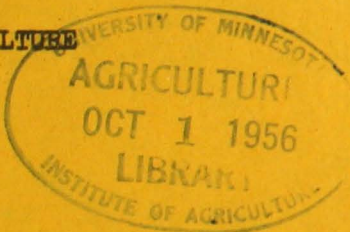


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THE MINNESOTA DAIRY INDUSTRY

County Data - 1954

Index

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Source of Data: State-Federal Crop Reporting Service and U. S. Census of Agriculture

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Current information available from University of Minnesota Extension: <http://www.extension.umn.edu>.

Figure 1

Note: The major milk supply area includes southeastern and east central Minnesota and extends on somewhat to the northwest.

Milk Production in Minnesota Counties - 1954
(Million Pounds)

Minnesota - 8,615 million pounds
United States - 123,502 million pound

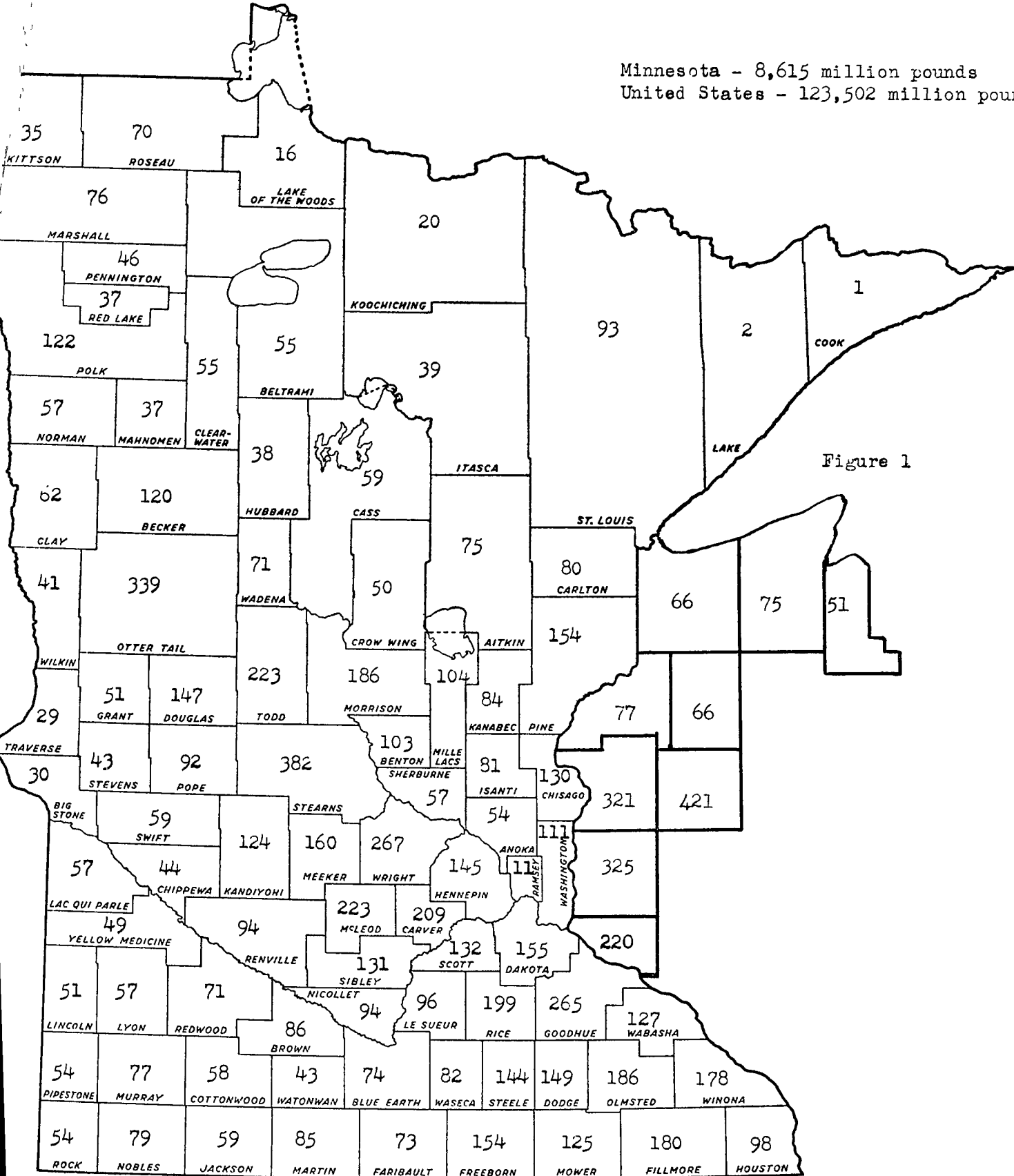


Figure 1

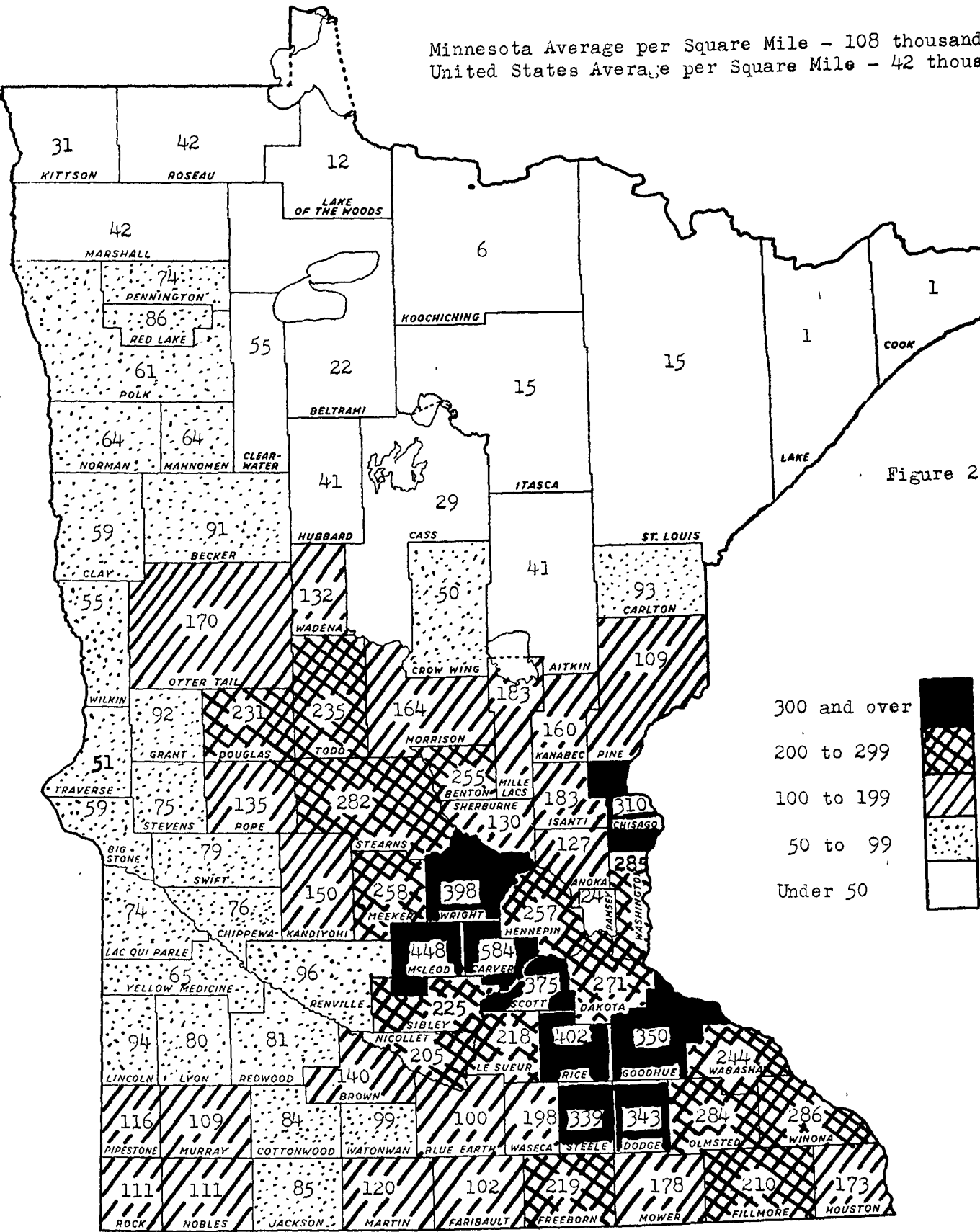
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Figure 2

- Note: 1. The density in milk production is dependent on a number of factors.
- (a) Nearness to market.
 - (b) Percent of total area in cropland.
 - (c) Topography, and the percent of land which should be kept in pastures or meadows most or all of the time.
 - (d) The number of alternative opportunities, or lack of them, for other farm enterprises.
2. The greatest density in milk production is in the area immediately south and southwest of the Twin Cities.

Density of Milk Production in Minnesota Counties - 1954
 (Thousand pounds per square mile)

Minnesota Average per Square Mile - 108 thousand
 United States Average per Square Mile - 42 thousand



← Notes of explanation on opposite page

Figure 3

- Note: 1. There is wide variation in the size of dairy herds from one area of the state to another. The smallest herds are in northeastern Minnesota and the largest average size herd is in Carver County.
2. The average size herd in the major milk producing counties of Minnesota ranges from 10 to 15 cows. Only eight counties have an average size herd of 15 or more cows. This indicates that there is a wide variation in the size of milking herds within a county because many individual herds are several times the size of the county average.

Average Number of Milk Cows in the Herd - 1954

The Average Size Herd in Minnesota was 11.0 cows.

