Sept. 9	Monticello Dairy	Albemarle	Contact	General Plant Problems
Sept. 15	Farmers' Creamery	Spotsylvania	Contact	Quality Control Work

Assistance in Quality Improvement and Dairy Manufactures
Given to Virginia Dairy Farmers and Plants in 1954

Date	Assistance Given To	County	Assistance Given By Contact or Correspondence	Nature of Assistance Given
Sept. 16	Farmers' Creamery	Spotsylvania	Contact	Quality Control Work with Laboratory Personnel
Sept. 20	T. M. Bush	Roanoke	Contact	Mastitis Control Survey on Dairy Herd
Sept. 29	Henry Williamson	Nottoway	Contact	Mastitis Control Survey
Sept. 30	P. H. Fitzgerald	Nottoway	Contact	Mastitis Control Survey
Oct. 1	C. P. Lewis	Nottoway	Contact	Mastitis Control Survey
Oct. 5	H. J. Hoga	Washington	Contact	Mastitis Control Survey
Oct. 6	R. J. Baker	Washington	Contact	Mastitis Control Survey
Oct. 7	E. C. Denton	Washington	Contact	Mastitis Control Survey
Oct. 8	Crescent Ice Cream Co.	Montgomery	Contact	Ice Cream Making Equipment Selection
Oct. 8	Clover Creamery	Roanoke	Contact	Quality Control Work
Oct. 18	A. K. Kristselis	Halifax	Correspondence	Feta Cheese Making
Oct. 20	M. W. Turner	Rockingham	Contact	Mastitis Control Survey
Oct. 21	Lynn Driver	Rockingham	Contact	Mastitis Control Survey
Oct. 22	R. T. Crowe	Rockingham	Contact	Mastitis Control Survey
Nov. 3	Pinemont Dairy	Washington	Contact	General Plant Problems
Nov. 4	Clinch Haven Farms Dairy	Tazewell	Contact	Buttermilk Problems
Nov. 11	A. W. Horton	Tazewell	Correspondence	Off-flavor milk problem
Nov. 16	Tri-State Milk Producers Assn.	Washington	Contact	Examination of milk testers
Nov. 16	Pinemont Dairy	Washington	Contact	Bulk Milk Tank Storage Problems
Nov. 20	H. H. Hampton	Carroll	Correspondence	Off-flavor Milk Problem
Nov. 26	T. M. Bush	Roanoke	Contact	Mastitis Control Survey
Nov. 30	Lynchburg-Westover Dairy	Campbell	Contact	Cultured Milk Products Problem

ESTIMATED VALUE OF MANUFACTURED VIRGINIA DAIRY

PRODUCTS AT WHOLESALE

(Thousands of Dollars)

Commodity	1940	1950	1951	1952	1953	% 1953 vs of 1940
Whole Milk	\$28,658	\$65,778	\$69,684	\$80,196	\$80,854	282
Ice Cream	4,796	19,066	20,018	21,110	21,854	454
Creamery Butter	2,625	4,799	4,654	3,893	5,359	204
Evaporated and Condensed Milk	2,765	12,673	12,315	11,614	13,008	472
Dried Skim Milk	121	690	591	622	1,300	1,074
Cottage Cheese	90	660	492	703	839	932
Totals :	\$39,055	\$103,666	\$107,754	\$118,130	\$123,214	315

VALUE OF MILK PRODUCTS SOLD AND MILK PRODUCTS

USED ON VIRGINIA FARMS

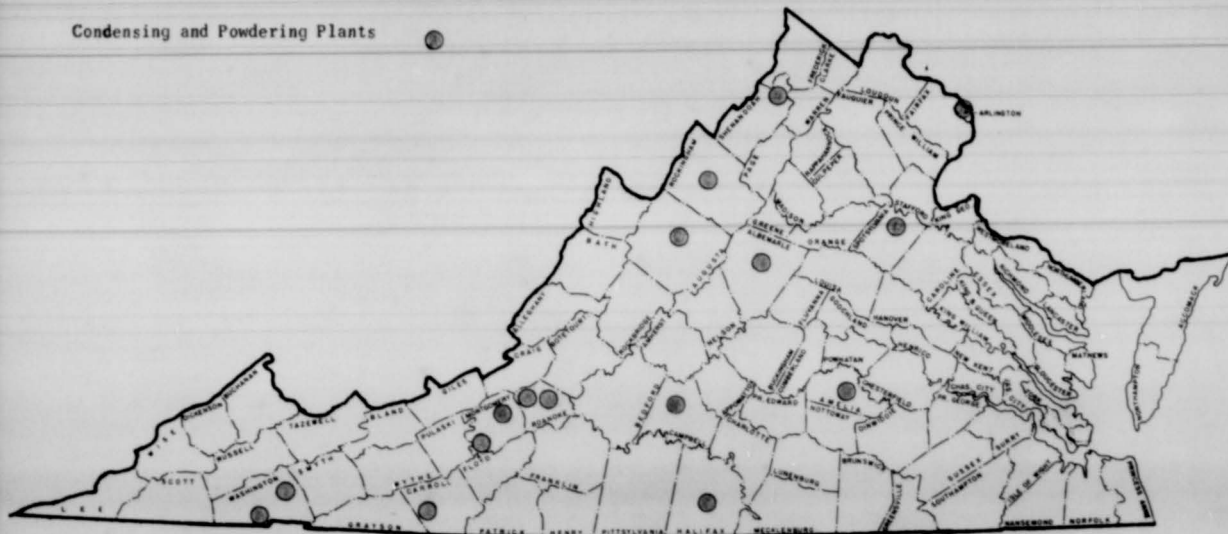
(Thousands of Dollars)

Disposition of Products	1940	1950	1951	1952	1953	% 1953 is of 1940
Value of Farm Sales (Milk, Cream, Butter)	\$18,770	\$61,626	\$67,445	\$72,277	\$74,099	395
Value of Milk Products Used on the Farm	15,745	23,968	28,548	29,146	26,832	170
Gross Farm Income from Dairy Products	\$34,515	\$85,594	\$95,993	\$101,423	\$100,931	292

Condensing Plants



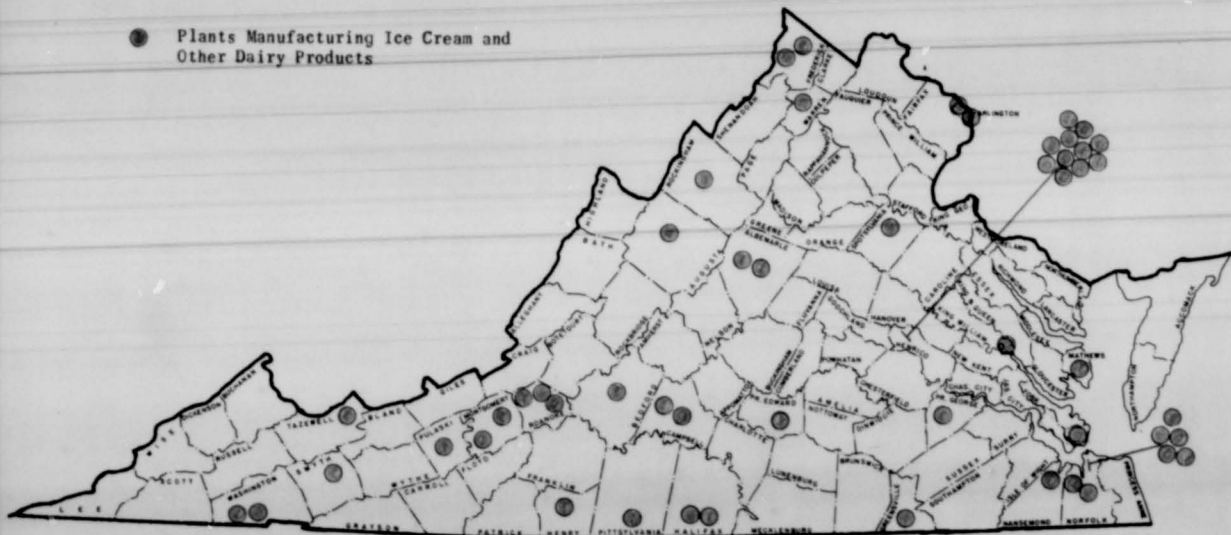
Condensing and Powdering Plants



MAP II. - County Location of 11 Condensing Plants and 5 Plants Condensing and Powdering Milk

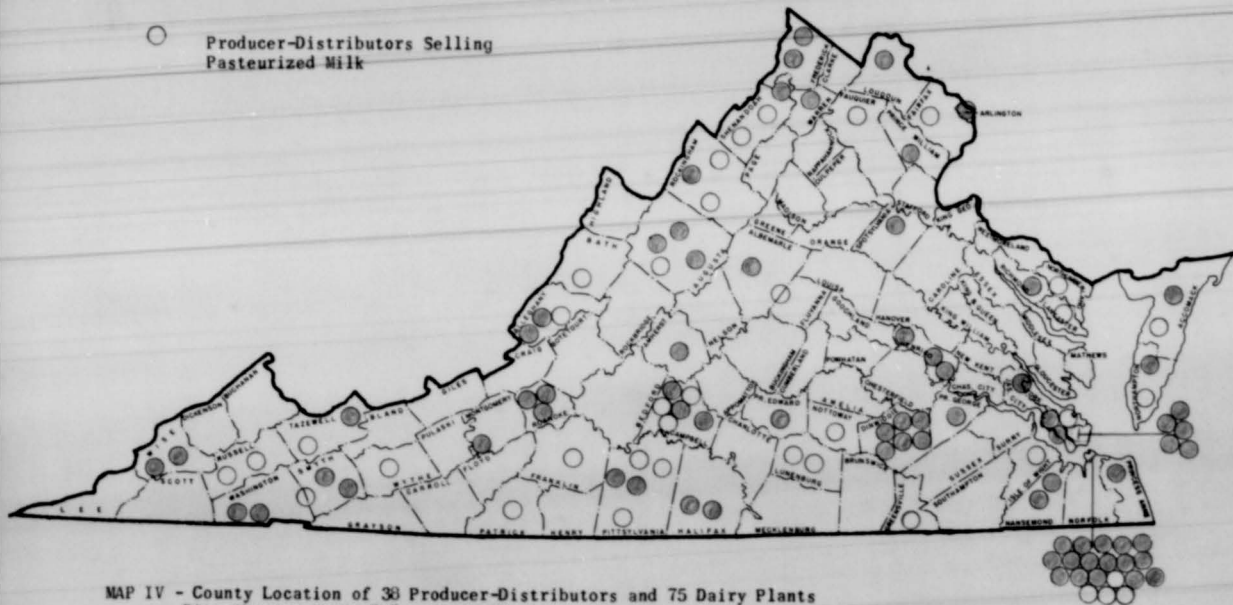
● Plants Manufacturing Ice Cream Only

● Plants Manufacturing Ice Cream and
Other Dairy Products

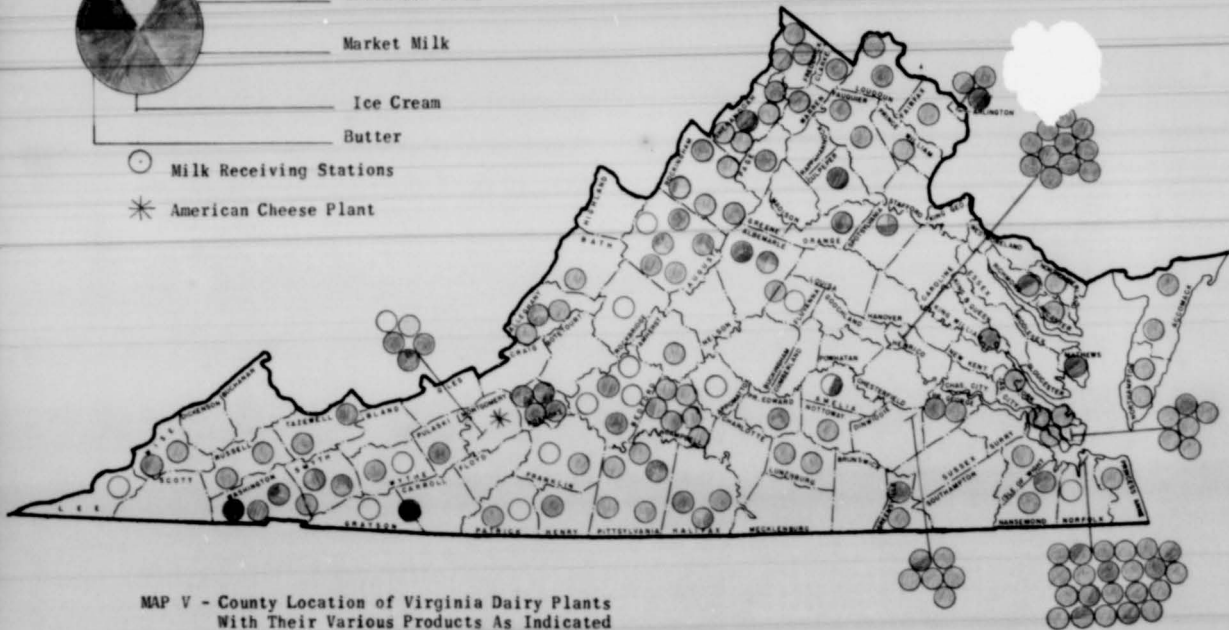
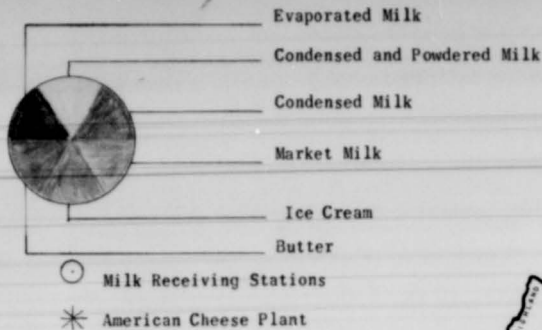


MAP III - County Location of 20 Ice Cream Plants and 32 Dairy Plants Manufacturing Ice Cream and Other Dairy Products

- Virginia Plants Distributing Grade "A" Pasteurized Milk
- Producer-Distributors Selling Pasteurized Milk



MAP IV - County Location of 38 Producer-Distributors and 75 Dairy Plants Distributing Grade "A" milk in Virginia



MAP V - County Location of Virginia Dairy Plants
With Their Various Products As Indicated

MILK DRINKS



Any Way You Like Them

V. P. I. Agricultural Extension Service
Blacksburg, Virginia

Circular 618

June, 1954

Milk Drinks -- Any Way You Like Them

When you want to feel satisfied and refreshed, drink a glass of cold sweet milk. Fresh milk is unique. It is healthful, stimulating, and nourishing. Milk contains health-building vitamins, essential proteins, energizing fats and sugar, and the minerals that can do most for the human body. Three glasses of fresh whole milk every day - taken with meals, with snacks, before you go to bed, or whenever you need soothing refreshment - will help you feel better, look better, act better.

You never outgrow your need for milk. Whether you are 7, 17, or 70, milk is the best food for you. Milk helps to stabilize body weight. Are you overweight? Reduce with milk. Underweight? Build up with milk. Nerves tense? Nights sleepless? Drink milk at bed time and relax. Whether you are growing to maturity or retiring from business, get the calcium and other protective nutrients your body needs from milk.

The food elements of milk are available in attractive forms: fluid milk, cream, butter, cheese, ice cream, sherbets, concentrated milk, non-fat milk powder, and cultured milk. In these forms, milk provides pleasant variety to the human diet.

Fluid milk is retailed in several forms:

Whole Milk is modified and merchandised in many forms. The minimum legal composition for whole milk in Virginia is 3.25 percent butterfat and 8.5 percent non-fat solids. Practically all fluid milk marketed in Virginia is above the legal minimum standard. It is not unusual for milk to vary from 3.25 to 6.0 percent butterfat, depending upon the breed of cows, season of the year, stage of the cow's lactation, etc.

