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Developments in the Dairy Industry

United States - - Minnesota

HANDBOOK AND DIGEST

For Agricultural Extension Workers and Other Leaders
in the Dairy Industry

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Dairying is a very important farm enterprise in Minnesota. During the five year period of 1945-49 and in the last several years, the cash farm receipts from dairy products have constituted 19.8 percent of the total. This does not include the income from veal calves and cull cows. Although dairying is a major enterprise in Minnesota its importance has declined somewhat in relation to other farm enterprises. During the period of 1935-39, 27.8 percent of total cash farm receipts came from dairying compared with 17.5 percent in 1950. Regardless of what product is consumed, whether it is fluid milk and cream, evaporated and condensed milk, cheese or ice cream and regardless of whether butterfat is used in the form of butter or some other form and whether skim milk is processed into dry skim milk or casein or used for feed on the farm, it all comes from the same original supply of wholemilk. The opportunity to shift milk to the various uses results in a close and sensitive relationship between the different dairy products.

There was a substantial increase in the demand for fluid milk and cream, cheese and ice cream, since 1935-39. During this period there was a serious decline in the demand for butter. These changes in demand have had a definite effect upon the dairy industry:

1. Returns from dairying generally were less favorable than from other farm enterprises resulting in less milk cows, lower total milk production and especially lower milk production per capita of human population.
2. The strong demand for dairy products containing both butterfat and non-fat solids resulted in a decided shift from the sale of cream from farms to the sale of wholemilk.
3. The strong demand for some milk products, especially for fluid milk and cream resulted in an increased flow of milk into these channels.
4. Less demand for butter, and increased demand for products like cheese and ice cream required a shift in the use of butterfat.

These developments in the dairy industry have required shifts in the methods and procedures of producers, handlers, processors and distributors.

For the dairy industry as a whole the marketing job is one of relating the total supply of milk to the total demand for dairy products. More than than, it requires studying existing demands for the different dairy products, and shifts in demand, so that the supply of milk may be directed into those channels that will be of mutual benefit to producers and consumers. The price relationship between different dairy products will in large part determine the form in which milk will be used. The marketing job in the dairy industry is like fitting together a "jig-saw puzzle"- the pieces must be carefully and well fitted.

Agricultural Extension workers, dairy industry leaders, creamery directors and managers, and producers and consumer groups all have a responsibility to present facts, and to help inform handlers, processors, distributors and consumers about the complicated pattern of producing and marketing dairy products.

To assist in this big job the following dairy statistics are presented as reference material. An outline precedes the statistical tables so that any section may be easily located. The statistical material was obtained from dairy reports published by the Bureau of Agricultural Economics, Production and Marketing Administration, other agencies in the U.S.D.A., the Minnesota State-Federal Crop Reporting Service, and the Division of Agricultural Economics, University of Minnesota.

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Table A — CASH FARM RECEIPTS FROM MINNESOTA COMMODITIES

Year	Hogs	Dairy Products - Milk and B.F.	Cattle and Calves	Lambs Sheep and Wool	Chickens and Eggs	Turkeys	Cash Crops	All Commodities Shown
				(Million Dollars)				
1935-39	65.5	86.1	52.9	9.2	29.0	5.2	63.0	310.9
1940-44	162.6	138.8	96.6	14.3	80.5	12.2	114.0	619.0
1945-49	242.7	227.7	174.7	16.6	144.2	24.4	320.1	1150.4
1950	233.5	206.4	253.1	16.9	107.7	25.4	338.7	1181.7
1951	275.5	233.4	274.8	20.2	143.5	30.9	301.3	1279.6
1952								
				PERCENT OF CASH FARM RECEIPTS FROM EACH COMMODITY				
1935-39	21.1	27.8	17.0	3.0	9.3	1.6	20.2	100
1940-44	26.3	22.4	15.6	2.3	13.0	2.0	18.4	100
1945-49	21.1	19.8	15.2	1.5	12.5	2.1	27.8	100
1950	19.8	17.5	21.4	1.4	9.1	2.1	28.7	100
1951	21.5	18.2	21.5	1.6	11.2	2.4	23.6	100

Note 1: Cash receipts from dairy products, were about 3 times as large in 1951 and during the 1945-49 period as the annual average in the pre-war years of 1935-39. This resulted largely from price increases because the volume of milk sold from Minnesota farms increased only slightly. Cash receipts from hogs and from cattle and calves increased to 4 and 5 times the pre-war figure during the same period of time.