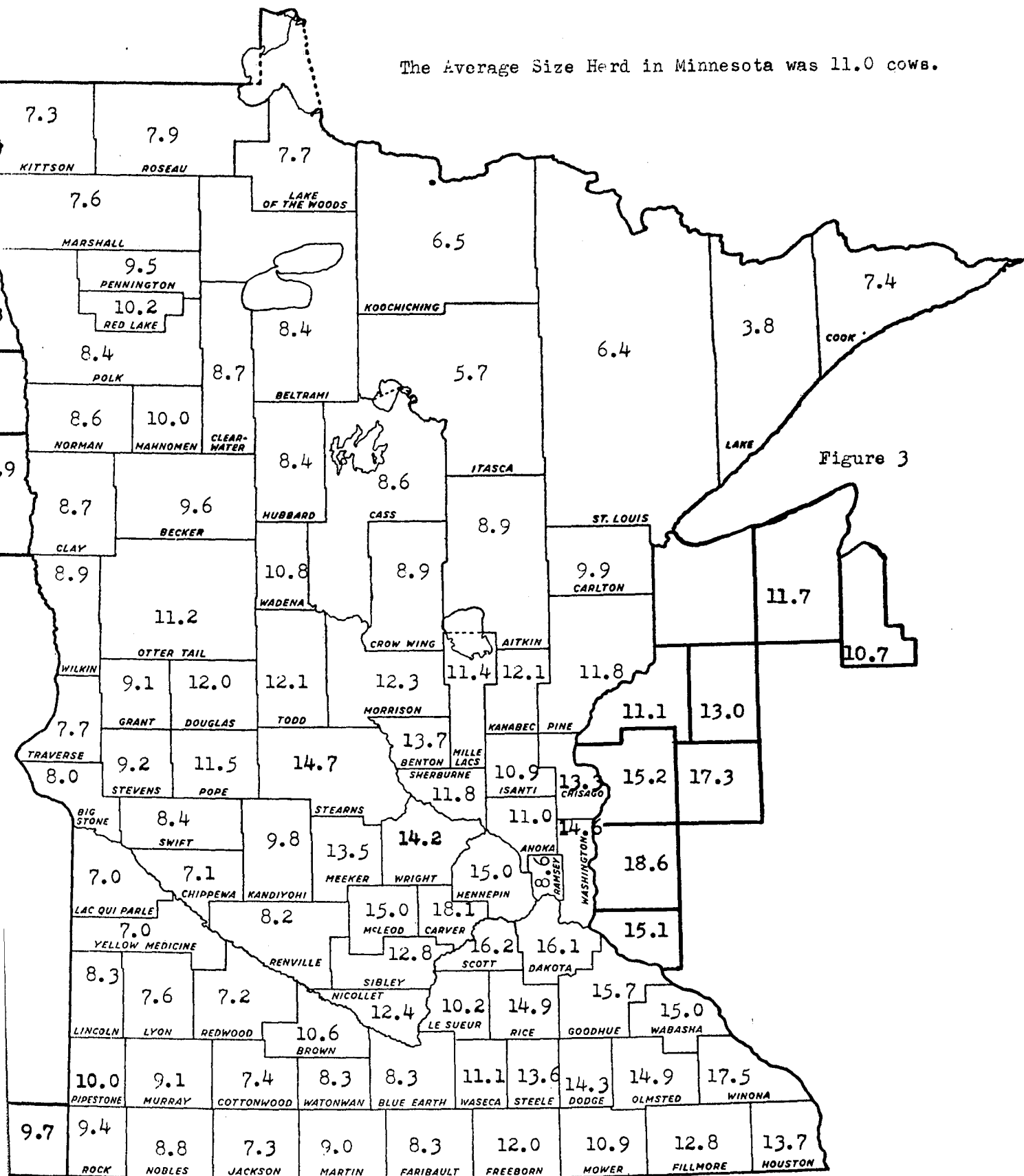


Figure 3

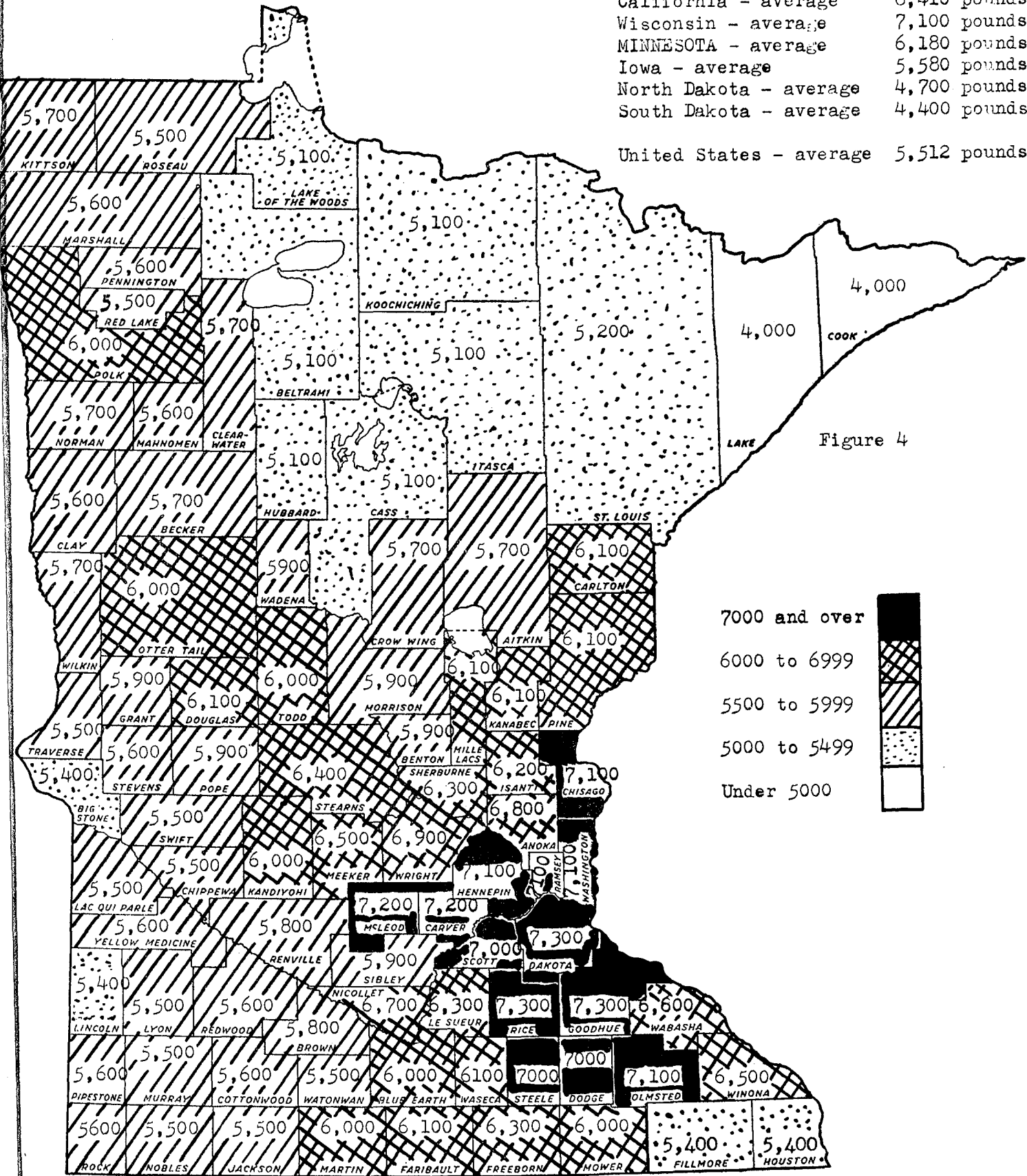
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Figure 4

- Note:
1. There is a wide variation in average milk production per cow from the lower to the higher counties.
 2. The highest average milk production per cow is in the Twin Cities area and south of the Twin Cities area.
 3. The lowest average milk production per cow is in the area of northeastern Minnesota, followed by the southwestern area.
 4. Average production per cow in the entire western area of the state is probably considerably lower because dual purpose cows and dairy and beef breed crosses are being milked part or all of the time.

Average Milk Production Per Cow - 1954
(Pounds)

California - average	8,410 pounds
Wisconsin - average	7,100 pounds
MINNESOTA - average	6,180 pounds
Iowa - average	5,580 pounds
North Dakota - average	4,700 pounds
South Dakota - average	4,400 pounds
United States - average	5,512 pounds



7000 and over
6000 to 6999
5500 to 5999
5000 to 5499
Under 5000



← Notes of explanation on opposite page

Figure 5

- Note: 1. The average milkfat test varied from the low of 3.37 percent in Watonwan County to the high of 4.03 in Itasca County.
2. The variations in milkfat tests from county to county reflect the breeds of dairy cattle which are predominant. A higher percentage of the cows milked in northeastern Minnesota are Guernseys. In most of the rest of the state the Holsteins predominate.

Average Milkfat Test - 1954
(Percent)

Average Milkfat Test in Minnesota was 3.55.

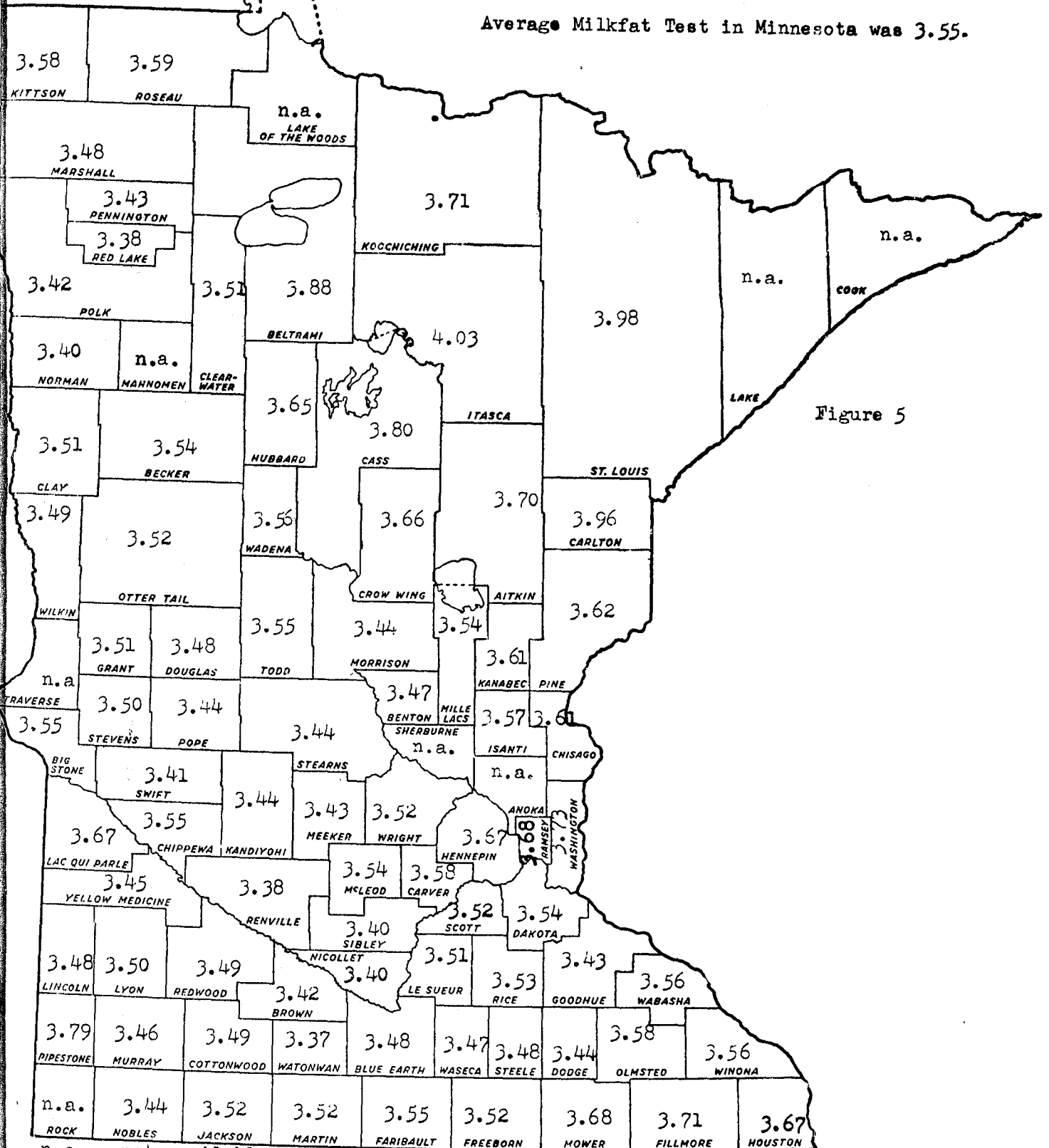


Figure 5

n.a. = not available - because individual plant data would be disclosed.