"Half and Half" is milk consisting of half cream and half milk. It usually contains 9 to 12 percent butterfat and 2 percent added non-fat milk solids. Its fat content is higher than normal milk and lower than cream. "Half and Half" goes well with cereals, berries, and in coffee.

Skim Milk is milk without its butterfat. Skim milk contains nearly all the proteins, sugar, minerals, and many of the vitamins contained in the original whole milk. Skim milk is popular with people on low-fat diets. It provides them with low calorie nutrients.

Fortified Skim Milk is fresh skim milk plus non-fat milk solids and one or two percent butterfat. This product also is popular among people who want to reduce. Fortified skim milk, low in butterfat, is preferred in certain low calorie diets.

Homogenized milk is standard whole milk in which the butterfat globules have been finely broken up and dispersed. Homogenization, a high pressure atomizing process, merely disperses the fat in such small particles that they can not reunite to form cream. No fat is removed in the process. Homogenized milk contains 3.5 to 4.0 percent butterfat, has a richer flavor, is more easily digested, and gives superior results in cooking.

Buttermilk either churned or cultured, contains most of the proteins, minerals, and vitamins, but less than one percent of the butterfat, of the original milk from which it is made. Buttermilk's clean, delightful tang is caused by lactic acid, formed when the milk sugar (lactose) ferments. When served alone or with fruit juices, buttermilk is a refreshing, hot weather drink.

Many delicious, nourishing, and refreshing drinks can be made of milk to fit a wide variety of family situations and social occasions. The following recipes have been tried and proven. Use them and enjoy them.

(Recipes for Milk Drinks start on next page)

MILK DRINKS

1. Orange Nog

- 2 cups milk
- 1 tablespoon sugar
- 1 cup orange juice
- 2 teaspoons grated orange rind
- chopped ice

Place milk and sugar into shaker or fruit jar. Add orange juice and rind and shake. If orange juice is too tart, add more sugar. Serves 4.

2. Banana Milk

- 2 cups of ripe banana
- 4 cups milk
- pinch of salt

Slice banana into a bowl and beat with rotary egg beater until creamy. Add cold milk and mix well. Serve cold. Ice or ice cream may be added for a colder drink.

3. Tomato Juice Cocktail

- 5 cups of milk
- 4 cups of tomato juice
- 1 teaspoon salt

Mix cold tomato juice and milk. Season to taste with celery salt or onion juice.

4. Fruit Milk Drink

- 2 $\frac{1}{2}$ cups of grape or berry juice
or juice from stewed prunes
- 3 cups of milk

Add cold juice to milk and stir vigorously. Addition of $\frac{3}{4}$ teaspoon of lemon juice brings out the flavor. If sour grape juice is used, add a little sugar.

5. Chocolate Milk

- 4 tablespoons cocoa
- 4 tablespoons sugar
- 1/8 teaspoon salt
- 4 cups milk
- Cinnamon

Blend cocoa, sugar, and salt to make syrup by using portion of the milk. Add syrup to remaining milk. Heat to a boil. Serve either hot or cold.

6. Molasses Milk Drink

- 4 cups of milk
- 2-3 tablespoons molasses
- dash of nutmeg

Just mix molasses with cold milk. Add nutmeg to top and serve.

7. Tomato Buttermilk Cocktail

Combine equal portions of chilled tomato juice and buttermilk. Salt to taste.

8. Chocolate Coffee Milk

- 1 1/2 cups coffee
- 3/4 cups chocolate syrup
- 7 cups milk
- Whipped cream

Add 1 1/2 cups of cold strong coffee and 3/4 cup of chocolate syrup to 7 cups of cold milk. Mix well, and top each glass with whipped cream.

9. Maple Milk Drink

Combine 2 to 3 tablespoons of maple syrup to each cup of cold milk. Top with ice cream or whipped cream and chopped pecans if desired.

10. Grape Cooler

Combine equal amounts of cold grape juice and milk, stirring the grape juice into the milk. Add a top knot of slightly sweetened whipped cream. Pineapple juice may be used in the same way.

11. Pineapple Crush

Stir together 1/4 cup crushed pineapple with its syrup and one cup of cold milk. It's good alone or when topped with a scoop of ice cream.

12. Fruit and Honey Nectar

- 1 1/2 cups banana puree
- 1/3 cup orange juice
- 6 tablespoons honey
- pinch of salt
- 1/4 teaspoon almond extract
- 1 quart of milk
- Whipped cream

Put bananas through sieve. Add orange juice, honey, salt and almond flavoring. Mix well. When ready to serve add cold milk and beat with egg beater. Garnish with whipped cream and serve immediately. Serves 6.

13. Prune Apricot Milk Shake

- 1 1/2 cups prune and apricot puree
- 1/4 cup granulated sugar
- 1/4 teaspoon salt
- 1 tablespoon grated lemon rind
- 6 tablespoons lemon juice
- 6 cups cold milk

Blend dried fruit puree with sugar, salt, lemon rind and juice. Add milk and beat with rotary beater. Chill. Serve with slivered lemon rind or thin slices of lemon on top. Serves 6.

14. Cherry Punch

1 No. 2 can sweetened red cherries
1 quart milk
1/4 teaspoon almond extract
1 pint vanilla ice cream

Have all ingredients thoroughly chilled. Press cherries through a sieve and combine with the cherry juice. Mix milk and almond extract; add cherry puree, stirring constantly. Serve at once with a scoop of ice cream floating in each glass. Serves 6.

15. Hot Choco-mint

1 1/3 cups crushed peppermint stick
candy
2 squares chocolate
2 quarts milk
12 drops peppermint extract
pinch of salt

Melt crushed candy and chocolate in 1/2 cup of milk in the top of the double boiler. Add peppermint extract and salt. Scald the remaining milk and add to chocolate mixture. Stir well. Serve hot or cold. A spoonful of whipped cream may be added on top if desired. Serves 8.

16. Banana Milk Punch

4 ripe bananas
2 eggs, separated
1 quart milk, chilled
1/8 teaspoon salt
1 teaspoon vanilla
1 pint ice cream

Slice bananas and mash until smooth and creamy, or put through a sieve. Beat egg yolks until thick and lemon colored. Add chilled milk, mashed banana, salt and vanilla. Beat egg whites until stiff and fold into banana mixture, blending thoroughly. Serve very cold, topping each glass with 3 tablespoons vanilla ice cream and a sprinkling of grated nutmeg or chopped nuts. For a sweeter drink, 2 tablespoons of sugar may be added. Serves 6.

17. Strawberry Blonde

Blend together 2 cups of strawberry pop with 6 cups of milk, or mix 2 tablespoons of strawberry jam to each glass of cold milk.

18. Spiced Milk

6 cups of milk
3/4 teaspoon cinnamon
3/4 teaspoon nutmeg
1/2 teaspoon salt

Add cinnamon, nutmeg, and salt to cold milk and stir vigorously.

19. Chocolate Milk Shake

2 teaspoons Cocoa or
Chocolate Syrup
3/4 cup milk
1 teaspoon strong coffee

Mix, beat well, and chill. Serve in glass and top with whipped cream and a dash of nutmeg or cinnamon. Must be ice cold.

20. Lemo-Lac

This very refreshing and nutritious drink is made by adding sugar and lemon juice to buttermilk or cultured buttermilk. Slightly more sugar and lemon juice are necessary than in making ordinary lemonade and the mixture should be well iced. It is a fine drink for hungry, thirsty folk on a hot day. Try it with your lunch.

21. Milk Julep

- 1 Egg
- 1 tablespoon sugar
- pinch of salt
- 1 cup milk
- 1/2 teaspoon vanilla
- 1 small scoop ice cream

Beat the egg until light. Add the sugar; beat the mixture, and add milk, flavoring and salt. Mix or shake well and chill. When ready to serve, beat or shake mixture until it is foamy and add small scoop desired flavor ice cream. Many variations in flavor may be made by adding chocolate syrup, sprays of mint, cinnamon, or a teaspoon of caramel syrup in place of the vanilla.

22. Milk Scotch High Ball

- 6 ounce glass cold milk
- 2 scoops vanilla ice cream
- 2 tablespoons butterscotch syrup

Place in mixer and mix thoroughly. Add just enough soda water to carbonate partially the entire drink.

23. Mocha Milk Shake Float

- 6 tablespoons double strength coffee
- 6 tablespoons cocoa, made with milk
- 2 scoops cracked ice
- 2 scoops coffee or chocolate ice cream

Blend in mixer. Pour into a thin shell glass and top with a scoop of chocolate ice cream.

24. Pineapple Buttermilk

6 ounce glass cold buttermilk
2 scoops vanilla ice cream
4 tablespoons canned pineapple juice

Place in mixer and blend well. Serve while still cold.

25. Egg Nog

4 Eggs
3½ tablespoons sugar
3 cups cold milk
1 cup cold cream
1½ teaspoons vanilla
½ teaspoon salt
whipped cream

Beat the 4 whole eggs until very thick and light in color. Add the sugar, beating it in thoroughly. Stir in the cold milk and cream, vanilla, and salt. Top mixture with whipped cream and sprinkle with freshly grated nutmeg. Serve immediately. Serves 5.

26. Mint O'Milk

Add to cold milk crushed mint leaves or a few drops of mint extract. Top with whipped cream and a maraschino cherry.

27. Chocolate Egg Nog (1 serving)

3 tablespoons cocoa syrup
or chocolate syrup
1 cup cold milk
1 egg, separated
1 tablespoon sugar
Chocolate shot
dash of salt

Place in mixing bowl chocolate syrup, milk, egg yolk and dash of salt, and beat until thoroughly mixed. Beat egg white until its foamy. Gradually beat into it 1 tablespoon of sugar. Pile the egg white lightly on top of the eggnog, and sprinkle it with chocolate shot.

24. Pineapple Butterroll

- 8 ounce glass cold butterroll
- 2 scoops vanilla ice cream
- 4 tablespoons canned pineapple juice

Place in mixer and blend well. Serve with cold

25. Egg Nog

- 4 Eggs
- 3/4 cup cold milk
- 1 cup cold cream



Beat the 4 whole eggs thoroughly. Add the cold milk to the cold milk mixture with whipping. Gated nutmeg.

26. Mint O'Nip

Add to cold milk crushed mint leaves or a few drops of mint extract. Top with whipped cream and a mar- chine cherry.

27. Chocolate Egg Nog (I service)

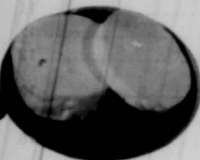
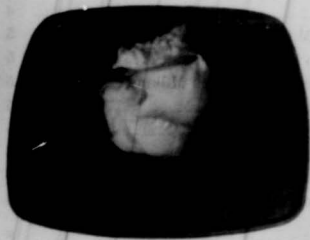
- 3 tablespoons cocoa syrup or chocolate syrup
- 1 cup cold milk
- 1 egg, separated
- 1 tablespoon sugar
- Chocolate shod
- dash of salt

Place in mixing bowl chocolate syrup, milk, egg yolk

Virginia Polytechnic Institute and the United States Department of Agriculture
Cooperating: Extension Service, L. B. Dietrick, Director, Blacksburg, Virginia

Printed and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914

FOR YOUR HEALTH



Dairy Foods You Can Make At Home

BULLETIN 193

REVISED APRIL, 1954

V. P. I. Agricultural Extension Service
Blacksburg, Virginia

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FOR YOUR HEALTH

*By R. G. Connelly, Extension Dairyman
and Guy Nageotte, Associate Extension Dairyman*

VIRGINIA POLYTECHNIC INSTITUTE

Milk and milk products are essential for your daily diet. Milk is one food in which there is no waste; you can use every drop of it. A quart of milk is more than 2 pounds of food.

To give you an idea of the food value of milk, here (in percentages) is what a quart of milk contributes to your daily diet: Calcium (mineral) 100 percent; Phosphorus (mineral) 61 percent; Iron (mineral) 5 percent; Riboflavin (vitamin B₂) 23 percent; Ascorbic Acid (vitamin) 17 percent; Niacin (vitamin) 7 percent; Proteins, 49 percent, and Calories, 22 percent.

Butter is an excellent source of food energy. It contains 80 percent butterfat, most of which you can digest. It also furnishes a concentrated form of Vitamin A. This is an important body building vitamin. In addition, butter contains proteins, minerals, and other vitamins necessary for your health.

American Cheese is a highly concentrated dairy food containing all the butterfat, minerals, and most of the proteins of the milk from which it was made. Cottage cheese is another high protein food and, like American Cheese, will add flavor and eye appeal to most meals.

Cream cheese is a soft acid cheese made from cream. It is a highly palatable and nutritious product containing all the fat and proteins of the cream from which it was made. It can be made very easily in the home from rich or thin cream. Like other soft cheeses, it is better to make it frequently in small quantities, rather than in large quantities that might spoil.

Ice cream and other frozen milk foods are rich in everything that milk contains. They also add sugar and flavor to your diet. Ice cream is a standard dairy food in many families, contributing its special qualities to the nourishment and enjoyment that should go with eating.

This bulletin is designed to teach you the most efficient and sanitary methods of milking cows and of making butter, American cheese, cottage cheese, cream cheese and ice cream in your home.

QUALITY MILK

Quality milk has good flavor, is free from dirt, and contains few bacteria none of which is harmful. Bacteria — small, single-celled plants that live nearly everywhere—will thrive in warm milk. There-



Cleanliness and Quality Milk Go Together

fore, you should make every effort to keep dirt and bacteria out of milk and to keep the milk cold so that any bacteria that may get into milk cannot thrive. Know what the word "QUALITY" means in milk. The responsibility for keeping bacteria and dirt out of milk rests squarely on those who produce and market it. Next to feeding the cows, no other dairy work requires as much skill as does milking.

Milk is hereby defined to be the whole fresh clean lacteal secretion obtained by the complete milking of one or more healthy cows excluding that obtained before and after calving for such a period as may be necessary to render the milk practically colostrum free. — From the Virginia Act to Regulate the Production and Distribution of Milk and Cream.

Some Things You Should Know About Milking

The milker. Some people are naturally good milkers. They have steady nerves, are calm, quiet, and even-tempered. They keep their cows quiet, contented, and more inclined to relax and "let down" their milk freely. Good milkers have soft, strong hands. They milk steadily and quickly. By honest, thoughtful effort any one can do a better job of milking.

Take pride in your job as a milker. Your family, your friends, and your fellow citizens are trusting you to furnish them with clean, safe milk. Know your job. Always milk with clean, dry hands.

The Place Where You Milk Your Cows. Keep the cows clean and comfortable at all times. House them in dry, well-lighted, well-ventilated, comfortable stables. The stable need not be elaborate or expensive, but it should be well arranged and easy to keep clean.

Tie the cows in stalls for easy handling. Stalls should be $4\frac{1}{2}$ feet wide and about 5 feet long. They should be arranged side by side, with a manger in front facing on a feed alley $5\frac{1}{2}$ feet wide.

The stall floor should be smooth and hard. Drain the floor to a manure gutter just behind the cows. There should be a walkway at least 5 feet wide so that the cows and the milker can move easily to and from the stalls. Have one window at least 4 feet square, and 500 cubic feet of stable space for each cow. In such a stable the milk may be produced cleaner and the milker will enjoy his work more.

Keep the stable and milk house clean, well lighted, and well ventilated at all time. Screen out the flies.

Keep Your Cows Fit to be Milked. Clean, healthy cows encourage good milking. If the hair is clipped short on the cow's udder, belly, flanks, and tail, you can keep her clean more easily. Brush each cow once daily, at least one hour before milking, to keep the cow's hide in good condition. If the cows are soiled with manure, wash them.

