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AGRICULTURE IN NORTHWEST MINNESOTA: ITS ROLE IN THE FUTURE OF THE REGION

By

Jerome M. Stam

Department of Agricultural Economics

University of Minnesota
Institute of Agriculture
St. Paul, Minnesota 55108

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TABLE OF CONTENTS

	Page
INTRODUCTION	1
Background	2
Northwest Minnesota	11
The Future	23
Appendix	37

LIST OF TABLES

Table No.	Page
1. Index of United States agricultural output and inputs, 1870-1960	4
2. Selected measures of agricultural change, Northwest Minnesota (NWM), Northern Minnesota (NM), and Southern Minnesota (SM), 1949, 1959, and 1964	16
3. Total off-farm income of all household members expressed as a percentage of the total value of farm products sold, Northwest Minnesota, Minnesota, and the United States, 1964	21
4. Distribution of the urban, rural nonfarm, and rural farm population, Northwest Minnesota, 1960	26
5. Actual, estimated and projected population for Northwest Minnesota, 1960-85	27
6. Estimated and projected percentage change in the population of Northwest Minnesota, 1960-85	32

LIST OF FIGURES

Figure No.	Page
1. Northwest Minnesota: The 15-county Bemidji State College area	12
2. Northern Minnesota: The 38-county Upper Great Lakes Commission area	13

LIST OF APPENDIX TABLES

Table No.		Page
1.	Total land in farms, by county, Northwest Minnesota, 1949, 1959, and 1964	38
2.	Total acres per farm, by county, Northwest Minnesota, 1949, 1959, and 1964	39
3.	Total cropland acres per farm, by county, North- west Minnesota, 1949, 1959, and 1964	40
4.	Total number of farms, by county, Northwest Minnesota, 1949, 1959, and 1964	41
5.	Total value of farm products sold, by county, Northwest Minnesota, 1949, 1959, and 1964	42
6.	Value of farm sales per farm, by county, North- west Minnesota, 1949, 1959, and 1964	43
7.	Number of farm operators working 100 days or more off the farm, by county, Northwest Minnesota, 1949, 1959, and 1964	44
8.	Farm operators working 100 days or more off the farm as a percentage of total farm operators, by county, Northwest Minnesota, 1949, 1959, and 1964	45

AGRICULTURE IN NORTHWEST MINNESOTA:
ITS ROLE IN THE FUTURE OF THE REGION*

by

Jerome M. Stam**

I understand that my charge is to discuss agriculture in Northwest Minnesota -- primarily the area from which Bemidji State College draws many of its students. A book could be written on this subject. For instance, we could spend all our time just discussing the agricultural products grown in the area or evaluating the low-income problems of its agriculture.

I plan to be pragmatic. Some of what I have to say may be value oriented or even provocative. However, I do not claim to have any special corner on the market in explaining the agriculture of this area. Neither do I say that I speak for the majority of economists, nor do I assert that I speak for the Economic Research Service.

I will try to focus on the human element in agriculture. I hopefully will only mention the natural resource agricultural base as it has direct

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** Agricultural Economist, U.S. Department of Agriculture, Economic Research Service, Economic Development Division, and Assistant Professor, Department of Agricultural Economics, University of Minnesota, St. Paul, Minnesota.

bearing on the success and failure of the area people engaged in agriculture. I feel that this is what you would much prefer since you as faculty and staff are in daily contact with many of the sons and daughters of the older human resource employed in the agricultural sector of this area. Therefore, it follows that any economic and social forces which affect this older agricultural human resource will undoubtedly ultimately affect you.

Background

I am told that many of you are not native to Northwest Minnesota or even to Minnesota for that matter. A good number of you have moved only recently to this area. Thus, even though some of you may be from small town or farm backgrounds, your knowledge of agriculture in this area is limited. Others of you are unfamiliar with agriculture and its problems even at the national level, except for what you read in the newspapers or hear over television and the radio. To you mention of American agriculture brings to mind such things as surpluses, low prices and milk being dumped. Because of this let's spend a little time briefly examining several facets of U.S. agriculture in order to provide some background and perspective.

It is not possible to really understand U.S. agriculture without some knowledge of the technological revolution it has undergone since the middle of the 1800's.^{1/} This increase in output has been spurred by

^{1/}See Wayne D. Rasmussen. "The Impact of Technological Change on American Agriculture, 1862 - 1962." Journal of Economic History, Volume 22, No. 4 (December 1962), pp. 578-591.

advances in knowledge and its application in such areas as mechanical power, machinery, fertilizers, herbicides, pesticides and genetics. Index numbers showing the U.S. agricultural productivity advance and shifts in the nature of inputs are presented for selected years in Table 1. Note the decrease in farm labor and the increase in capital (i.e., other inputs and mechanical power) requirements through time. Land and total inputs have increased only slightly since 1930 which means that total factor productivity has increased. In fact, it stood at an index value (1929=100) of 68.8 in 1869, 93.1 in 1899, and 181.1 in 1954.^{2/} Often the rate of technological advance is reported by the number of non-farm persons supplied with their food and fiber by one farm worker and related factors. Statistics show that one farmer supplied 7.0 nonfarm persons in 1900, 15.5 in 1950, 25.9 in 1960, and 39.6 in 1966.^{3/}

This is the positive side of the technological revolution in U.S. agriculture. It is the aspect that we like to talk about. But there is a cost associated with this change. Technical improvements in agriculture have meant that each farmer has been able to operate more acres. Hence, we have had a trend toward larger farms, not only because the farmer can handle larger units, but he must also increase his income if he is to pay for the relatively more expensive improved inputs (a type of "vicious" circle). Moreover, these more expensive inputs typically must be purchased off the farm. For example, today a tractor requires purchased

^{2/}Ibid., p. 589.

^{3/}Agricultural Statistics, (Washington, D.C.: U.S. Government Printing Office, 1967), p. 549.

Table 1.--Index of United States agricultural output and inputs, 1870-1960

Year	Farm output	Total inputs	Farm labor	Farm real estate	All other inputs	Mechanical power and machinery
1870	23	41	80	41	13	--
1900	56	73	127	79	31	--
1930	72	97	137	96	56	55
1940	82	97	122	98	68	58
1950	101	101	90	103	109	118
1960	129	102	62	106	160	142

Note: 1947-49 = 100.

Source: Wayne D. Rasmussen. "The Impact of Technological Change on American Agriculture, 1862-1962." Journal of Economic History, Volume 22, No. 4 (December 1962), pp. 578-591.

gas and oil while in the past the horse ate home grown grain and hay. At the same time the standard of living has been increasing in the country as a whole. This increase in household consumption standards has meant that the farm housewife now has a much more expensive list of "necessities" than existed in grandmother's day (automatic washers instead of scrubboards, etc.). Such things as television and radio were unknown in an earlier day -- now some farm families have color television. The result has been even added pressure on the farm family to take advantage of every agricultural technological advance not only in order to pay for the production activities of its farm business, but also for the more expensive household consumption items. Many of these production advances have tended to rapidly increase farm size and to reduce the number of farm families.

The total farm population stood at 32.1 million in 1910, 15.6 million in 1960, and 14.3 million in 1962.^{4/} In percentage terms, the farm population was 34.9 percent of total U.S. population in 1910, 8.7 percent in 1960, and 7.7 percent in 1962. This decline in farm population has been the cost of agricultural technological change insofar as rural areas are concerned. This is the aspect of American agriculture that political candidates not in power dwell upon just as those people in power stress the positive aspects which we noted earlier.

^{4/}Farm Population Estimates for 1910-1962, ERS-130, U.S. Department of Agriculture, Economic Research Service, Washington, D. C. (October 1963), p. 19.

