MONTHLY REVIEW

Exports from the Ninth district

In a recent series of export origin studies, the Department of Commerce estimated the value of manufactured, agricultural, mineral and fishery product exports from each of the 50 states and the District of Columbia. The estimates were made only for 1960 so that they do not offer any clues as to possible trends in either the volume or the commodity composition of the exports from each state. Nevertheless, they are both informative and interesting in that they show how significant exports were for the economies of the various states in the recent past.

The most important part of the studies is the estimates of manufactured exports, because, for the first time in our history, they were based on a nationwide survey of manufacturers. Of the total $15.5 billion of manufactured goods exported in 1960, two-thirds or $9.8 billion were reported directly by nearly 8,000 manufacturing establishments, each with more than 100 employees and exports of $25,000 or more. The state-by-state origin of the remainder was estimated by the Department of Commerce on the basis of employment and production data. Separate estimates were made of the exports of all major industry groups in each state so that, combined, the studies present a picture of the geographic distribution of the origin of export shipments of all the major industrial goods categories as they actually took place in 1960. Moreover, each of the studies shows how importantly manufactured exports figured in the economy of a given state and how significant they were for the various industry groups in the state.

In contrast to the direct survey method used by the Department of Commerce to estimate the value of manufactured exports, the estimates of the various primary exports from individual states were derived by assuming that the share of each state in total U. S.

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exports of a given primary product equaled its share in total U. S. production of the particular commodity. Thus, unlike the estimates of manufactured exports, the estimates of primary exports have no necessary relation to the geographic origin of actual export shipments. Nevertheless, they are a satisfactory indicator of the importance of such exports for the economies of the various states and for the well-being of the respective producers' groups. Indeed in this regard, they are more meaningful than data on the geographic origin of shipments would be, because from the producers' point of view, the domestic and foreign demand are inseparable. Due to the relative homogeneity of most of these products, an excess of exports over imports simply adds to the total domestic demand (or, alternatively, subtracts from the supply available for domestic consumption) which, insofar that it causes the market price to rise, benefits all the producers of the commodity concerned. Unlike the marketing of manufactured products, there is no individual selling effort or product promotion.

Manufacturing exports

In 1960, U. S. exports of manufactured products totaled $15.454 million. Of this, over $8.0 billion, or nearly 52 percent, came from the Middle Atlantic (New York, New Jersey, Pennsylvania) and the East North Central (Ohio, Indiana, Illinois, Michigan, Wisconsin) states. New York, Illinois, Ohio and Pennsylvania alone accounted for over 34 percent of the total.

By contrast, manufacturing exports from the four states of the Ninth district were small. In fact, except for Minnesota, which with manufacturing exports of $176 million ranked 23rd among the 50 states, they were negligible. North Dakota, Montana and South Dakota combined, accounted for only about one-twelfth of one percent of total U S. manufacturing exports.

The low volume of manufacturing exports from the four states of the Ninth district is basically due to the relative smallness of their manufacturing industries. However, in this regard it is interesting to note that the share of each of the four states in total manufacturing exports was less than their respective share in U. S. manufacturing production.* Thus, North Dakota in 1960 contributed 0.04 percent of U. S. manufacturing production, but only 0.016 percent of U. S. manufacturing exports are estimated to have originated there. For Montana the respective figures were 0.12 percent and 0.025 percent, for South Dakota, 0.08 and 0.048 percent, and for Minnesota, 1.44 and 1.14 percent. Apparently this situation exists because of relatively small representation of the principal U. S. export industries (non-electrical machinery, transportation equipment, chemicals and allied products, food and kindred products, primary metals, and electrical machinery) in the states of the district, particularly outside Minnesota. Another factor may be the fact that the vast majority of enterprises (again mainly outside Minnesota) are relatively small-scale operations with necessarily limited marketing organizations which probably limit their desire and ability to push into foreign markets. From the viewpoint of the over-all state economy, manufacturing exports from Montana, North Dakota and South Dakota are negligible. Moreover, their importance for individual industries is also small. In fact, in each of the three states, only the food and kindred products industry, plus the lumber industry in Montana, were estimated to have exported goods in excess of $1 million. On the other hand, the exports shown for some of the industrial cate-

*Measured in terms of value added by manufacturers.

TABLE 1—TOTAL U. S. MANUFACTURING EXPORTS, BY STATES, 1960

State	Millions of dollars	Percent of total	State	Millions of dollars	Percent of total	State	Millions of dollars	Percent of total
N. Y.	1,417.4	9.2	Tenn.	220.1	1.4	Neb.	41.9	.3
Ill.	1,407.8	9.1	Md.	216.9	1.4	Me.	37.5	.2
Calif.	1,302.6	8.4	Mo.	193.0	1.2	Ariz.	29.3	.2
Ohio	1,299.4	8.4	Ky.	178.4	1.1	Del.	28.4	.2
Pa.	1,189.5	7.7	Minn.	176.4	1.1	Vt.	28.1	.2
Mich.	898.7	5.8	Fla.	158.8	1.0	N. M.	26.5	.2
N. J.	897.0	5.8	W. Va.	156.1	1.0	Idaho	15.6	.1
Tex.	836.6	5.4	S. C.	121.8	.8	Hawaii	15.5	.1
Wash.	582.8	3.8	Ala.	109.2	.7	Dist. of Col.	7.7	.1
Ind.	483.6	3.1	Okla.	98.9	.6	So. Dak.	7.4	—
Mass.	435.2	2.8	Kan.	96.6	.6	Nev.	5.4	—
Wis.	411.4	2.7	Ore.	87.1	.6	Alaska	4.0	—
N. C.	391.8	2.5	Miss.	77.0	.5	Mont.	3.9	—
Conn.	385.9	2.5	R. I.	65.9	.4	No. Dak.	2.4	—
Va.	338.3	2.2	N. H.	54.7	.3	Wyo.	.7	—
La.	254.1	1.6	Ark.	50.7	.3			
Iowa	243.0	1.6	Col.	48.4	.3	TOTAL	15.4*	100*
Ga.	230.8	1.5	Utah	45.8	.3			

*Figures may not add because of rounding Source: U. S. Department of Commerce.

gories represent in fact the exports of a single, or very few, firms. No doubt, to the extent that this is so, they are an important addition to the sales of such firms and an important source of employment in the communities concerned.