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Figure 6

- Note:
1. The volume of milkfat sales increased in most of the counties during the last five years. It also increased for the state as a whole.
 2. The reduction in the volume of milkfat sales in the north-eastern part of Minnesota (index of less than 100) reflects the reduction in the total number of farms and farmers and the opportunity in "off the farm" employment during the last five years.
 3. The reduction in the volume of milkfat sales in the immediate Twin Cities areas reflects the need for agricultural land for urban residential construction.
 4. The reduction in the volume of milkfat sales in a block of counties in south central Minnesota and in other scattered counties of the state reflects a shift to other more favorable farm enterprises.. This shift may continue further in the years ahead.

Changes in the Total Volume of Milkfat Sold by Farmers - 1954
(Index - 1949 = 100)

Minnesota = 104

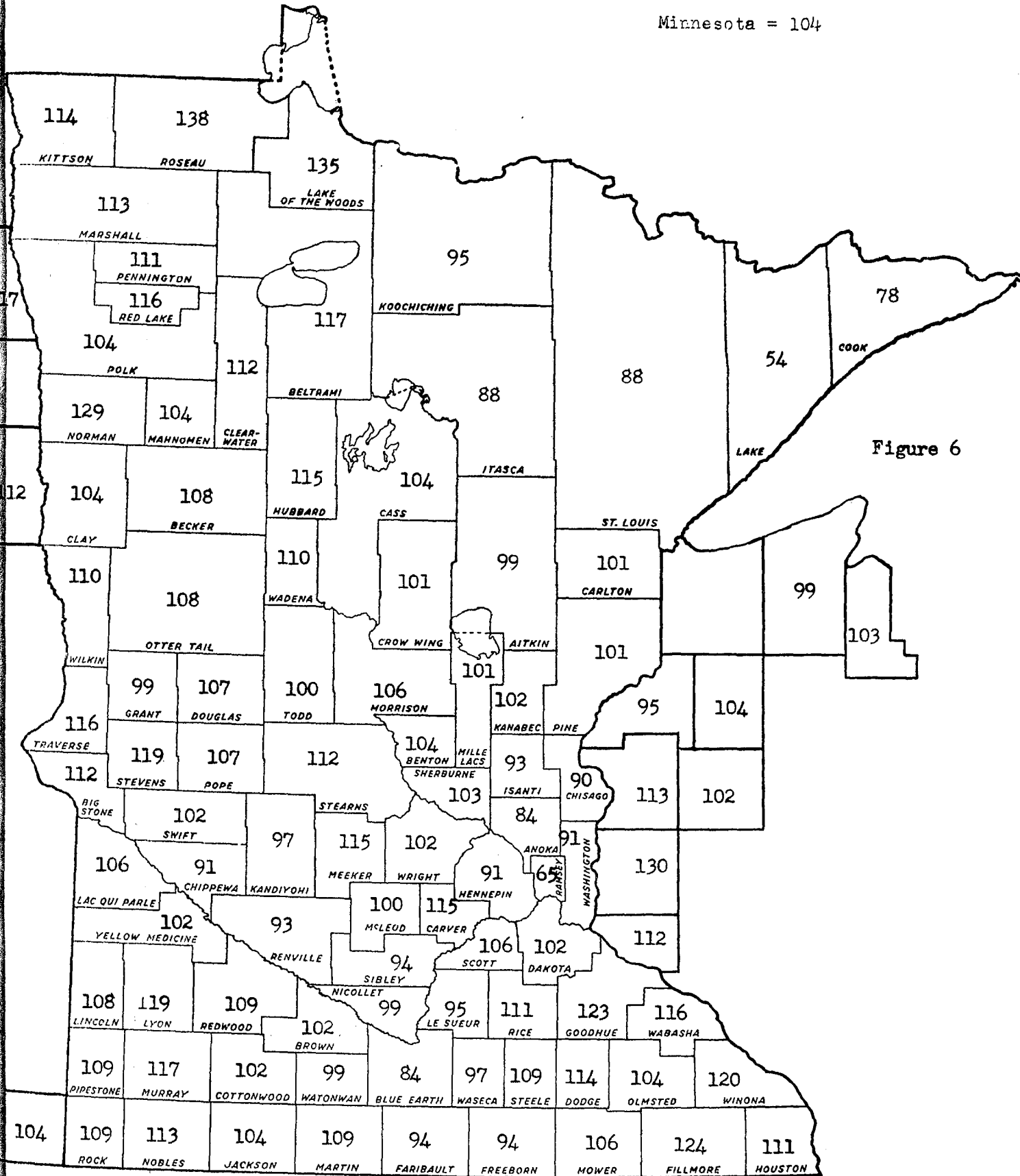


Figure 6

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Figure 7

- Note: 1. Some milkfat is sold in the form of whole milk by farmers in all counties of the state.
2. The total volume of whole milk sold by farmers does not indicate the supply available for local consumption as fluid milk. In some counties a large proportion of the whole milk is moved to processing plants and is used in manufactured dairy products, such as butter and dried milk, cheese, evaporated and condensed milk, etc.
3. Eight adjoining counties consisting of Wright, Hennepin, McLeod, Carver, Scott, Dakota, Rice and Goodhue, which comprise only a small portion of the state, have a volume of whole milk sales constituting 28 percent of the total.

Volume of Whole Milk Sold by Farmers - 1954 (Million Pounds)