How a Good Milker Prepares for Each Milking. A good milker is clean and neat. He wears clean clothes, washes his hands before milking, and never squirts milk on his hands or on the floor. He milks his cows at the same time and in the same order every day. He never starts milking until the cows are clean and comfortably tied in clean stalls. He does not start until the fore-milker, stool, pails, strainer, cooler, and cans have been properly assembled, and until the milk house is fit to receive the milk. A good milker follows a definite well-organized daily routine.

Be at Ease When Milking. Sit squarely and comfortably on the milk stool and close enough to the cow so that you can reach her teats easily without strain. Hold the pail firmly between your knees. A good milker never cramps his action by sitting in an awkward position.

General Rules to Follow:

1. Be sure the cows are quiet, and comfortable, at milking time.
2. You must have the confidence of your cow. Be quiet, gentle, and steady in handling the cows.

3. Organize the equipment and follow a well-planned routine and time schedule at every milking.
4. Do not wash the cow's udder or otherwise stimulate her to "let down" her milk more than 2 minutes before you milk her.
5. Cows that leak milk should be milked first.
6. Milk each cow rapidly. Take advantage of the hormone in her blood that stimulates her to "let down" her milk.
7. Never practice prolonged stripping. It causes cows to "hold up" their milk.
8. Be patient and gentle with fresh cows or heifers. Don't alternate between hand and machine milking.
9. Follow the manufacturer's instructions when using a milking machine.
10. Watch each cow's udder closely. Remove the milker the moment the milk stops flowing, or when the teats pucker at the rim of the teat cup.

Managed Milking

If you follow a fixed plan known as "Managed Milking," most cows develop the habit of "letting down" their milk promptly and completely at each milking time. With Managed Milking in full operation you can usually milk a cow in 4 minutes or less. In Managed Milking, however, you should follow a well-planned routine. The cow and the milker must cooperate fully.

Steps to Follow in Managed Milking. Good milkers draw all the milk—including all the fat-rich strippings—from the udder quickly, quietly, and gently according to the following steps:

1. Assemble the cows in the barn so that you can milk in the same order and at the same time at every milking.
2. Assemble all the equipment and organize the routine so that you can go from one cow to the next as quickly as possible.
3. Starting with the first cow, dip a towel in hot sterilizing water. Wring out the excess water. Then immediately wipe the cow's udder and teats for **1 minute**. If necessary, dip the towel in the hot sterilizing water and apply it gently to the udder repeatedly to stimulate the cow to "let down" her milk. **Dry your hands.**
4. Immediately draw a few streams of milk from each teat into the strip-cup to detect any abnormal udder condition and to stimulate further the "let down" of milk.
5. Milk the cow immediately to take full advantage of the hormones that have been released in the cow's blood to cause her to "let down" her milk.

Managed Milking Equipment



- | | |
|-------------------------------|--|
| 1. Paper Towels | 8. Single Service Milk Strainer Pads |
| 2. Milk Weighing Scales | 9. Washing and Sterilizing Compounds and Scrub Brush |
| 3. Milk Strainer | 10. Pails for Washing and Sterilizing Solutions |
| 4. Milking Machine | 11. Milking Stool |
| 5. Extra Milking Machine Pail | 12. Small-top Pail |
| 6. Thermometer | |
| 7. Strip Cup | |

Note: Washing and sterilizing solutions should be kept at a temperature of 130° F. or above. Paper toweling or heavy cloth toweling, 18 inches square, may be used (Dairy regulations in some markets require one towel for each cow.)

6. When milking by machine, wash, massage, and test the next cow's udder with the strip-cup while her stable mate is being milked.

7. When the lower part of the udder becomes soft and flabby you know that the cow is about through milking. At this time pull down slightly on the teat-cup assembly with one hand; then gently massage the quarters with the other hand to force the rest of the milk down into the udder cisterns and into the teat cisterns.

8. When no more milk can be drawn out of the udder, carefully

remove the machine from the cow. Do not hand strip after removing the machine.

9. Transfer the head of the milking machine to the empty milker pail. Dip the teat cups in a pail of hot sterilizing water, and attach them immediately to the next cow.

10. Weigh and record the cow's milk. Take it immediately to the dairy house and filter it through cotton-felt disks into milk cans. Prepare the next cow while the milking machine is being used on her stable mate.

Do's and Don'ts in Caring for Milk Utensils

Milk spoils easily. Pay special attention to your dairy utensils. If they are not clean they may cause milk to spoil. Strain the milk and cool it to less than 50° F. Hold it at that temperature until you use it or send it to market. Bacteria will not thrive in cold milk. Always use single service cotton-felt filter discs for straining milk; don't use cloth strainers.

Be sure the pails, strainer, cooler, and cans are in good condition. Rusty spots, open seams, and sharp cracks and crevices in a pail or can might lead to trouble.

Always rinse each milk utensil with clean, cold water immediately after using it to remove any milk before it dries. Don't use hot water. It cooks the milk fast to the utensil.

Scrub each utensil thoroughly with a stiff brush and soapless washing powder. Use plenty of hot water when scrubbing. Never use a rag and soap to wash milk utensils.

Rinse each utensil in scalding water, preferably at boiling temperature—212° F. Hot water kills bacteria. It also makes utensils dry quickly and keeps them from rusting.

Turn the utensils down in a clean place away from dust, flies, birds, cats, dogs, mice, poultry, etc.

Just before each milking, rinse all the utensils including the cooler and cans in a chlorine solution.

HOW TO MAKE BUTTER

Butter is a valuable food. By using proper methods you can make excellent butter at home. More good butter should be made and used by Virginia farm families.

Steps in Making Good Farm Butter

1. Use only clean, good flavored cream. To produce clean milk and cream, milk clean, healthy cows in a clean place. Use sterile

Butter Making Equipment



- | | |
|---------------------------------------|---------------------------|
| 1. Butter Churn | 9. Butter Printer |
| 2. Cleaning and Sterilizing Compounds | 10. Measuring Cup |
| 3. Butter Ladles | 11. Sieve |
| 4. Scrub Brush | 12. Butter Cartons |
| 5. Wooden Spoon | 13. Butter Color |
| 6. Wooden Butter Spatula | 14. Butter Wrapping Paper |
| 7. Butter Worker | 15. Measuring Spoons |
| 8. Scales | 16. Thermometer |

NOTE: If butter worker is not available, a large wooden bowl or glass bowl will be satisfactory. When churn is not in use, keep a quantity of clean water in it to prevent cracking and open seams.

utensils. Cool the milk or cream immediately and hold at 50° F. or less.

2. Separate the milk: You can separate cream from milk best with a mechanical separator. If you do not have a mechanical separator, use the gravity method of separating cream. By this method you pour the milk into a "shot-gun" or deep-setting can (20" to 36" deep and 6" to 12" in diameter). The can should have a petcock or valve at the bottom and a glass mirror gauge extending 1 foot up the side from the bottom. Set the can of milk in cold water for 12 hours. Draw off the skim milk through the petcock, watching the cream line through the gauge. Never use the water-dilution or shallow pan method of separating cream.

3. Prepare the cream. Medium heavy cream, not over 3 days old, is best for butter making. When making sweet cream butter, cool

the cream to 50° F. or lower and hold at that temperature until churned. At this temperature you can hold cream 2 or 3 days before churning. Sweet cream makes the best butter. But if you plan to store the butter, you'll have to make it from pasteurized cream. Pasteurize the cream in a double boiler, holding the cream at 145° F. for 30 minutes; then cool it quickly to 50° F. or less. Keep sour cream at 60° F. or less, preferably no longer than 3 days, before churning. If you keep sweet cream at 70° F. to 80° F. for 12 hours it develops a pleasant acid flavor. Some people prefer this butter made from sour cream.

4. **Maintain proper churning temperature.** The proper churning temperature is 58° to 60° F. in summer; 60° to 62° F. in winter. Use a dairy thermometer. Keep the cream at the proper temperature for 2 hours before churning.

5. **Prepare the churn.** Scrub the churn thoroughly. Rinse with scalding water and then rinse thoroughly with cold water. Clean paddles, ladle, butter worker, and printer the same way.

6. **When to use butter color.** To give a uniform color to winter butter add 20 to 25 drops of butter coloring to the cream in the churn.

7. **How to churn.** Churn the cream slowly until the butter particles are the size of wheat grains. Then draw off the buttermilk through a fine strainer. Do not over churn.

8. **Washing, salting, working the butter.** Pour two pailfuls of fresh, clean water into the churn. Water should be the same temperature as the cream from which the butter was churned. Revolve the churn a few times; then draw off the wash water through the fine strainer. Repeated washing will make firmer butter. Remove the butter from the churn with the ladle. Weigh the butter, then place it on the worker or in a butter bowl. Sift over the butter three-fourths of an ounce of good salt per pound of butter. If you use table salt mix the salt with an equal amount of water in a cup. Then pour the mixture over the butter.

Work the butter by means of the lever on the butter worker or with a paddle in the butter bowl. Work butter until the salt is dissolved and evenly distributed in the butter. Do not over work the butter. If you do you're likely to have butter that's sticky, greasy, and leaky.

9. **Printing the butter.** If you plan to sell your butter, use the printer and paddle to mold it into 1-pound prints. Wrap it in standard butter paper; crease and fold the paper neatly over the ends of the print. Then insert the print into a standard one-pound butter carton. Butter for home use may be molded into any desired form such as the "cork", "country roll", or "round" print.

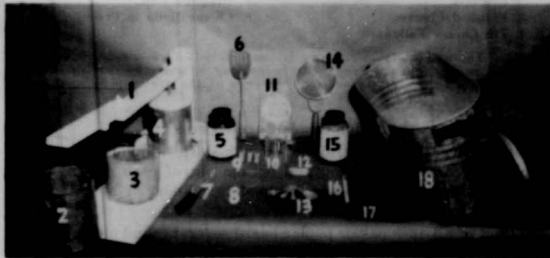
10. **Storing the butter.** Select a cool (50° F. or less) clean place, free of odors, for butter storage. A refrigerator free of odors; crocks partly submerged in cold spring water; or a clean, well-ventilated cellar in the winter may serve the purpose. Butter made from sour cream probably will not keep longer than two weeks under most farm conditions.

11. **Cleaning the equipment.** After the butter is made rinse the churn and other equipment with hot water to remove the butterfat; then scrub thoroughly with good washing powder solution. Rinse with hot water and store in a clean place until the next churning.

HOW TO MAKE AMERICAN CHEESE

American cheese is an excellent food. It is rich in food value. Cheese adds flavor to other foods and more nourishment to the meal. Farm families should produce and use more cheese. You can make with hot water and store in a clean place until the next churning.

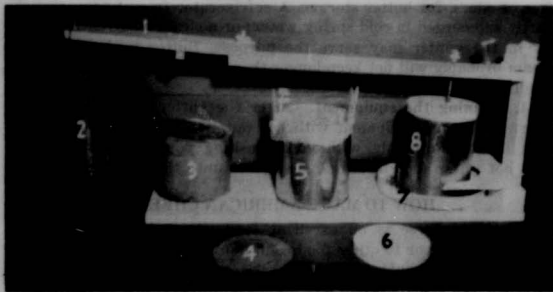
Cheese Making Equipment



- | | |
|--|-------------------------------------|
| 1. Cheese Press | 9. Clothes Pins |
| 2. Container Used for Adding Weight to Press | 10. Measuring Cup |
| 3. Finished Cheese | 11. Cheese Cloth |
| 4. Cheese in Press | 12. Cheese Color and Rennet Tablets |
| 5. Washing Compound | 13. Measuring Spoons |
| 6. Cake Turner | 14. Strainer |
| 7. Butcher Knife | 15. Sterilizing Compound |
| 8. Cross-wire Egg Beater for Cutting Curd | 16. Thermometer |
| | 17. Scrub Brush |
| | 18. Clothes Boiler and Lid |

Note: A tinned lard can or a large dish pan may be used in place of the clothes boiler, provided they are well-tinned and free from open seams and rust. Much of the equipment above may also be used for making cottage cheese in the home.

Cheese Press and Equipment



1. Cheese Press
2. Container for Adding Weight to Press
3. Finished Cheese
4. Tin Cheese Follower
5. Hoop with Cheese Cloth Lining
6. Wooden Follower
7. Draining Pan
8. Cheese Hoop in Press

Note: The wooden followers may be made from 1-inch oak or poplar board cut to fit snugly into the hoop. The hoops may be made by cutting out both ends of a No. 10 can or gallon can. The ends of the can may be used as the tin followers.

A Homemade Cheese Press

Obtain several clean, straight, smooth-sided 1-gallon tin cans or 5-quart oil cans. Cut the top and bottom out of each can. You will then have a smooth, sharp-edged, pipe-like cylinder or hoop in which to pack the curd.

Cut out of a 1-inch oak or poplar board several round pieces of wood (followers) just the right size to fit snugly into the hoop after the hoop has been lined with cheese cloth.

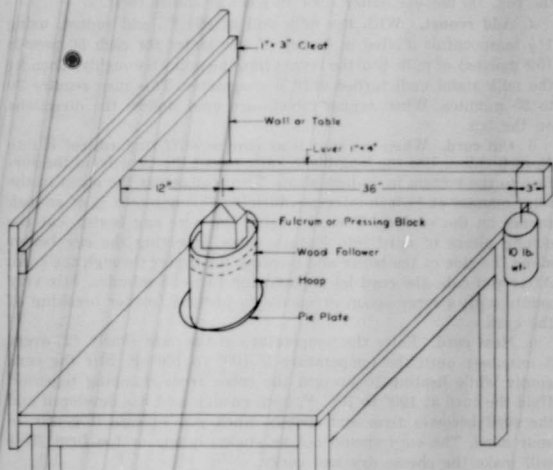
Rig up a press (see diagram on page 13), using a table or bench, a piece of 1 by 4-inch board about 4 feet long, a wedge-shaped pressing block and a 10-pound weight.

Steps in Making American Cheese

1. **Thoroughly scrub and scald all equipment.** Assemble and organize equipment so that you can do the work easily. To make good cheese you need clean, good quality materials; clean, well-organized equipment; and a clear understanding of how to do the job.

2. **Prepare the milk.** Fifty pounds (5.8 gallons) of whole milk will

Homemade Cheese Press



make about 5.3 pounds of cheese if the milk tests 4 percent butterfat. Higher testing milk will yield more cheese; lower testing milk will yield less.

Always use clean, good-flavored whole milk, preferably half the previous night's milk mixed with half the morning's milk. In any event, cool fresh milk to about 60° F. and keep at this temperature 3 or 4 hours in order to develop the right amount of acid for cheese making.

Heat the milk to 86° F. on the stove. Stir the milk slowly while it is heating. When using a coal or wood stove to heat milk, place the oven grate on top of the stove to keep the bottom of the milk container from touching the hot stove. Otherwise, you may scorch the milk. Hold the temperature of the milk as close to 86° F. as possible.

3. **Add coloring.** After the milk is heated, add $\frac{1}{4}$ teaspoonful of cheese color to each 50 pounds (5.8 gallons) of milk. Dilute the cheese color in a tea cup of water and stir the milk as the color is

added. When cheese color tablets are used, follow the directions on the box. Do not use butter color in place of cheese color.

4. **Add rennet.** With the milk still at 86° F., add rennet, using 1½ teaspoonfuls diluted in ¾ cup of cold water for each 50 pounds (5.8 gallons) of milk. Stir the rennet into the milk thoroughly. Then let the milk stand undisturbed until it coagulates. This may require 30 to 35 minutes. When rennet tablets are used, follow the directions on the box.

5. **Cut curd.** When the curd is as firm as stiff custard, cut it into ¾-inch cubes. Use the long-blade knife to cut the curd from the surface to the bottom in ¾-inch slices. Then cut across the slices in the same manner at ¾-inch intervals, forming oblong pieces ¾ of an inch square on the surface. Then, by using the wire egg beater, cut the oblong pieces of curd into ¾-inch cubes, inserting the egg beater along the side of the boiler and drawing the beater through the curd. After you cube the curd let it stand for 15 to 25 minutes. Stir very gently with a large spoon or paddle to prevent further breaking of the curd.