Exports from Minnesota present a somewhat different picture. They are quite significant for the economy of the state, and they are extremely important to several of the state's industries. Thus, in the year for which the survey was conducted, 1960, the value of manufacturing exports from Minnesota amounted to about 2.7 percent of the state's non-farm income and accounted roughly for 3.5 percent of the state's total shipments by manufacturers.[1] The proportion of exports to sales of Minnesota's main export industry — non-electrical machinery — was then 9 percent.[2] Within this industry group, exports by Minnesota manufacturers of farm machinery and equipment represented 13 percent of their total shipments, while exports by manufacturers of construction equipment accounted for 11 percent of their shipments.

The electrical machinery industry was another relatively large exporter, with over 5 percent of total shipments consisting of exports. The food and kindred products industry, although the second largest exporter in Minnesota, exported only 2 percent of its total shipments, but accounted for 3.1 percent of national exports, which was somewhat more than the state's share in total national shipments by manufacturers in this group.

In addition to their exports of finished manufactured products, Minnesota producers contribute also to exports of manufactured products from other states, insofar that they supply the raw materials and parts going into the finished products. However, this is also true of producers in other states in respect to Minnesota exports. The net re-

[1] Estimated on the basis of Minnesota's percentage of value added by manufacturers.

[2] Actually, this was the proportion of the establishments reporting in the survey, but it probably approximated that of the industry as a whole. Since the reporting establishments accounted for nearly ¾ of the shipments by the industry, the inclusion of the non-reporting enterprises would probably not have significantly altered this relationship, even if they were on the average less export-oriented.

sult cannot be estimated, but since these flows are mutually offsetting, it is likely to be small. Moreover, in the case of Minnesota, considering the relatively large production of raw materials in the state, there is more likely to be a surplus on this account than a deficit. Consequently, Minnesota's share in total manufacturing exports (direct and indirect) might have been somewhat larger than her estimated direct exports.

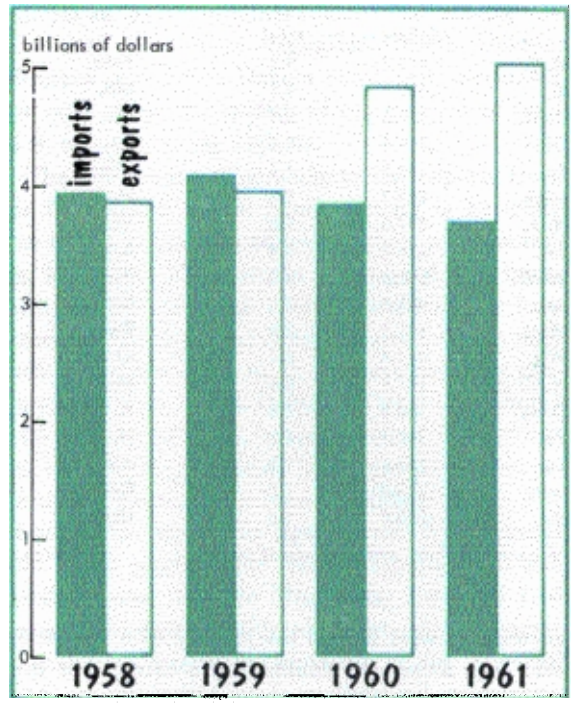
The effect of manufacturing exports on employment in the various industries can be estimated by assuming that the output in each industry group is roughly proportional to the number of production workers employed. On the basis of this assumption, approximately 9 percent of all production workers in the non-electrical machinery industry, 5 percent in the electrical machinery industry, and 2 percent in the food and kindred products industry depend for their jobs on exports. In 1960, the average for all manufacturing in Minnesota was 3.1 percent, which was equivalent to more than 4,800 production jobs.

Agricultural exports

The U. S. is both the world's largest importer and its largest exporter of agricultural products. Although over the longer run U. S. agricultural imports have tended to exceed agricultural exports, since 1959 the balance of trade in agricultural commodities has been favorable to the U. S. In 1961, the surplus was $1,339 million — an important contribution to the U. S. balance of payments. $1.6 billion of agricultural exports were aid financed.

The major portion of U. S. agricultural imports consists of commodities which are non-competitive with U. S. production, because they are either not produced in the U. S., or are produced in insufficient quantities, or are different in some respects from U. S. produced products. Thus, among the principal agricultural import commodities in table 2, coffee, which is not produced in the U. S. at all, accounts for some 27 percent of U. S. agricultural imports, while the next five most important commodity imports account together for nearly 40 percent of total U. S. agricultural imports. This latter group of commodities, although largely supplementary to U. S. production, also contains varieties which are not domestically grown. (For example, many tropical fruits, nuts and vegetables, certain varieties of raw wool, natural rubber, and probably others.)

U. S. agricultural exports and imports, 1958-1961



Source: Department of Commerce, Survey of Current Business.

In addition to coffee, cocoa, tea, jute, spices and raw silk are examples of commodities which are not domestically produced. During 1958-1961, this group accounted for over 40 percent of total agricultural imports.