2. The percent of total cash receipts coming from dairy products has declined materially since the pre-war years of 1935-39. The percent coming from cash crops has increased considerably.

Table B — Minnesota's Position in the Dairy Industry

Year	Total Milk Production			Butter Production			American Cheese Production			Dry Milk Production		
	U. S.	Minn.	Percent of U.S. Total	U.S.	Minn.	Percent of U.S. Total	U.S.	Minn.	Percent of U.S. Total	U.S.	Minn.	Percent of U.S. Total
	Million Pounds			Million Pounds			Million Pounds			Million Pounds		
1935-39	103,656	7822	7.5	1691	287.6	17.0	509.0	12.8	2.5	450.9	37.8	8.4
1940-44	115,415	8685	7.5	1726	299.6	17.4	769.0	26.5	3.5	772.9	104.0	13.4
1945-49	116,623	8402	7.2	1297	225.7	17.4	879.7	49.5	5.6	1010.4	227.8	22.5
1950	116,602	8067	6.9	1386	251.4	18.1	892.9	45.6	5.1	1122.0	201.2	17.9
1951	115,591	7942	6.9	1215	234.8	19.3	862.3	43.1	5.0			

Note: 1. The slight decline in the percentage of the total United States milk supply that is produced in Minnesota.

2. Minnesota butter production has declined greatly. However, Minnesota made a larger percentage of the total United States supply of butter in 1950 and 1951 than in earlier years. Stated differently butter production declined more for the United States than in Minnesota.

3. Minnesota is becoming a more important cheese state. A larger percentage of the total United States supply of cheese was made in Minnesota in late years compared with earlier years.

4. Minnesota produces about one-fifth of all the dried milk in the United States.

Year	Cows on Farms Kept for Milk - January 1 (million)	Cows on Farms Kept for Milk - Annual Ave. (million)	Production per Cow Milk (lbs.)	Production per Cow Butterfat (lbs.)	Total Production (million lbs.)	Production - per capita (lbs.)	Consumption - per capita (lbs.- B.F. basis)
1925-29		21.4	4,437	174	94,673	799	
1930-34		23.9	4,497	169	102,620	818	
1935-39		23.5	4,403	174	103,656	799	801
1940-44	26.3	24.8	4,653	185	115,415	851	804
1945-49	25.7	23.3	4,999	198	116,622	819	784
1950	23.9	21.9	5,314	210	116,602	786	776
1951	23.7	21.7	5,326	210	115,591	760 (est.)	759
1952	23.4						

Note: 1. The number of cows on farms in the U. S. reached its peak in 1944 (annual average of 25.8 million) and has declined steadily since then. Indications are that the number of cows on farms kept for milk may decrease further.

2. Total milk production reached its peak of nearly 120 billion pounds in 1945 and has been on a decline since that time.

3. In later years the increase in production per cow has partly offset the decline in milk cow numbers. However with the increase in human population, milk production per capita is at a comparatively low level.

4. In 1870 there were 4 humans for every cow: during 1925-29 there were 5 and in 1951 there were over 7 humans for every milk cow.

5. The difference in per capita milk production and consumption is accounted for by exports and inventory changes.

Year	Jan.	Feb.	Mar.	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Monthly Ave.	Index of High Prod. Month (Low Month-100)
	(million pounds)													
1930-34	7,751	7,386	8,430	8,875	10,463	10,660	9,787	8,793	7,929	7,758	7,298	7,526	8,555	146
1935-39	7,402	7,050	8,255	8,824	10,596	11,079	10,336	9,270	8,243	7,909	7,187	7,433	8,632	154
1940-44	8,212	8,057	9,348	10,096	12,127	12,252	11,502	10,459	9,162	8,531	7,679	7,991	9,618	160
1945-49	8,215	8,059	9,814	10,458	12,417	12,426	11,692	10,603	9,168	8,545	7,606	7,843	9,718	163
1950	8,378	8,199	9,603	10,387	12,034	12,138	11,497	10,570	9,184	8,658	7,800	7,972	9,717	156
1951	8,289	8,027	9,787	10,215	12,164	12,212	11,436	10,505	9,145	8,528	7,611	7,797	9,633	160
1952	8,178	8,170	9,155	10,129	12,049	11,867	11,039	10,210						
	PERCENT MONTHLY PRODUCTION WAS OF THE TOTAL PRODUCTION FOR THE YEAR													
1930-34	7.6	7.2	8.2	8.6	10.2	10.4	9.5	8.6	7.7	7.6	7.1	7.3	100	
1935-39	7.1	6.8	8.0	8.5	10.2	10.7	10.0	8.9	8.0	7.6	7.0	7.2	100	
1940-44	7.1	7.0	8.1	8.7	10.5	10.6	10.0	9.1	7.9	7.4	6.7	6.9	100	
1945-49	7.0	6.9	8.2	9.0	10.7	10.7	10.0	9.1	7.9	7.3	6.5	6.7	100	
1950	7.2	7.0	8.4	8.9	10.4	10.4	9.9	9.1	7.9	7.4	6.7	6.8	100	
1951	7.2	6.9	8.4	8.8	10.6	10.6	9.9	9.1	7.9	7.4	6.6	6.7	100	
1952														