Minnesota = 4,906 million pounds

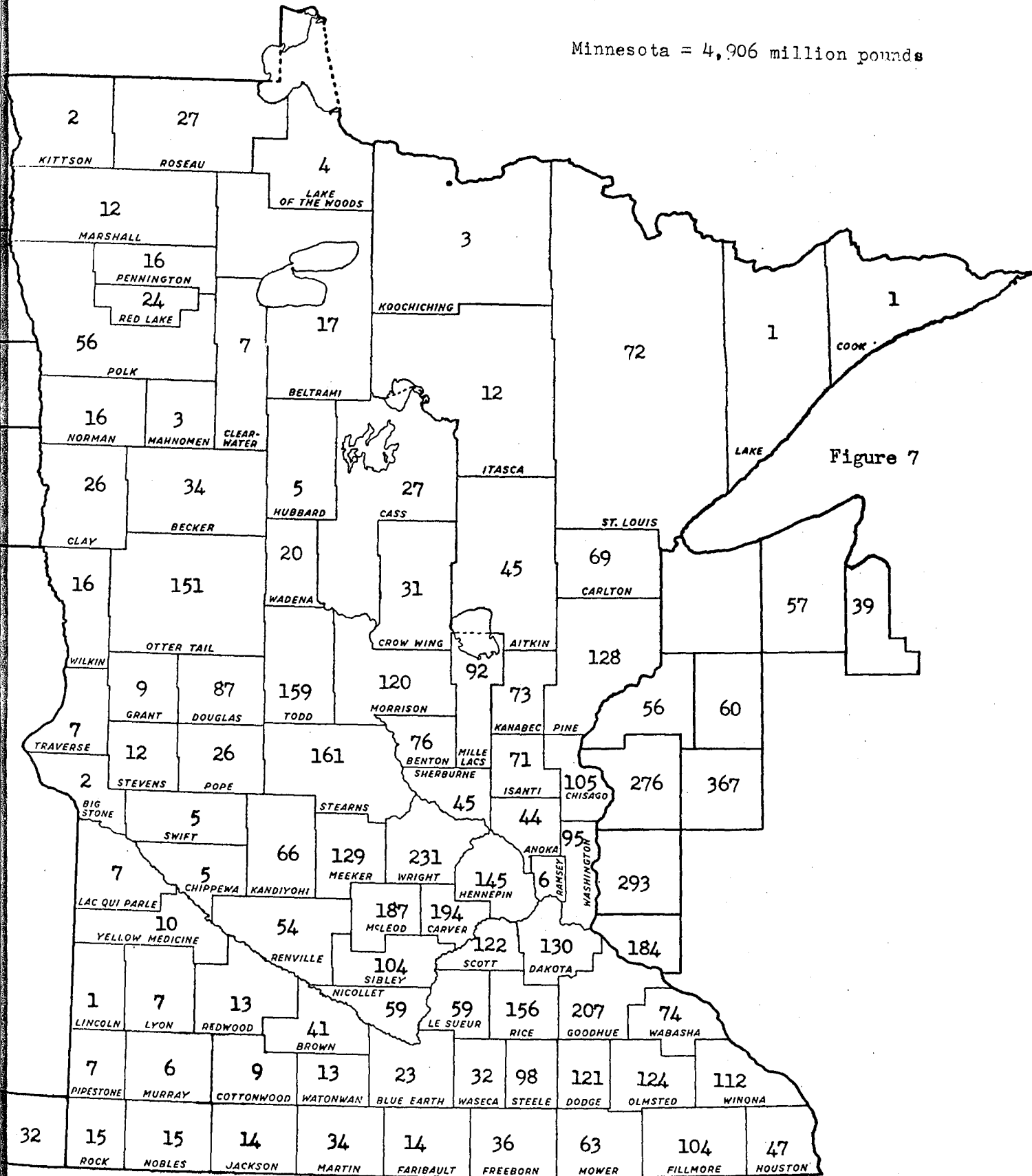


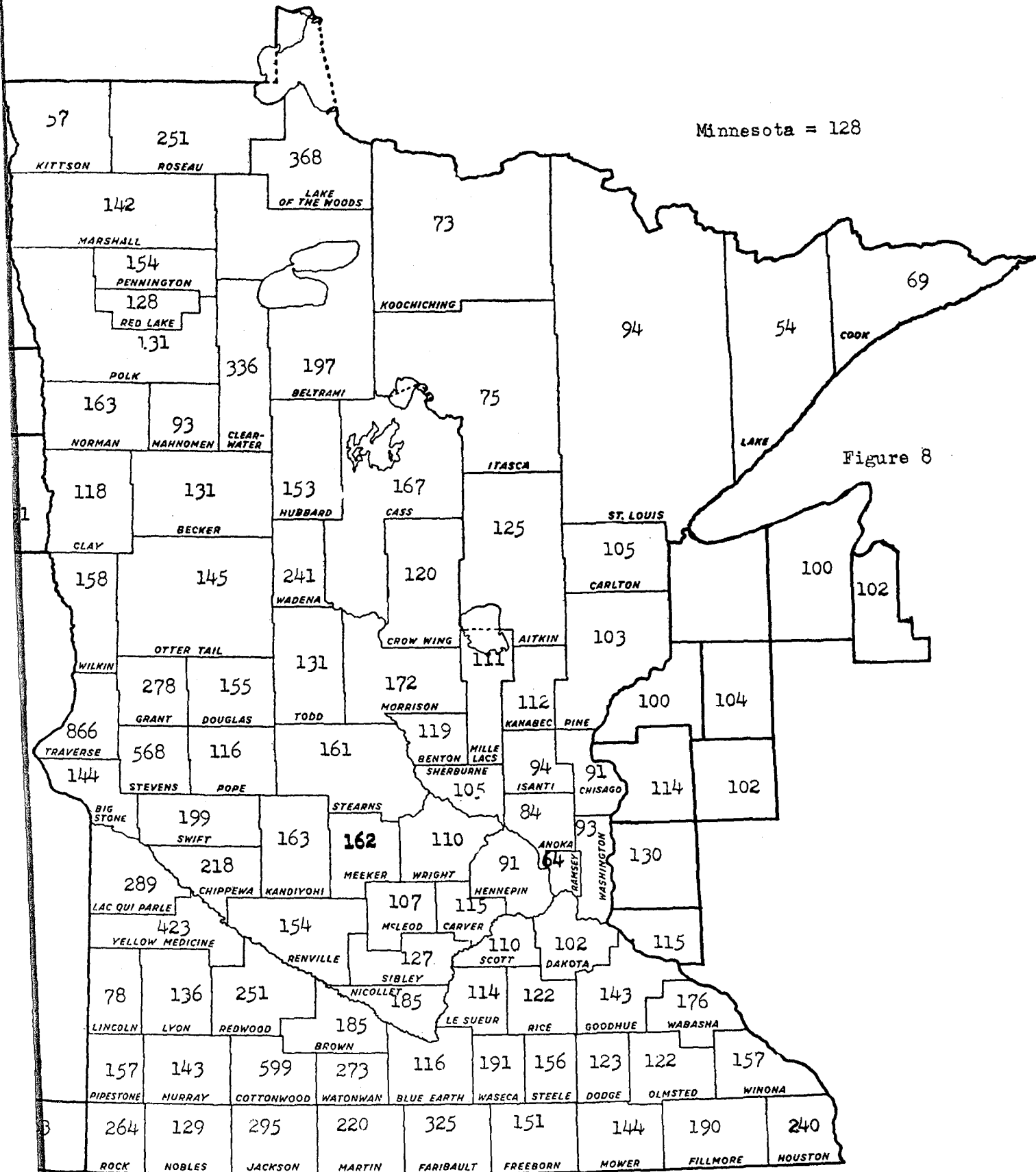
Figure 7

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Figure 8

- Note: 1. The large increase in the sales of whole milk from farms in some counties indicates the need for more milk processing equipment somewhere in the area. Better roads and transportation equipment, better methods of handling on the farm and at the plant (for example the use of bulk tanks), and the need for heavy investments in modern processing equipment, all favor a smaller number of larger well-equipped processing plants.
2. The smaller volume of sales of whole milk (index below 100) in northeastern Minnesota and the Twin Cities area does not indicate a shift away from the sale of whole milk to the sale of cream but indicates a reduction in total sales of milkfat (Figure 6).
3. There was a large increase in the sale of whole milk from farms in some of the western Minnesota counties like Traverse and Stevens from 1949 to 1954. Sales in these counties still constitutes a small volume compared to many other counties in Minnesota farther east and south because the volume sold in these counties in 1949 (the base year) was very small (see Figure 11). Most of the increases in sales were of whole milk used for manufacturing purposes.

Changes in the Volume of Whole Milk Sold by Farmers - 1954
 (Index - 1949 = 100)



← Notes of explanation on opposite page

Figure 9

Note: The low volume of milkfat (butterfat) sold in cream emphasizes the shift to the sale of whole milk from farms during the last number of years. It further emphasizes the desirability of reducing the number of creameries in an area if efficiency in operation is to prevail. In most counties one creamery would be sufficient and in a number of counties even more than sufficient to convert the milkfat in cream to butter.

()

Volume of Milkfat in Cream Sold by Farmers - 1954
(Thousand Pounds)

Minnesota 85,253 thousand pounds

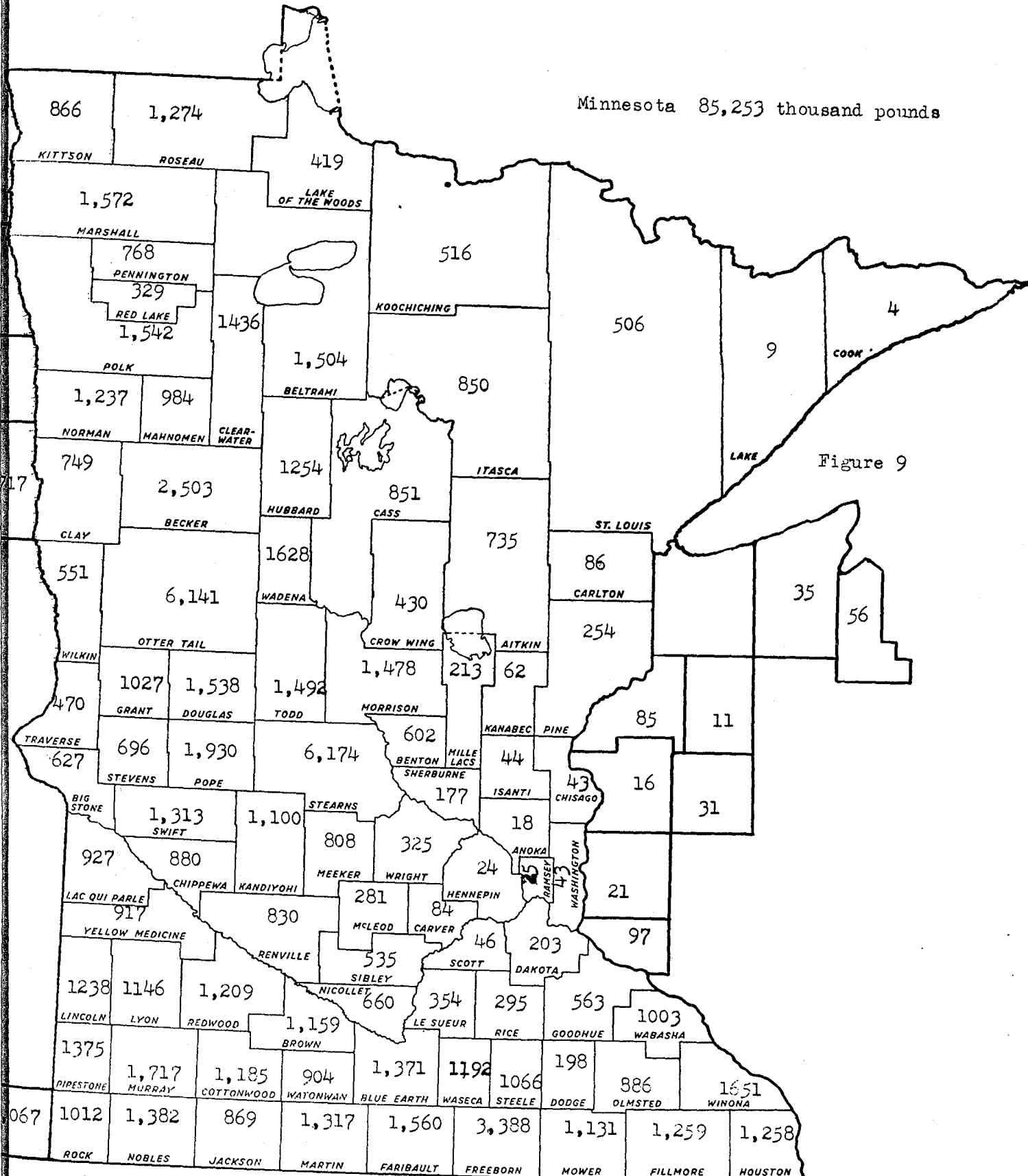


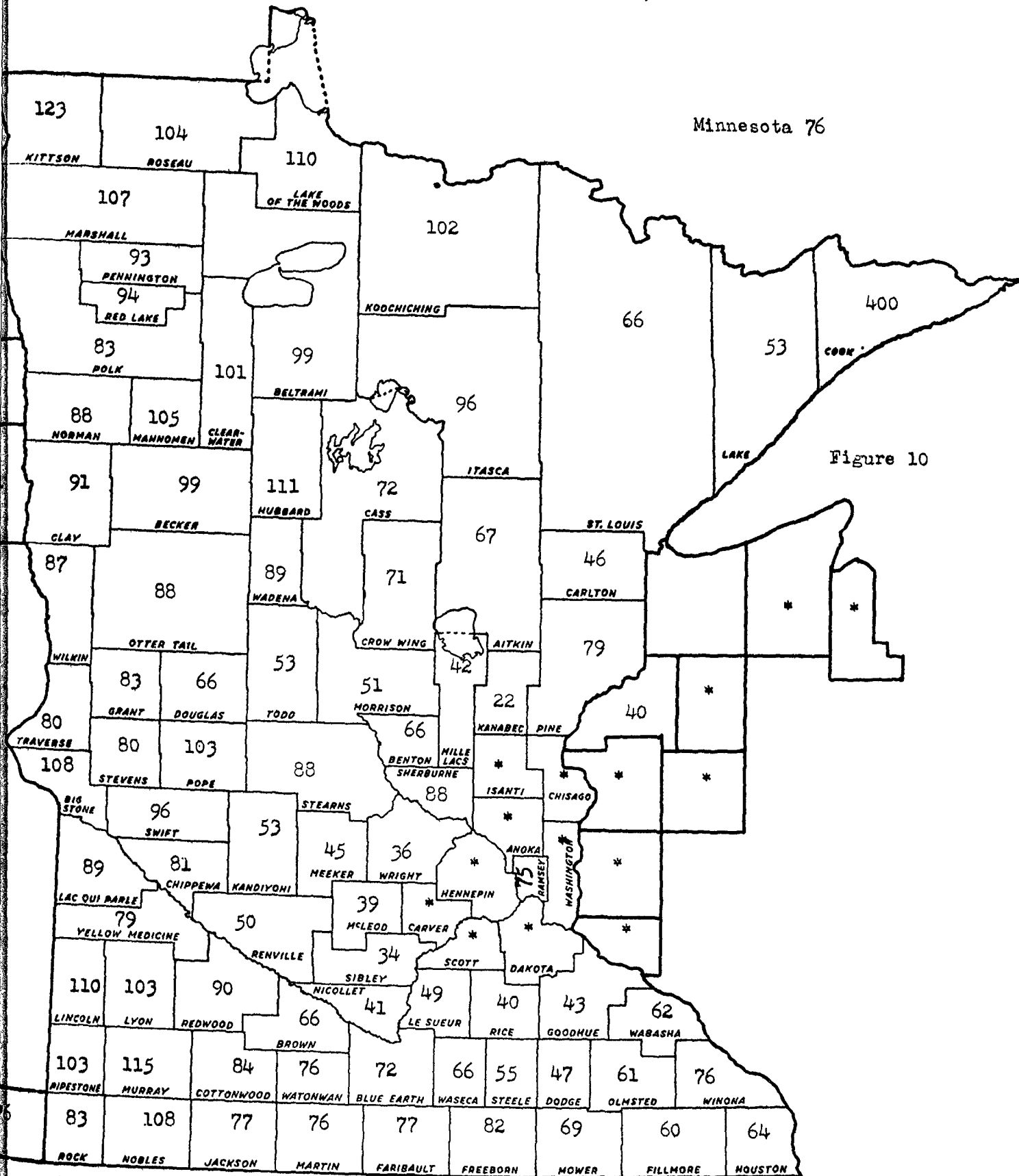
Figure 9

Notes of explanation on opposite page

Figure 10

- Note: 1. Only fifteen counties in the state had milkfat sales in the form of cream from farms in 1954 which exceeded the volume of sales in 1949. This indicates that the shift to the sale of milkfat in the form of whole milk, which was underway in 1949, continued during the last five years.
2. The counties which have pretty much remained in cream are those where dairy herds are below average in size (Figure 3) and where a number of other farm enterprises provide good alternatives. In some counties like Roseau and Clearwater there was a slight increase in cream sales but a larger increase in whole milk sales (Figure 8) thereby reflecting a general increase in dairying in these counties (Figure 6).
3. The continuous shift from the sale of milkfat in cream to the sale of whole milk (Figure 11) had a definite impact on the existing processing plants in the area, especially on those which were only making butter and were too small to justify the expenditures for equipment needed to handle milk. There is much indication that far too many of the plants shifted to the handling of milk. Larger plants with modern equipment could handle the milk more efficiently for farmers.