The effect of such technological change has varied with the locality and with the speed of its adoption. Sometimes certain groups were affected more than others. A specific case where technological change hit a certain group suddenly in a region is that of the rapid adoption of the mechanical cotton harvester in the south, especially following World War II. In the space of one decade after it began to be adopted the mechanical cotton harvester was an important factor in forcing multitudes of southern people out of a job in agriculture (and in many cases out of the South). Other factors, such as increased productivity, acreage restrictions, improved methods of weed control, and competition from synthetic fibers also were important in causing this exodus. But note that they all in some way reflect technological change acting on agriculture.

The negative effect or cost of technological change in agriculture is difficult to overemphasize, because other things typically have been blamed for many of the problems it has caused. It is common to hear people complaining about leaders or programs attempting to cope with technologically induced agricultural problems without the slightest mention of the real cause of their problems -- technological change. Programs have been designed for years in an attempt to help rural America reduce the impact of the overproduction and resultant low prices (and population loss) suffered because of agricultural technological advances. These programs have operated in a variety of ways using such methods as price supports and acreage controls. Never have the programs restricted technological change, and they probably never will since it

appears absurd and hence almost impossible to legislate against a better idea or a lower cost way of doing something. Thus, in many ways I cannot stress the effect of technological change too much.

It should appear obvious by now that the future changes which we would expect in U.S. agriculture will depend on the future of agriculturally-related technological change. In other words, the future depends on how near we are to exhausting the backlog and future supply of ideas which can be economically applied in agriculture. Is our fund of knowledge which can be applied close to being depleted?

The 1964 Census of Agriculture reported a total of 2,166,000 commercial farms in the United States.^{5/} Of these 402,000 had gross sales of farm products of \$20,000 or more. It is reported that the \$20,000 and above group produces over 60 percent of U.S. farm output. One researcher has said that, with median family incomes in urban areas near \$7,500 per year, only farms with sales of \$20,000 or more can come close to supplying incomes sufficient to allow a farm family a level of consumption that is consistent with American standards.^{6/} In other words this level of farm sales is required in order for the farmer to be on an economic par with the remainder of the economy in terms of family income. He also notes the following:

^{5/}In 1964 a commercial farm was defined as follows: (1) a farm having a total value of farm products sold in excess of \$2,500, or (2) a farm with sales of farm products in the \$50 to \$2,499 range provided that the farm operator was under 65 years of age and did not work off the farm 100 or more days during the year.

^{6/}Vernon W. Ruttan. "Agricultural Policy in an Affluent Society." Journal of Farm Economics, Volume 48, No. 5, (December 1966), p. 1113.

"If total production were to be concentrated on farms such as those with sales of \$20,000 or more, the total U.S. farm output could be produced on 750,000 farms. If production were concentrated entirely on farms such as those with sales of \$40,000 or more, the total U.S. farm output could be produced on less than 400,000 farms. It seems apparent that the technological capacity already exists that could permit production of 80-90 percent of the value of total U.S. farm output on between 50,000 and 100,000 production units."^{7/}

It thus seems quite evident that the number of farms is going to continue declining due to the pressure which already exists from feasible technological innovations. Granted we can dispute the speed of the decline in farm numbers and the exact number of farms at some future date, but this seems to be somewhat pointless. Policies can be brought to bear to slow this decline, but only at a cost to the economy as a whole. Moreover, it is clear that certain types of farming and hence certain areas of the country will be more affected than others because certain commodities, terrains, etc., are more amenable to manipulation through technology. For instance, it is easier to mechanize wheat than apple harvesting. At any rate the decline in the numbers is going to continue to affect rural America.

I do not want to overly emphasize what to some of you may be a gloomy picture. Many farms are going to make the necessary adjustments and become extremely efficient. There is evidence which suggests that the majority of farms grossing over \$20,000 per year in farm sales are earning more for their labor and capital than does comparable labor and capital in the nonfarm sector. Nevertheless, many farms will remain

^{7/}Ibid., p. 1113.

small or go out of the picture. Thus, there are really two agricultural sectors -- the productive commercial sector and the low-income, small farm, problem sector.

At this juncture one point needs clarification -- the difference between the terms "farm" and "rural" -- as it becomes important later in the discussion. The 1964 Census of Agriculture defines a farm as a place of less than 10 acres if the estimated sales of agricultural products for the year amounted to at least \$250, or a place of 10 or more acres if the estimated sales of agricultural products for the year amounted to at least \$50. Allowances are made for crop failures and other abnormalities. The Census of Population defines the urban population as those persons living in places of 2,500 or more inhabitants or in densely settled metropolitan suburbs. The rural population is divided into two categories. Rural-farm people comprise those living on farms as defined above in the Census of Agriculture while rural nonfarm people are the residual that is left after the urban and rural-farm populations have been determined. A town of 800 people is rural nonfarm. The point that I wish to make is that there is a difference between farm and rural even though some people carelessly use these terms as being synonymous. Admittedly, rural nonfarm people depend on the rural-farm people in many cases for their economic well-being and are thus dependent on the farmers economic fortunes. But the amount of linkage depends on the area. It is small in certain rural mining areas and in some small towns with manufacturing plants. Of course, it is much larger in areas with only farming as an industry. Through time the rural

population has changed in composition with the relative size of the rural-nonfarm component increasing and that of the rural farm component decreasing.

Time does not allow further discussion of the national agricultural situation. One could spend considerable time discussing a large number of rural problem areas in detail, such as low incomes, poverty, education, housing, health, local government, transportation, tax base, underemployment, minority groups, and the aged just to name a few. I would urge those interested in learning more about these and related topics to obtain a copy of U.S. Department of Agriculture Agricultural Economic Report No. 101 entitled Rural People in the American Economy.^{8/} Those wanting to learn more about the rural poverty problem should acquire a copy of the excellent report entitled The People Left Behind which was produced by the Presidents' National Commission on Rural Poverty.^{9/} Those desiring information relating to the more commercial aspects of U.S. agriculture may be interested in studying the report of the 1967 National Advisory Commission on Food and Fiber.^{10/} Economic information

^{8/}For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402 - Price 60 cents.

^{9/}For sale by the Superintendent of Documents - Price \$1.00. This Commission also produced a volume of technical reports on rural poverty entitled Rural Poverty in the United States (601 pages) which may be purchased for \$5.75 from the Superintendent of Documents.

^{10/}Food and Fiber for the Future, (361 pages), for sale by the Superintendent of Documents, Price \$1.25.

specific to the Upper Great Lakes Region is contained in U.S. Department of Agriculture Agricultural Economic Report No. 108.^{11/}

Northwest Minnesota

I was asked to focus specifically on the 15-county area surrounding Bemidji State College as shown in Figure 1. This includes the following counties: Beltrami, Cass, Clearwater, Hubbard, Itasca, Kittson, Koochiching, Lake of the Woods, Mahnomen, Marshall, Pennington, Polk, Red Lake, Roseau, and Wadena. These counties lie entirely within the 38-county portion of northern Minnesota that is within the Upper Great Lakes Commission Area (Figure 2).

The Upper Great Lakes Commission Area contains 119 counties of the northern portions Michigan, Minnesota, and Wisconsin. This region was designated by the Secretary of Commerce, with the agreement of the states, under the provisions of the Public Works and Economic Development Act of 1965 (P.L. 89-136). This Act provided enabling legislation for the creation of regional economic development planning commissions, which are federal-state partnerships patterned after the Appalachian Program. Commissions may be formed in areas experiencing general lack of economic growth and opportunity. The Upper Great Lakes Regional Commission was formally chartered in April 1967.

^{11/}R. A. Loomis and M. E. Wirth, An Economic Survey of the Northern Lake States Region, Economic Research Service, USDA, in cooperation with Michigan Agricultural Experiment Station, Michigan State University, East Lansing (February 1967), 132 pp.