Note: 1. The wide fluctuation in milk production from the high months of May and June to the low month of November. Because dairy products are consumed at a more uniform rate, dairy products in one form or another must be carried over from the months of high production to the months of low production. Storage costs must be covered out of the total income from the product. In addition to storage costs, those who store dairy products assume the risk of abnormal price fluctuations and expect a return for assuming this risk.

2. When the volume of milk in the high production months exceeds the volume in the low production months by 50 to 60 percent, processing plant facilities can not be operated at maximum efficiency. If a plant is equipped to handle the milk at the time of flush production, the facilities are not fully used during the season of short supply.

3. There was a slightly wider percentage range in milk production from the high months of production (May, June and July) to the low months of production (October, November and December) during the war and post-war years than in pre-war years. This may have been partly the result of regulated uniform prices, and a deviation from the normal seasonal pattern of prices.

TABLE E

BUTTERFAT PRICES RECEIVED BY FARMERS*- U. S.
(Average U. S. Mid-Month Prices per Pound)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Weighted Average Annual Price	Range
	(cents per pound)													
1925-29	45.8	40.3	45.4	44.0	42.5	41.4	41.2	41.4	43.2	45.3	45.8	46.9	44.0	6.6
1930-34	24.1	23.5	24.1	23.8	23.1	21.7	22.4	23.9	25.0	26.0	25.9	25.0	23.5	4.3
1935-39	31.4	32.0	30.1	29.3	26.6	25.6	26.4	27.3	28.1	29.2	30.5	32.1	28.8	6.5
1940-44	39.5	39.5	39.3	39.8	40.3	39.6	39.9	40.6	41.5	42.6	43.4	44.3	40.4	5.0
1945-49	66.0	63.2	63.9	63.4	61.8	61.5	66.5	67.2	69.5	69.0	68.0	70.9	65.5	9.4
1950	62.5	6311	62.4	61.0	60.6	59.7	59.4	60.3	60.9	62.8	63.5	64.8	62.0	5.4
1951	70.2	70.3	69.7	68.0	69.5	69.8	68.8	68.5	68.4	69.9	71.7	75.7	70.0	7.7
1952	79.9	82.9	77.8	73.6	71.6	70.5	71.8	72.8						

* Butterfat sold in cream.

Index of Monthly Prices - Weighted Average Annual Price = 100

1925-29	104	92	103	100	97	94	94	94	98	103	104	107	100	15
1930-34	103	100	103	101	98	92	95	102	106	111	110	106	100	14
1935-39	109	111	105	102	92	89	92	95	98	101	106	112	100	23
1940-44	98	98	97	99	100	98	99	100	103	105	107	110	100	11
1945-49	101	96	98	97	94	94	102	103	106	105	104	108	100	14
1950	101	102	101	98	98	96	96	97	98	101	102	105	100	9
1951	100	100	99	97	99	100	98	98	98	100	102	108	100	11

Note: 1. There is a decided price advantage during the low production months compared with the high production months (compare this Table with Table D).

