EXTENSION WORK IN DAIRY INDUSTRY

H. C. Jackson and E. Wallenfeldt

I. Analysis of the Present Situation


<table>
<thead>
<tr>
<th></th>
<th>Wisconsin</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1937</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creamery Butter</td>
<td>35.9%</td>
<td>41.1%</td>
</tr>
<tr>
<td>Cheese</td>
<td>32.3</td>
<td>8.12</td>
</tr>
<tr>
<td>Condensary Products</td>
<td>14.4</td>
<td>6.17</td>
</tr>
<tr>
<td>Market Milk and Cream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for city population</td>
<td>17.4(includes all others)</td>
<td>40.70</td>
</tr>
<tr>
<td>All other</td>
<td></td>
<td>3.86</td>
</tr>
</tbody>
</table>

B. Total Volume of Milk

<table>
<thead>
<tr>
<th></th>
<th>Wisconsin</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1933</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.4</td>
<td>85.6</td>
<td>10.6</td>
</tr>
<tr>
<td>89.4</td>
<td></td>
<td>89.0</td>
</tr>
</tbody>
</table>

C. Wisconsin's share of the nation's market for manufactured dairy products has declined.

<table>
<thead>
<tr>
<th></th>
<th>Wisconsin</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1923</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheese Production</td>
<td>75.5</td>
<td>58.9</td>
</tr>
<tr>
<td>Butter Production</td>
<td>11.8</td>
<td>9.0</td>
</tr>
<tr>
<td>Evaporated &amp; Cond. Milk</td>
<td>30.9</td>
<td>38.1</td>
</tr>
</tbody>
</table>

D. The changes in dairying

1. The trend is towards larger plants.

<table>
<thead>
<tr>
<th></th>
<th>1910</th>
<th>1916</th>
<th>1922</th>
<th>1928</th>
<th>1930</th>
<th>1934</th>
<th>1937</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. No. of creameries</td>
<td>1005</td>
<td>923</td>
<td>667</td>
<td>571</td>
<td>516</td>
<td>539</td>
<td>502</td>
</tr>
<tr>
<td>b. No. of cheese factories</td>
<td>1928</td>
<td>2363</td>
<td>2807</td>
<td>2400</td>
<td>2245</td>
<td>2136</td>
<td>2070</td>
</tr>
<tr>
<td>c. Receiving plants</td>
<td>88</td>
<td>675</td>
<td>833</td>
<td>735</td>
<td>532</td>
<td>637</td>
<td>83</td>
</tr>
<tr>
<td>d. Condenseries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>76</td>
</tr>
</tbody>
</table>
| e. The number of farmers served by each group.

<table>
<thead>
<tr>
<th></th>
<th>No. of plants</th>
<th>Total Farmers</th>
<th>Average Number of Farmers per Factory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter</td>
<td>500</td>
<td>70,000</td>
<td>140</td>
</tr>
<tr>
<td>Cheese</td>
<td>2000</td>
<td>65,000</td>
<td>32</td>
</tr>
<tr>
<td>Condenseries</td>
<td>70</td>
<td>30,000</td>
<td>430</td>
</tr>
<tr>
<td>Receiving plants</td>
<td>637</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ice cream plants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid milk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distributors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
<td></td>
<td>About 35,000</td>
</tr>
</tbody>
</table>
COMMERCIAL OUTLETS FOR MILK

UNITED STATES

1936

- Creamery Butter: 41.15%
- Cheese: 8.12%
- Condensary Products: 6.17%
- Market Milk and cream for city population: 40.7%
- All other: 3.38%

WISCONSIN

1937

- Creamery Butter: 35.9%
- All Cheese: 32.3%
- Condensary Products: 14.4%
- All other: 17.4%

TOTAL VOLUME OF MILK PRODUCED

WISCONSIN COMPARED WITH TOTAL IN U.S.

1925

- Other States: 88.6%
- Wisconsin: 11.4%

1933

- Other States: 89.4%
- Wisconsin: 10.6%

1937

- Other States: 89.0%
- Wisconsin: 11.0%
THE DECLINE OF WISCONSIN'S SHARE IN THE NATION'S MARKET FOR DAIRY PRODUCTS

1923

CHEESE

WIS. 75.5%

24.5% OTHER STATES

1933

WIS. 58.9%

41.1% OTHER STATES

1937

WIS. 49.9%

50.1% OTHER STATES

BUTTER

WIS. 11.8%

OTHER STATES 88.2%

1933

WIS. 9.0%

OTHER STATES 91.0%

1937

WIS. 10.8%

OTHER STATES 89.2%

EVAPORATED AND CONDENSED MILK

WIS. 30.9%

OTHER STATES 69.1%

1933

WIS. 38.1%

OTHER STATES 61.9%

1937

WIS. 27.9%

OTHER STATES 72.1%
NUMBER OF CREAMERIES IN WISCONSIN

BUTTER PRODUCED IN WISCONSIN CREAMERIES
II. Objectives of Dairy Industry Extension

A. To improve dairy products so that they will command the greatest possible consumer desire and confidence.

1. To develop the concept that no one is justified in expecting to market his product for human food unless it is wholesome and produced under sanitary conditions.