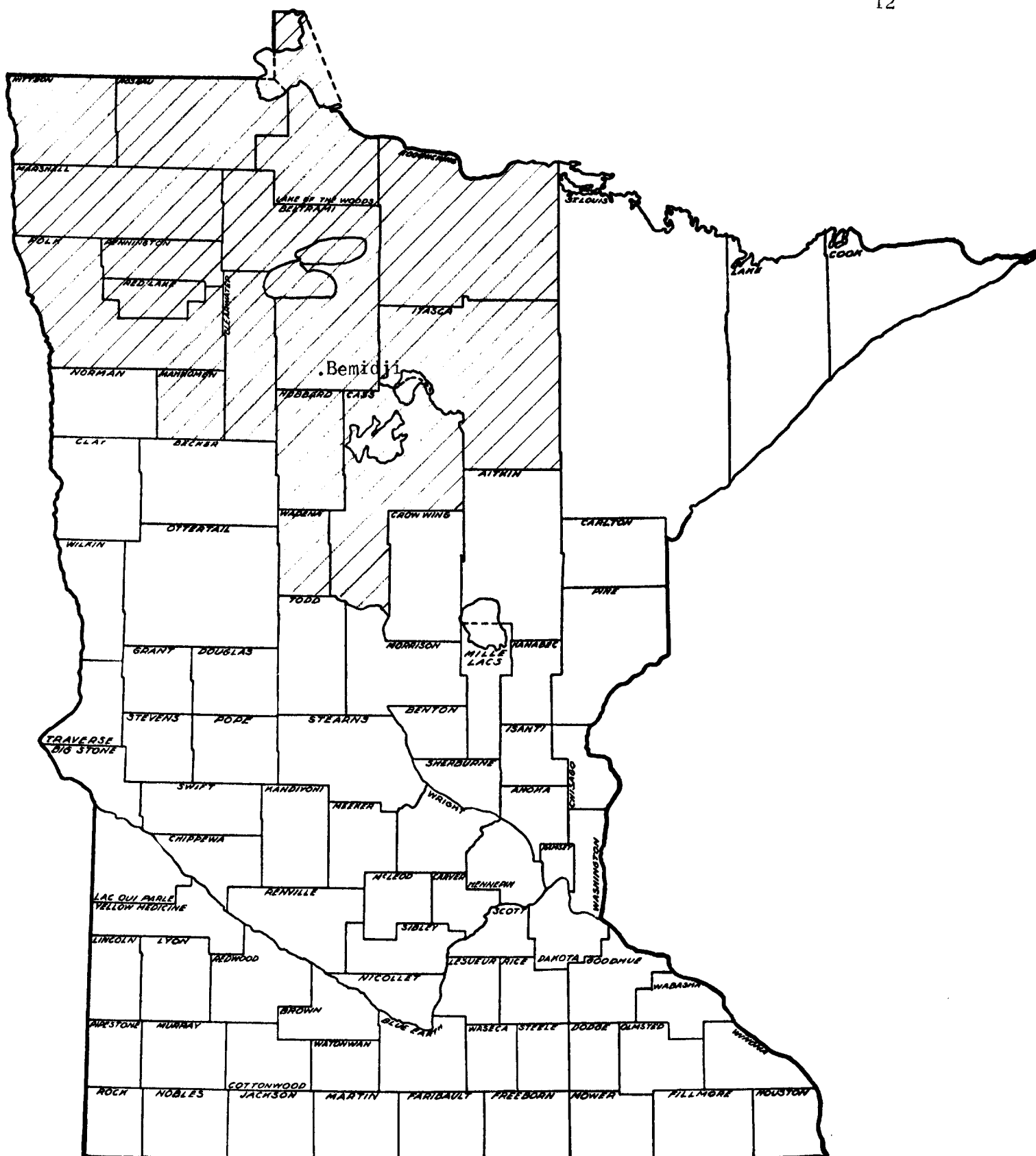


FIGURE 1.--NORTHWEST MINNESOTA: THE 15-COUNTY BEMIDJI STATE COLLEGE AREA

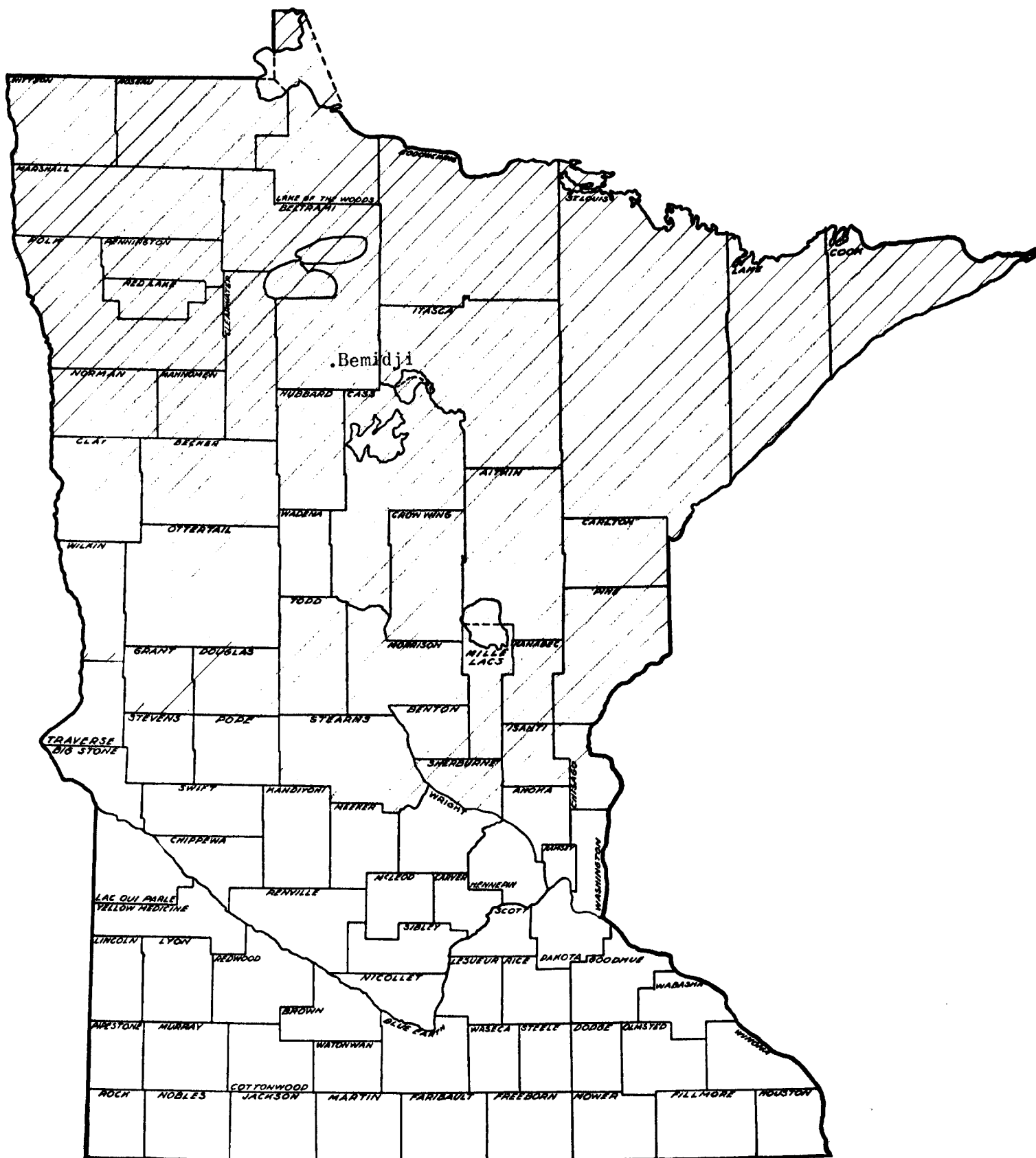


FIGURE 2.--NORTHERN MINNESOTA: THE 38-COUNTY UPPER GREAT LAKES COMMISSION AREA

The 15-county area surrounding Bemidji State College should be thought of as a region of diversity in agriculture. Farm sizes vary from being quite large in the Red River Valley to small in some of the forested localities. Holdings tend to be more adjoining or contiguous in the Red River Valley than in the less productive forested farming areas. Agricultural products grown range from those considered standard in the United States such as wheat to those which are considered more of a specialty such as potatoes, grass seed and even mink. It is an area of great variation in soil fertility often with great changes within just a few miles. However, the land generally is less productive than in southern Minnesota. Moreover, it is an area of great variation in climate -- specifically temperature -- which limits the number of crops which may be grown. Because of this evidence, I think that this is a more agriculturally diverse area than are our better agricultural regions of the United States such as the Corn Belt, Wheat Belt, or the Great Plains. The 49 counties of southern Minnesota shown in Figure 2 would tend to be in the more homogeneous latter group.