2. There is a limit to how far seasonality in milk production can be adjusted. However, within limits milk producers could increase their net income by producing and selling milk when prices are seasonally higher. Special attention should be given to improved feeding programs, pasture management, breeding, and herd management.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Monthly Average	Index of High Prod. Month (Low Month = 100)
							(million pounds)							
1935-39	599	585	678	676	839	893	771	634	556	522	497	572	652	180
1940-44	712	705	816	802	945	954	826	673	552	535	532	644	724	179
1945-49	683	678	796	804	922	937	814	645	520	501	507	614	702	187
1950	687	696	828	800	865	892	749	582	460	452	474	582	672	197
1951	672	670	782	767	858	876	737	607	476	465	477	555	662	192
1952	626	656	759	752	854	989	755	611						
							Percent Monthly Production Was of the Total Production for the Year							
1935-39	7.7	7.5	8.7	8.6	10.7	11.4	9.9	8.1	7.1	6.7	6.4	7.3	100	
1940-44	8.2	8.1	9.4	9.2	10.9	11.0	9.5	7.7	6.4	6.0	6.1	7.4	100	
1945-49	8.1	8.0	9.4	9.5	10.9	11.1	9.7	7.7	6.2	5.9	6.0	7.3	100	
1950	8.5	8.6	10.3	9.9	10.7	11.1	9.3	7.2	5.7	5.6	5.9	7.2	100	
1951	8.5	8.4	9.8	9.7	10.8	11.0	9.3	7.6	6.0	5.9	6.0	7.0	100	
1952														

Note: 1. The seasonal pattern of milk production in Minnesota has changed very little over a period of years.

2. Milk production in Minnesota is more seasonal than for the United States as a whole. (Compare Tables F and D).

3. Milk production in Minnesota reaches a high level earlier in the spring and a low level earlier in the fall compared with the United States.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
For Butterfat in Cream (cents per pound)												
1940-44	42.0	42.0	41.0	42.0	43.0	42.0	42.0	43.0	44.0	45.0	46.0	47.0
1945-49	71.4	69.2	68.8	68.2	67.2	66.8	70.8	72.8	75.2	75.2	74.0	76.8
1950	67.0	68.0	67.0	66.0	66.0	66.0	65.0	66.0	66.0	69.0	69.0	75.0
1951	75.0	75.0	74.0	74.0	75.0	76.0	74.0	74.0	74.0	76.0	77.0	82.0
1952	86.0	89.0	82.0	79.0	77.0	76.0	77.0	79.0				
For Milk Delivered to Creameries and Milk Plants (dollars per cwt.)												
1940-44	2.15	2.10	2.05	2.05	2.10	2.10	2.15	2.20	2.30	2.35	2.40	2.40
1945-49	3.31	3.22	3.13	3.07	3.04	3.07	3.29	3.44	3.61	3.61	3.64	3.62
1950	3.05	3.00	2.95	2.90	2.90	2.85	2.90	3.05	3.25	3.35	3.35	3.45
1951	3.55	3.60	3.55	3.50	3.50	3.50	3.50	3.60	3.75	3.90	4.00	4.10
1952	4.05	4.10	3.85	3.70	3.65	3.60	3.80	3.95				
For Milk Sold in the Twin City Market (T.C.M.P.A.) -Blended Price to Producers for Grade A Milk (dollars per cwt.)												
1935-39	1.76	1.73	1.66	1.60	1.54	1.51	1.60	1.67	1.72	1.75	1.77	1.81
1940-44	2.33	2.30	2.29	2.31	2.34	2.35	2.40	2.44	2.52	2.53	2.54	2.56
1945-49	3.66	3.57	3.52	3.49	3.46	3.51	3.84	3.95	4.08	3.97	4.02	4.04
1950	3.41	3.39	3.22	3.22	3.26	3.25	3.43	3.63	3.63	3.64	3.67	3.79
1951	3.87	3.94	3.94	4.05	4.05	3.95	4.02	4.10	4.12	4.20	4.30	4.39
1952 (base)	4.49	4.54	4.36	4.36	4.26	4.26	4.34	4.70				
1952 (surplus)	4.19	4.23	4.01	4.01	3.89	3.89	no surplus	no surplus				

Note: 1. A base and surplus plan of payment was established by T.C.M.P.A. beginning January 1, 1952. The base is established by the volume delivered during the months of short supply.

2. The milk referred to here as Grade A is for bottling and fluid milk consumption purposes. Milk which is separated, including that from which the cream is bottled, is paid for at a lower price.

3. The price paid for milk in the Twin City Market has been considerably above the average price paid at creameries and milk plants in the state. Municipal health and other regulatory standards require more capital investment and expense for farmers in producing and delivering milk for this market.