2. To develop a consciousness of the importance of the most essential factors of wholesome milk production among:

   a. Local group leaders
   b. Dairy farmers
   c. Dairy plant operators and fieldmen

3. To develop the desire and ability to apply these principles to everyday dairying.

4. To develop an intelligent and reasonable concept of the dairymen's public health responsibility on the part of health department officials, plant operators, group leaders and farmers.

   a. To secure uniform reasonable board of health ordinances and uniform, intelligent and reasonable enforcement of the regulations.

      1) To raise the standards and qualifications for all dairy inspectors so that all of them will be adequately trained to intelligently interpret and enforce the various parts of the regulations from the economic and psychological as well as the technical aspects.

   b. To insure a safe, wholesome and palatable fluid milk and cream supply for every village and city in the state.

   c. To get the management of every dairy plant and producers' organization to provide for adequate fieldwork to harmoniously secure effective quality effort on the part of all producers or the exclusion of milk from the dairies that produce milk unfit for human food.

5. To discourage from dairying, those individuals whose lack of sanitary consciousness is such that they will never be satisfactory dairymen, and guide them into other work to which they are better fitted.

6. To get grocers and other food handlers to appreciate quality in dairy products and the factors most essential for their preservation.

7. To get consumers to more fully appreciate quality in dairy products and the factors most essential for their preservation.

B. To secure the greatest possible efficiency in the production, processing and transportation of high quality dairy products.

1. To bring about the most harmonious producer-manufacturer relationships to reduce to a minimum the wasteful shifting of patrons from one plant to another.
II. Methods and organization of dairy manufacturing extension.

A. Through regular county agent extension service:

1. Preparation and distribution of subject matter material:
   Bulletins and circulars
   Mimeographed material, circular letters, etc.

2. Participation in programs at meetings arranged by county agents, farmer meetings, county 4H club camps, etc.

3. Assisting local leaders in training 4H and F.F.A. members:
   a. Dairy quality improvement demonstrations for local meetings, rural district school P.T.A. meetings, dairy plant patron meetings, farmer picnics, etc.
   b. Application of quality improvement principles through directed practice on home farms.
   c. Dairy products judging.

4. Standardization of local milk ordinances and improvement of enforcement methods.
   a. Market milk surveys and analysis of local situations.
   b. Cooperation of producer-distributors' associations with local health departments in quality improvement work.
   c. Improvement of local laboratory quality testing methods.

5. The solution of dairy manufacturing problems of producers and plants coming to county agents' attention.

6. Cooperative work with dairy herd improvement association fieldmen on quality improvement.

B. Extension directly from the Department of Dairy Industry.

1. Monthly educational scoring and analysis of dairy products sent in from the dairy plants throughout the state.

2. Emergency plant and producer problems.

3. Improvement of routine practices.
2. Giving sanitary factors prominent consideration when giving instruction and advice on farm layouts and farm building plans.

a. Grading milk and cream as received at plants.

1) Regular receiving room grading.
2) Methylene blue testing.
3) Direct microscopic examinations.
4) Sediment testing.
5) Acidity testing of cream.
6) Visits to farms of patrons where the need for quality improvement is most imperative.

4. Conferences with dairy plant operators and other group leaders.

5. Meetings of patrons arranged by plant managers.

6. Preparation and distribution of subject matter material for agricultural high school teachers and other local group leaders.

7. Work with local health officers and dairy inspectors on standardization of milk ordinances and standardization of methods of enforcement.

8. Work with local laboratories on standardization and improvement of laboratory methods as applied to milk and its products.

a. Health department laboratories.
b. Dairy plant laboratories.

d. Cooperative work with dairy associations.

a. Participation in planning of programs at meetings.
b. Planning and carrying out of quality improvement projects with producers.
c. Quality improvement projects with plants.

IV. Opportunities for cooperation with other departments of the College. Other departments have contributed towards the improvement of dairy conditions. The following are only brief examples, as no attempt is made to include all that has been done.

A. Agricultural Economics

1. Giving quality considerations a prominent part in the handling of planning organization and management problems of cooperatives.

2. In all marketing work, placing stress on the importance of high quality from the longtime viewpoint.

3. In farm management extension, emphasizing the fact that it does not cost appreciably more to produce high quality wholesome milk than unhygienic milk.