6. **Heat curd.** Raise the temperature of the curd slowly (2° every 5 minutes) until the temperature is 100° to 106° F. Stir the curd gently while heating to prevent the cubes from clumping together. Hold the curd at 100° to 106° F. until enough acid has developed and the curd becomes firm and spongy when you squeeze it gently in your hand. The curd should not be sticky, lumpy or too firm. This will make the cheese dry and corky.

7. **Drain off the whey, using a dipper and colander (strainer).** After the curd has settled to the bottom of the boiler, pour off the remaining whey by tilting the boiler and using the colander or strainer to prevent loss of curd. Stir the curd as it cools to 90° F., to keep the curd from clumping.

8. Add 4 tablespoons of salt to the curd from each 5 gallons of milk. Add ⅓ at a time, stirring well after each addition.

9. **Hoop and press the curd.** Line the hoop smoothly, holding cheese cloth in place by spring clothes-pins clamped on the hoop rim. Place a circular, unbleached cotton cap cloth in the bottom of the hoop. When the curd is cooled to about 85° F., put it in the hoop. Make sure the hoop is in a pan to catch the whey.

Put the cap cloth on top of the curd. Then put a wooden follower on top of the cap cloth. Next put the hoop in the press, using a 10-pound weight for pressure. After 10 minutes, adjust the hoop and increase the pressure. After about 60 minutes of steady pressure, the cheese is ready to be dressed.

10. **Dress the cheese.** Remove the hoop from the press. Pull

the cloth up at both ends to eliminate wrinkles from the sides. Fold the ends neatly to the center and trim them if necessary. Place cap cloths and followers in the hoop and then put the hoop into the press. Apply increased pressure for 20 to 24 hours.

11. **Remove the cheese from the press.** Examine the surface of the cheese for cracks. If there are any cracks, remove the cheese cloth; dip the cheese in warm water to soften the rind; wrap and put the cheese back into the press. In order to keep well in storage, the cheese should have a smooth, sound, clean surface when placed in the curing room.

12. **Curing.** Store the cheese in a cool, clean place that can be kept free from moles, insects, and mice. The best temperature for curing cheese is 50° to 60° F. A basement or spring house may be satisfactory for curing cheese. With proper temperature and moisture in the curing room, the cheese should form a dry rind in 3 to 6 days. While the rind is forming, the cheese should be turned and wiped off daily with a clean, dry cloth.

13. **Paraffin the cheese.** Cheese is paraffined to hold the moisture and to prevent mold growth in the cheese. When the surface of the cheese is dry enough, dip the cheese in paraffin that has been heated from 210° F. to 220° F. or until it smokes. It will take about 10 seconds for the paraffin to stick to the cheese surface. Use a shallow tin pan for the hot paraffin, rolling the cheese in the pan. If the cheese is properly made, cured, and cared for, it should have a firm body and a mild flavor at the end of 6 weeks. Let the cheese cure 3 to 5 months or longer if you want it to have a sharp flavor.

HOW TO MAKE COTTAGE CHEESE

Good cottage cheese is easy to make. Many farms have supplies of skim milk that should be made into cottage cheese for family use, either as a single food or in combination with other foods.

Steps in Making Cottage Cheese

1. **Prepare the milk.** Use only clean, high quality skim milk. If the milk is not skimmed much of the cream or butterfat will be lost in the whey. Put the skim milk in a clean, round, smooth-surfaced utensil that you can use throughout the cooking process. Do not use rusty, galvanized, or copper utensils.

2. **"Set" the skim milk.** Allow the milk to stand in a clean, warm place (75° F.) until it clabbers or becomes thick. This takes 14 to 16 hours. (You may have to add some clean-flavored, sour milk to hasten the process.) The clabbering process has gone far enough when the curd will break sharply when you put your finger into it. The flavor of the curd should be clean, sour, and pleasant.

3. **Cut the curd from top to bottom with a long knife.** Insert the blade vertically, cutting lengthwise, then crosswise, spacing the cuts about $\frac{1}{2}$ of an inch. Cut the curd into cubes by drawing a cross-wired egg beater through the curd. Now the curd is ready to be cooked.

4. **Cook curd.** Heat makes the curd firm and causes it to separate from the whey. Put the container of skim milk in a vessel of warm water and heat it gradually to 120° to 130° F. As the curd cooks, add to it as much warm water (125° F.) as there is whey in the pan. This water will sweeten the curd and make it easier to heat and stir. Stir the curd only enough to keep it from settling to the bottom and matting together.

If heated and stirred properly, the curd particles will hold their original shape. Drop a few cubes of curd into a cup of cold water. If they are firm and keep their shape, pour off the whey. Wash the curd at least twice in cold water to remove the whey and improve the quality of the cheese.

5. **Drain, salt and cream the curd.** Put the washed curd into a colander (strainer) or cheese cloth bag and let it drain 20 to 30 minutes. Do not drain too dry. Place the curd in a bowl, add sweet cream as desired, and salt to taste (about 1 teaspoon of salt per pound of the cheese). If the cheese is to be served in the granular form, stir the curd very little when you add the cream and salt. If the cheese is to be molded, work the curd with a spoon or butter paddle until it is as smooth as mashed potatoes.

Since it is easy to make cottage cheese, you should make it often so that you can serve it fresh. In any event, the cheese should be stored in an earthenware or glass vessel in a clean, cold place. If you plan to market your cheese wrap it in wax paper or put it in glass jars.

Uses for Cottage Cheese. Cottage cheese may be served in many delightful combinations. It is a good substitute for meat in your diet and will go well in salads and sandwiches, or in combination with nuts, bread crumbs, and seasoning as a baked loaf. Combined with fruit juices, especially maraschino cherry, honey, apple butter or fruit preserves, cottage cheese provides a tasty bread spread.

HOW TO MAKE CREAM CHEESE

Cream cheese is the easiest cheese to make in the home. It can serve as a spread or as a handy snack. The only equipment you need that is not ordinarily found in the kitchen is a tightly seamed muslin bag for draining and pressing the whey from the cheese.

Steps in Making Cream Cheese

1. Use only fresh, sweet cream of good flavor. Good-quality cream may be obtained by separating or skimming fresh, clean, whole milk.

Cream may be skimmed from milk by means of a "shot-gun" or deep setting can (26" to 36" high and 6" to 12" wide) with a petcock at the bottom and a glass mirror gauge on the side extending one foot up from the bottom. Pour the fresh milk in the can, and then set the can in cold water for 12 hours. Be sure the cold water is kept cold and is at the same level as the milk in the can. Draw off the skim milk through the petcock, watching the cream line through the glass gauge.

2. Warm the cream to 70°-80° F., using the lower temperature in warm weather. Add $\frac{1}{2}$ cupful of commercial buttermilk culture or clean-flavored clabbered milk to each 10 pounds of cream. Coloring is not required. If a richer color is desired, 20 drops of liquid cheese color or $\frac{1}{4}$ cheese color tablet will be sufficient for 10 pounds of cheese. Use rennet to curdle the cream. Add rennet at the rate of 1 teaspoon or $\frac{1}{4}$ tablet to 10 pounds of cream. Mix the rennet with $\frac{1}{2}$ cup of cold water before pouring it into the cream. Mix the rennet well with the cream. Allow the cream to set at room temperature from 4 to 6 hours. Then it should be coagulated and ready to drain.

3. Ladle or pour the coagulated cream into a tightly-seamed muslin bag. Hang it up in some cool place and allow the whey to drain overnight. The following morning, place the bag of curd between two boards and place a weight on the top board. As the whey drains from the curd, increase the weight. Press until the curd has a firm pasty consistency.

4. Remove the pressed curd from the bag and add salt at the rate of 1 to 2 teaspoonfuls per pound of curd. Mix the curd and the salt thoroughly. This will not only distribute the salt evenly, but will also produce a smooth body in the cheese. Mold the cheese into any desired form; wrap it carefully in wax paper or foil, and store it in the refrigerator until needed.

Cream Cheese Spreads

Relish Spread

1 pound of cheese curd (unsalted)
2½ ounces relish
½ ounce of sugar
1 tablespoonful white vinegar
10 drops cheese color
1 ounce salt

Olive Spread

1 pound cheese curd (unsalted)
3½ ounces ground olives
1 tablespoonful white vinegar
1 ounce salt

Pimento Spread

1 pound cheese curd
2½ ounces ground pimento
1½ teaspoonfuls of white vinegar
½ ounce sugar
20 drops cheese color
1 ounce salt

Pineapple Spread

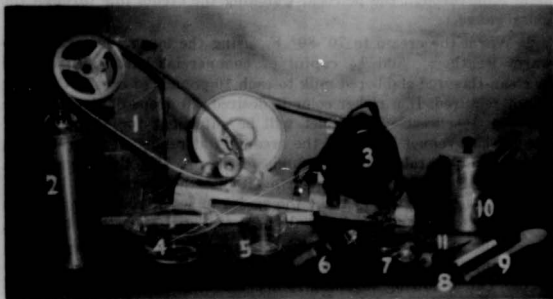
1 pound cheese curd
3½ ounces ground pineapple
½ ounce sugar
1 ounce salt

HOW TO MAKE ICE CREAM

Ice cream and other frozen milk desserts are universally popular as delicious foods. They are also rich in food value.

Frozen desserts are easy to make in your home.

Ice Cream Making Equipment



1. Ice Cream Freezer
2. Ice Cream Mix Container
3. Motor
4. Mixing Bowl
5. Measuring Cup
6. Egg Beater

7. Measuring Spoons
8. Thermometer
9. Wooden Spoon
10. Double Boiler
11. Ice Pick

Steps in Making Ice Cream

(Will make about 2 quarts)

Ingredients: Gelatin, sugar, salt, eggs, milk, thin cream, flavoring.

1. Add 1 teaspoon of gelatin to 2 cups of cold milk. Let it set for 3 or 4 minutes. Heat in the double boiler to 180° F., stirring until gelatin is dissolved.

2. Mix in a mixing bowl 1 cup of sugar, $\frac{1}{4}$ teaspoon of salt and add to 2 beaten eggs.

3. Pour the hot mixture of gelatin and milk gradually into the mixture above, stirring constantly. Pour mixture back into the double boiler and cook. Stir constantly until mixture begins to thicken; then cool.

4. Add 1 quart of cream and 1 tablespoon of vanilla or sufficient amounts of other flavoring material such as chocolate, coffee, butter-

scotch, lemon, orange; fresh, canned, preserved, dried or candied fruits and berries; macaroons, sweetened wafers and cakes; nuts of various kinds; dry cereals; and candies such as caramels, peanut brittle, peppermints and wintergreens.

5. Pour the mixture into the freezer container. Allow for expansion; do not fill the container more than two-thirds full.

6. Cover the container and surround it with alternate layers of crushed ice and rock salt, using 6 parts of ice to 1 part of salt.

7. Turn the crank slowly for 3 or 4 minutes, then turn it rapidly until the mixture is stiff and the crank is hard to turn.

8. Remove the dasher, scrape it off, and push the ice cream down into the container with a spoon.

9. Cover the top of the container with wax paper, replace the cover, and cork up the hole in it.

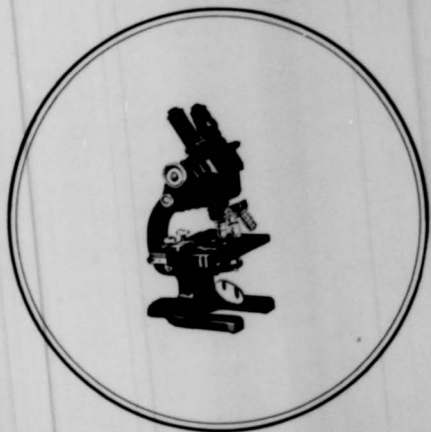
10. Drain off the melted ice and repack with ice and salt. Cover the whole freezer with an old piece of carpet or newspapers to keep ice from melting fast.

11. Let the ice cream stand at least 3 hours to ripen and mellow. If necessary, drain off the melted ice and repack as before.

12. If the housewife wants to keep a supply of ice cream for future needs, she can transfer it to ice trays and put it in the freezing compartment of the refrigerator to harden.

13. You can get formulas for other types of ice cream and various other frozen desserts from the Dairy Extension Office of V.P.I., Blacksburg, Virginia.

*For
Quality Milk
Control:*



THE MICROSCOPE

Bulletin 221

October 1954

V.P.I. Agricultural Extension Service
Blacksburg, Va.

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Virginia Polytechnic Institute and the United States Department of Agriculture Cooperating: Extension Service, L. B. Dietrick, Director, Blacksburg, Va.

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QUALITY MILK PRODUCTION AND ITS CONTROL THROUGH MICROSCOPIC OBSERVATION

By Guy J. Nageotte, *Associate Extension Dairyman*
Virginia Polytechnic Institute

To maintain a high quality milk supply, the dairyman and milk plant operator must use the microscopic count method to determine the approximate number, type, and probable source of bacteria in raw milk. With the aid of the microscope the dairyman and milk plant operator can locate sources of bacterial contamination and make corrections before the milk supply is endangered.

What Are Bacteria?

Bacteria are microscopic, single celled plants found nearly everywhere. They exist in the form of spherical (ball-shaped), cylindrical (rod-shaped), and spiral (corkscrew-shaped) cells. In dairy products, the ball-shaped and rod-shaped bacteria are most common. They appear through the microscope as separate cells, or pairs of cells. Many bacteria together may appear in groups as short and long chains, as bunches like grapes, or as solid masses.

Bacteria have no sex. Each cell reproduces itself by dividing to form two complete cells. The growth of bacteria is influenced by the food supply, moisture, atmosphere, chemical and physical environment, and temperature. Under ideal living conditions, bacteria divide every 20 minutes. Under less favorable living conditions, the time between bacteria generations becomes greater.

Significance of Bacteria in Milk

Good quality milk comes from healthy cows. It is free from dirt and off-flavors. Small numbers of bacteria are permissible in milk if such bacteria are harmless to health. Milk containing large numbers of bacteria spoils quickly. High quality milk contains comparatively few bacteria. The Virginia Milk and Cream Law requires that Grade "A" raw milk for pasteurizing must not exceed 100,000 bacteria per cubic centimeter. Compared to numbers possible when milk is produced under adverse conditions, this number of bacteria is few. Bacteria counts below 20,000 per cubic centimeter are exceptionally good and indicate strict adherence to the basic principles of quality milk production.

Bacteria live on different foods. Some digest fat; others, protein. Still others change milk sugar into lactic acid. Properly controlled bacteria are useful for making cultured milk and a great variety of cheeses.

Sources of Bacteria in Milk

Bacteria may get into milk from many sources. These sources may be grouped as follows: (1) interior of the udder, (2) utensils, (3) coat of animal, (4) stable air, (5) people, and (6) miscellaneous sources.

Interior of the Udder

Milk from healthy udders normally contains few bacteria. The fore-milk drawn first, contains more bacteria than the milk drawn last.

Because of the rigid dairy sanitation regulations, disease eradication programs, and milk pasteurization, human diseases originating from infected udders are not common. Few Virginia cities permit the sale of raw milk except under close supervision by the health department. Milk-borne diseases are very rare, occurring occasionally on farms where raw milk is used. Many farm families use efficient electric pasteurizers for their home milk supplies.

Mastitis can afflict many dairy cows. Milk drawn from masti-



FOR EXAMINATION always draw the first few streams of milk from each quarter into a strip cup. Flakes or deposits on the strip cup screen are danger signals that the udder is abnormal.

tic udders must not be marketed. Mastitis can cause permanent injury to the cow's udder, reduce milk production, and sometimes kill the animal. Most dairymen are constantly on the alert to detect mastitis in its earliest stages. They use a strip cup before each milking. Periodically, some dairymen have the milk from each cow examined microscopically by the technicians of the Virginia Diagnostic Laboratory. Any dairyman who wants to avail himself of the services of the Virginia Diagnostic Laboratory should get prior instructions from the laboratory technician on how to furnish milk samples for laboratory examination.