By contrast, imports of principal U. S. agricultural export commodities tend to be small. In fact, imports of soybeans, wheat, feed grains and cotton are altogether negligible. While imports of tobacco and of fruits, nuts and vegetables are sig-

nificant, in both instances exports are nevertheless considerably in excess of imports (more than 10 to 20 percent respectively), so that there is still a net addition to the well-being of the respective producers' groups.

Agricultural producers in the Ninth district have a high stake in exports. Although they produce no cotton or tobacco, their production of such field crops as wheat, soybeans, corn, rye, oats, barley and flaxseed — all of which are important export commodities — is relatively large. As is apparent from table 4, cash proceeds to farmers in the four states, attributable to exports of these commodities,

TABLE 2—PRINCIPAL U. S. AGRICULTURAL IMPORT COMMODITIES, ANNUAL AVERAGES, 1958-1961

	Millions of dollars	Percent of total U.S. agricultural imports
Coffee	1,059	27.2
Cane sugar	496	12.7
Meat products	374	9.6
Raw rubber	293	7.5
Fruits and vegetables	201	5.1
Raw wool	193	4.9
TOTAL	2,616	67.4*

*Does not add due to rounding.

Source: U. S. Department of Commerce, Statistical Abstract of the United States, 1962 and Survey of Current Business.

TABLE 3—PRINCIPAL U. S. AGRICULTURAL EXPORT COMMODITIES, ANNUAL AVERAGES 1958-1961

	Exports		Imports	
	Millions of dollars	Percent of total agric. exports	Millions of dollars	Percent of exports*
Wheat and wheat flour	899	20.3	12	1.3
Cotton	742	16.8	29	3.9
Feed grains	514	11.6	20	3.9
Tobacco	388	8.7	110	28.3
Fruits, nuts and vegetables	377	8.5	296	78.5
Soybeans	290	6.5	0	0

Source: U. S. Department of Commerce, Statistical Abstract of the United States, 1962.

*Exports of the particular commodity or commodity group.

amounted in the fiscal year 1960-1961 to $328 million, or nearly 11 percent of their total cash income. Broken down by states, field crop export proceeds were 9.1 percent of farm cash receipts in Minnesota, 15.7 percent in Montana, 19.7 percent in North Dakota, and 4.7 percent in South Dakota.

The district's share in agricultural exports of all categories accounted in 1960 for 13 percent of the total cash farm income in the district. In Minnesota, the percentage was 11.2 percent, in Montana 17.8 percent, in North Dakota 20.5 percent, and in South Dakota 7.1 percent. Thus, the contribution to cash farm income from exports of commodity groups other than field crops — i.e., all those commodity groups with relatively large imports — was, with the exception of South Dakota, relatively less important. In the case of North Dakota it was negligible.

Most important among the field crop exports for Ninth district farmers are wheat, barley, corn and soybeans. Together, they accounted in 1960 for over 80 percent of the district's share in total field crop exports. Wheat alone accounted for over one-half of the share, while the rest was divided among barley, corn and soybeans.

The order of importance of the district's four principal field crop exports was roughly the same for the individual states (except Minnesota) as for the district, but their relative magnitudes varied considerably from state to state. As illustrated in table 5, North Dakota and Montana were the principal suppliers of wheat, and North Dakota also supplied a major portion of the barley in the district. The major part of the district's supply of corn and nearly all of its soybeans came from Minnesota. Accordingly, North Dakota farmers as a group tend to benefit relatively most among the farmers of the district from wheat exports, while soybean producers in Minnesota are practically the sole beneficiaries in the district of soybean exports.

Aside from the beneficial effect on the district farm income, agricultural exports contribute significantly to the level of farm employment in the district. The Department of Commerce in coopera-

TABLE 4—AGRICULTURAL EXPORTS FROM THE NINTH DISTRICT, FISCAL YEAR 1960-1961

Commodity group	Minnesota		Montana		South Dakota		North Dakota		Total 4 States	
	Millions of $'s	Percent of U. S. exports*	Millions of $'s	Percent of U. S. exports*	Millions of $'s	Percent of U. S. exports*	Millions of $'s	Percent of U. S. exports*	Millions of $'s	Percent of U. S. total exports*
Field crops—excluding vegetables, fruits and nuts	132.5	3.34	59.9	1.5	30.6	.77	104.8	2.64	327.8	8.26
Vegetables, fruits and nuts	1.4	.40	.2	**	**	**	**	**	1.6	.44
Dairy products	8.4	6.44	.4	.33	.9	.70	1.00	.73	10.7	8.18
Poultry and poultry products	3.8	4.41	.1	.13	.8	.91	.3	.31	5.0	5.74
Livestock and livestock products (excluding dairy and poultry products)	17.5	4.44	7.3	1.84	14.0	3.55	5.6	1.42	44.4	11.24
TOTAL agricultural products	163.7	3.31	67.9	1.37	46.4	.94	111.7	2.26	389.7	7.89

* Percent of exports of each commodity. ** Less than 0.05 percent. Source: Department of Commerce.

tion with the Bureau of Labor Statistics estimated that in the fiscal year 1960-1961, 23,700 out of a total of 266,000 farm jobs were attributable to exports of agricultural products (both in processed and unprocessed form) in Minnesota, 8,100 out of 49,000 in Montana, 11,500 out of 92,000 in North Dakota, and 9,000 out of 92,000 in South Dakota. For the four states combined, the number of farm jobs attributable to agricultural exports was 52,300 or 10.5 percent of total workers on farms.