4. Vocational Guidance. Guidance away from dairying for those who will never be satisfactory dairymen.

B. Agricultural Engineering.

1. Promoting satisfactory but inexpensive milk houses and adequate cooling facilities.
2. Giving sanitary factors prominent consideration when giving instruction and advice on farm layouts and farm building plans.

C. State 4H Club extension staff.

1. The promoting and conducting of quality improvement demonstrations and projects; i.e., rural schools, annual meetings of dairy plant patrons, local, county, and state contests, 4H club camps, etc.

2. The promotion of the use of dairy products through foods and nutrition projects and demonstrations.

F. Agricultural Journalism

1. Discouragement of unfavorable publicity especially that on bacterial counts of market milk and other similar subjects so commonly misunderstood by the public.

2. Encouragement of the inclusion of comments on the importance of milk quality wherever the opportunity presents itself to the press and radio.

E. Agronomy

1. Research - Developing plants which will improve the chemical and physical nature of the milk produced; i.e., susceptibility to fat oxidation, composition of milk fat and flavor.

2. Extension
   a. Consideration of the effect of feeds upon milk composition, flavor, etc., when promoting their use by dairymen.
   b. Relation of weeds to milk quality. (French weed, pepper grass and other)

F. Dairy Husbandry and Dairy Herd Improvement.

1. Education on proper feeding time for silage of all kinds and other strong flavored feeds.

2. Planning rations so that they will not have too high proportions of feeds which cause serious difficulties in processing and marketing, alfalfa, cottonseed meal, etc.

3. Discouragement of too abrupt change from dry feed to all pasture in the spring.

4. Encouragement of D. H. I. fieldmen to act as leaders for 4H and other quality improvement clubs and projects.

5. Culling out mastitis infected cows.

G. Economic Entomology

Control and elimination of insects in dairy plants, flies, cockroaches, etc.

Control of insects, particularly flies in milkhouses and stables.
H. Home Economics

1. Application of the housewife's standard of cleanliness (in the care, preparation, and serving of food) to the care and handling of milk, washing and sterilizing of milk utensils and separators, cleanliness of milkhouses, cooling of milk, etc.

2. Encouragement of more dairy food education in the home economics departments in schools and 4H clubs:
   a) Quality Improvement Demonstrations.
      1) Proper cleaning and sterilization of milk utensils, separators, etc.
      2) Most advantageous uses of dairy products.
         a. Use of milk and milk products wherever the opportunity presents itself.
      3) The value of high quality vs. low quality dairy products, teaching how to judge dairy products.
      4) The importance of securing milk from healthy cows handled properly under sanitary conditions, the importance of laboratory control in dairy plants, etc.

I. Horticulture

   Beautification and landscaping of dairy plant grounds and farmsteads.

J. Rural Sociology

1. Vocational guidance away from dairying for those who are not fitted for dairying.

2. Questions for public discussion groups.
   a. How should the producer of inferior quality milk be educated or his product excluded from the market?
   b. Public health obligations of the dairyman.
   c. Should the dairymen be licensed?

K. Veterinary Science

1. Detection, control and elimination of diseases in dairy cows.

2. Improvement in animal sanitation

3. Cooperation in the training of dairy inspectors.
COOPERATING AGENCIES AND OTHER AGENCIES DOING DAIRY MANUFACTURING WORK

Statewide Agencies

1. Other Departments of the Wisconsin College of Agriculture
2. Wisconsin State Department of Agriculture and Markets
3. Wisconsin State Board of Vocational and Adult Education
4. Wisconsin State Department of Public Instruction
5. Wisconsin State Board of Health
6. Wisconsin Buttermakers' Association
7. Wisconsin State Cheesemakers' Association and Sectional Cheesemakers' Associations
8. Wisconsin State Dairymen's Association
9. Wisconsin State Ice Cream Manufacturers' Association
10. Wisconsin State Milk Dealers' Association
11. Wisconsin Federation of Cooperative Creameries
12. Wisconsin Council of Agriculture

Local Agencies

1. County Agricultural Agents
2. County Home Agents
3. 4H Club Leaders
4. Agricultural High School Teachers
5. Home Economics High School Teachers
6. County Superintendents of Schools and Rural School Teachers
7. County Boards of Supervisors
8. High School Boards of Education
9. Local Health Officers
10. Local Dairy Inspectors
11. Local Board of Health Laboratories
12. County Fair Secretaries
13. Managers and Directors of Dairy Plants:
   - Fluid milk:
   - Pasteurizing plants
   - Receiving plants for larger city markets
   - Producer-Distributor
   - Creameries
   - Cheese factories
   - Condenseries
   - Ice Cream Plants
14. Other Local Producers' Organizations
15. Other Local Group Leaders