Many types of bacteria can cause mastitis. Streptococci (long chains of ball-shaped cells) cause mastitis most frequently. Staphylococci (larger ball-shaped cells that do not form chains) occur less frequently but do greater damage to udder tissues. Large numbers of leucocytes (white blood cells) are usually present in milk from mastitic udders. A competent laboratory technician with a good microscope can examine a properly drawn sample of milk from a mastitic udder and determine the type and seriousness of the infection. Also, he probably can identify the particular bacteria responsible for the mastitis. With this type of information the veterinarian can prescribe a definite course of treatment.

Sulfa drugs and antibiotics may be useful in combating mastitic infections, if the causative organism of the mastitis is known. Milk from any quarter, treated with such drugs, must not be marketed until three days have elapsed since the final treatment. A trace of these drugs will also kill desirable bacteria in milk and thus will make the milk unfit for use in making cheese and cultured milk drinks.

It is far better to prevent mastitis by proper herd management than to try to cure it. Curing mastitis is usually expensive. No mastitis cure is certain.

Utensils

Dirty utensils and equipment with which milk comes in contact are the most serious sources of milk contamination. Careless washing of milk utensils and equipment permits layers of milk stone and other deposits to build up in the equipment. These deposits usually harbor great numbers of bacteria. Milk deposits destroy the bacteria-killing properties of chemical sterilizers.

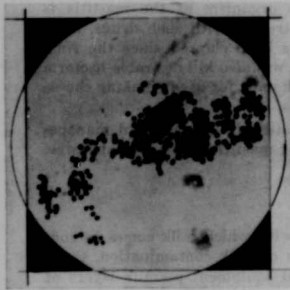
Does Your Milk Look Like



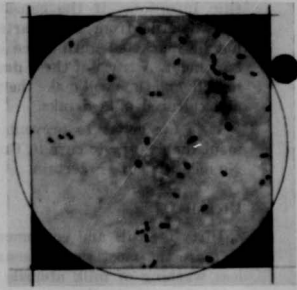
MASTITIS—This sample of milk came from a cow with mastitis (garget). This is indicated by the presence of the chain type bacteria and the blood cells which appear as large dark areas.



DUST CONTAMINATION—This sample of milk shows the result of dust contamination. This trouble can be avoided if care is used not to stir up a dust in the barn at milking time.

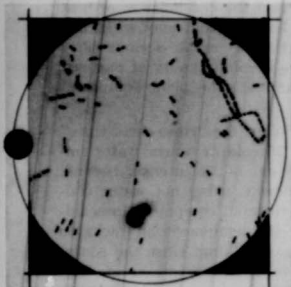


POORLY CLEANED UTENSIL — This sample of milk came in contact with a poorly cleaned utensil. These bacteria are often heat resistant and cause high counts after milk is pasteurized.

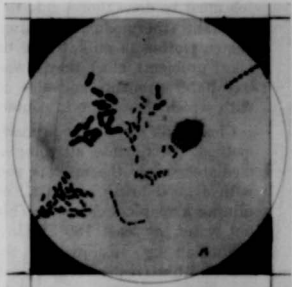


POOR COOLING—This sample of milk shows the result of poor cooling. This type of bacteria, which causes sour milk, grows rapidly in warm milk.

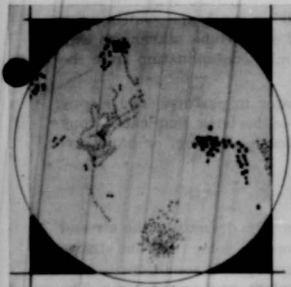
s Under The Microscope?



POOR PRACTICES—This sample of milk shows many types of bacteria which came from a combination of poor practices. However, the most common source of trouble here is poor cooling.



DIRT ON THE COW'S UDDER—This sample of milk shows many types of bacteria which came from dirt on the cow's udder or improperly cleaned utensils or milking machines.



MANURE CONTAMINATION — This sample of milk shows the result of manure contamination. This trouble can be avoided by using good practices.



MILKING MACHINE — This sample of milk shows many types of bacteria which came from a combination of poor practices including contamination from air-lines of the milking machine.

Photographs Courtesy of the Scallest Dairyman

Dirt in open seams, cracks, dents, and scratches of milk equipment, in the worn and cracked rubber parts of milking machines, in suction hoses, or in milk pipe lines may contaminate milk.

When steam or hot water is used to sterilize milk utensils, the job must be done thoroughly to prevent the development of heat resistant (thermoduric) strains of bacteria that may withstand pasteurization in milk. These bacteria may create serious dairy plant problems, since they lower the keeping quality of pasteurized dairy products and also contaminate the plant equipment with which they come in contact.

Clean milk equipment properly. Follow the "rinse-clean-rinse" method. First, rinse all equipment in cold or warm water immediately after the milk is poured out of the utensil. Second, with a good brush, scrub all equipment, using hot water containing a soapless cleanser. Third, rinse all equipment in scalding water, at least 180°F. Invert the equipment on racks to drain and dry. Just prior to the next milking, rinse the equipment with a fresh sanitizing solution.

Hair-coat of the Animal

Any foreign material that gets into milk may introduce large numbers of bacteria causing rapid spoilage. Prevent this type of milk contamination. Keep the cows clean. Clip the long hair from each cow's udder, belly, and thighs. Brush each cow daily. If necessary, wash her. At each milking, wash and sanitize each cow's udder. Clean dry bedding and comfortable stanchions help to keep cows clean and to prevent milk contamination from the coat of the animal.

Swamps or stagnant pools of water in pastures, and sloppy loafing areas are serious sources of bacteria that cause rropy milk. Eliminate such areas by drainage, fencing, or hard surfacing.

Air Contamination

Dust in the air can carry bacteria. The dryness of the air and direct sunlight may kill bacteria. However, some resistant strains of bacteria may withstand severe atmospheric conditions to contaminate milk on the farm, in the plant, and in the home. The dairyman may reduce the danger of milk contamination from the air by selecting a proper time, preferably after milking, for doing those chores that stir up dust.

Contamination from People

Milk contamination is determined largely by the dairy knowledge, skill, and habits of the people who handle the milk. Each person's body and clothing must be clean. The milk must be kept in covered containers. The person must follow the prescribed methods of managed milking and rigidly enforce the principles of dairy sanitation throughout the milk handling operation. The human source of milk contamination becomes a minor consideration when these basic principles of quality milk production are followed.

Miscellaneous Sources of Contamination

Miscellaneous sources of milk contamination include those peculiar only to certain lots of milk. Examples of such sources are flies dropping into milk, water in milk coolers splashing into milk, visitors coming in contact with the utensils or milk, and utensils improperly cleaned after being accidentally dropped.

When flies are not controlled and milk is exposed to the filth they carry, there is danger of serious contamination. The control of flies by effective spraying and screening and the proper disposal of manure are imperative for high quality milk.

The Effectiveness of Straining Milk

Straining the milk does very little to lower the bacteria count because bacteria are too small to be removed with a strainer. Straining may remove insoluble dirt, the visible evidence of unsanitary conditions and sloppy methods. When appreciable amounts of dirt accumulate on the strainer pad, continued straining through the same pad breaks up the dirt particles, partially dissolves them, and washes more bacteria into the milk. Single-service milk strainer pads must be changed frequently. If the single-service milk strainer pads are dated and allowed to dry, they can be kept as evidence for measuring any efforts to produce cleaner milk. Clean strainer pads should create pride in the accomplishments of any milk quality improvement program.

Cooling Milk

Bacteria thrive in warm milk. Poor cooling is a cause of high bacterial counts in milk. When milk is not delivered to the plant within three hours after milking, it should be cooled within one hour to 50° F. or lower to retard bacterial growth.

Two to four hours after milking, milk normally goes through a period during which bacteria do not grow, even when conditions are most favorable. This is called the "lag period." In some cases, the bacteria counts decrease, giving some observers the belief that milk possesses germicidal properties. The length of the lag period depends upon the degree of bacterial contamination and the temperature of the milk. Mass contamination and favorable growth temperatures shorten the lag period. At temperatures near freezing, the lag period may last as long as 24 hours. Dairymen should take advantage of this natural attribute of milk by cooling it promptly to a low temperature.

Determining the Bacteria Count of Milk

The numbers of bacteria in milk can be measured by several methods. The two most accurate methods used are the Standard Plate Count Method and the Microscopic Count Method.

Standard Plate Count Method

The Standard Plate Count is an accepted method for determining the number of bacteria in dairy products, accomplished by growing the organisms on a standard food medium at a temperature of 98.6° F. for 48 hours. The number of bacteria is computed from the number of colonies that are visible to the eye.

The Plate Count is most useful for determining the approximate number of bacteria in low bacteria count raw milk and in pasteurized milk. Although it is of some value in determining the approximate number of bacteria in high bacteria count milk, the Plate Count is less suitable than the Microscopic Count for use in quality control programs for the following reasons:

1. The Plate Count is not accurate, because not all bacteria present will grow to visible colonies in 48 hours. Some bacteria find the medium, incubation temperature, and oxygen relations unsuitable for growth. Also, in most cases, colonies originate from clusters of bacteria rather than single cells. The actual number of bacterial cells in the milk may have been from 2 to 25 times the number of colonies observed on the incubated plate.

2. The results of the Plate Count are frequently not available until after the milk has been consumed. The test is too time-consuming.

3. Specific information regarding species is not furnished by the Standard Plate Count Method. With most organisms, colony

appearance does not identify the types of bacteria. Therefore, though general conditions of production and handling of the milk are evident, no prompt conclusion can be drawn regarding the identification and correction of sources causing the high counts.

Microscopic Count Method

The Microscopic Count Method overcomes some of the disadvantages of the Standard Plate Count Method. It has its limitations, however, since it cannot be used, in a practical sense, to determine the number of bacteria in low bacteria count raw milk and in pasteurized milk.

The Microscopic Count consists of the microscopic observation of a "smear" (a film of .01 ml. of milk spread, dried and stained on 1 sq. cm. surface of a glass slide). (Consult most recent edition of "Standard Methods of Milk Analysis.")

The Microscopic Count has many advantages over the Standard Plate Count:

1. The results are quickly obtainable. A count can be obtained in 15 to 20 minutes, making possible prompt removal of contaminating sources in high count milk.

2. A microscope is the only expensive equipment required for the microscopic count method, whereas expensive incubators, sterilizers, and glassware are required for the Plate Count Method. Less labor is required to use the Microscopic Count Method. For these reasons, the Microscopic Count Method is cheaper to use than the Plate Count Method.

3. Counts can be obtained more accurately, since with a microscope a count is made of the stained bacterial cells actually present in the milk.

4. The species or types of bacteria present in the milk may be identified. This is valuable for determining the cause or source of milk contamination. Persons familiar with the organisms commonly found in milk can recognize with considerable accuracy types of bacterial contamination from various sources, including organisms coming from infected udders.

5. The number of body cells (leucocytes or white blood cells) in milk can be determined. Excessive body cell counts indicate udder injuries or infections due to mastitis, particularly when they are associated with large numbers of bacteria.

The Application of the Microscopic Count

The Microscopic Count Method can be of considerable value to both the dairyman and the dairy plant operator. If the method is included in the quality control program of the plant laboratory, periodic microscopic examinations of the milk from the farms of its patrons can be performed. In a reasonably short time after the samples are taken at the weigh-tank, the experienced technician is able to give the fieldman information concerning the approximate number of bacteria per milliliter in each producer's delivery of milk.

If there are excessive counts, the technician can indicate the probable source of contamination; that is, whether the high count is due to dirty utensils or methods, inefficient cooling, or infected udders. If the udders are infected, the technician can tell the probable type of bacteria responsible for the infection. This will aid the veterinarian in prescribing the type of treatment necessary. With this information, the fieldman has little difficulty in locating the source of contamination and correcting it before it causes serious loss. Such a program will enable the dairy plant operator to build up a supply of clean wholesome milk. His customers will have confidence in the milk and dairy products from the local plant.

The photographs in center of bulletin illustrate the types of bacteria seen under the microscope when the bacterial contamination is due to the various causes.



how to make



Cultured

milk
products

Making Cultured Buttermilk on the Farm

Cultured buttermilk is usually made of skim milk which is soured by the addition of lactic acid bacteria under proper conditions. Whole milk buttermilk or part whole milk and part skim milk, made by the same process, will make a product that has a better flavor and appearance, and rightfully demands a higher price.

The procedure for making cultured buttermilk in city milk plants usually involves the propagation of a "mother" culture, which is the basis for the plant or "commercial" starter. Steps in making the "mother" culture, although simple, require equipment and detailed work that are usually not practical for the farm dairy. For that reason it is recommended that a quart of commercial starter be purchased from a milk plant to be used as the culture in the first inoculation in the manufacture of the farm product. If the commercial starter is not available, a pint or quart of a high quality product, suitable for inoculating the can or vat of milk, can be purchased from dairy supply laboratories. However, since the propagation of a "mother" culture may be desirable or necessary in some cases, the following directions are given:

Making the "Mother" Culture or Starter

Secure a pure culture, either in liquid or powder form, from one of the dairy supply houses or culture laboratories.

First Day's Procedure:

1. Fill a clean, scalded, quart milk bottle or fruit jar two-thirds full of fresh, clean milk. Double cap, plug the bottle with absorbent cotton, or cover with parchment paper.
2. Heat the bottle and contents to 180°F. or above in hot water or steam for not less than one hour. Do not put a thermometer in the bottle. The temperature may be judged by the temperature of a bottle of water heated along with the milk.
3. Cool the bottle of milk to 70°F.
4. Pour the entire contents of the purchased culture into the bottle of cooled milk, cover the bottle and mix thoroughly by giving it a swirling motion. Do not allow milk to come in contact with the cover.
5. Hold the bottle at a uniform temperature of 68°F. to 72°F. until the milk is curdled, which usually takes from 12 to 16 hours. The coagulum at this time should be firm and free from gas or whey. After curdling takes place, cool in ice water and set in a cool place, 50°F. or lower, until ready to use.

Second Day's Procedure:

1. Heat two or three bottles two-thirds full of milk, cover and cool as outlined for the first day.
2. Open the first day's culture and pour off the top inch. Cover the bottle again and shake thoroughly to break the curd. Use a scalded spoon and transfer one teaspoon into each of the newly prepared bottles.
3. Hold these bottles at 68°F. to 72°F. until curdled; then cool and store in ice water.

Third Day's Procedure:

1. Prepare bottles the same as for second day.

2. Open the previous day's bottles and pour off the top inch, as before. Cover and shake until contents are smooth. Examine by tasting, using a scalded spoon (then dip the spoon in scalding hot water after each tasting). Select the starter which has the cleanest flavor and transfer one teaspoonful to each of the newly prepared bottles.

Hold as before at 68° F. to 72° F. until curdled; then store in a cold place. Additional transfers should be made daily, following the same procedure. After the transfer has been made, the mother starter can be used to inoculate the large starter or for making the cultured buttermilk.

Making Cultured Buttermilk

In the manufacture of cultured buttermilk, a pure culture of lactic organisms in the form of an active starter is required. The starter can be prepared as described above, or can be purchased from a commercial laboratory or milk plant. If proper precautions are observed, the small operator may purchase the starter, inoculate a can of milk by the method described below, and save a starter from that to be used the following day. With this procedure it is desirable to bottle one or two quarts in sterile bottles and store in a cool place where it will not be contaminated.