It is interesting to note that the original settlement patterns within the 15-county area were pretty much in line with the productivity of the agricultural resource in some localities (e.g., the Red River Valley) but in other localities the original settlement pattern could even be called horrendous. The productivity of land was so low in some areas and it was given to the settlers in such small tracts that once the original timber resource was gone the family had a difficult or even

impossible situation. During the 1930's a land resettlement scheme even was carried out that affected farm people in several counties.

Selected measures of agricultural change are presented in Table 2. In this table data are presented for the 15 Northwest Minnesota (NWM) counties and compared with the 38 northern Minnesota (NM) and 49 southern Minnesota (SM) counties. Southern Minnesota is an especially relevant point of reference for Northwest Minnesota because it is in large part representative of Corn Belt agriculture. The southern two tiers of counties are especially productive. Admittedly, rainfall is a limiting factor some years in the southwest portion of the state. I am going to try to only relate to you some of what I consider to be the highlights shown in Table 2. You may study the details shown there and in the eight appendix tables at your convenience. When you study the appendix tables you will see that the Red River Valley counties, such as Kittson, Marshall, and Polk have strong agricultural sectors which are doing well by most measures. At the same time, some of the counties which are located away from the Valley have a much weaker agriculture. Unfortunately, the areawide figures of Table 2 tend to obscure much of this diversity.

You will note that between 1949 and 1964, total land in farms declined more in Northwest Minnesota than in southern Minnesota (-9.8 and -2.9 percent, respectively). At the same time total acres per farm increased 43.5 percent in Northwest Minnesota compared with 24.6 percent in southern Minnesota. This is really quite phenomenal farm size growth. In 1949 Northwest Minnesota farms averaged 64 acres larger in

Table 2.--Selected measures of agricultural change, Northwest Minnesota (NWM), Northern Minnesota (NM), and Southern Minnesota (SM), 1949, 1959, and 1964

		Actual or percent			Percentage change		
		1949	1959	1964	1949-59	1959-64	1949-64
1.	Total land in farms (acres)						
	NWM	6,076,725	5,340,077	5,480,899	-12.1	2.6	-9.8
	NM	15,226,154	13,555,403	13,654,573	-11.0	0.7	-10.0
	SM	17,657,009	17,240,694	17,150,407	-2.4	-0.5	-2.9
			(county average)				
	NWM	405,115	356,005	365,393	-12.1	2.6	-9.8
	NM	400,688	356,721	359,331	-11.0	0.7	-10.3
	SM	360,347	351,851	350,001	-2.4	-0.5	-2.9
2.	Total acres per farm						
	NWM	239	302	343	26.4	13.6	43.5
	NM	194	234	260	20.6	11.1	34.0
	SM	175	197	218	12.6	10.7	24.6
3.	Total cropland acres per farm						
	NWM	142	195	227	37.3	16.4	59.9
	NM	114	148	164	29.2	10.8	43.9
	SM	135	155	173	14.8	11.6	28.1
4.	Total number of farms (total)						
	NWM	25,468	17,711	16,002	-30.5	-9.7	-37.2
	NM	78,409	57,962	52,436	-26.1	-9.5	-33.1
	SM	100,692	87,700	78,727	-12.9	-10.2	-21.8
			(county average)				
	NWM	1,698	1,187	1,067	-30.1	-10.1	-37.2
	NM	2,063	1,525	1,380	-26.1	-9.5	-33.1
	SM	2,055	1,790	1,607	-12.9	-10.2	-21.8

(continued)

Table 2.--Selected measures of agricultural change, Northwest Minnesota (NWM), Northern Minnesota (NM), and Southern Minnesota (SM), 1949, 1959, and 1964--continued

	Actual or percent			Percentage Change		
	1949	1959	1964	1949-59	1959-64	1949-64
5. Total value of farm products sold (total in thousand dollars)						
NWM	82,896	100,852	118,356	21.7	17.4	42.8
NM	271,763	329,476	380,201	21.2	15.4	39.9
SM	688,788	882,273	995,484	28.1	12.8	44.5
(county average in thousand dollars)						
NWM	5,526	6,723	7,890	21.7	17.4	42.8
NM	7,152	8,670	10,005	21.2	15.4	39.9
SM	14,057	18,006	20,316	28.1	12.8	44.5
6. Value of farm sales per farm (dollars)						
NWM	3,255	5,694	7,396	74.9	29.9	127.2
NM	3,466	5,684	7,251	64.0	27.6	109.2
SM	6,841	10,060	12,645	47.1	25.7	84.8
7. Number of farm operators working 100 days or more off the farm (total)						
NWM	5,628	4,498	4,434	-20.1	-1.4	-21.2
NM	13,304	14,029	13,967	5.0	-0.5	5.0
SM	9,176	11,114	11,328	21.1	1.9	23.5
(county average)						
NWM	375	300	296	-20.0	-1.3	-21.1
NM	350	369	368	5.4	-0.3	5.1
SM	187	227	231	21.4	1.8	23.5
8. Percent of farm operators working 100 days or more off the farm						
NWM	22	25	28	N.A.	N.A.	N.A.
NM	17	24	27	N.A.	N.A.	N.A.
SM	9	13	14	N.A.	N.A.	N.A.

N.A. = Not applicable.

Source: U.S. Census of Agriculture.

size than southern Minnesota farms (239 compared with 175 acres). By 1964 the lead had increased to an average of 125 acres by Northwest Minnesota (343 to 218 acres). In 1964, within the 15-county area, average farm size ranged from a high of 600 acres in Kittson County to a low of 160 acres in Itasca County. This supports earlier statements that this is a region of agricultural diversity.

Much the same picture exists for cropland acres per farm as for total acres per farm. During the 1949-64 period cropland acres per farm increased 59.9 percent in Northwest Minnesota and 28.1 percent in southern Minnesota. The Northwest Minnesota lead over southern Minnesota in average cropland acres per farm increased from 7 acres in 1949 to 54 acres in 1964. This is encouraging. However, once again great variation is present within the region. For example, in 1964, average cropland acres per farm in Northwest Minnesota were highest in Kittson County (458 acres) and lowest in Itasca County (56 acres).

Because total acres per farm increased more rapidly in Northwest Minnesota, 1949-64, one would expect a relatively more rapid decrease in the total number of farms in this area during this period. Also this should especially be the case when one recalls that total land in farms decreased more rapidly in Northwest Minnesota than in southern Minnesota 1949-64. Thus, one finds in Table 1 that total farm numbers decreased 37.2 percent in Northwest Minnesota and 21.8 percent in southern Minnesota 1949-64.

The total value of farm products sold increased about the same percentage in all areas between 1949 and 1964. Specifically, the increase

was 42.8 percent in Northwest Minnesota and 44.5 percent in southern Minnesota. The dramatic change came in value of farm sales per farm. Here the 1949-64 increase was 127.2 percent in Northwest Minnesota and 84.8 percent in southern Minnesota. In 1949, value of farm sales per farm in Northwest Minnesota (\$3,255) was 47.6 percent of that in southern Minnesota (\$6,841). By 1964, farm sales per farm in Northwest Minnesota has increased to 58.5 percent of those in southern Minnesota (\$7,396 compared with \$12,645). While this increase is encouraging, it is easy to see that Northwest Minnesota trails significantly in this all important figure. Moreover, even though farms are larger in Northwest Minnesota, farm sales per farm are much lower which indicates a significantly lower level of productivity per farm. Again, there is great variation within the 15-county area. For instance, in 1960 the average value of farm sales was highest (\$14,218) in Polk County and lowest (\$2,316) in Itasca County.