TABLE H

Utilization of Milk Supply - U. S.
(Wholemilk Equivalents - Butterfat Basis)

Year	Production (Farm & Non-Farm	Fed to Calves	Farm Butter	Milk and Cream Consumption	Total Farm Use	Total Non-Farm Use	Milk and Cream Consumption	Evap. and Cond.	Dried Whole Milk	American Cheese	Other Whole Milk Cheese	Ice Cream*	Butter	Misc.
	(million pounds)													
1930-34	105,523	2,882	11,334	12,237	26,453	79,070	31,165	3,930	105	4,048	1,195	2,211	33,842	2,564
1935-39	106,450	2,794	9,694	12,112	24,600	81,850	32,035	4,949	149	5,190	1,551	3,083	33,828	1,047
1940-44	118,712	3,392	7,384	11,848	22,624	96,088	38,006	7,448	690	7,741	1,958	4,571	34,609	1,065
1945-49	121,837	3,228	6,233	12,196	21,657	100,180	45,500	7,793	1,314	8,841	2,505	6,771	25,954	1,502
1950	123,381	3,382	5,365	12,450	21,197	102,184	46,000	6,940	990	8,870	2,810	6,270	27,980	2,324
1951														

* Includes milk sherbet and ice milk, not computed prior 1943.

Percent of the Total Milk Supply Going into Various Farm and and Non-Farm Uses

1930-34	100	2.7	10.7	11.6	25.1	74.9	29.5	3.7	.1	3.8	1.1	2.1	32.2	2.4
1935-39	100	2.6	9.1	11.4	23.1	76.9	30.1	4.7	.1	4.9	1.5	2.9	31.8	.9
1940-44	100	2.9	6.2	11.4	19.1	80.9	32.0	6.2	.6	6.5	1.7	3.9	29.1	.9
1945-49	100	2.6	5.1	10.0	17.7	82.3	37.3	6.4	1.1	7.3	2.1	5.6	21.3	1.2
1950	100	2.7	4.4	10.1	17.2	82.8	37.3	5.6	.8	7.2	2.3	5.1	22.6	1.9
1951	100													
1952	100				.. ..	.. ..								

Note: 1. A smaller volume of milk was used "on the farm" in the later years. This is largely due to a decline in farm butter-making.

2. The percentage of the total supply of milk used as fluid milk and cream has increased from 41 percent in 1930-34 (including fluid milk and cream consumed on and off the farm) to over 47 percent in 1945-49.

3. The percentage of the total supply of milk used for making cheese and ice cream has increased while the percentage of the butterfat used in butter has materially decreased.

TABLE I PRODUCTION OF MANUFACTURED DAIRY PRODUCTS - U. S.

Year	Butter (mil. lbs.)	Index of product. (1935-39 an ave. = 100)	American Cheddar Cheese (mil. lbs.)	Index of product. (1935-39 an ave. = 100)	Other whole milk cheese (mil. lbs.)	Index of product. (1935-39 annual ave. = 100)	Evaporated and Condensed Milk (mil. lbs.)	Index of product. (1935-39 annual ave. = 100)	Ice Cream (mil. gals.)	Index of product. (1935-39 annual ave. = 100)
1935-39	1691	100.0	509	100.0	160	100.0	2225	100.0	262	100.0
1940-44	1726	102.0	769	151.0	203	126.9	2034	91.4	406	155.0
1945-49	1299	76.8	880	172.9	261	163.1	3590	161.3	591	225.6
1950	1388	82.1	893	175.4	300	187.5	3205	144.0	556	212.2
1951	1215	71.9	862	169.4	295	184.4	3223	144.9	571	217.9

Note: 1. There were large increases in the production of evaporated and condensed milk, cheese and especially ice cream in response to a strong demand for these products, during the war and post-war years.

2. Production of evaporated and condensed milk declined from the high average annual production during 1945-49. The high consumption and increased sales of fluid milk resulted in smaller production and sales of evaporated and condensed milk.

3. Butter production has been low in comparison with production of other dairy products. This is in response to the decline in the demand for butter and lower per capita consumption.