TABLE 5—THE DISTRICT'S EXPORT SHARE OF WHEAT, BARLEY, CORN AND SOYBEANS, BASED ON 1960 PRODUCTION AND EXPORT DATA

Commodity	Percent of the district's share of total field crop exports (4 states total* percent)	Minnesota (percent)	Montana (percent)	So. Dakota (percent)	No. Dakota (percent)
Wheat	53	5	15	9	24
Barley	12	2	3	1	6
Corn	10	7	**	3	1
Soybeans	8	7	0	**	**
TOTAL	83	21	18	13	31

*May not add due to rounding.
**Less than 0.5 percent.
Source: U.S.D.A., Agricultural Statistics, 1961.

Mineral exports

Among the four district states, Minnesota was the largest producer of minerals in terms of value of shipments. In 1960, she ranked ninth among the 50 states with a total mineral production valued at $515.3 million.

The principal mineral mined in the state is iron ore. The 1960 output had a mine value of $470.9 million, thus accounting for 91 percent of the state's total mineral production; 6.5 percent of national iron ore production was attributable to exports, and this percentage of the state's output was about $30 million.

On the assumption again that output is roughly proportionate to employment, some 850 out of a total of approximately 13,300 production workers in the state's iron ore mining industry in 1960 depended for their jobs on exports of crude ore. Undoubtedly the number of jobs attributable to indirect iron ore exports — in the form of finished and semi-finished products — was much larger.

Although the income and employment attributable to exports of crude iron ore may seem insignificant from the over-all viewpoint of the state economy, they are of utmost importance for the geographic area where nearly all of the state's production of iron ore is concentrated (St. Louis and Itasca counties).

(Continued on page 14)

Alternatives in the future of agriculture

If the Ninth district is to share in the economic growth of the nation, it is important that its people recognize the current economic status of the region and understand the problems that must be alleviated if the region is to achieve its full potential. The prime consideration in promoting future economic strength is to insure that appropriate adjustments are made so that the region's resources may yield the greatest possible income consistent with a growing national economy. Agriculture alone cannot provide the stimulus required for regional economic growth, but adjustments within agriculture are necessary for over-all economic growth within the region. It is from this viewpoint that the recently issued report, *Upper Midwest Agriculture: Alternatives for the Future*, approaches the adjustment problems facing Ninth district agriculture.

The report categorized the agricultural situation into two distinct but interrelated problems. They are an *excess-capacity problem*, a result of agricultural production in excess of market demands at prevailing prices, and an *income-resource problem* that results from inadequate resources on individual farms. The excess-capacity problem gives rise to the well-known but poorly understood "surplus problem." Its real cause is the total amount of resources (labor, capital and land) employed in agricultural production. While the excess-capacity problem affects all farmers, it affects the large Group I farms (farms with product sales of $10,000 or more)[1] most seriously. The income-resource problem relates to farms, in general the Group II (farms with sales of $2,500 to $10,000) and noncommercial farms (farms with product sales of less than $2,500), which have resources that are insufficient to provide adequate returns for family living even if the excess-capacity problem were solved. The two categories of problems are interrelated inasmuch as the farms with inadequate resources do contribute to the excess-capacity problem. Also, the income problems of the smaller farms might be alleviated to some extent if price and income consequences of excess-capacity were removed. The report, however, emphasizes the important fact that the two problems arise from different conditions and they require different solutions.

[1]See Upper Midwest Agriculture: Structure and Problems by Arvid C. Knudtson and Rex W. Cox, UMES Study Paper No. 3, January 1962, for the definition and analysis of the Economic Groupings of farms.

Excess-capacity—agriculture's resource problem

The excess-capacity problem is defined in the report as *agriculture's ability and willingness to produce more than consumers are willing to buy at prices that provide returns to resources in agricultural employment comparable to those in other sectors*. It results from a rate of technological advance that exceeds the rate of growth in demand for farm products and a failure to adjust resources used accordingly. This tendency for agricultural production to outrun demand at "fair" prices arises from several factors. On the one hand, demand for agricultural products has been growing only slightly more rapidly than population. Further, a relatively small part of increased in-

Type of farming areas and state economic subdivisions*

I dairying, wood products area
II dairying, general farming area
III corn, livestock feeding area
IV small grain, specialty crop area
V small grain, corn transitional area
VI small grain, livestock farming area
VII livestock ranching area
VIII small grain, livestock ranching area
IX livestock ranching, irrigation farming, food products area

* state economic areas conform to census area designations.

come in America is spent on food, and that is mostly for higher quality foods or for services associated with food (e.g., prepared cake mixes, TV dinners, etc.). On the other hand, farm production has been increasing at a faster rate than demand, in spite of the fact that there has been little or no change in the total volume of resources (land, labor and capital [machinery, etc.]) devoted to agricultural production. Although the discrepancy between the two rates of growth is relatively small, it is important because consumers respond very little to changes in the general price level of farm products. Thus, a little bit too much (or too little) in farm food production can bring sharp price consequences.

The principal reasons for increased farm output have been technological advance—the utilization of new knowledge in agricultural production—and substitution of capital for labor. While technological advances in agriculture and elsewhere are highly desirable because they improve levels of living, they raise problems associated with the adjustments needed to adapt to them. The failure, or the inability, of agriculture to adjust adequately to the rate of technological advance in production has resulted in employment of resources in agriculture that could have been utilized more profitably elsewhere.

Agriculture has made adjustments as evidenced by technological advance itself. A further adjustment is seen in the large scale migration of labor out of agriculture. However, the report states, the migration has been offset by increases in capital use, so on balance the total level of resources devoted to agriculture has remained relatively constant.

Today's situation is made more difficult because the government programs of the 1950s have protected farmers from the full price and income consequences that usually result from failure to adjust total resources rapidly enough to offset increased output per unit of input (technological advance). Allowing this to persist over a period of years has had the cumulative effect of intensifying the need for resource adjustment. The present imbalance between production capacity and demand is so great that sole reliance on market forces, i.e., prices and incomes, to bring about the required adjustment would drastically disrupt the economic and social structure of rural America. This would be true even if present government stocks did not exist.