Steps in Making the Buttermilk:

1. Sterilize a well-tinned ten-gallon can by placing it over a steam jet or in boiling water.
2. Use fresh skim milk or whole milk. Do not fill can completely full since expansion due to heat will cause it to overflow.
3. Place can in tank or tub that has both steam and cold water connections. The overflow should be 4 to 6 inches below top of can. (A wood barrel can be sawed off to make a satisfactory tank).
4. Heat milk to 180° F. and hold at this temperature for one hour. Cool with water or ice to 70° F.
5. Add one pint of high grade starter and stir well with sterile utensil.
6. Allow to set, undisturbed, in room with uniform temperature or in a water tank, at 68° F. to 72° F. for 12 to 16 hours, in which time it should thicken or coagulate, and should have a clean acid flavor.
7. Cool to 50° F. or below by placing can in ice water or cold storage room. If stirred at all during the cooling process, it should be stirred only enough to hasten the cooling.
8. If lumpy after cooling, the buttermilk may be poured through a wire gauze strainer after which it is ready for bottling and delivery to the trade. Straining is usually not necessary.

A pint of this buttermilk may be used as a starter for the next batch. However, if this procedure is used, it will probably be necessary to secure a new starter each week. If the buttermilk has an undesirable flavor or body, it should not be used for starting a new batch.

After it is bottled, cultured buttermilk should be refrigerated and kept cold the same as any other milk. The same sanitary regulations as applied to fresh milk should be observed.

Cultured Cream

Cultured cream, more commonly known as Jewish or commercial sour cream, consists of cream treated and soured in such a manner that a clean sour flavor is produced. It has body enough to be used as a spread.

Many European peoples have for ages used sour cream as a common food in their daily diets. American distributors in cities serving large populations of people of European origin have found good markets for this product. Since its introduction its popularity has gained rapidly in this country.

Cultured cream, properly made, has a mild acid flavor and a smooth body. Its content of butterfat, protein, carbohydrates, minerals and vitamins will provide a large portion of the daily body requirements of these nutrients.

Cultured cream can be made very easily in the home using the following procedure:

1. Fresh sweet cream containing about 20% butterfat should be used.
2. Add 3 tablespoons of non-fat dry milk to each quart of cream used. Mix it thoroughly with the cold cream until all the lumps have disappeared.
3. Pasteurize the cream by heating it in a double boiler to 180°F. Hold it at that temperature for at least 10 minutes. Cool quickly to 70°F.
4. Add to each quart of pasteurized cream 3 tablespoons of fresh clean-flavored clabbered milk or cultured buttermilk. (May be obtained from local dairy or grocery store). Mix well and allow to ripen at 70°F. until sour. Ripening will require 6 to 10 hours depending upon the activity of the clabbered milk or cultured buttermilk. Fresh starter is more active, and less time will be required to ripen the cream.
5. When the desired acid flavor has been obtained, place the cultured cream in the refrigerator to age for 12 to 24 hours. Aging increases the thickness of the cream and makes it more desirable for spreading. Do not agitate the sour cream. Otherwise, it will lose, and never regain, its thick body. The cream may be added to the final container after the starter has been added. If the ripening and aging process is carried out in these containers, excessive agitation will be prevented.

Cultured cream has many uses. It may be served plain; as a topping with berries or fruits; with maple syrup, jam, jelly, honey; or as a snack spread when seasoned with salt and chives or chopped green onion. Cultured cream finds many uses in recipes. Good examples are:

Salad:

Cucumber Salad with Sour Cream

Slice cucumbers very thin in dish, salt to taste and let stand for awhile. Sprinkle with lemon juice and pepper to taste. Serve with sour cream as dressing.

Spread:

Sour Cream and Cottage Cheese Spread

Mash cottage cheese till smooth and add enough sour cream to give good spreading consistency. Salt to taste. Mix in finely grated onion or chives and enough paprika to give the spread a pink color.

Main Dish:

Chicken a la Cayenne

Put flour and salt in a paper bag. Shake pieces of fairly dry chicken in the bag until lightly coated. Remove chicken from bag and season lightly with black and cayenne pepper. Fry chicken in cooking grease until lightly brown (not crisp) on both sides. Add one tablespoon of flour to grease and stir until well mixed. Add enough water to make gravy. Cover and allow to cook slowly until chicken is tender. Before it is quite tender enough, add more cayenne (to suit taste) and one cup of sour cream. Turn the heat low and simmer for at least 20 minutes till cream becomes integrated with the other flavors. Note: If your family does not prefer hot-flavored dishes, use paprika in place of cayenne.

Dessert:

Pancakes or Doughnuts with Sour Cream

Serve pancakes (yeast or baking powder) or doughnuts topped with blueberries or jam. Sprinkle with finely grated dry cottage cheese and top with a heaping spoonful of sour cream.

A METHOD FOR MAKING YOGURT IN THE HOME

Yogurt is a coagulated, sour custard made from fresh, whole milk, with added solids, either from dry skim milk or evaporated milk. Yogurt is a popular dairy food in Southeastern Europe, Southern Asia and Northern Africa. The practical advantage of eating Yogurt daily is shown by the health record of the Bulgarian people, to whom no meal is complete without yogurt. Bulgarians are most noted for their longevity. In their census, 1500 persons per million were 100 years old or older as compared to 9 per million in America.

Yogurt can be made very easily in the home using the following procedure:

1. Add 1 ounce of dry skim milk or one 13 ounce can of evaporated milk to 3/4 qt. of clean fresh milk in the top part of a double-boiler.
2. Heat the fertied milk to 190° - 205°F. and hold it at that temperature for one hour.
3. Cool the milk to 120°F. and pour into a quart jar or other suitable clean container. Cool to 110°F.
4. Add 3 tablespoonfuls of Yogurt milk inoculant or starter and mix well. Place the jar in a water-bath at 108°F. and allow the milk to ripen at that temperature until it is thick. The ripening period requires 3 1/2 to 5 hours.
5. Remove the ripened milk from the water-bath and and place it in the refrigerator to chill and store until needed.

Yogurt may be eaten plain as custard with berries, peaches, or apple pie, or seasoned with salt and chives, chopped green onions; or as a topping for fruit, or served with honey, maple syrup, jelly or molasses. It can be stirred and used as a thick drink or diluted half and half with various fruit juices. Yogurt may also be substituted for salad oils and dressings in low calorie diets. Anyone who likes buttermilk will like yogurt.

*Yogurt milk inoculant or starter used may be Yogurt milk obtained either from the local grocery or dairy. It is best to obtain fresh cultures often to assure good flavor and aroma.

Guy J. Nageotte
Dairy Products Specialist
V.P.I., Blacksburg, Virginia
July 1954

STORE MILK PRODUCTS AT HOME

Concentrated milk products such as butter, cream, ice cream, cream cheese and aged cheeses can be stored at home by the modern homemaker. These delicious foods contain part or all of the easily digested fats, proteins, sugars, minerals and vitamins found in nutritious whole milk. Since they are concentrated, they are more easily and economically stored than whole milk which is too bulky to store in large quantities.

Milk products stored at home are convenient for the homemaker because:

- 1) Surplus milk can be stored for use when milk production is low. A constant supply of the nutrients that milk provides can be maintained the year round for better family nutrition.
- 2) Dairy products, which are highly perishable, can be preserved for a long time without spoiling.
- 3) Large amounts of dairy products can be made and stored at one time, permitting the homemaker more free time for other activities.
- 4) Large amounts of stored dairy products are available when unexpected guests or other emergency needs arise.

Important Factors To Be Considered

The quality of the milk, from which dairy products are made for storage, is important. Only fresh, clean, good flavored milk should be used. Inferior products, made from inferior milk, spoil quickly.

Products made from pasteurized milk or cream have superior keeping qualities. Milk or cream can be pasteurized by two methods in the home: (1) Heat to 143°F. and maintain this temperature for 30 minutes, then cool; or (2) Heat to 165°F. and cool immediately. Stir the milk constantly when direct heat is applied to the milk container. Milk or cream pasteurized in double boilers requires very little stirring.

Pasteurization kills 90-95 percent of the bacteria that cause spoilage in raw milk. Pasteurization also inactivates the natural enzymes that cause off-flavors in stored dairy products. Pasteurization of milk or cream will maintain freshness. Two or more days' supply of sweet milk or cream can, therefore, be accumulated before processing.

Storage of Butter

Butter that keeps fairly well can be made from cream that has ripened to a mild acid flavor. Superior keeping qualities will be obtained, however, if only

pasteurized sweet cream is churned. Butter can be stored in brine or in cold storage.

Brine Storage

Make a saturated brine solution by dissolving one part of salt in three parts of water.

Wrap roll or print butter in parchment paper to prevent sticking of rolls or prints during storage. Pack the butter in earthenware crocks or wooden tubs which have been thoroughly scalded and cooled. Cover the butter completely with the saturated brine solution, and place a weight on top to keep the butter fully immersed. Store in the coolest place available. If butter is kept in a cellar during the warm summer, it should be moved in the fall to a place where it will be exposed to cold winter weather. Butter, stored properly, will keep for 6 months in brine without becoming strong or rancid.

Cold Storage

Butter keeps best in cold storage when held at a constant temperature below 10° F., or better still, below zero. Home freezing units and community cold storage lockers usually provide the needed low temperature, and are therefore excellent places to store butter.

Use storage space economically by printing butter in rectangle blocks that can be packed closely, leaving no space between them. Each block or print must be wrapped in parchment paper to protect the surface of the butter from off-flavors in the air. Sweet cream butter, stored at 0° F. for 6 months usually shows no noticeable deterioration.

Cream Storage

In the storage of frozen cream, it is necessary to observe all known precautions to prevent the development of off-flavors. Off-flavors likely to develop in frozen cream are rancid, fishy, oily and tallowy flavors.

Only fresh sweet cream should be used. Separate cream in a mechanical separator to a fat content of about 30 percent, or skim the milk very carefully so the fat content of the cream will be as high as possible. Pasteurize the cream by holding it at 150° F. for 30 minutes. Cool at once by placing the container of cream in a larger container of ice water. When cool, pour the cream into clean, well-tinned cans that can be tightly sealed to prevent moisture loss and absorption of off-flavors. Store at once in the deep freeze at a temperature of 0° F. to -10° F.

Frozen cream, if handled correctly, will retain its good flavor for several months. Freezing and thawing of stored cream will destroy the normal butterfat emulsion. Thawed cream will, therefore, have a mass of clear butter oil floating on the surface. If the cream is to be used in cooking or to be whipped, churned, or made into ice cream, this ciling off is not objectionable.

Storing Ice Cream

Ice cream, either commercial or home made, keeps better for a longer time if it is packaged in frozen food containers rather than in regular ice cream containers. Containers that cannot be tightly sealed allow moisture to evaporate from

stored ice cream. Prolonged storage in such containers seriously affects body and texture qualities. Tightly sealed containers also keep down absorption of flavors from other stored foods.

Home made ice cream made in a "turning" freezer has better keeping qualities than does ice cream made in refrigerator trays. Ice cream made with fresh fruit juice also keeps its freshness in storage better than does plain ice cream.

Storing Cream Cheese

Cream cheese keeps very well in storage if made from good quality pasteurized cream. As in the case of stored cream and ice cream, cream cheese must be packaged in tightly sealed containers to protect it from off-flavors and evaporation of moisture.

Cream cheese is easy to make and contains most of the butterfat and protein of the cream from which it is made. Wise homemakers can freeze large quantities of the most nutritious part of milk in this way with little extra labor.

Storing Aged Cheeses

The body and texture of American cheese and other types of aged cheeses is seriously affected by freezing and thawing. The body of the cheeses, upon thawing, is crumbly and the texture is grainy or gritty. The flavor, however, is not greatly affected, and the cheese can be utilized in cooked dishes.

Cheeses that require aging to be edible, can be stored for many months. Temperature of storage, however, has a direct effect on the storage life of cheese. Warm storage temperatures promote rapid aging. Cold temperatures retard aging. American cheese, at storage temperatures of 45° - 50° F., requires 4 to 6 months to ripen to a "medium-aged" flavor. The same degree of aging is produced in 4 to 6 weeks when the cheese is stored at 70° F.

Cheese can be stored for longer periods of time when aged slowly at 45° to 50° F. until the desired flavor is obtained. Further aging can then be prevented by storing the cheese at temperatures just above freezing (34-38° F.).

Recipes for Making Dairy Products at Home

Recipes for making home made cheeses, butter, and frozen desserts can be obtained at local County Home Agent offices or upon request to the Dairy Extension Office, V. P. I., Blacksburg, Virginia.

RECIPES FOR

MILK DRINKS AND COTTAGE CHEESE SALADS

PROGRAM

of

DEPARTMENT OF DAIRY HUSBANDRY
SECTION A. - DAIRY PRODUCTS

SQUIRES HALL

1:30 - 3:30 P.M. - WEDNESDAY, July 28, 1954

G. J. Nageotte
Associate Extension
Dairyman
Dairy Products Specialist

Miss J. L. Cameron
Extension Food and Nutrition
Specialist

Mrs. M. L. Thompson
Associate Extension Food
Specialist

Milk Drinks -- Any Way You Like Them

When you want to feel satisfied and refreshed, drink a glass of sweet cold milk. Fresh milk is unique. It is healthful, stimulating, and nourishing. Milk contains health-building vitamins, essential proteins, energizing fats and sugar, and the minerals that can do most for the human body. Three glasses of fresh whole milk every day - taken with meals, with snacks, before you go to bed, or whenever you need soothing refreshment - will help you feel better, look better, act better.

You never outgrow your need for milk. Whether you are seven, seventeen or seventy, milk is the best food for you. Milk helps to stabilize body weight. Overweight, reduce with milk -- underweight, build up with milk. Nerves tense, nights sleepless, drink milk at bed time and relax. Whether you are a junior growing to maturity or a senior citizen retiring from business, get the calcium and other protective nutrients your body needs from milk.

The food elements of milk are available in attractive forms -- as fluid milk, cream, butter, cheese, ice cream, sherbets, concentrated milk, non-fat milk powder, and cultured milk. In these forms milk provides pleasant variety to the human diet.

Fluid milk is retailed in several forms:

Whole Milk, the standard product, is modified and merchandised in many forms. The minimum legal composition for whole milk in Virginia is 3.25 percent butterfat and 8.5 percent non-fat solids. Practically all fluid milk marketed in Virginia is above the legal minimum standard. It is not unusual for milk to vary from 3.25 to 6.0 percent butterfat, depending upon the breed of cows, season of the year, stage of the cow's lactation, etc.

"Half and Half" - A milk consisting of half cream and half milk, usually containing 9 to 12 percent butterfat and 2 percent added non-fat milk solids. Its fat content is higher than normal milk and lower than cream. "Half and Half" is in a class by itself. It goes well with cereals, berries, and in coffee.

Skim Milk is milk without its butterfat. Skim milk contains nearly all the proteins, sugar, minerals and many of the vitamins contained in the original whole milk. Skim milk is popular with people on low-fat diets. It provides them with low calorie nutrients.

Fortified Skim Milk is fresh skim milk plus non-fat milk solids and one or two percent butterfat. This product is also popular among people who want to reduce. Fortified skim milk, low in butterfat, is preferred in certain low calorie diets.

Homogenized Milk is standard whole milk in which the butterfat globules have been finely broken up and dispersed. Homogenization, a high pressure atomizing process, merely disperses the fat in such small particles that they cannot reunite to form cream. No fat is removed in the process. Homogenized milk contains 3.5 to 4.0 percent butterfat, has a richer flavor, is more easily digested, and gives superior results in cooking.

Buttermilk - either churned or cultured, contains most of the proteins, minerals and vitamins, but less than one percent of the butterfat of the original milk from which it is made. Buttermilk's clean, delightful tang is caused by lactic acid that is formed when the milk sugar (lactose) ferments. When served alone or with fruit juices, buttermilk is a refreshing, hot weather drink.

Many delicious, nourishing and refreshing drinks can be made of milk to fit a wide variety of family situations and social occasions. The following recipes have been tried and proven. Use them and enjoy them.