TABLE J

QUANTITIES OF SKIMMILK AND BUTTERMILK USED IN MANUFACTURED PRODUCTS - U.S.
(Skimmilk Equivalents)

Year	Full Skim-American Cheese	Cottage Cheese Curd	Cond. and Evap. Skim Milk	Con. Skim Milk Animal Feed	Non-fat Dry Milk Solids	Condensed and Dried Buttermilk	Dry Casein	Total Volume of Skimmilk
				(Million Pounds)				
1936-39	4	879	1,125	36	4,343	911	1,812	9,110
1940-44	21	1,246	1,706	50	5,980	1,169	1,213	11,385
1945-49	31	1,614	2,872	55	8,092	1,050	708	14,422
1950	28	2,017	2,271	36	9,885	1,086	662	15,985
1951								
1952								
				Percent of the Total Used for Each Product				
1936-39	.1	9.6	12.3	.4	47.7	10.0	19.9	100.0
1940-44	.2	10.9	15.0	.4	52.5	10.3	10.7	100.0
1945-49	.2	11.2	10.0	.4	56.1	7.3	7.3	100.0
1950	.2	12.6	14.2	.2	61.8	6.8	6.8	100.0
1951								
1952								

Note:

1. There has been a constant increase in the use of skimmilk for manufacturing purposes. Although there has been a constant increase in the use of skimmilk for human consumption in both fluid and manufactured form a large proportion of the total production is still fed to livestock on the farm. Further diversion can be made when the demand justifies it without increasing total milk production.

2. With the shift in the sale of cream from farms to the sale of more wholemilk there has been a decided decline in the production of condensed and dried buttermilk.

3. There has been a sharp and steady decline in the proportion of skimmilk used for dry casein.

4. The increased use of non-fat solids for human consumption is reflected in the increased proportion of the larger volume of skimmilk used for non-fat dry milk solids and cottage cheese.

Year	Dry Whole Milk	Malted Milk Powder	Dry Cream	Dry Skim Human Food	Dry Skim Animal Feed	Total Dry Skim for Human and Animal Food	Dry Butter-milk	Dry Casein	Total Dry Milk Products
				(million pounds)					
1935-39	19.5			242.6	132.8	375.4	56.0		450.9
1940-44	89.5	33.6	.1	469.2	74.8	544.2	66.6	39.1	772.9
1945-49	173.2	36.4	.3	718.1	17.5	735.6	44.9	19.8	1010.4
1950	125.0	30.7	.5	881.1	17.6	898.7	48.7	18.5	1122.0
1951	130.8	30.7 (est.)		771.3	12.7	724.0	45.0	21.7	952.2
				Index of Production - 1935-39 Annual Average = 100					
1935-39	100.0			100.0	100.0	100.0	100.0		100.0
1940-44	459.0			193.4	56.3	145.0	118.9		171.4
1945-49	888.2			296.0	13.2	196.0	80.2		224.1
1950	641.0			363.2	13.3	239.4	87.0		248.8
1951	670.8			293.2	9.6	192.9	80.4		211.2

Note: 1. During the last several years the production of dry milk in the United States has been between two and three times the production in pre-war years. In Minnesota, production has been about six times pre-war. A comparison of the U. S. and Minnesota situations points to the great shift that has occured in the Minnesota dairy industry from the sale of cream from farms to the sale of wholemilk. (See TABLE L).

2. In the pre-war years a substantial volume of dry milk was used for animal feed. In recent years the bulk of the supply has moved into human food channels.

Year	Dry Whole-milk	Dry Wholemilk - part skimmilk	Dry Skim Milk (Human consump.) - Spray	Dry Skim Milk (Human consump.) - Roller	Dry Skim Milk Animal Feed	Total Dry Skimmilk Human and Animal Food	Dry Butter-milk	Dry Casein	Total Dry Milk Product
			(Thousand Pounds)						
1935-39	-		11,670*		7,341	19,011	15,844	2,941	37,796
1940-44	4,015		63,624*		3,454	67,078	28,700	4,217	104,010
1945-49	27,330		106,556	68,193	2,356	177,105	19,770	3,573	227,778
1950	15,904	306	123,023	37,541	2,280	162,844	18,961	3,614	201,233
1951	19,241	6,031	113,305	22,332	2,118	137,755	17,200	5,221	185,448

* Total of dry skimmilk for human consumption - roller and spray process.

Index of Production - 1935-39 Annual Average = 100

			**						
1935-39			100.0		100.0	100.0	100.0	100.0	100.0
1940-44			542.2		47.1	352.8	181.1	143.4	275.2
1945-49			1497.4		32.1	931.6	124.8	121.5	602.7
1950			1375.1		31.1	856.6	119.7	122.9	532.4
1951			1162.3		28.9	724.6	108.6	177.5	490.7
1952									

** This index is for <u>all</u> dry skimmilk for human consumption - includes roller process powder as well as the spray process powder.