Policies for effective adjustment relating to the excess-capacity problem must be formulated at the national level. With few exceptions, no region or state may pursue successfully a policy designed to influence important market factors such as prices or total supplies. The major function of a regional analysis such as this is to indicate the implications for the region of various national policy alterna-

tives. Furthermore, alternatives within the region, whether considered for individuals or for areas, must operate within the framework of national programs.

Because surplus stocks currently are concentrated in wheat, feed grains and to a lesser extent in dairy and cotton, it seems reasonable to expect that if supplies are brought into balance with demand either through government programs or the market process, the impact is likely to be felt most strongly by the owners of resources currently devoted to those commodities. This has special significance to the Ninth district because of the great relative importance of these commodities (except cotton) in the region.

Alternative solutions for the excess-capacity problem may be classified under four broad approaches: (1) no program, (2) price support and storage, (3) increased utilization and (4) reduced production.

1. The "no program" approach, removal of federal price and income support programs, would lead to severely depressed farm prices and incomes in the short-run. The resulting adjustments would seriously disrupt the economic and social structure of the Upper Midwest. A policy involving a rapid return to "free market" conditions without an accompanying program for resource adjustment is highly unlikely. The immediate price and income consequences of such a policy would be extremely severe. Furthermore, because total resources in agricultural production change slowly, it probably would be several years before price and income levels would increase significantly.

2. The "price support and storage" approach is satisfactory only for "temporary" imbalance. Continuation under present conditions appears impractical because of expanding government costs. The report assumes that an approach that increases the federal cost of farm programs and the stocks of agricultural commodities in government hands cannot be continued indefinitely.

3. "Utilization increasing" approaches may be used in both domestic and foreign markets. These include such things as food stamp plans and foreign food aid programs. Utilization approaches pursued separately or in combination will not completely relieve the current situation without large increases in government costs and/or lower farm prices and incomes. However, they may be relied on partially to ease surplus difficulties.

4. "Production reducing" approaches could maintain present farm income levels without increasing government expenditures if acceptable programs were devised. Programs may be voluntary or compulsory, "across-the-board" or selective by areas and by commodities. In general, they are unpopular. They would reduce decision-making freedom in agriculture. Furthermore, they would reduce physical volume and, probably, net incomes

This article is a condensation of the report ***Upper Midwest Agriculture: Alternatives for the Future*** *by Elmer W. Learn, Professor of Agricultural Economics, University of Minnesota; Rex W. Cox, formerly Agricultural Economist of the Upper Midwest Economic Study staff, and Richard J. Herder, Agricultural Economist at the Federal Reserve Bank of Minneapolis. This release is the second and final report concerning the over-all agricultural situation in the Ninth Federal Reserve district. This research is a joint undertaking under the auspices of the Upper Midwest Economic Study and the Federal Reserve Bank of Minneapolis.**

Copies of the two reports, namely:

Upper Midwest Agriculture: Alternatives for the Future (Study Paper No. 6)

Upper Midwest Agriculture: Structure and Problems (Study Paper No. 3)

are available upon request from the Research Department, Federal Reserve Bank of Minneapolis, Minneapolis 2, Minnesota.

**The Upper Midwest Study area coincides with the Ninth Federal Reserve district.*

of related businesses. Programs may deal with farm inputs, e.g., land, or with production and marketings directly.

Although the excess-capacity problem is related to the level of *total* resources, solutions are likely to be devised on a *commodity* basis. No approach is equally adaptable to all commodity situations. Hence, as in the past, a variety of approaches is likely to be employed to alleviate the problem. Yet because of the substitution possibilities among farm enterprises, the approaches must be reasonably consistent.

Since utilization cannot be expanded sufficiently to absorb the production from currently employed resources, the problem must be alleviated by reducing total resources. This will be the result under so-called free market conditions or under any realistic government adjustment program. The method for selecting specific resources to be removed is the key issue to be resolved. Regional interests should be alert that national policies do not result in undue hardship to the region.

The income-resource problem—inadequate sized farms

The income problem of many farmers cannot be resolved by programs that influence the level of agricultural prices and production. On many farms the operator simply does not have sufficient productive resources to enable him to earn an adequate income at even the highest prices in the last 20 years. Such farms cannot support the outlay required for modern mechanization or technology, nor will they provide for full utilization of operator and family labor. Operators of these units can expect adequate incomes in agriculture only if they reorganize their farm businesses. In most cases this means expansion in acres farmed. Thus, gradual consolidation of farm units will help overcome part of the problem. This implies, however, that some farm families must shift to other employment. Furthermore, a determined effort in this direction will accentuate the excess-capacity problem, since consolidated farms probably will be more efficient and increase total output.

Many of the people classified as farmers are only partially dependent upon agriculture and because of off-farm work receive adequate total incomes despite their low farm incomes. These individuals are not part of the income-resource problem. However, large numbers of farmers producing small amounts of farm products do not have off-farm income to supplement their returns in agriculture. The cause of their difficulties is not related to the workings of agricultural markets and cannot be corrected by price or production programs. Nevertheless, these people are a part of rural society. Their failure to obtain truly productive employment represents a loss to the economy of the region and the nation.

It should not be assumed that all people included in the income-resource problem are dissatisfied with their conditions. But, for those who have the desire to increase their earning capacity either by adding to their present resources or by shifting to other employment, attempts can be made to better inform them of alternatives and to assist them in making the needed adjustments.

The public policy alternatives for the income-resource problem are limited, because alleviation of the income difficulties requires major adjustments by individual families. Furthermore, the adjustments for many require transfer from agricultural to nonagricultural employment. Thus, the policy alternatives generally are limited to actions that facilitate the movement from agriculture or facilitate the expansion and reorganization of individual farm units.