Changes in the Volume of Milkfat Sold in Cream by Farmers - 1954
(Index - 1949 = 100)



Minnesota 76

Figure 10

* Not significant because less than 5 per cent of the milkfat was sold as cream in 1949 and 1954.

← Notes of explanation on opposite page

Figure 11

- Note: 1. The proportion of total milkfat sold in the form of whole milk declined in only seven counties of Minnesota from 1949 to 1954. The counties where there was a decline included Lincoln, Mahnomen, Kittson, Koochiching, Itasca and Cook. In all other counties the proportion remained the same or increased. In some counties there was a very substantial increase.
2. The proportion of total milk fat sold in the form of whole milk by farmers is over 70 percent in most of the counties of southeastern and east central Minnesota and well over 90 percent in many of these counties.

Proportion of Total Milkfat Sold by Farmers as whole Milk -
1949 and 1954

(Percent)

Top figure - 1949
Bottom figure - 1954

Minnesota
1949 - 55
1954 - 67

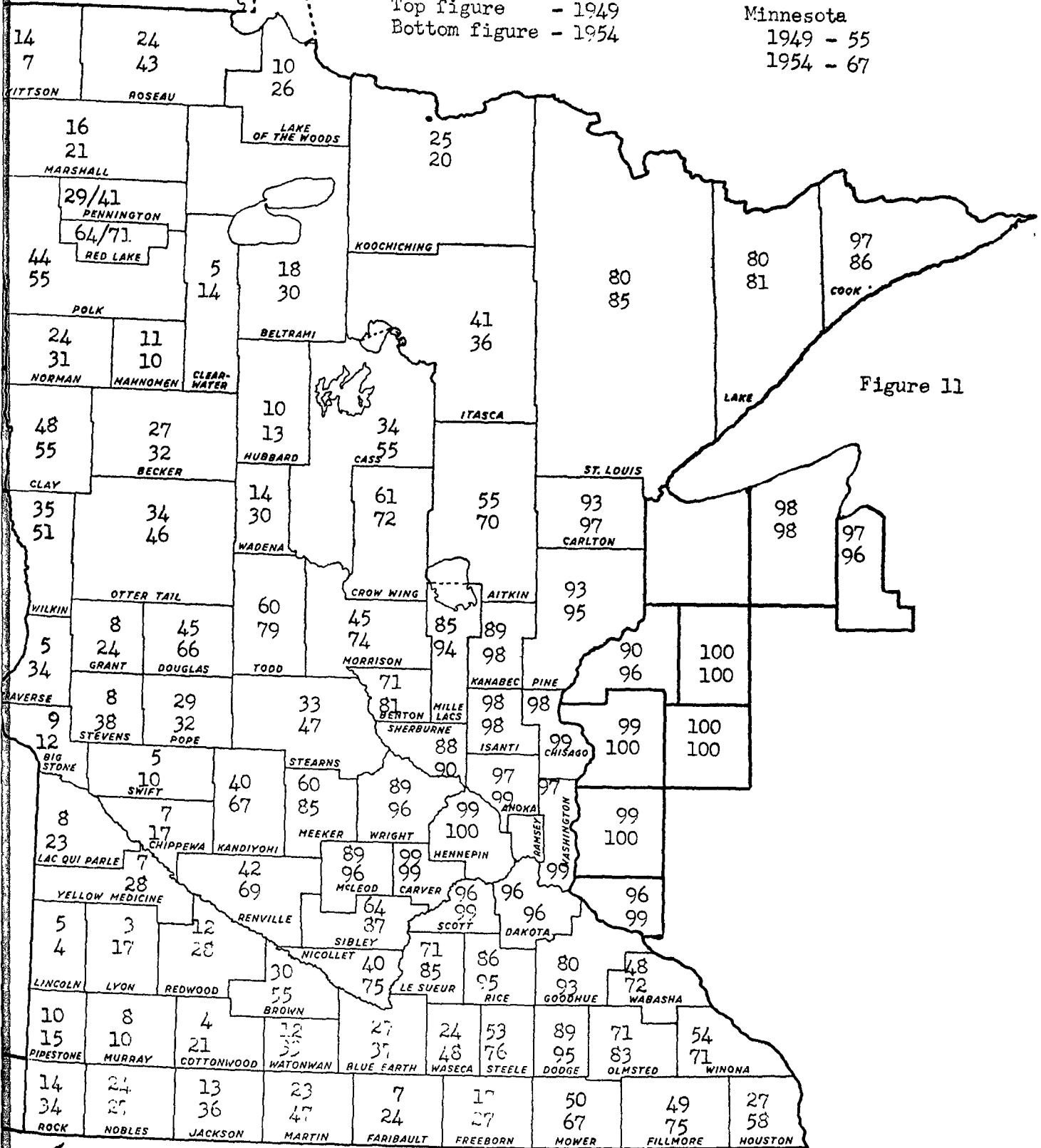


Figure 11

← Notes of explanation on opposite page

Figure 12

Note: The large number of plants receiving milk or cream or both from farmers in many counties, and especially in the smaller counties, indicates the need for consolidation of processing and handling facilities, as a means of attaining the goal of increased operating efficiency, uniformity of product and a larger net return to milk producers. Most of the plants were needed when they were built. However, improvements in roads, transportation equipment and equipment for handling milk on and off the farm have made many small plants complete obsolete. The processing of milk and cream in larger plants with modern equipment would result in large reductions in labor and other operating costs. Consolidation of small plants would also eliminate some of the overlapping of milk and cream procurement routes which is very costly, and which, directly or indirectly, must come out of the producer's milk or cream check.

Number of Dairy Plants where Milk and Cream Is Received
from Farmers - 1954

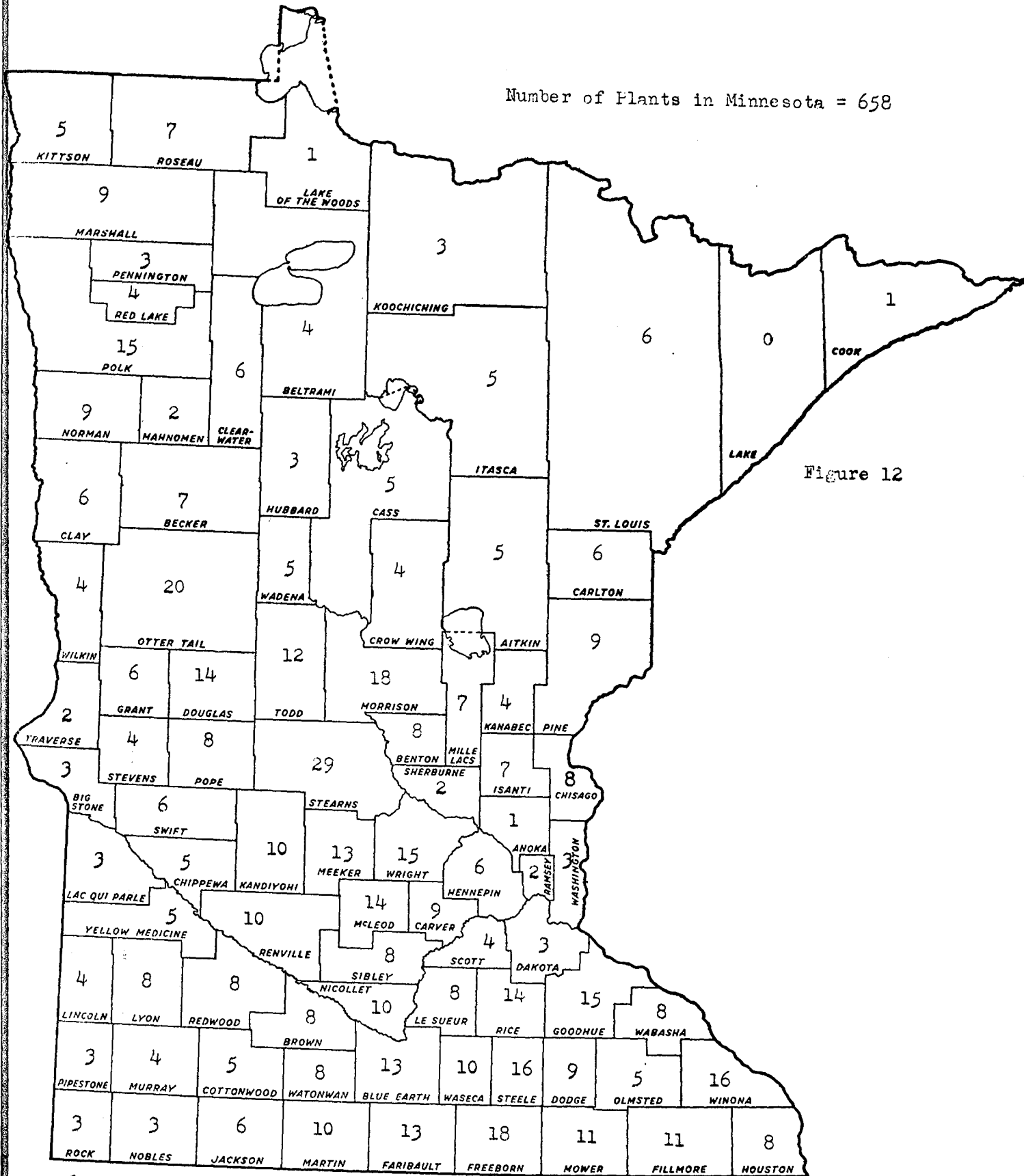


Figure 12

← Notes of explanation on opposite page

Figure 13

- Note: 1. The ten high counties in the state had milk and cream receipts from farmers of 2,512 million pounds (milk equivalent - milkfat basis). This was over 31 percent of the total receipts in the state. In each of these counties the receipts were in excess of 200 million pounds (milk equivalent).
2. The concentration of milk receipts in a limited number of counties in the state gives further indication that milk and cream receiving and processing facilities in many counties are greatly in excess of needs when consideration is given to efficiency in operation.

Volume of Milk and Cream Received at Plants from Farmers - 1954
 (Milk Equivalent - Milkfat Basis)
 (Million Pounds)

Total Plant Receipts in Minnesota from Farmers
 were 8,032 million pounds.