Milk Drinks

1. Orange Nog

2 cups milk
1 tablespoon sugar
1 cup orange juice
2 teaspoons grated orange rind
chopped ice

Place milk and sugar into shaker or fruit jar. Add orange juice and rind and shake. If orange juice is too tart, more sugar may be added. Serves 4.

2. Banana Milk *

2 cups of ripe banana
4 cups of milk
pinch of salt

Slice banana into a bowl and beat with rotary egg beater until creamy. Add cold milk and mix well. Serve while cold. Ice or ice cream may be added for a colder drink.

3. Tomato Juice Cocktail

5 cups of milk
4 cups of tomato juice
1 teaspoon salt

Mix cold tomato juice and milk. Season to taste with celery salt or onion juice.

4. Fruit Milk Drink

2½ cups of grape or berry juice
or juice from stewed prunes
3 cups of milk.

Add cold juice to milk and stir vigorously. Addition of ¾ teaspoon of lemon juice brings out the flavor. If sour grape juice is used, add a little sugar.

5. Chocolate Milk

4 tablespoons cocoa
4 tablespoons sugar
1/8 teaspoon salt
4 cups milk

Blend cocoa, sugar, and salt to make syrup by using portion of the milk. Add syrup to remaining milk. Heat to a boil. Serve either hot or cold.

6. Molasses Milk Drink

4 cups of milk
2-3 tablespoons molasses
dash of nutmeg

Just mix molasses with cold milk. Add nutmeg to top and serve.

7. Tomato Buttermilk Cocktail

Combine equal portions of chilled tomato juice and buttermilk. Salt to taste.

* To be demonstrated

8. Chocolate Coffee Milk

1½ cups coffee
¾ cups chocolate syrup
7 cups milk
whipped cream

Add 1½ cups of cold strong coffee and ¾ cup of chocolate syrup to 7 cups of cold milk. Mix well, and top each glass with whipped cream.

9. Maple Milk Drink

Combine 2 to 3 tablespoons of maple syrup with each cup of cold milk. Top with ice cream or whipped cream and chopped pecans if desired.

10. Grape Cooler *

Combine equal amounts of cold grape juice and milk, stirring the grape juice into the milk. Add a top-knot of slightly sweetened whipped cream or vanilla ice cream. Pineapple juice may be used in the same way.

11. Pineapple Crush

Stir together ¼ cup crushed pineapple with its syrup and one cup of cold milk. It's good alone or when topped with a scoop of ice cream.

12. Fruit and Honey Nectar

1½ cups banana puree
1/3 cup orange juice
6 tablespoons honey
pinch of salt
1/4 teaspoon almond extract
1 quart of milk
whipped cream

Put bananas through sieve. Add orange juice, honey, salt and almond flavoring. Mix well. When ready to serve add cold milk and beat with egg beater. Garnish with whipped cream and serve immediately. Serves 6.

13. Prune Apricot Milk Shake

1½ cups prune and apricot puree
½ cup granulated sugar
½ teaspoon salt
1 tablespoon grated lemon rind
6 tablespoons lemon juice
6 cups cold milk

Blend dried fruit puree with sugar, salt, lemon rind and juice. Add milk and beat with rotary beater. Chill. Serve with slivered lemon rind or thin slices of lemon on top. Serves 6.

* To be demonstrated

14. Cherry Punch *

- 1 No. 2 can sweetened red cherries
- 1 quart milk
- $\frac{1}{4}$ teaspoon almond extract
- 1 pint vanilla ice cream

Have all ingredients thoroughly chilled. Press cherries through a sieve and combine with the cherry juice. Mix milk and almond extract; add cherry puree, stirring constantly. Serve at once with a scoop of ice cream floating in each glass. Serves 6.

15. Hot Choco-Mint

- 1 $\frac{1}{3}$ cups crushed peppermint stick candy
- 2 squares chocolate
- 2 quarts milk
- 12 drops peppermint extract
- pinch of salt

Melt crushed candy and chocolate in $\frac{1}{2}$ cup of milk in the top of the double boiler. Add peppermint extract and salt. Scald the remaining milk and add to chocolate mixture. Stir well. Serve hot or cold. A spoonful of whipped cream may be added on top if desired. Serves 8.

16. Banana Milk Punch

- 4 ripe bananas
- 2 eggs, separated
- 1 quart milk, chilled
- $\frac{1}{8}$ teaspoon salt
- 1 teaspoon vanilla
- 1 pint ice cream

Slice bananas and mash until smooth and creamy, or put through a sieve. Beat egg yolks until thick and lemon colored. Add chilled milk, mashed banana, salt and vanilla. Beat egg whites until stiff and fold into banana mixture, blending thoroughly. Serve very cold, topping each glass with 3 tablespoons vanilla ice cream and a sprinkling of grated nutmeg or chopped nuts. For a sweeter drink, 2 tablespoons of sugar may be added. Serves 6.

17. Strawberry Blonde

Blend together 2 cups of strawberry pop with 6 cups of milk, or mix 2 tablespoons of strawberry jam with each glass of cold milk.

18. Spiced Milk

- 6 cups of milk
- $\frac{3}{4}$ teaspoon nutmeg
- $\frac{3}{4}$ teaspoon cinnamon
- $\frac{1}{2}$ teaspoon salt

Add cinnamon, nutmeg and salt to cold milk and stir vigorously.

* To be demonstrated

19. Chocolate Milk Shake *

2 teaspoons cocoa or chocolate syrup
3/4 cup milk
1 teaspoon strong coffee

Mix, beat well and chill. Serve in glass and top with whipped cream and a dash of nutmeg or cinnamon. Must be ice cold.

20. Lemo-Loc

This very refreshing and nutritious drink is made by adding sugar and lemon juice to buttermilk or cultured buttermilk. Slightly more sugar and lemon juice are necessary than in making ordinary lemonade and the mixture should be well food. It is a fine drink for hungry, thirsty people on a hot day. Try it with your lunch.

21. Milk Julep

1 Egg
1 Tablespoon sugar
pinch of salt
1 cup of milk
1/2 teaspoon vanilla
1 small scoop ice cream

Beat the egg until light. Add the sugar; beat the mixture, and add milk, flavoring and salt. Mix or shake well and chill. When ready to serve, beat or shake until foamy and add small scoop desired flavor ice cream.

Many variations in flavoring may be made by adding chocolate syrup, spray of mint, cinnamon, or a teaspoon of caramel syrup in place of the vanilla.

22. Milk Scotch High Ball

6 ounce glass cold milk
2 scoops vanilla ice cream
2 tablespoons butterscotch syrup

Place in mixer and mix thoroughly. Add just enough soda water to partially carbonate the entire drink.

23. Mocha Milk Shake Float

6 tablespoons double strength coffee
6 tablespoons cocoa, made with milk
2 scoops cracked ice
2 scoops coffee or chocolate ice cream

Blend in mixer. Pour into a thin shell glass and top with a scoop of coffee or chocolate ice cream.

24. Pineapple Buttermilk

6 ounce glass cold buttermilk
2 scoops vanilla ice cream
4 tablespoons canned pineapple juice

Place in mixer and blend well. Serve while still cold.

* To be demonstrated

25. Egg Nog

- 4 eggs
- 3 1/2 tablespoons sugar
- 3 cups cold milk
- 1 cup cold cream
- 1 1/2 teaspoons vanilla
- 1/4 teaspoon salt
- whipped cream

Beat the 4 whole eggs until very thick and light in color. Add the sugar, beating it in thoroughly. Stir in the cold milk and cream, vanilla and salt. Top mixture with whipped cream and sprinkle with freshly grated nutmeg. Serve immediately. Serves 5.

26. Mint O'Milk

Add to cold milk crushed mint leaves or a few drops of mint extract. Top with whipped cream and a maraschino cherry.

27. Chocolate Egg Nog (1 serving)

- 3 tablespoons cocoa syrup
- or chocolate syrup
- 1 cup cold milk
- 1 egg, separated
- 1 tablespoon sugar
- Chocolate shot
- dash of salt

Place in mixing bowl chocolate syrup, milk, egg yolk and dash of salt, and beat until thoroughly mixed. Beat egg white until foamy. Gradually beat into it 1 tablespoon of sugar. Pile the egg white lightly on top of the eggnog, and sprinkle it with chocolate shot.

28. Special Purple Cow (1 serving) *

- 1/2 cup chilled grape juice
- 2 tablespoons sugar
- 1 tablespoon milk
- vanilla ice cream
- ginger ale, chilled
- 1. Put grape juice, sugar and milk into a shaker or fruit jar. Shake well.
- 2. Add 1/2 cup of ginger ale and one large serving of ice cream and stir with spoon until blended.
- 3. Pour into a large, cold glass.
- 4. Add extra ginger ale if necessary to fill glass 3/4 full.
- 5. Top with another spoonful of ice cream.

29. Lemon Cooler (serves 1) *

- 1 cup ice water
- 1/4 cup lemon juice
- 1/4 cup sugar
- pinch of salt
- 1 large serving ice cream
- 1. Put all ingredients into a mixing bowl.
- 2. Beat just long enough to blend.
- 3. 1/4 cup of ginger ale may be added just before serving.

* To be demonstrated

30. Cocoa Sirup (Makes about 2 cups) *

As a time saver, prepare this cocoa sirup recipe and store it in the refrigerator. Use it to make chocolate drinks on short notice.

- 1 cup cocoa
- 2 cups sugar
- 1/4 teaspoon salt
- 4 tablespoons corn sirup (light or dark)
- 3 cups hot water
- 1 teaspoon vanilla

1. Mix cocoa, sugar and salt in a heavy saucepan.
2. Add hot water, sirup, and cook over direct heat for about 5 minutes or to a medium sirup.
3. Remove from the heat, cool, and add vanilla.
4. Store in the refrigerator in a tightly covered jar.
5. Use 2 tablespoons of sirup (or amount desired) per cup of milk for making cocoa, chocolate milk or other chocolate drinks.

Beat cocoa and other hot milk drinks with rotary beater before serving to prevent skin forming on top.

* To be demonstrated

Prepared by: Guy J. Nageotte
Associate Extension
Dairyman

July 1954

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SALADS FEATURING COTTAGE CHEESE

Guy J. Nageotte
Dairy Products Specialist
V. P. I.
July 1954

1. Two - Decker Salad

Lime Layer

- | | |
|--------------------------------------|-------------------------------------|
| 2 packages lime-flavored gelatin | 1 tablespoon chopped onion |
| 3 cups hot water | 1 tablespoon vinegar or lemon juice |
| 1½ lbs. cottage cheese, well drained | 1/4 cup horseradish |
| 2 tablespoons mayonnaise | |

Dissolve gelatin in hot water. Chill until partially set. Beat until light. Stir in remaining ingredients. Pour into 2½ quart mold which has been well oiled or rinsed with cold water. Chill until set.

Tomato Layer

- | | |
|--|--|
| 4 cups fresh cooked or canned tomatoes | 2 tablespoons brown sugar |
| 1/3 cup chopped onion | 2 tablespoons (2 envelopes) unflavored gelatin |
| 1/4 cup chopped celery leaves | 1/4 cup cold water |
| 1 bay leaf | 3 tablespoons lemon juice |
| 2 whole cloves | 2 hard-cooked eggs, sliced |
| 1 teaspoon salt | |

2. Deviled Cottage Eggs

- | | |
|-----------------------------|--------------------------------------|
| 4 hard-cooked eggs, shelled | ½ to ¾ cup cottage cheese with chive |
| 1/4 teaspoon dry mustard | ¼ teaspoon salt |
| 2 teaspoons vinegar | 1/8 teaspoon pepper |
| 1 tablespoon chopped olives | |
| 1 tablespoon pickle relish | |

Cut eggs in half lengthwise, remove yolks. Mash yolks; add mustard, vinegar, chopped olives, and relish. Add cottage cheese, mix well; season with salt and pepper. Refill egg whites with mixture, piling it high. Sprinkle with paprika, if desired. Serve in lettuce cups.

3. Cottage Cheese Salad Ring

- | | |
|--|---------------------------|
| 2 tablespoons plain, unflavored gelatin. | 2 tablespoons lemon juice |
| 1/2 cup cold water | 1 teaspoon onion juice |
| 2 pounds cottage cheese | 1/4 teaspoon paprika |
| 1 cup cream or top milk | salt to taste |

Soften gelatin in cold water; dissolve over hot water. Mix cottage cheese, cream, lemon juice, onion juice, paprika, and salt; add dissolved gelatin. Turn into a ring mold that has been rinsed with cold water; chill until firm. Unmold on crisp salad greens and fill center of ring with desired fruit or vegetable salad. Serve with mayonnaise or French dressing. Serves 8.

4. Avocado Salad

Peel the avocados, cut each in half lengthwise and remove the pits. For each serving place half of an avocado on curly endive, fill the center with cottage cheese to which has been added some tart French dressing.

5. Cottage Cheese-Filled Tomatoes

- 6 medium tomatoes
- 2 cups dry cottage cheese
- 1/4 cup mayonnaise or salad dressing
- 3 tablespoons chopped pickle
- 1 tablespoon minced onion
- 3 tablespoons chopped pimiento
- 3 tablespoons chopped walnut meats

Peel tomatoes; cut slices from top and scoop out center. Sprinkle with salt; invert to chill. Combine remaining ingredients and mix well; fill tomato cups. Chill thoroughly. Serve on lettuce with additional mayonnaise. Serves 6.

6. Cottage Cheese Potato Salad

- 3 cups cooked diced potatoes
- 1/2 cup sliced celery
- 1 tablespoon chopped green pepper
- 1 tablespoon chopped pimiento
- 2 tablespoons minced onion
- 2 tablespoons chopped pickle
- 1 cup mayonnaise
- 1 teaspoon salt
- 1/8 teaspoon pepper
- 1 teaspoon dry mustard
- 1 tablespoon lemon juice
- 1 cup creamy cottage cheese

Combine potatoes, celery, green pepper, pimientos, onion, and pickle. Chill. Blend mayonnaise, seasonings, and lemon juice. Pour over potato mixture; add cottage cheese and toss lightly. Serves 6 to 8.

7. Chive Cheese Mold

- 1 package lemon-flavored gelatin
- 1 cup hot water
- 1 cup cold water
- 1/2 large avocado
- 1 cup chive cottage cheese
- 6 tablespoons mayonnaise
- 1/3 cup chopped pecan meats

Dissolve flavored gelatin in hot water. Add cold water. Chill until syrupy. Mash avocado; mix with cottage cheese, mayonnaise, and nutmeats, and add to thickened gelatin. Pour into mold and chill. Garnish with orange slices or segments. Serves 6.

8. Gingerale Fruit Mold

- 1 cup hot water
- 1 package lemon flavored gelatin
- 3/4 cup gingerale
- 1 cup fruit cocktail, drained
- juice of 1/2 lemon

Filling

- 1 cup cottage cheese
- 1/2 cup pecans
- 4 maraschino cherries, sliced
- 1 tablespoon cream
- 1 tablespoon mayonnaise

Stir hot water into gelatin until dissolved. Chill until cool but not thickened. Stir gingerale, fruit cocktail and lemon juice into cooled gelatin; pour into ring mold rinsed in cold water. Chill until firm. At serving time, combine cottage cheese, pecans, cherries, cream and mayonnaise. Unmold fruit gelatin ring; fill center with cottage cheese mixture. Serves 6.

9. Frozen Cheese and Pineapple Salad

- 1 1/2 cups cottage cheese
- 3/4 cups whipping cream
- 1/2 teaspoon salt
- 3/4 cup drained, shredded pineapple
- 1/2 cup finely sliced dates
- 1/4 cup mayonnaise or salad dressing
- 3 tablespoons lemon juice

Drain off excess moisture from cheese and beat with fork or electric mixer until smooth. Whip cream until stiff, then fold in cheese. Add seasonings, well-drained pineapple, and dates; pour into a waxed paper-lined freezing tray of the refrigerator. Freeze at coldest temperature. Cut into slices, arrange on salad greens and serve with additional dressing. (Allow about 3 hours for freezing salad.) Serves 6.