The necessary adjustments will be assisted over time by retirement of older farm operators and migration of young men before they become farm operators. However, if the region is to gain more complete utilization of the labor supply currently in agriculture, there also must be shifts by other groups of farm operators.

This may appear to be an unpleasant prescription. Nevertheless, the report continues, unless the

individuals are content with present low incomes and prospects of even lower incomes, it is medicine that must be swallowed. Modern economic conditions simply will not provide adequate family incomes from 10-cow dairy herds or 160-acre cash grain farms, no matter how desirable such units may appear to the romanticist or agricultural fundamentalist. The absorption of such units into larger units is a price of progress to be ranked alongside the passing of the corner grocery, the blacksmith shop and the one-room school.

The most effective attack on the income-resource problem can be made through farm youth under 20. Educational considerations are of primary importance. These include improved over-all quality of education, expansion of nonagricultural vocational training, better counseling regarding job opportunities and greater understanding of technical and managerial skills required for successful farm management.

Implications for the district

In broad terms the guidelines for future agricultural growth, both nationally and in the district, may be taken from the trends in resource use in the recent past. The most significant changes are: (1) shifts in land use including an increase in acre size of individual farm units and a decrease in total land devoted to agriculture, (2) a declining agricultural labor force, hence diminishing farm population, and (3) an increase in capital requirements that increases the interdependence between agriculture and related businesses.

If agriculture is to be reasonably prosperous in 1975, there must be fewer total resources in agricultural use than presently. This will be true unless (1) some unforeseen export possibilities emerge or (2) we are willing to add continuously to stockpiles of farm commodities. Excluding these two unlikely possibilities it will be true regardless of the nature of farm programs. Potential markets simply do not exist to utilize all the production that could be forthcoming from available farm production resources in this country. A recent U. S. Department of Agriculture study suggests that 50 million acres of present cropland will have to be devoted to other uses if we are to balance production with needs in 1980. Furthermore, the twin goals of increased efficiency and equitable returns to labor and management in agriculture will be achieved only if the substitution of capital for labor and technological advance in agricultural production continue. However, the migration of labor from agriculture must be greater than that released by capital substitution if present underemployment is to be corrected.

These adjustments in agricultural resource use will be shared by all regions of the U. S. It is clear, however, that all regions will not share equally. For example, land use adjustments likely will be relatively greater in the semiarid Plains and outmigration of labor will be greatest in the Southeast.

Land use adjustment

Perhaps the most basic yet the most difficult adjustments in Upper Midwest agriculture are those relating to land use. There is little doubt that present land use distribution is far from ideal in terms of either short-run efficiency or long-run conservation considerations. For example, it has been estimated that more than fourteen million acres of land considered to be unsuited for permanent use as cropland now are being cropped on the Great Plains; three million acres are in the states of Montana, North Dakota and South Dakota. In the eastern part of the Upper Midwest, especially in Area I (see map), some of the cropland is unsuited to cropping with modern equipment. It could be used more advantageously in grass or trees.

An indication of the kind and degree of cropland adjustments that could be forthcoming was obtained by projecting forward to 1975 cropland needs, crop yields and production possibilities. These projections for the region and the U. S. are shown in table 1.

Cropland needs for the region are derived by

assuming that its share of total U. S. production in 1975 will be the same as in 1954-1958. While such an assumption might be somewhat unrealistic for prediction purposes, it appears to be satisfactory to indicate the nature of the shifts that may be forthcoming.

The main adjustment problem facing a significant proportion of producers in Montana, North and South Dakota is related to the projected wheat acreage needed; about 18 percent less acreage will be needed. In arriving at this figure, consideration was given to the relative projected utilizations and yields per acre of the three classes of wheat produced in the Upper Midwest.

TABLE 1—HARVESTED ACRES IN SPECIFIED CROPS, UPPER MIDWEST REGION AND UNITED STATES

	Region			United States		
	Actual 1954-58	Needed 1975	Change 1954-58 to 1975	Actual 1954-58	Needed 1975	Change 1954-58 to 1975
	(1,000 acres)		(percent)	(1,000 acres)		(percent)
Six crops	47,961	40,399	— 15.8	190,228	170,813	— 10.2
Feed grains						
Corn (grain)	8,838	8,351	— 5.5	65,724	62,238	— 5.3
Oats	10,571	4,952	— 53.2	35,645	16,162	— 54.7
Barley	6,399	6,269	— 2.0	14,082	13,813	— 2.0
Total	25,808	19,572	— 24.2	115,451	92,213	— 20.1
Wheat	14,385	11,798	— 18.0	49,646	39,286	— 20.8
Soybeans	2,962	5,251	+ 77.3	20,227	35,517	+ 75.6
Flaxseed	4,806	3,778	— 21.4	4,904	3,797	— 22.6

1954-58 U. S. Wheat Utilization: 1,004 million bushels.
1975 U. S. Needs: 1,100 million bushels.

Soybean domestic utilization and exports will more than double the production in 1954-1958. The increase in acreage needed is much less, 77 percent, because of the significant increase in yields per acre. In some areas, e.g., Type of Farming Area III, soybeans can substitute readily for feed grains. In this area the increase in projected acreage of soybeans, 1,625 thousand acres, is almost sufficient to take up the slack due to the decline of 1,770 thousand acres required for oats. The substitution of soybeans for wheat in the cropping pattern, however, is negligible, once again emphasizing the difficult adjustment problem facing farmers who depend on wheat as a main source of income.

The variation of the changes in the total acreage requirements of the six crops is extreme among areas. The percent change in Area III is very moderate because of the substitution of soybeans for feed grains, particularly oats. In contrast, where wheat is the principal crop the reduction in needed cropland acreage is large, exceeding 16 percent in Areas I through IX.