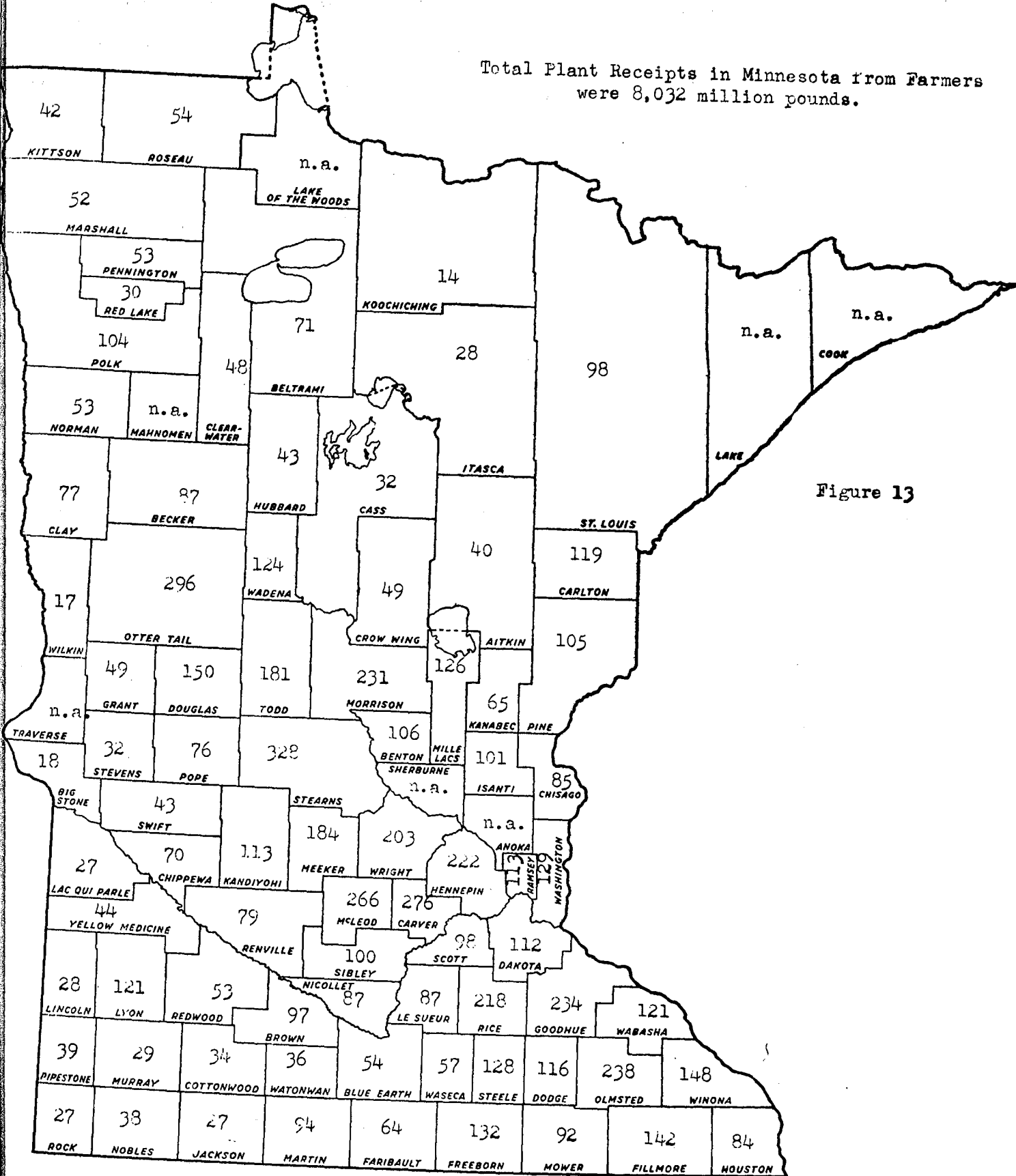


Figure 13

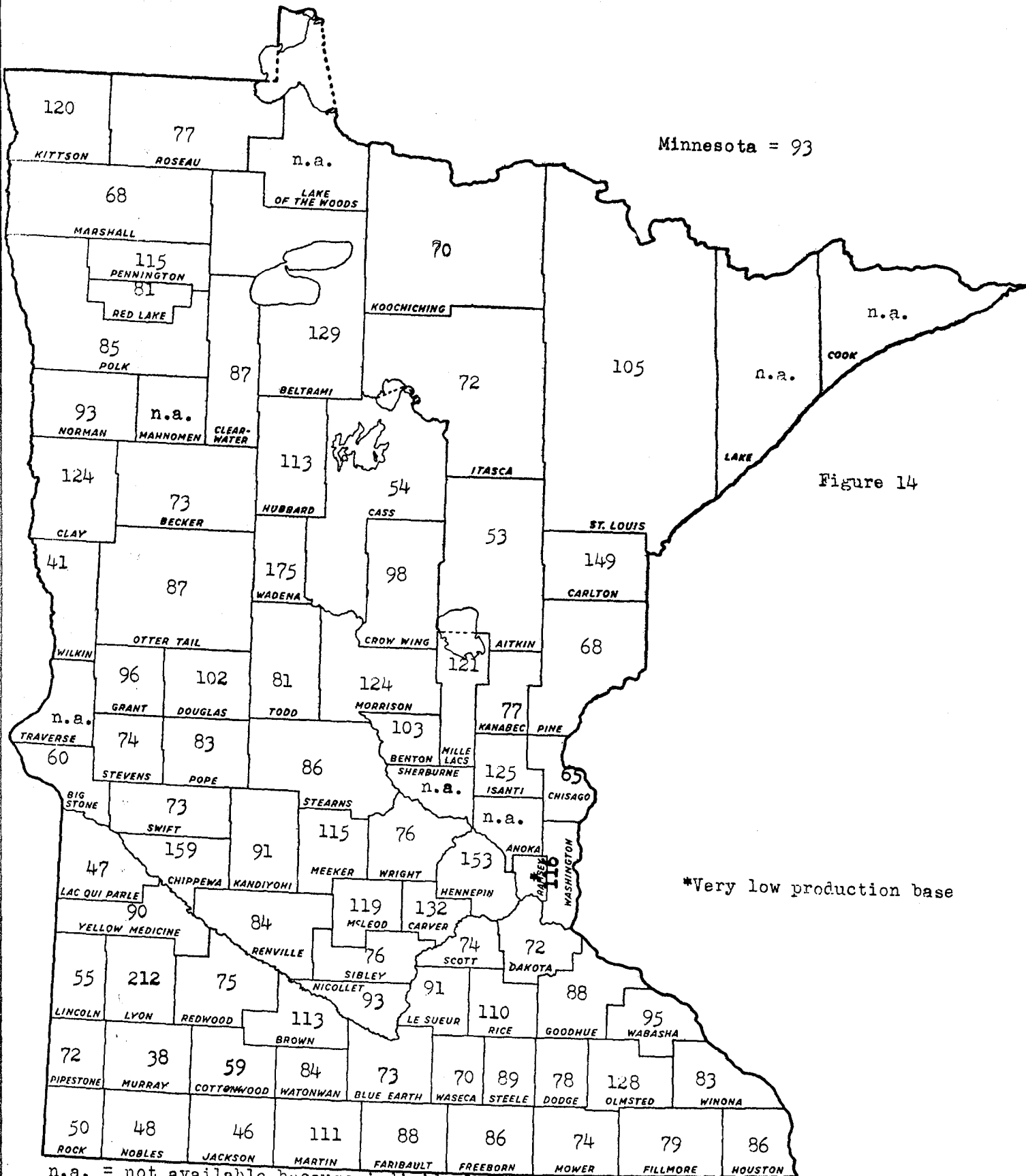
n.a. = Not Available because individual plant data would be disclosed.

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Figure 14

- Note: 1. The normal supply area for a given market or an established processing plant usually has little relationship to county lines. Consequently, there is no reason to assume that milk produced in a county should be received from farmers and processed in the county. The farmer's main interest is to sell where he can get the largest net return for his products, which may be outside of the county in which he resides.
2. The variations in the relationship between plant receipts and milk production reflect:
- (a) Local market demands for fluid milk and cream.
 - (b) Type of processing facilities available in a county.

Relationship of Plant Receipts to the Milk Production in each County - 1954
 (Index - Milk Production = 100)



Minnesota = 93

Figure 14

*Very low production base

n.a. = not available because individual plant data would be disclosed.

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Figure 15

- Note: 1. Average plant receipts in terms of milk equivalent provides only an arbitrary measure of plant and processing efficiency, because the various operations such as buttermaking, cheesemaking, milk drying, the processing of a variety of dairy products and milk bottling vary in both requirements for labor and facilities. However, in counties where receipts per plant are comparatively low there is every reason to investigate the possibilities of rearrangement in processing facilities, with the aim of increasing the receipts at individual plants, increasing the efficiency in transportation, receiving and processing, and increasing the return to milk and cream producers.
2. Average plant receipts are comparatively low in some of the older dairy areas of the state and especially in south central Minnesota.

Average Annual Receipts per Plant in Each County - 1954
(Million Pounds - Milk Equivalents)

The Average per Plant in Minnesota was
12.2 million pounds.

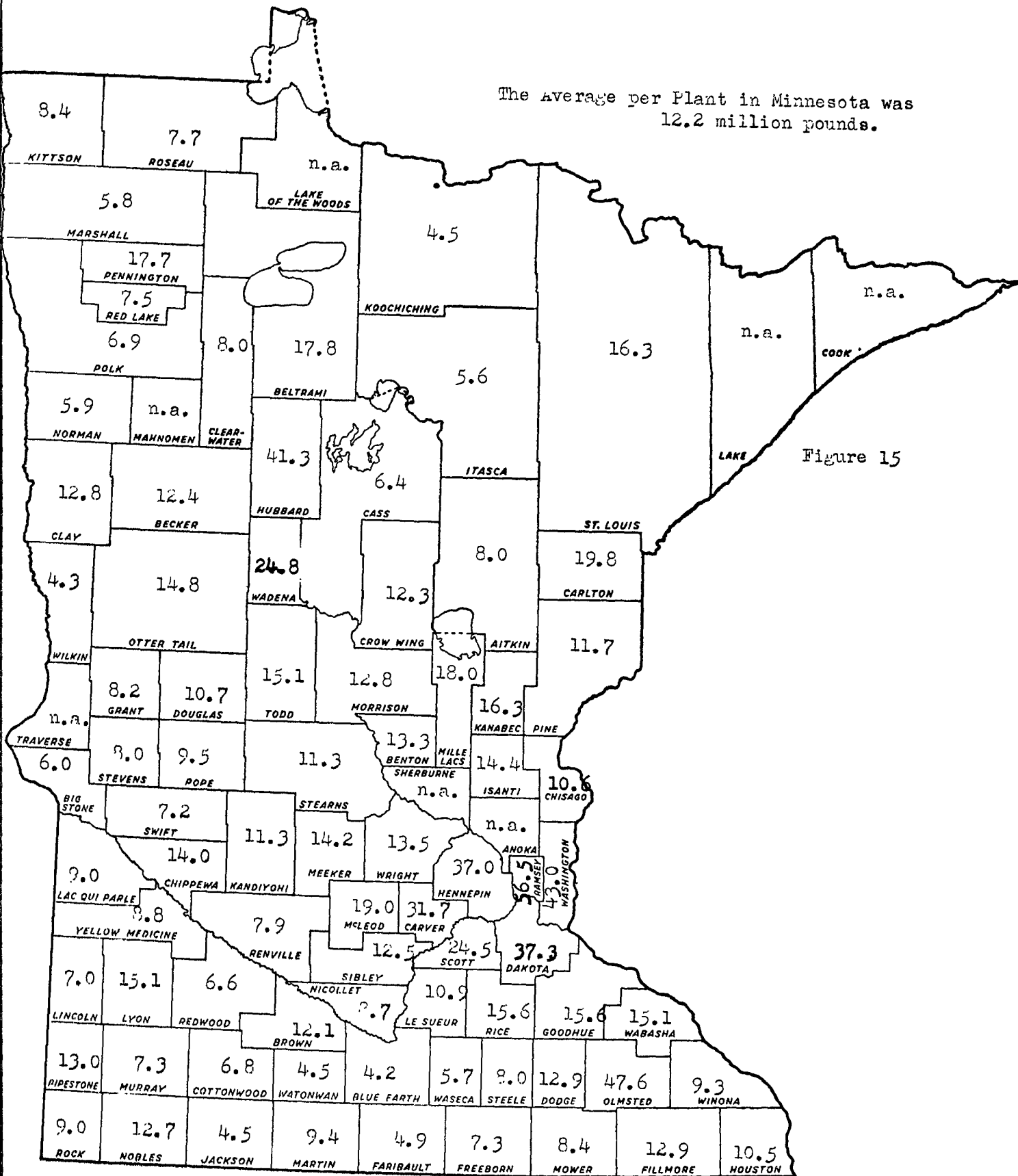


Figure 15

n.a. = not available because individual plant data would be disclosed.