Because average sales of farm products per farm are lower in northern Minnesota a greater percentage of its farmers have been forced to seek additional income from off-farm sources. Moreover, the percentage has been increasing through time. In 1949, for example, 22 percent of Northwest Minnesota farm operators worked 100 days or more during the year off the farm compared with 9 percent in southern Minnesota. By 1964, these percentages stood at 28 and 14, respectively. Within the 15-county area, off-farm work percentages ranged in 1964 from a high of 60 percent in Itasca County to a low of 18 percent in Mahnomon County. It is really in some respects quite surprising to find the degree of off-farm

employment by farm operators in Northwest Minnesota. Urban centers with employment are not as abundant nor as accessible as in the southern part of the state. I think that the off-farm employment should be regarded as a healthy sign. We know that technological change has reduced the number of farms and increased farm size releasing some farmers for non-farm jobs. This process is continuing. Off-farm employment can allow the operator of a smaller farm to remain in a rural area if he prefers by supplementing his income. Or it may allow him a more gradual transition out of agriculture than would otherwise have been possible.

Perhaps even more interesting is the income of all persons in the farm operator's household from sources other than the farm operated. This includes the income received from off-farm^{12/} sources as follows: (1) wages and salaries, (2) nonfarm business or profession, (3) social security, pensions, veteran, and welfare payments, and (4) rent from farm and nonfarm property, interest, dividends, etc. It is an important measure because all persons in the farm household and not just the operator are considered. Thus, one is provided with a perspective of the significance of off-farm income to the farm family as a whole.

The total off-farm income of all household members expressed as a percentage of the total value of farm products sold for Northwest Minnesota, Minnesota, and the United States in 1964 is given in Table 3.

^{12/}Off-farm in this case means income from other than the operator's home farm. For example, rent from another farm owned by the operator would be classed as off-farm (i.e., off-farm with respect to the farm which he is operating). However, off-farm income from farm sources is not a very important part of the total off-farm income picture.

Table 3.--Total off-farm income of all household members expressed as a percentage of the total value of farm products sold, Northwest Minnesota, Minnesota, and the United States, 1964

Area	Total value of farm pro- ducts sold	Total household off-farm income	Total household off-farm income as a percentage of total value of farm products sold
	<u>Dollars</u>		<u>Percent</u>
1. Beltrami	3,170,930	2,693,366	84.9
2. Cass	3,391,814	2,398,193	70.7
3. Clearwater	4,201,360	2,264,947	53.9
4. Hubbard	2,010,968	1,898,671	94.4
5. Itasca	1,964,397	3,356,897	170.9
6. Kittson	11,229,331	2,182,002	19.4
7. Koochiching	1,095,685	1,778,516	162.3
8. Lake of the Woods	1,363,366	1,056,104	77.5
9. Mahnomon	4,694,840	1,038,013	22.1
10. Marshall	17,685,212	4,902,510	27.7
11. Pennington	5,845,152	1,924,458	32.9
12. Polk	38,718,203	5,452,317	14.1
13. Red Lake	4,187,358	1,383,712	33.0
14. Roseau	9,181,681	3,345,393	36.4
15. Wadena	<u>5,224,563</u>	<u>1,935,811</u>	<u>37.1</u>
Northwest Minnesota	113,964,860	37,610,910	33.0
Minnesota	1,375,606,457	305,466,608	22.2
United States	35,293,530,000	10,053,167,031	28.5

Source: U.S. Census of Agriculture, 1964.

In that year, total household off-farm income was 33.0 percent of the total value of farm products sold in Northwest Minnesota. This compares with 22.2 percent for Minnesota and 28.5 percent for the United States in the same year. It is evident that off-farm income is relatively more important in Northwest Minnesota. Every Northwest Minnesota county exceeded both the state and national percentages in 1964 with the exception of Kittson, Mahnomen, Marshall, and Polk. The influence of the Red River Valley is significant on agriculture in each of these, with the exception of Mahnomen County. Total household off-farm income expressed as a percentage of total value of farm products sold ranged within Northwest Minnesota in 1964 from a low of 14.1 percent in Polk County to a phenomenal high of 170.9 percent, in Itasca County. Indeed in Itasca and Koochiching (162.3 percent) Counties the total value of farm products sold appears to supplement off-farm earnings -- not vice versa. Thus, an analysis of off-farm earnings provides further eye-opening insights into the importance of off-farm work in most areas of Northwest Minnesota.

Because of the attractiveness of off-farm employment opportunities and favorable beef prices many farmers in Northern Minnesota have been adding beef cows as an enterprise on their farms. They have felt that the relatively lower labor requirement of the beef enterprise would not conflict as much with an off-farm job. Some people have expressed the view that beef cattle are a panacea which will rescue the entire future of northern Minnesota agriculture. However, they should be cautioned against such unbridled optimism. Studies which have focused on this

problem have shown that beef cow herds would be profitable on a number of farms: (1) if the herds are managed with better than average efficiency (percent of calf crop weaned, etc.), (2) if the farms in question had resources, such as old buildings, on which market prices do not have to be paid, (3) if sufficient (excess or underemployed) labor is available.^{13/} There is the problem of obtaining sufficient land on which to operate a beef herd. It is especially difficult to obtain land in adjoining tracts in many parts of northern Minnesota. In addition, there are problems associated with the harsh winters and poor quality forage. Thus, I take a more moderately optimistic view of the future of beef cattle in northern Minnesota.

The Future

We have discovered that Northwest Minnesota has been an area which has experienced a rapid increase in farm size concurrently with a considerable decrease in farm numbers. Off-farm employment has been relatively more important than in southern Minnesota and this importance has been increasing. In the face of this change what are the prospects for the future? To state it in the vernacular, has the agricultural sector of the area already been "through the wringer" with the resultant expectations of a more moderate rate of change in the future? Or is the

^{13/}A. R. Wells, S. A. Engene, and T. R. Nodland, Economics of Beef Cow Herds in Northeastern Minnesota, Economic Study Report S68-4, (St. Paul: Department of Agricultural Economics, University of Minnesota), (November 1968).

agriculture of the region going to have to go "through the wringer" still further in the future and yield yet more excess labor to the non-agricultural sector? To begin answering this question let us first look at what has happened in this area in the recent past in terms of agricultural employment and total population.

Between 1950 and 1960 the rural farm population in Northwest Minnesota decreased from 100.5 to 69.2 thousand or 31.9 percent. At the same time the total population decreased 4.1 percent (from 236.8 to 227.2 thousand). In Northwest Minnesota the rural farm population was 42.4 percent of the total population in 1950 and 30.5 percent in 1960. Thus, the decline in the rural farm population was the key determinant or driving force behind the 1950-60 population loss of the 15 counties. Yet in 1960 almost one-third of the population in the region was still classified rural farm. We have seen earlier that the agricultural labor saving technology exists which will further decrease the rural farm population in the region as this technology is applied. Thus forces are already in motion which will drive the rural farm population down as a percentage of the total population here. That we can expect further decline is witnessed by the fact that in 1960 only 17.2 and 7.5 percent of the respective Minnesota and United States populations were rural farm. Northwest Minnesota will tend to move toward these figures. If sufficient nonagricultural jobs are not available, off-farm migrants will continue to leave the area and in the process tend to dampen future population growth possibilities. On the basis of this evidence, one would expect that the counties which

would have the greatest difficulty in retaining population would likely be those which are most rural and least urban.