Procedures for dealing with land use adjustment require coordinated effort at the local, state and national levels. Locally, consideration should be given to rural zoning ordinances and adjustment of taxation policies. In some cases, for example, where extensive regrassing operations are indicated, an adjustment in credit facilities available to individuals in the region may be required. Consideration must be given to the nonfarm implication that will occur as land is shifted to less intensive uses. At the federal level, the Soil Conservation Service, Agricultural Conservation Payments Program, Great Plains Conservation Program and most recently, the Rural Area Development Program, all provide tools and assistance for land use adjustments.

Farm employment adjustment

The reduction in manpower needs in agriculture will be greater than that needed to correct the current income-resource problem. Alleviation of the excess-capacity problem will require retirement of labor resources from agricultural pro-

duction as well as land and capital. Furthermore, continued technological advance will exert additional pressure to release labor resources if the excess-capacity problem is not to persist in the future.

In contrast with the land adjustment problems the greatest pressure for outmigration will be found in the eastern part of the district. In Areas I, II and III, which contain about 60 percent of all farms in the region, 160,000 farms (more than 75 percent of the total) are in the noncommercial and Group II categories. The number of full-time jobs in agriculture to be achieved by combining land currently in these farms into adequate size units definitely is limited.

Even though an unknown number of farmers already have begun the migration from agriculture by obtaining part-time or full-time nonfarm employment, an even larger number of nonfarm employment opportunities must be provided if labor resources currently in agriculture are to be fully employed within the region.

In the western part of the region (Areas IV through IX), the reduction in job opportunities in agriculture will be considerably less in absolute terms. Much adjustment already has occurred in this part of the region. Still, the relative impact may be considerable because of the adjustments required to meet the excess-capacity problem. The adjustment from wheat to more extensive cattle operations and the retirement of land from agricultural production will result in the loss of employment opportunities even for some now in the Group I category.

In the final analysis the agricultural labor force will continue to decline whether present policies are continued, new policies adopted or action programs foregone altogether. One of the major goals of action programs resulting from the Upper Midwest Economic Study should be to make this transition as painless and as profitable as possible for the individuals, the region and the country.

TABLE 2—FARM NUMBERS 1949, 1959 AND PROJECTED 1975

AREA	1949	1959	1975
Upper Midwest Region	418,384	354,509	272,900
Type of Farming Area:			
I	50,060	30,064	15,800
II	108,614	92,629	69,800
III	93,128	86,305	68,300
IV	27,726	23,494	17,900
V	38,816	34,854	28,500
VI	39,278	33,930	26,900
VII	19,588	16,468	14,100
VIII	29,532	26,255	22,600
IX	11,642	10,510	9,000

Fewer farms

While the adjustments that are made in agricultural resources will have various effects on the region's economy, one of the more important is the change that will occur in farm numbers. The decade between 1949 and 1959 was one of great off-farm migration. Farm numbers declined from 418,384 in 1949 to 354,509 in 1959, evidence of the adjustments that had already taken place. Indications of a continuing decline in farm numbers are found by projecting farm income and technology forward to 1975. According to these projections, it is estimated that an additional 81,609 farms will disappear by 1975, resulting in a total of 272,900 farms in the Upper Midwest. As can be seen in table 2, the process of farm consolidation and expansion of size is estimated to be greatest in the eastern type of farming areas where farms in the lower income classifications are more predominant. In the western areas, where extensive adjustment toward more economical units has already taken place, the projected rate of decrease is relatively less than in the eastern areas. The over-all projected rate of decrease for the 1959-1975 period is less than actually occurred during the 1949-1959 period. While these projections are useful as an indicator of change, the course of action taken toward agriculture in the region will, of course, determine the rate at which farm numbers will decline.

Farm income

The potential income of agriculture in the Upper Midwest largely depends upon national policies relating to the excess-capacity problem. Per capita income in agriculture can be improved, but *total net income from agriculture* in the region is unlikely to increase substantially regardless of the policies chosen. *Total income from the resources* currently in agriculture could be increased with wise resource adjustment, primarily by providing more productive nonfarm job opportunities for many workers currently underemployed in agriculture. If accompanied by consolidation of remaining farms and with an agricultural population that continues to be alert and progressive, per capita income in agriculture could increase substantially.

Conclusion

It is inevitable that Upper Midwest agriculture will change greatly in the years ahead. The willingness of the people to consider alternative actions to facilitate the needed adjustments will determine the degree to which the region as a whole benefits.

Simple or lasting solutions to the two income problems of agriculture do not exist. Aspirations differ among people and organizations; hence, desirable adjustments for some are undesirable for others. Furthermore, conditions constantly change; today's "solutions" may become a major factor in tomorrow's problems.

The Upper Midwest faces a bold challenge regarding the region's economic future. Agriculture is a key factor in meeting that challenge. It is clear, however, that agriculture alone cannot provide the stimulus required for a more prosperous regional economy. It is equally clear that more rapid rates of over-all economic growth in the region cannot be achieved readily unless appropriate adjustments are made within agriculture. Thus, an important need for the future is to adjust, within agriculture and between agriculture and other industries, so that the region's resource base may yield a greater income. The report is concerned with the private and public decisions related to such adjustments. It has dealt not so much with what *will* be as with what *could* be if alternative courses of action are followed.