10. Cottage Cheese and Strawberry Salad

- 2 cups cottage cheese
- 2 cups sliced strawberries
- Dressing
- 1/3 cup salad oil
- 3 tablespoons lemon juice
- 3 tablespoons honey French dressing
- 1/2 teaspoon salt
- 1/3 cup strained honey

Beat together oil, lemon juice, and salt. Add honey slowly while beating. Mix cottage cheese, strawberries, and French dressing. Put on lettuce leaves. Garnish with mayonnaise and whole strawberry.

11. Molded Fruit Salad

- 1 package lemon flavored gelatin
- 1 cup hot water
- 1/2 cup creamy cottage cheese
- 1 cup heavy cream, whipped
- 1/2 cup broken walnut meats
- 1/2 cup maraschino cherries, quartered
- 1 cup crushed pineapple, well drained

Dissolve gelatin in hot water. Chill until partially set. Fold in cottage cheese and whipped cream, walnuts, cherries, and pineapple. Pour into 1-quart refrigerator tray. Chill until firm. Cut in squares to serve. Serves 8.

12. Peach Party Leaf

- 2 packages lemon-flavored gelatin
- 1/2 teaspoon salt
- 1 cup hot canned peach syrup
- 1 1/2 cups hot grapefruit juice
- 1 1/2 cups drained sliced canned cling peaches
- 2 tablespoons chopped pimiento
- 1 1/2 cups cottage cheese
- 1/2 cup chopped celery
- 2 tablespoons chopped parsley
- 1 1/2 teaspoon grated onion
- 1/2 teaspoon salt
- Salad greens

Dissolve gelatin and 1/4 teaspoon salt in hot syrup and fruit juice. Cool until slightly thickened. Arrange peaches and pimiento in bottom of oiled 9x5x3 inch loaf pan and cover with half the gelatin mixture. Chill until firm. Add cottage cheese, celery, parsley, onion, and 1/2 teaspoon salt to remaining gelatin and blend. Turn into pan over firm peach layer. Chill until firm. Unmold on crisp greens. Serve in slices. Makes 8 to 10 servings.

13. Cottage Cheese Ring

- 1 tablespoon unflavored gelatin
- 1/4 cup cold water
- 1 1/2 cups cottage cheese
- 2 1/2 tablespoons Roquefort cheese
- 1/2 teaspoon salt
- 1/2 teaspoon paprika
- 1/2 cup heavy cream, whipped
- fruit salad

Soften gelatin in cold water; dissolve over hot water. Press cottage and Roquefort cheese through sieve and mix thoroughly with gelatin, salt and paprika. Fold in whipped cream. Pour into ring mold and chill until firm. Unmold and fill center with fruit salad. Serve with mayonnaise mixed with whipped cream. Serves 6.

14. Crown Salad

Fill lettuce cups with shredded lettuce and top with cottage cheese, softened with peach juice. Make three slits in each well-drained peach half, leaving an uncut portion as a base. Spread each peach apart on the cottage cheese to form points of a crown. Top each point with a bit of red cherry.

15. Tomato Aspic with Cottage Cheese

- 3 cups stewed tomatoes
- 1 stalk celery
- 1 clove
- salt
- 1/2 cup cold water
- 1 onion, sliced
- 1 bay leaf
- 1 teaspoon sugar
- 2 tablespoons unflavored gelatin

Cook tomatoes with seasoning. Soak gelatin in cold water and add to hot mixture. Strain and allow to cool. When cool, place half of the mixture in a greased ring mold and chill until firm. Cover with cottage cheese. Pour in other half of aspic and chill until firm again. Slice and serve on individual plates of crisp lettuce. Dress with tablespoon of mayonnaise, adding a dash of paprika if desired.

16. Cheese and Lettuce Roll-Up

- 1 cup cottage cheese
- 1/2 teaspoon salt
- 1/2 cup chopped stuffed olives
- 1/2 cup walnut meats

Mayonnaise to moisten

Roll spoonful of mixture in a large crisp lettuce leaf; slip a ring of green pepper around the center to hold it closed. Chill, then serve with garnish of tomato wedges and cucumber slices. Enough filling for 6 rolls.

17. Garden Cheese Filling

Mix together 1 cup cream-style cottage cheese, 2 tablespoons finely grated raw carrot, $\frac{1}{2}$ teaspoon finely chopped green pepper, $\frac{1}{2}$ teaspoon finely chopped chives (or $\frac{1}{2}$ teaspoon chopped parsley and $\frac{1}{2}$ teaspoon grated onion may be used for the chives).

18. * Fruit Salad Combinations

Combine fruits, such as fresh peaches, watermelon and cantaloupe balls, and sliced citrus fruits with fresh or canned peaches, sliced pineapple or pears stuffed with cottage cheese and garnished with strawberries, apple, celery, nuts or raisins.

Serve with mayonnaise or California salad dressing. (See recipe No. 24).

19. * Jellied Fruit and Cheese Salad

2 packages lime gelatin
3 $\frac{1}{2}$ cups hot water
1 cup shredded cabbage
 $\frac{1}{2}$ cup dried celery
 $\frac{1}{2}$ pound package process cheddar cheese, diced
6 canned or fresh pear halves
6 canned or fresh apricot halves
maraschino cherries

Dissolve gelatin in hot water. Chill until slightly thickened. Add cabbage, celery, and cheese; mix well. Pour in 9 inch ring mold which has been well oiled or rinsed with cold water. Chill until firm. Arrange pear halves in center of mold on bed of greens; garnish with maraschino cherries. Cut apricot halves in two and arrange around edge of mold with watercress. Serve with mayonnaise or fruit dressing. Makes 6 servings, 2/3 cup each.

20. * Jellied Cucumber Ring With Cottage Cheese

2 packages lemon flavored gelatin
2 $\frac{1}{2}$ cups grated cucumber and juice
(if tender, don't peel)
2 tablespoons grated onion
 $\frac{1}{2}$ cup vinegar
 $\frac{1}{2}$ teaspoon salt
1 $\frac{1}{2}$ cups boiling water

Dissolve gelatin in boiling water, add vinegar and salt and cool. Add onion and cucumber. Pour in oiled ring mold and chill until firm. Turn out on large chilled plate. Fill center with 4 cups of cottage cheese that has been seasoned with 1 $\frac{1}{2}$ teaspoons of chopped chives, (also $\frac{1}{2}$ cup cream, if needed). Garnish with sliced cucumbers and lettuce.

21. * Lime and Cantaloupe Fruit Salad

Drain one No. 2 $\frac{1}{2}$ can pear halves. Add 1 cup chopped mint leaves to 5 cups water and 1 cup pear syrup. Bring to a boil slowly and boil 1 minute. Pour over 3 packages lime flavored gelatin and stir until the gelatin is dissolved. Let it stand 15 minutes to develop flavor, then strain to remove the mint. Chill the gelatin until thick but not set. Add 2 cups diced canned pears and 1 cup honeydew melon or firm cantaloupe balls. Use a ball scoop or a $\frac{1}{2}$ teaspoon size measuring spoon for making

balls. Pour into a 2 quart mold; chill until set.

Unmold and serve with cottage cheese snowcaps and salad greens. This salad, including the snowcaps, can be made one day and served the next. Serves 6 to 8.

22. * Cottage Cheese Snowcaps

Soften 1 envelope unflavored gelatin in $\frac{1}{4}$ cup cold water. Heat over hot water until the gelatin is dissolved. Stir into 2 cups dry cottage cheese that has been mixed with $\frac{3}{4}$ cup rich milk or cream. Add $\frac{1}{2}$ teaspoon salt and mix well. Pour into small individual molds. Chill until firm. Turn out and serve with lime fruit salad.

23. * Frozen Fruit Salad

- | | |
|-------------------------------------|--|
| #2 $\frac{1}{2}$ can fruit cocktail | 1 tablespoon lemon juice |
| #1 can pineapple | 1 tablespoon sugar |
| 1 egg | $\frac{1}{2}$ cup cream or powdered milk |
| 1 tablespoon flour | (whipped with 1 tablespoon lemon juice, |
| 1 tablespoon butter | 1 tablespoon sugar and $\frac{1}{4}$ cup water.) |
| $\frac{1}{4}$ teaspoon salt | |

Drain pineapple and fruit cocktail. Measure pineapple juice and cocktail juice to make 1 $\frac{1}{2}$ cups. Melt butter in saucepan. Add flour. Stir until smooth. Add juice to beaten egg. Stir into flour and butter mixture. Cook until thick (about 4 minutes), add tablespoon lemon juice. Cool. Fold in stiffly beaten cream or powdered milk. Mix lightly with fruits. Pour in refrigerator tray with division in. The squares of salad are easy to serve.

24. * California Salad Dressing

- | | |
|-------------------------------|---------------------------------------|
| 2 egg yolks | 2 tablespoons sugar |
| $\frac{1}{2}$ cup lemon juice | 2 cups whipped cream or powdered milk |

Beat egg yolks, add lemon juice and sugar and cook in double boiler until thick. Cool. Fold in 2 cups whipped cream or powdered milk just before serving. The cooked mixture may be kept a week in the refrigerator, but do not add whipped cream or milk until ready to serve.

25. Cottage Cheese Dressing

- | | |
|--------------------------------|---------------------------------|
| 1 cup cottage cheese | 1 teaspoon Worcestershire sauce |
| 2 tablespoons mayonnaise | Salt and pepper to taste |
| $\frac{1}{4}$ teaspoon paprika | |

Combine all ingredients and blend well. Makes about 1 cup dressing.

26. Cottage Cheese Fruit Dressing

- | | |
|----------------------|-----------------------------|
| 1 cup cottage cheese | 1/2 teaspoon salt |
| 1 cup cream | 1 tablespoon honey or sugar |
| 1/2 cup lemon juice | 1 tablespoon chopped chives |
| | dash of paprika |

Beat all ingredients together until smooth.

27. Cottage Cheese Vegetable Dressing

- | | |
|-----------------------|-------------------------------|
| 1 cup cottage cheese | 1/4 teaspoon paprika |
| 2 tablespoons vinegar | 1/4 teaspoon prepared mustard |
| 3 tablespoons sugar | 4 tablespoons catsup |
| 1/2 teaspoon salt | |

Combine all ingredients and blend well.

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*
*           SPICED COTTAGE CHEESE COOKIES
*
* In these refrigerator cookies the cheese provides
* the liquid content:
*
* 1/2 cup shortening           1/2 teaspoon salt
* 1/2 cup sugar, brown or    1/2 teaspoon cinnamon
* granulated                 1/4 teaspoon each nutmeg
* 1 egg                       and cloves
* 1 3/4 cup sifted all-purpose flour
* 1/2 teaspoon soda           1/3 cup cottage cheese,
*                             sieved
*
* Cream shortening and sugar together; beat in egg.
* Sift flour with soda, salt and spices into bowl; add
* cottage cheese. Stir together to make a stiff dough.
* Form into roll; wrap in waxed paper and chill well in
* the refrigerator. Slice thin, and bake in a moderate
* oven (375° F.) for 10 minutes or until lightly browned.
* Makes about 2 1/2 dozen cookies.
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MISCELLANEOUS DAIRY EXTENSION ACTIVITIES

Distribution of Time :

Staff Member	Headquarters Days	Field Days	Total Days	Percent of Total
R. G. Connelly	59.5	25.0	84.5	32.7
G. J. Mageotte	16.5	3.0	19.5	7.5
M. F. Ellmore	29.5	29.0	58.5	22.6
K. A. Huston	23.0	16.5	39.5	15.3
W. N. Patterson	2.5	22.0	24.5	9.5
G. C. Graf	22.0	10.0	32.0	12.4
Totals :	153.0	105.5	258.5	100.0

The V.P.I. Dairy Extension staff spent 258.5 man-days, 19% of the total staff working time, on miscellaneous work essential to the dairy extension program but not included in the four extension projects. The nature of this work was such that it could not be anticipated in the 1954 program of work. The miscellaneous work is included under the following headings:

1. Office Conferences and Consultations : More than one-third of the miscellaneous work consisted of office conferences dealing with program planning, subject matter preparation, administrative and office organization problems, and joint activities with other departments and agencies.
2. V.P.I. Dairy Short Courses : More than 16 man-days were spent in subject matter preparation and addressing dairy short courses, clinics and conferences held at V.P.I.
3. Out of State Functions : 42.5 days were spent by staff members in attending and participating in out of state dairy functions. These functions include the following with staff members attending listed:
 1. - American Dairy Science Association annual meeting
- R. G. Connelly, M. F. Ellmore, K. A. Huston, G. J. Mageotte and G. C. Graf.

R. G. Connelly served as a member of the A.D.S.A. Disease Control Committee.
M. F. Ellmore had one article published in the November issue of the Journal of Dairy Science.
W. N. Patterson was co-author of a paper presented at the A.D.S.A. annual meeting.

- 2. Dairy Industries Exposition and annual meeting of the Milk Industry Foundation and the International Association of Ice Cream Manufacturers.

G. J. Nageotte and G. C. Graf

- 3. National Dairy Cattle Congress and National 4-H Dairy Cattle Judging Contest

W. N. Patterson attended as co-coach of the Virginia 4-H Dairy Cattle Judging Team and advisor for Virginia 4-H Dairy Club work.

- 4. Staff members attended and participated in dairy and other activities in neighboring states.

K. A. Huston:

- Maryland State Brown Swiss Sale
- Six-state conference on Farm and Home Development program at Asheville, North Carolina
- Addressed dairy group at Jackson's Mill, West Virginia.

M. F. Ellmore:

- Visited Bureau of Dairy Industry offices at the U.S.D.A. several times on official business
- Conducted a tour of Virginia D.H.I.A. supervisors to the Agricultural Research Center at Beltsville, Maryland.
- Accompanied G. C. Graf on a V.P.I. Brown Swiss foundation herd selection tour to New England.
- Addressed Maryland D.H.I.A. corporation meeting.

W. N. Patterson:

- Attended the Annual Maryland Holstein sale and annual state association meeting

G. C. Graf:

Attended College Feed Conference Board meeting

- 5. Atlantic Rural Exposition:

The following staff members spent jointly 16 man-days of time on work in connection with the Junior Dairy Show, Regional 4-H Dairy Judging Contest and the open class shows at the Atlantic Rural Exposition :

K. A. Huston, G. J. Nageotte, W. N. Patterson and G. C. Graf.

6. National Dairy Cattle Breeders' Associations : Several days were spent with representatives of the National Holstein, Jersey, Brown Swiss, Ayrshire, and Guernsey Associations in formulation of plans of work. In this collaboration, phases of the Virginia dairy extension program - 4-H Dairy and Rural Youth Work and Dairy Cattle Improvement Through Breeding - received special attention.

7. All staff members assisted with resident short course teaching and special assistant work with V.P.I. students.

8. Cooperative Farm Tours

K. A. Huston and W. N. Patterson collaborated in planning and directing a two day tour of the New Castle county, Delaware, D.H.I.A. group.

M. F. Ellmore collaborated with members of the V.P.I. Agronomy staff with counsel and addresses at the Southside Virginia Pasture Tour at the Middleburg Experiment Station Pasture Field Day.

R. G. Connelly organized and conducted a tour for Chester county, Pennsylvania, dairy farmers through northern Virginia.

9. Participation in Rural Youth and Collegiate Activities:

M. F. Ellmore and W. N. Patterson served as official judges at two regional F.F.A. Dairy Judging contests.

G. J. Nageotte assisted with the Virginia F.F.A. Dairy Products Judging Contest at V.P.I.

G. J. Nageotte assisted resident staff personnel with the Regional Collegiate Dairy Products Judging Contest.