The distribution of urban, rural nonfarm, and rural farm population for each of the 15 counties in 1960 is given in Table 4. In this table, the counties are ranked in descending order based on the percentage of the 1960 total population which was rural farm. The 1960 rural farm population as a percentage of total population ranged from a high of 55.2 percent in Marshall and Red Lake Counties to a low of 10.3 percent in Itasca County. Based on the 1960 percentage figures one would expect that every county in Northwest Minnesota faced continued declines in the percentage of the population which is rural farm with the possible exceptions of Itasca and Koochiching Counties. In terms of total population Itasca, Polk, and Koochiching Counties were the largest. Fortunately, Koochiching and Itasca already have experienced much adjustment, but their influence on the 15-county area is overshadowed by what happens in the remaining 13 counties.

What really has happened to total population in Northwest Minnesota since 1960? We do not actually know for sure since no census has been conducted, but estimates have been made. In addition, projections of county populations have been calculated for the year 1985. This information is presented in Table 5.

The 1967 estimates and 1985 projections (Table 5) were done by the Minnesota Department of Health, Section of Vital Statistics. I am not going into detail on exactly how these estimates and projections were made. The important thing for us to note at this point is

Table 4.--Distribution of the urban, rural nonfarm, and rural farm population, Northwest Minnesota, 1960 a/

County	Urban	Rural nonfarm	Rural farm	Total	Total
	<u>Percent</u>			<u>Thousands</u>	
1. Marshall	0.0	44.8	55.2	100.0	14.3
2. Red Lake	0.0	44.8	55.2	100.0	5.8
3. Roseau	0.0	47.1	52.9	100.0	12.1
4. Mahnomen	0.0	47.6	52.4	100.0	6.3
5. Clearwater	0.0	50.6	49.4	100.0	8.9
6. Kittson	0.0	54.2	45.8	100.0	8.3
7. Wadena	36.1	26.2	37.7	100.0	12.2
8. Lake of the Woods	0.0	65.1	34.9	100.0	4.3
9. Polk	42.8	11.4	32.9	100.0	36.2
10. Pennington	57.6	11.2	31.2	100.0	12.5
11. Cass	0.0	71.3	28.7	100.0	16.7
12. Hubbard	30.3	43.4	26.3	100.0	9.9
13. Beltrami	42.6	36.6	20.9	100.0	23.5
14. Koochiching	37.4	51.1	11.5	100.0	18.2
15. Itasca	<u>19.2</u>	<u>70.5</u>	<u>10.3</u>	<u>100.0</u>	<u>38.0</u>
Northwest Minnesota	23.9	45.6	30.5	100.0	227.2

a/Counties are ranked in descending order based on the percentage of the 1960 total population which was rural farm.

Source: U.S. Census of Population, 1960.

Table 5.--Actual, estimated and projected population for Northwest Minnesota, 1960-85

County	1960 Census	1966 CPR estimates	1967 DVS estimates	1985 DVS projection (A)	1985 DVS projection (B)
			<u>Number</u>		
1. Beltrami	23,425	26,100	21,900	18,700	18,200
2. Cass	16,720	16,300	17,246	14,600	12,800
3. Clearwater	8,864	8,700	8,004	6,000	5,700
4. Hubbard	9,962	10,500	9,166	7,900	7,100
5. Itasca	38,006	36,700	35,117	30,100	28,000
6. Kittson	8,343	8,200	7,950	6,200	5,300
7. Koochiching	18,190	17,900	17,723	16,900	16,500
8. Lake of the Woods	4,304	4,300	3,207	2,600	2,500
9. Mahnomen	6,341	6,000	6,043	5,000	4,400
10. Marshall	14,262	14,600	13,541	10,900	10,500
11. Pennington	12,468	11,800	11,847	10,700	10,100
12. Polk	36,182	36,600	34,952	33,800	31,500
13. Red Lake	5,830	5,500	6,522	5,800	4,200
14. Roseau	12,154	11,200	11,184	8,100	6,600
15. Wadena	<u>12,199</u>	<u>12,300</u>	<u>11,494</u>	<u>10,200</u>	<u>9,700</u>
Total	227,250	226,700	215,896	187,500	173,100

that 1985 projection A was made under the assumption that rural out-migration trends will decline especially after 1975. In contrast, projection B was made under the assumption that rural out-migration trends continue at approximately the present high levels.

The 1966 population estimates were made by the Bureau of the Census and published in the Current Population Reports series.^{14/} Thus, I am calling these the CPR estimates. These are the most interesting population figures since they suggest that the rate of population loss from our rural areas since 1960 has slowed considerably from what it was during the 1950-60 decade. After studying the 1966 CPR estimates and relating them to the U.S. scene one demographer, Calvin L. Beale, said the following:

In general, the evidence indicates that completely or primarily rural counties did much better in retaining their potential population growth from 1960 to 1966 than they did in the 1950's. In the 50's the rural counties gained 3.3 million in population while also losing a net of 4.6 million migrants. But from 1960 to 1966, they gained 2.8 million while their outmigration was reduced to about 550,000 or only a fifth of the annual average of the 1950's. Because of lower natural increase, the growth potential of rural areas was less in the 60's, but the areas retained the equivalent of a much higher proportion of their growth potential. Whereas in the 50's rural counties in the country as a whole had about 150 out-migrants for every gain of 100 in population, since 1960 they have had only about 20 net outmigrants per 100 gain in population. So despite lower natural increase, rural areas have had a higher population growth rate than

^{14/}U.S. Department of Commerce, Bureau of the Census, Current Population Reports, "Estimates of the Population of Counties: July 1, 1966," Series P-25, Report No. 1, (Washington, D. C.: U.S. Government Printing Office), August 28, 1968.

formerly. This improvement has been especially noticeable in the entirely rural counties and those with less than 30 percent urban population. All of the growth of population in rural areas in the 1950's was limited to the class of counties that were 30 to 50 percent urban, but this has not been so since 1960.^{15/}

Based on this evidence you are undoubtedly considerably encouraged.

However, he continues by stating:

The division that has done least well since 1960 in retaining population in rural areas is the West North Central States. These States have contributed more rural net migration to other areas than any other part of the country in the 1960's -- some 300,000 persons.^{16/}

Unfortunately, Minnesota is in the West North Central Region. Thus, even though the rate of loss has slowed since 1960 this region has continued to be an area of relatively heavy out-migration. Within Minnesota, there is evidence which suggests that Northwest Minnesota has gone further through the process of adjusting its rural population balance than have the southwestern portions of the state. Agricultural technological advance is continuing to force excess labor out of farming in Southwest Minnesota. Mechanization and other labor-saving innovations are quite easily applied in this more level, treeless, prairie type of terrain. For the same reasons, one would perhaps expect the Red River Valley Counties of Northwest Minnesota to continue

^{15/}Calvin L. Beale. "Demographic Dimensions of U.S. Rural Economic Policy," P. 12. A paper presented at Allied Social Science Associations annual meetings; Chicago, Illinois; December 1968. This paper will be published in the May 1969 issue of the American Economic Review.

^{16/}Ibid., p. 13.

to experience rapid technological change in their respective agricultural sectors. Thus, agricultural excess labor in these counties could be under more pressure than that located in even the "cut-over area" counties. However, this is unlikely as one observer has even gone so far as to call the resources found in the relatively unproductive rural areas such as the cut-over redundant insofar as the nation as a whole is concerned.^{17/} Perhaps this is so in some respects for areas like Appalachia and even the cut-over. But it is not true for agriculture in the Red River Valley. At any rate, there also is going to be continued agricultural adjustment in the cut-over area as well as in the Red River Valley counties in the future.

Beale goes on and discusses change in the vast midcontinent and mountainous area of the country which is now having the greatest difficulty retaining population. In reference to the area encompassed by a line running northeastward from the Rio Grande at Del Rio to the Upper Peninsula of Michigan, west along the Canadian Border to Central Washington, and then southeastward to Del Rio he states:

In this territory, involving a third of the land surface of the country, the great majority of counties, especially outside of the metro areas, are still in a state of population decline, usually on a community structure that is already affected by past outmigration, and on a local population base and governmental unit that is already small both in the aggregate and in density. The population declines are generally understandable, but how long can they continue without impairing the ability of the area to conduct the productive agricultural operations that characterize most of it?^{18/}

^{17/}Ruttan, op. cit., pp. 1110-1111.