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Figure 16

Note: The proportion of total milkfat received in whole milk at dairy plants in a county varies greatly from the proportion sold in whole milk by farmers in that county (compare with Figure 9). The reason is that the whole milk is concentrated at points where processing facilities are available. In some counties there are no facilities for manufacturing dairy products other than butter. The small supply of whole milk received in some counties is for use as fluid milk.

Proportion of Total Milkfat Received at Plants as Whole Milk - 1954
(Percent)

Minnesota Average was 67 Percent

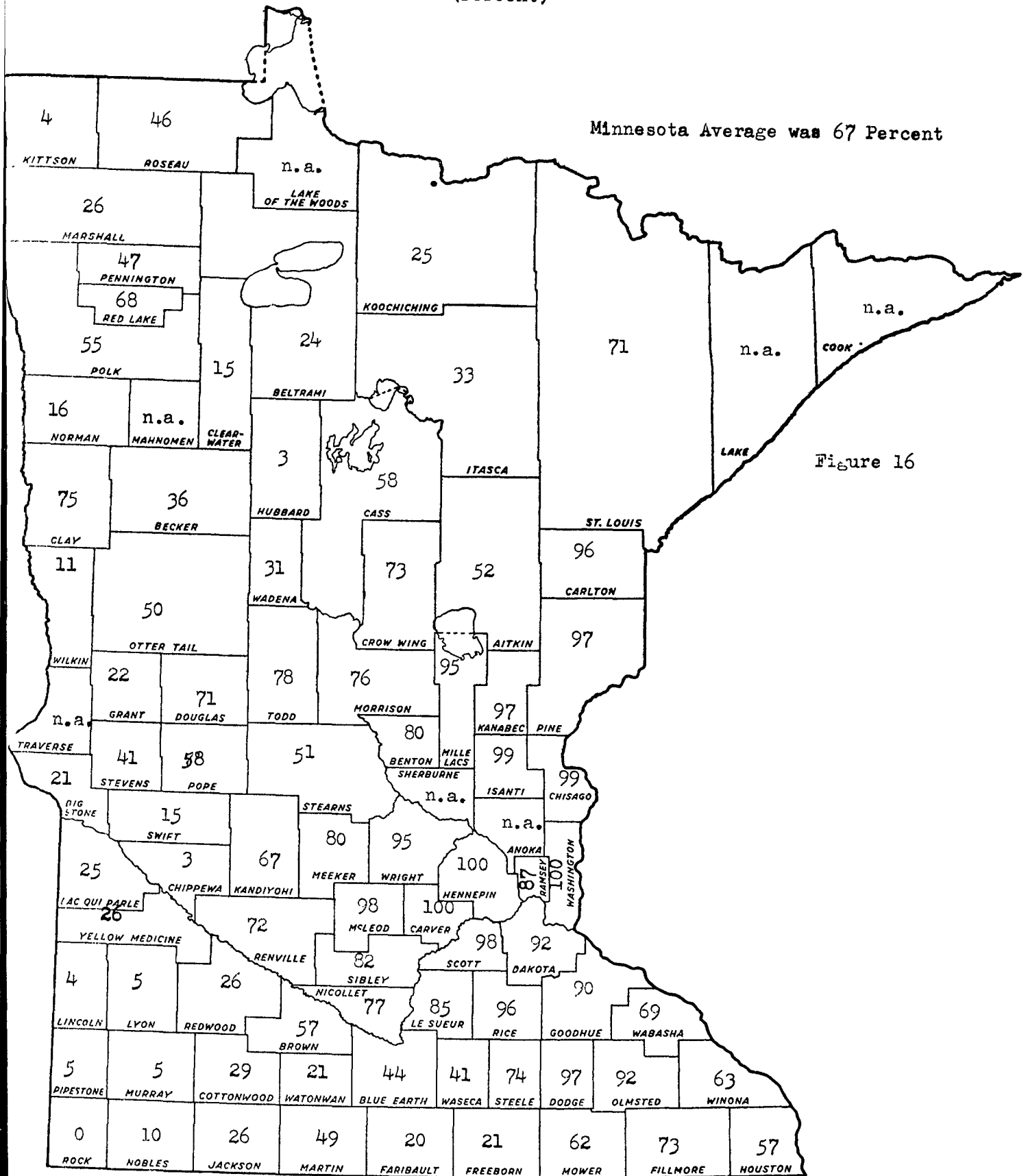


Figure 16

n.a. = not available because individual plant data would be disclosed

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Figure 17

- Note: 1. When prices paid for milkfat in cream are compared from one county or area to another, the following items should be considered:
- (a) The grade of cream sold.
 - (b) Whether or not hauling costs are being subsidized.
 - (c) The patronage dividends, if any, which are paid by cooperative creameries at the end of the year.
2. In 22 counties the average price paid for milkfat in cream was under 60 cents per pound, in 1954 in 42 counties it ranged from 60.0 to 62.4 cents, in 17 counties it ranged from 62.5 to 64.9 cents and in 6 counties it was over 65 cents per pound.
3. The prices received for milkfat were somewhat below average in the southwestern area of the state and above average in the southeastern and central areas.

Prices Received by Farmers for Milkfat Sold in Cream - 1954
(Cents per pound)

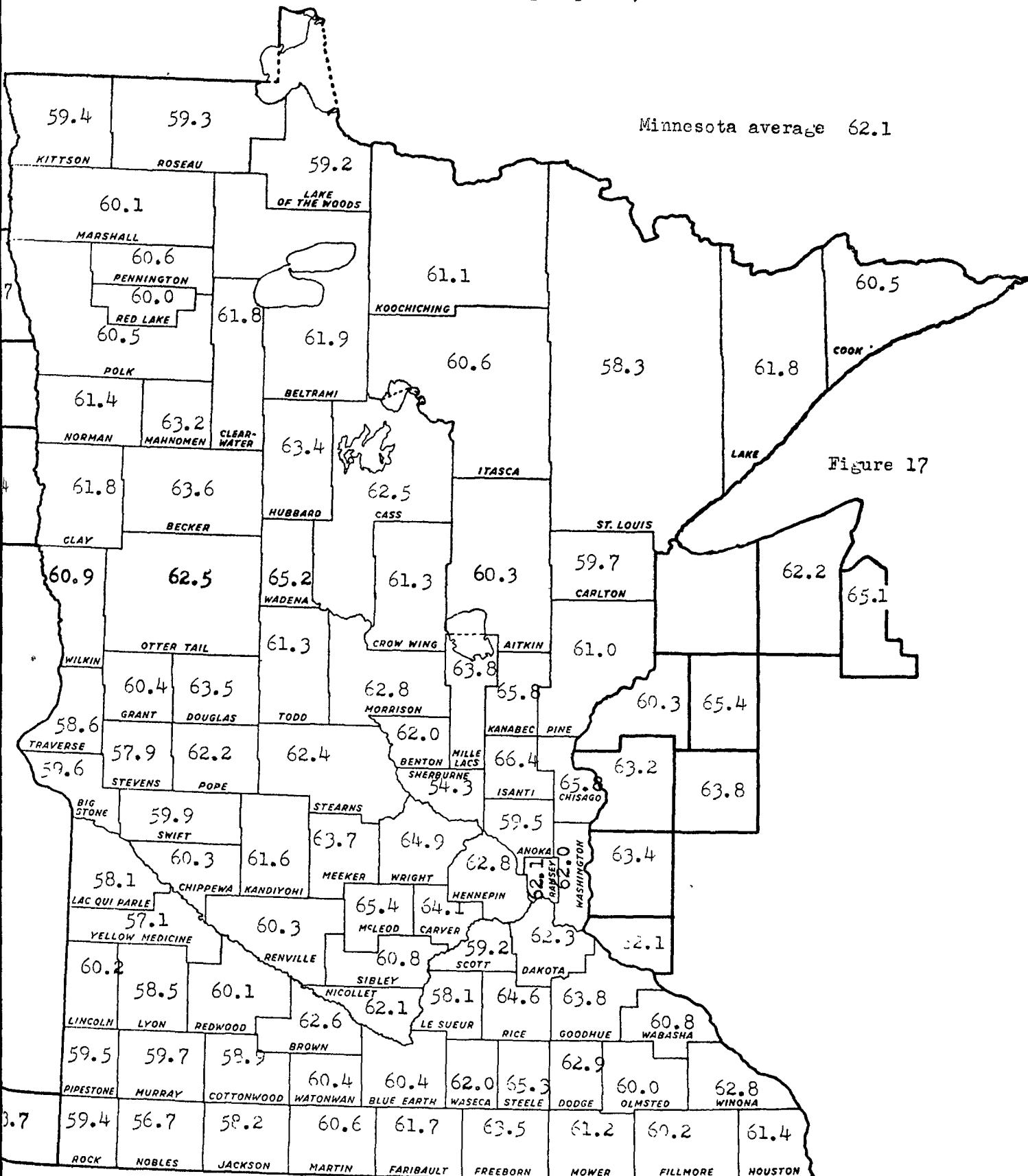


Figure 17

← Notes of explanation on opposite page

Figure 18

- Note: 1. When prices paid for whole milk are compared from one county or area to another the following items should be considered:
- (a) The grade of the milk sold.
 - (b) Whether or not hauling costs are being subsidized.
 - (c) The patronage dividends, if any, which are paid by cooperative milk plants at the end of the year.
2. The average prices received for 3.5% milk were influenced by the proportion of Grade A and Grade B milk included in the total sales in a county.
3. Milk producers who were most accessible to the local markets of the Twin Cities, Duluth-Superior and the Iron Range received the highest average price for milk. A high proportion of the milk sold in these areas is Grade A milk used for fluid purposes. The milk supply available in other areas is greatly in excess of the volume required for local consumption and the major proportion of it is used in manufactured dairy products.