Note: 1. Minnesota is one of the leading states in the production of milk powder. During 1945-49 about 1/4 of the dry non-fat solids (dry skimmilk), 1/5 of the whole milk powder and over 1/3 of the buttermilk powder produced in the United States was produced in Minnesota.

2. There has been a much larger production of whole milk powder since the war years. Improved techniques in processing and packaging have been the main reason.

3. There has been a continuousshift to a larger volume of "spray process" powder and less "roller process" powder since earlier years. "Spray process" powder has a market price advantage over "roller process" powder because it is more easily reconstituted. In recent years the improvement in spray process equipment has speeded up the shift.

U. S. Foreign Trade in Dairy Products
Related to Total U. S. Production

Year	Exp.	Imp.	Net Exp.	Net Imp.	Total U. S. Prod.	Percent Net Exp. were of U.S. Prod.	Percent Net Imp. were of U.S. Prod.
			Butter				
			Million Pounds				
1935-39	1.4	9.3	--	7.9	1691	--	.47
1940-44	38.9	6.0	32.9	--	1726	1.91	--
1945-49	15.6	3.0	12.6	--	1209	.97	--
1950	26.3	--	26.3	--	1388	1.89	--
1951	21.9	.1	21.8	--	1215	1.79	--
			Cheese				
			Million Pounds				
1935-39	1.3	56.6	--	55.3	669	--	8.27
1940-44	173.1	22.2	150.9	--	972	15.52	--
1945-49	156.2	18.7	137.5	--	1141	12.05	--
1950	54.2	56.2	--	2.0	1193	--	.17
1951	81.0	52.3	28.7	--	1157	2.48	--
			Cond. and Evaporated Milk				
			Million Pounds				
1935-39	30.6	--	30.6	--	2225	1.38	--
1940-44	496.2	--	496.2	--	2034	24.40	--
1945-49	649.9	--	649.9	--	3590	18.10	--
1950	178.0	--	178.0	--	3205	5.55	--
1951	232.3	--	232.3	--	3223	7.21	--
			Dried Whole Milk				
			Million Pounds				
1935-39	3.1	1.7	1.4	--	19.5	7.18	--
1940-44	24.5	--	24.5	--	89.5	27.37	--
1945-49	100.1	--	100.1	--	173.2	57.79	--
1950	62.6	--	62.6	--	125.0	50.08	--
1951	59.5	9.0	50.5	--	130.8	38.61	--
			Dried Skim Milk				
			Million Pounds				
1935-39	2.7	4.5	--	1.8	375.4	--	.48
1940-44	129.5	--	129.5	--	544.2	23.80	--
1945-49	237.6	1.7	235.9	--	735.6	32.07	--
1950	331.1	2.5	328.6	--	898.7	36.56	--
1951	224.1	1.0	223.1	--	724.0	30.81	--

Note: 1. During the period of 1935-39, the United States had net imports of butter, cheese, and dried skimmilk. However, the net imports of butter and dried skimmilk were insignificant.

2. The only net imports for any dairy product since the 1935-39 period occurred in 1950 when imports of cheese exceeded exports by 2 million pounds.

3. The net exports of condensed and evaporated milk, dried wholemilk and dried skimmilk are significant in terms of U. S. total production. Exports are especially important for the dried milk industry.

Table N — Civilian Per Capita Consumption of Dairy Products and Fats and Oils - U. S.

Year	Total milk equiv. All products pounds	Fluid milk & cream (Milk equiv.) pounds	Manufactured products (Milk equiv.) pounds	Evaporated and condensed milk pounds	Cheese pounds	Ice cream pounds	All butter pounds	Lard lbs.	Shortening (Fat content) pounds	Margarine (Actual weight) pounds	Other food products (Fat content) pounds	Total fats and oils lbs. (1)
1935-39	801	340	461	16.7	5.5	9.5	16.7	11.0	11.7	2.9	6.3	44.7
1940-44	804	378	426	17.9	5.6	13.2	14.4	13.2	9.4	3.1	7.4	44.1
1945-49	783	405	378	19.3	6.8	17.7	10.6	12.1	9.6	4.9	6.9	41.0
1950	776	385	391	20.0	7.7	16.1	10.7	12.1	11.0	6.1	8.8	45.4
1951	759	395	364	18.1	7.2	16.1	9.7	12.2	9.0	6.5	7.6	41.9
1952(2)	743	400	343	18.2	7.5	16.2	8.9	12.2	10.0	7.7	7.9	43.4

(1) Includes only the fat content of butter and margarine. The fat content of butter was estimated at 80.5 percent of total weight. The fat content of margarine varies slightly each year.