^{18/}Beale, op. cit., p. 14a.

The percentage change in the population of Northwest Minnesota counties since 1960, based on the estimates and projections presented in Table 5, are given in Table 6. The percentage changes to 1966 (Minnesota Department of Health, Section of Vital Statistics) and to 1967 (CPR) show declines in the Northwest Minnesota total population of -0.2 and -5.0 percent, respectively, since 1960. Within the 15-county area the differences between the two estimates are not too great except in the cases of Beltrami, Hubbard, Lake of the Woods, and Red Lake Counties. The CPR estimates perhaps account for more special circumstances. For example, they take into consideration changes in school enrollment and thus indicate an 11.4 percent increase in Beltrami County population 1960-66. Undoubtedly part of this increase has been due to the growth of Bemidji State College. The Minnesota Section of Vital Statistics estimate, in contrast, was a 6.5 percent loss for Beltrami County, 1960-66.

It would be easy to simply say that the projected 1960-85 (A) and 1960-85 (B) population percentage change figures probably closely represent the highs and lows within which the future population change of the respective areas is expected to fall. But, it is not that simple. If the 1966 CPR estimates are close to actuality, I would expect even the 1960-85 (A) percentage change figures to present too dark a picture of future population trends. What the upper limit is, however, I do not know.

A couple of side comments are germane at this point. Upon examining the CPR estimates for other sections of the country, some of my

Table 6.--Estimated and projected percentage change in the population
of Northwest Minnesota, 1960-85

County	CPR	DVS	DVS	DVS
	Estimated 1960-66	Estimated 1960-67	Projection (A) 1960-85	Projection (B) 1960-85
	<u>Percent</u>			
1. Beltrami	11.4	-6.5	-20.2	-22.3
2. Cass	-2.5	3.1	-12.7	-23.4
3. Clearwater	-1.9	-9.7	-32.3	-35.7
4. Hubbard	5.4	-8.0	-20.7	-28.7
5. Itasca	-3.4	-7.6	-20.8	-26.3
6. Kittson	-1.7	-4.7	-25.7	-36.5
7. Koochiching	-1.6	-2.6	-7.1	-9.3
8. Lake of the Woods	-0.1	-25.5	-39.6	-41.9
9. Mahnomen	-5.4	-4.7	-21.1	-30.6
10. Marshall	2.4	-5.1	-23.6	-26.4
11. Pennington	-5.4	-5.0	-14.2	-19.0
12. Polk	1.2	-3.4	-6.6	-12.9
13. Red Lake	-5.7	11.9	-0.5	-28.0
14. Roseau	-7.8	-8.0	-33.4	-45.7
15. Wadena	<u>0.8</u>	<u>-5.8</u>	<u>-16.4</u>	<u>-20.5</u>
Total	-0.2	-5.0	-17.5	-23.8

colleagues feel that they are either very close to what has actually happened or are in great error. In other words, there is no middle ground of relatively stable moderate error. Secondly, with reference to the Minnesota Section of Vital Statistics population projections, I want to emphasize that they are just that -- projections. They are projections based on certain assumptions and not some set of desired predictions or ends.

Based on the CPR estimates, one would expect net migration from Northwest Minnesota to slow in the future. The 15 counties experienced an annual average net migration loss of 5,460 people during the 1950-60 period. Between 1950-60 the CPR estimated net annual average population migration loss was 3,250 persons. Within Northwest Minnesota as in other similar areas of the country, the population is going to become more concentrated. Losses from rural areas will continue for the reasons pointed out earlier, but the number of rural to urban migrants will be less since the rural population base is now smaller than it was a decade or two ago. Certain towns and cities will grow in the region at the expense of the rural areas (and total population may still decline). For instance, in Northwest Minnesota towns such as Bemidji, Crookston, Thief River Falls, International Falls, and certain others should grow. The good fortune of obtaining a source of employment may help some very small towns to grow. This shifting of the population distribution will place pressures on local governments. Areas gaining population must expand services in order to provide fire and police protection, sewer, water, recreation, and educational

services, as well as streets and highways. Areas of population loss have opposite pressures with services and facilities becoming more expensive per person.

I have referred briefly to small towns. The situation facing small towns in the future is of constant interest. I would like to take the liberty to quote once more from Beale's excellent paper. He makes some relevant points regarding small towns and states them in such a way that I do not want to risk losing the original meaning by merely summarizing. He states as follows:

Another facet of change in non-metropolitan areas of the country around which there have been conflicting claims and beliefs is the trend of small towns. The fact that the term "small town" has no standard meaning adds to the confusion, for one person may think of places of only a few hundred people when he depicts small towns, while his listener may have a mental view of a place of several thousand population as the typical small town. These distinctions are vital, for the various size classes of small towns have typically fared rather differently, especially at the lower end of the size scale.

To improve our perspective on small town change, our office has compiled the incidence of gains and losses and the overall population change from 1950 to 1960 of non-metropolitan towns of 1950, by size class. I am not sure that I have ever heard anyone with an overly favorable conception of what has taken place in the population change of small towns, but overly pessimistic views of an utterly inaccurate nature are all too common. An example is a statement from an important speech of Deputy Assistant Secretary of Commerce, Jonathan Lindley, who has said, "Small towns and villages, under 10,000-20,000 population, are disappearing except as residential or special purpose satellites of larger communities."* The facts don't

* Jonathan Lindley, The Economic Environment and Urban Development, Annual Conference of the Center for Economic Projections, National Planning Association, April 28, 1967.

begin to correspond with this viewpoint. More than 3/4 of all non-metropolitan urban places of between 2,500 and 25,000 population increased in population between the last two censuses, and their overall growth (including the minority that lost) was 21 percent, exceeding the growth rate of the U.S. as a whole. Even the towns of the smallest non-metropolitan urban class -- of 2,500 to 5,000 population -- grew by 18 percent, equal the national growth rate. What more in the way of demographic vitality could be asked of them? It is only among places of less than 500 population -- which may not really deserve the name town in the first place -- that population loss was more common than population gain (57.5 percent lost), and even here there was a small aggregate growth of 3 percent, because the gainers gained more than the losers lost.

To be sure, there are regional differences. Nonmetro urban towns in the North Central and Northeastern States did not do as well as those in the South and West. And in the West North Central States there were 1,500 little places of less than 500 people (or 2/3 of the places in this class) that declined. Possibly because these very small places of the Midwest are so numerous the impression has arisen that most "small towns" are decreasing in population, or "dying", to use what seems to be the most popular term. But they account for only a small fraction of the total population of non-metropolitan places, and their experience has simply not been that of small urban towns or even the larger rural towns.

I would not maintain that population growth in small towns is necessarily the same as economic growth. Some of the smallest, in particular, have unquestionably had a decay of economic structure even with some increase in population, because of such factors as a larger population of retired age or the ability of people to commute to other communities for goods and services. But it would be ironic, in view of the proven viability of most small urban towns and the larger rural places from 1950-60, under conditions of government nonintervention and of extreme agricultural and other technological change, if they should now, during the present period of discussion of future public policies relating to the location of economic growth, be read out of the future because economists and others with more valid excuses for not knowing better either fail to notice or inaccurately observe what has actually taken place in these communities.^{19/}

^{19/}Ibid., pp. 17-19.

In conclusion, just a few comments about Bemidji State College and Northwest Minnesota. Undoubtedly you will continue to have many of the rural and small town youth of the area come to Bemidji State for further education. I feel that you can best serve their educational needs if you come to better understand this section of Minnesota. This is true no matter whether they are able or desire to remain here upon leaving this institution. In order to learn more about this area you could become even more involved in research on the social and economic problems that exist here. Many of these problems are of a rural or small town nature. And if you become interested in the rural problems of these 15 counties, try not to overlook the problems of the most rural segment of U.S. population -- the Indian American. The process of learning more about this region can become a productive two-way street. You as faculty will learn more about Northwest Minnesota and the people of this area will learn more about Bemidji State College -- either through personal contact or from research reports. Both parties can benefit from this interaction.