Prices Received by Farmers for Whole Milk Sold - 1954
 (Dollars per Cwt. for Milk Testing 3.5% Fat*)

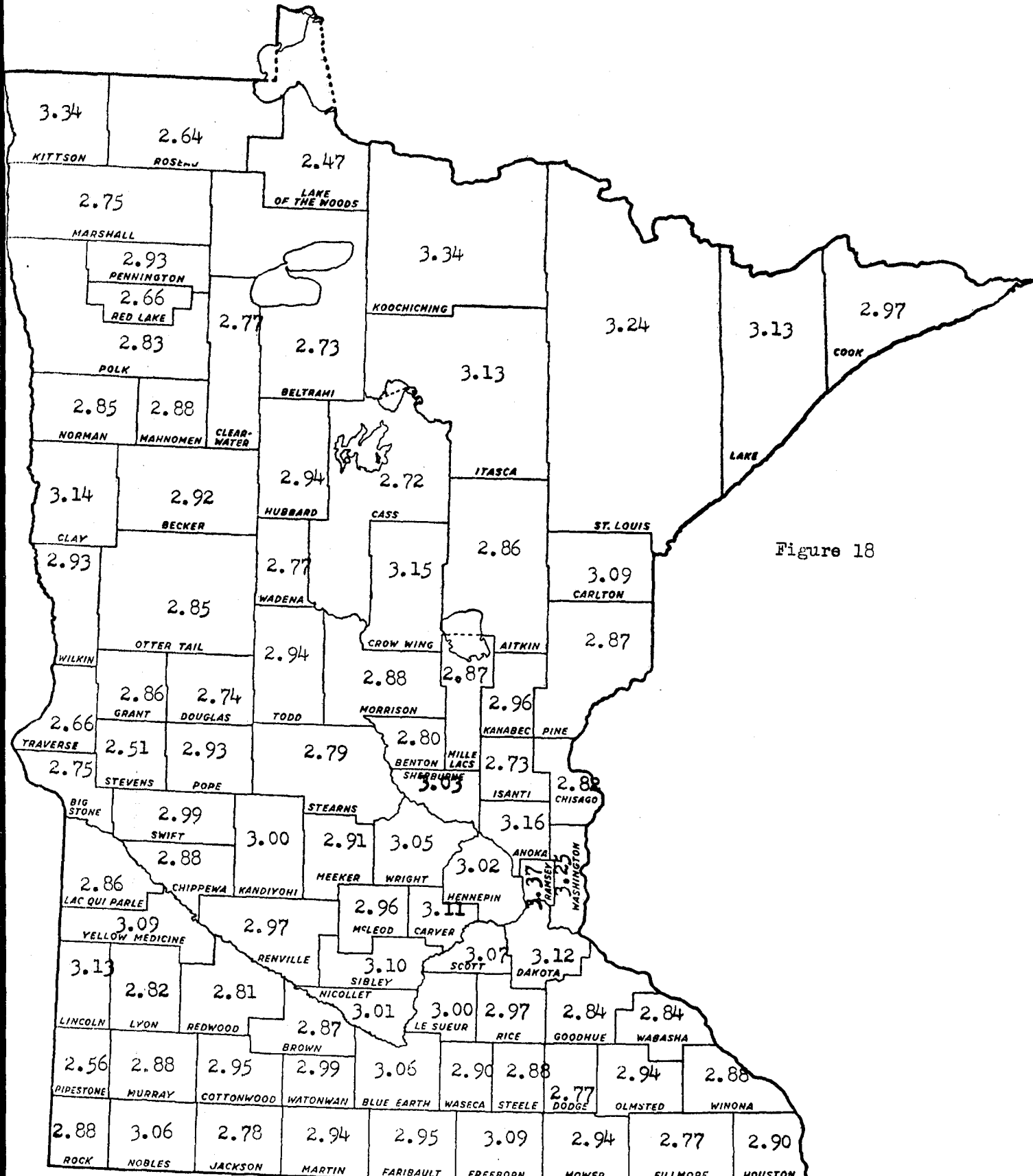


Figure 18

* County average prices were adjusted to obtain the price for 3.5% milk. An adjustment of 7 cents per cwt. was made for each .1% of milkfat.

← Note of explanation on opposite page

Figure 19

- Note:
1. Soybean and soybean oil production has increased greatly in south central Minnesota. In Blue Earth County nearly 11 times as much soybean oil is produced as milkfat. The ratio of soybean oil to milkfat production is comparatively high in a number of south central and west central Minnesota counties.
 2. Soybeans harvested for beans and consequently soybean oil production is comparatively limited in the northern half of the state except for a few counties like Clay and Wilkin on the western border.
 3. About $1/4$ of the milkfat produced in the United States is used in making butter, but considerably more than $1/4$ of the total soybean oil produced is used in the manufacture of margarine.

Relationship of Soybean Oil Production to Milkfat Production - 1954
(Pounds of Soybean Oil Produced* for Each 100 Pounds of Milkfat)

Minnesota = 132

United States = 79

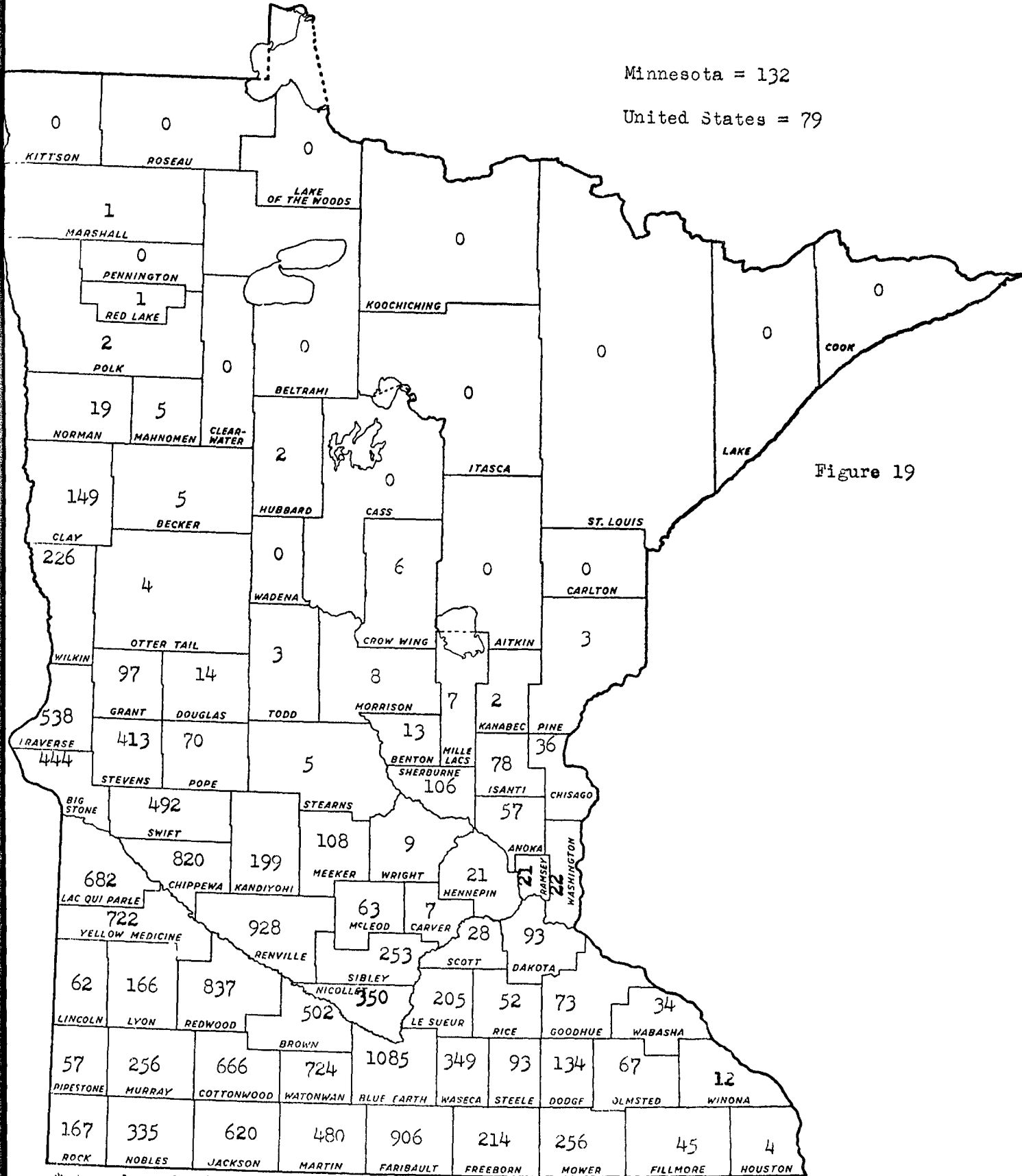


Figure 19

* Based on bushels of soybeans harvested for beans and a yield of 10 pounds of soybean oil per bushel.

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Civilian Per Capita Consumption of Dairy Products - U. S.

Year	Milk	Fluid Cream (Milk equivalent Milkfat basis)	Non-fat Dry Milk Solids	Evaporated and Condensed Milk pounds	Cheese	Ice Cream	All Butter	Margarine
1935-39	264	66	1.9	16.5	5.5	9.8	16.8	2.8
1940-44	293	61	2.9	17.0	5.5		14.3	3.1
1945-49	310	62	2.9	19.1	6.8	18.7	10.5	4.9
1950	293	56	3.6	19.8	7.6	17.0	10.6	6.0
1951	299	53	4.2	18.0	7.1	17.1	9.5	6.5
1952	299	53	4.6	17.4	7.5	17.6	8.6	7.8
1953	298	52	4.1	17.2	7.4	17.7	8.5	7.9
1954	299	53	4.0	16.4	7.7	17.0	9.0	8.4
1955 *							9.3	8.3
Index of Per Capita Consumption, 1945-49 = 100								
1935-39	85	106	66	86	81	52	160	57
1940-44	95	98	100	94	81		136	63
1945-49	100	100	100	100	100	100	100	100
1950	95	90	124	104	112	91	101	122
1951	96	85	145	94	104	91	90	133
1952	96	85	159	91	110	94	82	159
1953	96	84	141	90	109	95	81	161
1954	96	85	138	86	113	91	86	171
1955							89	169

* Estimate

- Note: 1. Total per capita consumption of dairy products containing milkfat (wholemilk equivalent - milkfat basis) has been on a lower level in recent years compared with the earlier periods.
2. There has been an almost continuous increase in the per capita consumption of cheese.
3. There has been an almost continuous decrease in the per capita consumption of butter. The increase since 1953 was largely the result of C.C.C. donations of butter to public institutions in the United States. When domestic donations are excluded, the per capita consumption of butter in 1953 was 8.2 and 8.4 pounds respectively.

Per Capita Consumption of Total Milkfat and Non-fat Solids -U.S.

Year	Total Milkfat	Total Non-fat Solids	Total Milk Solids
		pounds	
1925-29	31.3	37.7	69.0
1935-39	31.2	39.6	70.8
1945-49	29.9	47.8	77.7
1950	29.0	46.5	75.5
1951	28.0	46.7	74.7
1952	27.3	47.6	74.9
1953	26.9	46.9	73.8
1954	27.3	46.9	74.2
1955			

Index of Per Capita Consumption 1945-49 = 100

1925-29	105	79	89
1935-39	104	83	91
1945-49	100	100	100
1950	97	97	97
1951	94	98	96
1952	91	100	96
1953	90	98	95
1954	91	98	95
1955			

- Note: 1. Milk provides two basic products, namely milkfat and non-fat solids. Some dairy products like butter are largely milkfat. Others like cheese have a substantial portion of both. Non-fat powder as indicated in the name itself contains only a trace of milkfat.
2. There has been an almost continuous decline in per capita consumption of milkfat since the earlier years. However, the decline in per capita consumption of total milkfat has been considerably less than the decline in consumption in butter. The decline of milkfat consumption in butter was partly offset by increased consumption of milkfat in other dairy products such as cheese.
3. There was a rapid upswing in the per capita consumption of non-fat solids until it reached the peak of 50.3 pounds in 1946. It dropped sharply during the next few years, and since the early 50's has been very close to the 47 pound mark.
4. The per capita consumption of total milk solids reached an all time high during 1945-49. It dropped during the next several years and has been from 74 to 75 during the last several years.

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