(2) Preliminary

Index of Consumption - 1935-39 Annual Average = 100

1935-39	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1940-44	100.4	111.2	92.4	107.2	101.8	138.9	86.2	120.0	80.3	106.9	117.5	98.7
1945-49	97.8	119.1	82.0	115.6	123.6	186.3	63.5	110.0	82.1	169.0	109.5	91.7
1950	96.9	113.2	84.8	119.8	140.0	169.5	64.1	110.0	94.0	210.3	139.7	101.6
1951	94.8	116.2	79.0	108.4	130.9	169.5	58.1	110.9	76.9	224.1	120.6	93.7
1952	92.8	117.6	74.4	109.0	136.4	170.5	53.3	110.9	85.5	265.5	125.4	97.1

Note: 1. Per capita consumption of milk (wholemilk equivalents - butterfat basis) has been at a somewhat lower level in recent years compared with the earlier periods. However, this pertains to the butterfat in milk. A much larger percentage of the non-fat solids are now used as human food so that the nutrients consumed per capita through milk are probably considerably more than in the earlier periods. A larger volume of the non-fat solids is being consumed in fluid milk and cream, evaporated and condensed milk, cheese, ice cream and dry milk.

2. The consumption of fluid milk and cream is greatly influenced by non-agricultural employment and consumer purchasing power. When employment and purchasing power is high the purchases of fluid milk and cream are high.

3. There has been an almost continuous increase in the per capita consumption of cheese and ice cream. Ice cream consumption like the consumption of fluid milk and cream is greatly affected by purchasing power. When purchasing power is high ice cream consumption is high.

4. Butter consumption has been at a low level in comparison with earlier years, and is still on the decline. The severe price competition from substitutes especially those made from soybean and cottonseed oil, has placed butter in this position.

5. The decline in butter consumption has been offset only in part by an increase in margarine consumption. In other words per capita butter consumption declined more than margarine consumption increased.

Year	Whole milk sold to condenseries (Dollars per cwt. paid to farmers for 3.5% milk)	Butterfat sold in cream (¢ per lb. to farmers)	Butter 92 score Chicago wholesale price (¢ per lb.)	Cheese Twins or Cheddars Wisconsin wholesale price (¢ per lb.)	Evaporated Milk (Dollars per case of 48 - 14½ oz. cans)	Dry Whole Milk (¢ per lb.)	Dry Skimmilk - Human Food Chicago Area Spray Proc. (¢ per lb.)	Dry Skimmilk - Human Food Chicago Area Roller Proc. (¢ per lb.)	Dry Skimmilk - Human Food Chicago Area Spray and Roller Proc. (¢ per lb.)	Dry Skimmilk Animal Feed (¢ per lb.)	Dry Buttermilk (¢ per lb.)
1935-39	1.39	28.8	29.3	14.2	2.88	16.5	-	-	6.9	5.1	5.3
1940-44	2.11	40.4	39.2	20.3	3.62	26.2	-	-	11.4	7.2	8.8
1945-49	3.23	65.6	62.2	33.0	5.19	41.2	14.3	13.2	13.3	9.1	10.8
1950	2.87	62.0	61.7	30.9	5.23	37.5	12.4	10.9	11.9	8.7	10.0
1951	3.53	70.0	69.2	37.5	6.12	44.2	15.0	14.0	14.4	10.6	11.9
				Index of Prices - 1935-39 Average = 100							
1935-39	100.0	100.0	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0
1940-44	151.8	140.3	133.8	142.0	125.7	158.8	-	-	165.2	141.2	166.0
1945-49	232.4	227.8	212.3	230.8	180.2	249.7	-	-	192.8	178.4	203.8
1950	206.5	215.3	210.6	216.1	181.6	227.3	-	-	172.5	170.6	188.7
1951	254.0	243.1	236.2	262.2	212.5	267.9	-	-	208.7	207.8	224.5

Note: 1. The large increase in the average prices received for dairy products, during the period of general inflation.

2. The larger percentage increase in the price of some dairy products compared with others. The price relationship between dairy products has an important bearing on how the supply of milk is used. The price of individual dairy products is also an important determiner of how much of that product consumers will take off the market.