APPENDIX

Appendix Table 1.--Total land in farms, by county, Northwest Minnesota,
1949, 1959, and 1964

County	Total land in farms		
	1949	1959	1964
	<u>Acres</u>		
1. Beltrami	337,594	260,747	268,187
2. Cass	334,255	250,849	247,194
3. Clearwater	277,121	253,193	262,685
4. Hubbard	236,966	167,543	172,323
5. Itasca	259,861	175,952	166,885
6. Kittson	535,792	512,299	536,333
7. Koochiching	172,271	116,591	109,468
8. Lake of the Woods	172,432	130,459	134,329
9. Mahnomen	239,344	220,862	223,304
10. Marshall	848,731	800,186	825,758
11. Pennington	348,063	303,489	326,478
12. Polk	1,171,440	1,158,841	1,168,751
13. Red Lake	249,862	221,799	233,684
14. Roseau	623,474	544,544	584,994
15. Wadena	<u>269,514</u>	<u>222,723</u>	<u>220,526</u>
Total	6,076,725	5,340,077	5,480,899
County average	405,115	356,005	365,393

Source: U.S. Census of Agriculture.

Appendix Table 2.--Total acres per farm, by county, Northwest Minnesota,
1949, 1959, and 1964

County	1949	1959	1964
	<u>Acres per farm</u>		
1. Beltrami	170	221	251
2. Cass	172	220	244
3. Clearwater	183	228	253
4. Hubbard	178	217	229
5. Itasca	118	146	160
6. Kittson	401	495	600
7. Koochiching	162	208	233
8. Lake of the Woods	228	297	345
9. Mahnomen	271	308	345
10. Marshall	331	387	438
11. Pennington	292	355	384
12. Polk	302	371	423
13. Red Lake	274	320	364
14. Roseau	266	320	368
15. Wadena	<u>179</u>	<u>201</u>	<u>229</u>
Northwest Minnesota	239	302	343

Source: U.S. Census of Agriculture.

Appendix Table 3.--Total cropland acres per farm, by county, Northwest Minnesota, 1949, 1959, and 1964

County	1949	1959	1964
<u>Cropland acres per farm</u>			
1. Beltrami	61	90	105
2. Cass	54	78	89
3. Clearwater	72	97	117
4. Hubbard	74	94	97
5. Itasca	37	48	56
6. Kittson	301	382	458
7. Koochiching	58	85	96
8. Lake of the Woods	101	148	184
9. Mahnomen	134	179	211
10. Marshall	241	296	345
11. Pennington	198	260	289
12. Polk	235	298	343
13. Red Lake	189	231	273
14. Roseau	163	213	253
15. Wadena	<u>81</u>	<u>93</u>	<u>111</u>
Northwest Minnesota	142	195	227

Source: U.S. Census of Agriculture.

Appendix Table 4.--Total number of farms, by county, Northwest Minnesota,
1949, 1959, and 1964

County	1949	1959	1964
	<u>Number of farms</u>		
1. Beltrami	1,984	1,182	1,067
2. Cass	1,984	1,141	1,012
3. Clearwater	1,516	1,112	1,038
4. Hubbard	1,331	771	751
5. Itasca	2,210	1,208	1,041
6. Kittson	1,337	1,036	894
7. Koochiching	1,061	561	469
8. Lake of the Woods	756	439	389
9. Mahnomen	883	716	647
10. Marshall	2,567	2,067	1,884
11. Pennington	1,194	855	850
12. Polk	3,876	3,122	2,766
13. Red Lake	913	694	642
14. Roseau	2,347	1,700	1,589
15. Wadena	<u>1,509</u>	<u>1,107</u>	<u>963</u>
Total	25,468	17,711	16,002
County average	1,698	1,187	1,067

Source: U.S. Census of Agriculture.

Appendix Table 5.--Total value of farm products sold, by county, Northwest Minnesota, 1949, 1959, and 1964

County	Value of products sold		
	1949	1959	1964
<u>Thousand dollars</u>			
1. Beltrami	3,086	3,970	3,516
2. Cass	3,375	3,829	3,728
3. Clearwater	3,163	4,180	4,537
4. Hubbard	2,305	2,088	2,274
5. Itasca	2,548	2,220	2,411
6. Kittson	9,439	8,966	11,381
7. Koochiching	1,532	1,493	1,297
8. Lake of the Woods	1,909	1,691	1,502
9. Mahnomen	3,049	3,957	4,891
10. Marshall	12,118	15,075	18,065
11. Pennington	3,496	5,140	6,042
12. Polk	22,506	31,749	39,326
13. Red Lake	3,082	3,686	4,326
14. Roseau	7,315	8,153	9,599
15. Wadena	<u>3,973</u>	<u>4,655</u>	<u>5,461</u>
Total	82,896	100,852	118,356
County average	5,526	6,723	7,890

Source: U.S. Census of Agriculture.

Appendix Table 6.--Value of farm sales per farm, by county, Northwest Minnesota, 1949, 1959, and 1964

County	Value of farm sales per farm		
	1949	1959	1964
		<u>Dollars</u>	
1. Beltrami	1,555	3,359	3,295
2. Cass	1,733	3,356	3,684
3. Clearwater	2,086	3,759	4,371
4. Hubbard	1,732	2,708	3,028
5. Itasca	1,153	1,838	2,316
6. Kittson	7,060	8,654	12,730
7. Koochiching	1,444	2,661	2,765
8. Lake of the Woods	2,525	3,852	3,861
9. Mahnomen	3,453	5,527	7,560
10. Marshall	4,721	7,293	9,589
11. Pennington	2,928	6,012	7,108
12. Polk	5,807	10,169	14,218
13. Red Lake	3,376	5,311	6,738
14. Roseau	3,117	4,796	6,041
15. Wadena	<u>2,633</u>	<u>4,205</u>	<u>5,671</u>
Per farm Northwest Minnesota	3,255	5,694	7,396

Source: U.S. Census of Agriculture.

Appendix Table 7.--Number of farm operators working 100 days or more off the farm, by county, Northwest Minnesota, 1949, 1959, and 1964

County	Operators working 100 days or more off the farm		
	1949	1959	1964
		<u>Number</u>	
1. Beltrami	446	335	326
2. Cass	433	362	321
3. Clearwater	256	281	281
4. Hubbard	280	228	250
5. Itasca	1,021	680	620
6. Kittson	132	180	160
7. Koochiching	346	277	246
8. Lake of the Woods	156	147	152
9. Mahnomen	90	125	115
10. Marshall	254	387	408
11. Pennington	122	197	196
12. Polk	353	469	545
13. Red Lake	94	173	185
14. Roseau	247	394	373
15. Wadena	<u>235</u>	<u>263</u>	<u>248</u>
Total	5,628	4,498	4,434
County average	375	300	296

Source: U.S. Census of Agriculture.

Appendix Table 8.--Farm operators working 100 days or more off the farm as a percentage of total farm operators, by county, Northwest Minnesota, 1949, 1959, and 1964

County	Percent working 100 days or more off the farm		
	1949	1959	1964
		<u>Percent</u>	
1. Beltrami	22	28	31
2. Cass	22	32	32
3. Clearwater	17	25	27
4. Hubbard	21	30	33
5. Itasca	46	56	60
6. Kittson	10	17	19
7. Koochiching	33	49	52
8. Lake of the Woods	21	33	39
9. Mahnomen	10	17	18
10. Marshall	10	19	22
11. Pennington	10	23	23
12. Polk	9	15	20
13. Red Lake	10	25	29
14. Roseau	11	23	23
15. Wadena	<u>16</u>	<u>24</u>	<u>26</u>
Northwest Minnesota	22.1	25.4	27.7

Source: U.S. Census of Agriculture.