In large measure the adjustments will be determined by the collective results of many individual decisions. However, group decisions (policies) made at the local, state, regional and national levels may alter significantly the environment within which individual and private decisions are made. For both individuals and groups, the wisdom of the decisions ultimately will be determined by the degree to which alternatives are understood by the general public. Thus, meeting the challenge requires education at all levels regarding existing conditions and the consequences if various alternatives are followed. END

(Export article: continued from page 6)

Summary and conclusions

It has been shown that among exports from the Ninth district, agricultural exports are of primary importance. In relative terms they are of particular significance for North Dakota and Montana where they account for some 20 and 18 percent respectively of total cash farm income as against approximately 14 percent for the whole of the U. S.

By contrast, among the four states only Minnesota exports significant quantities of manufactured products, and, even in her case, the ratio of manufacturing exports to total sales by manufacturers is less than the national average (about 3.5 to 4.2 percent). In the other three states of the district, only a few manufacturing enterprises engaged in exports in any significant volume. Nevertheless, as a source of income, exports from Minnesota of both manufactured and agricultural products have been about par in recent years. In 1960, however, the value of manufacturing exports exceeded the state's share of agricultural exports by some $12 million.

However, Minnesota is an exception in this respect among the states of the district. While manu-

facturing exports from the three remaining district states were negligible as a source of income, agricultural exports accounted in 1960 for approximately 3.5 percent of personal income in South Dakota, 5 percent in Montana, and 9.6 percent in North Dakota. For the U. S. as a whole, total exports of agricultural products amounted only to 1.2 percent of total personal income.

In view of their agricultural nature, all four states in the district have clearly a very high stake in any future arrangements which might affect U. S. agricultural exports. ZDENEK CERNOHOUS

Current conditions . . .

In January the national economy presented a complex and in some instances a contradictory picture. Particular bits of evidence may be pointed to in support of a whole range of competing ideas as to both the current and developing economic situations. The January statistical data, viewed in total, however, present no convincing evidence that the national economy has or is about to deviate from the nearly sideways movement which has been broadly characteristic of the entire latter half of last year.

Within the district, the total available banking and business data do suggest, even after allowing for the normal seasonal declines, that there has been a mild slowdown in January. However, the possibility exists that even this evidence is illusory in the sense of its indicating either current or future economic developments. It is possible to argue that the larger than seasonal declines, which are found in many of the financial and business series, are the consequences of the below normal January temperatures and the effects of this upon retail sales, construction and other weather-sensitive activities. Accordingly, the district economy also presents no clear evidence of a significant shift in the basic economic trend which began in the latter half of 1962. We, as well as the nation, appear to be well embarked upon another quarter of a "wait and see" economic situation.

DURUM SUPPLIES UP SHARPLY

The Ninth district durum wheat crop was reported at 71.2 million bushels in 1962, a 250 percent increase over the output of 1961 and the largest crop since 1928. The 1962 production compares with an annual average output of 26.5 million bushels over the 1951-1960 period. Over the years virtually the entire U. S. supply of durum was produced in the district with only about 700 thousand bushels contributed by other states in 1962. North Dakota alone accounted for 80 percent of the harvested acres of durum and about 83 percent of total production in 1962.

Two factors are primarily responsible for last year's increase in output. Favorable weather conditions more than doubled the average yield per acre in the district. North Dakota yields jumped from 12.5 bushels per acre in 1961 to 31.0 bushels per acre in 1962, with some counties reporting yields of 38 bushels per acre. Per acre yields in that state averaged 14.5 bushels over the 10-year period. The second factor was a 39 percent increase in acres planted to durum wheat over the 1961 level. This came about as a result of the 1962 wheat program that relaxed acreage restrictions

TABLE 1 – DURUM WHEAT PRODUCTION

	Average 1951-60	1961	1962
	Harvested acres (1,000 acres)		
North Dakota	1,348	1,344	1,922
Montana*	312	119	290
South Dakota	146	118	144
Minnesota	35	28	51
Four states	1,841	1,609	2,407
	Yield per acre (bushels)		
North Dakota	14.5	12.5	31.0
Montana*	17.8	12.0	24.0
South Dakota	11.8	15.5	20.0
Minnesota	18.1	22.0	33.0
	Production (million bushels)		
North Dakota	18.5	16.8	59.6
Montana*	5.6	1.4	7.0
South Dakota	1.7	1.8	2.9
Minnesota	.7	.6	1.7
Four states	26.5	20.6	71.2

*1954 to 1960 average.

TABLE 2 – DURUM WHEAT: UNITED STATES, SUPPLY AND DISTRIBUTION

(1,000 bushels)

Year	Total stocks July 1	Production	Imports	Total supply	Used for seed	Milled	Exports grain	Other uses	Total disappearance
1958-59	27,000	21,676	2	48,678	1,670	22,713	0	2,295	26,678
1959-60	22,000	20,192	0	42,192	2,263	21,844	0	585	24,692
1960-61	17,500	34,141	0	51,641	2,353	23,438	5,256	594	31,641
1961-62	20,000	21,185	0	41,185	3,237	14,272	15,878	2,630	36,017
1962-63	5,168	71,809							

on durum wheat because of drouth-reduced supplies of durum. Acreage abandonment amounted to only 2.4 percent in 1962, down markedly from the 9 percent abandonment that occurred in 1961. Total harvested acres were up about 50 percent.

The total supply situation for the 1962-1963 crop year is in marked contrast to that of the preceding year when stocks on July 1, 1962 fell to just over 5 million bushels. Assuming no imports, the total supply of 76.1 million bushels for this crop year is well over the total stock of recent years. This abundance is reflected in the figures on the milling of semolina flour used in the making of spaghetti and macaroni products from durum wheat. During the first six months of the crop year (July-December), 9.9 million bushels were milled compared to 8.2 million bushels ground last year during the same period. Most of the mills have also shifted to grinding a 100 percent durum product. During the July-December period of 1961, a little less than one-half of the semolina flour was made from straight durum wheat with the rest a blend of hard wheat and durum. Between January and June of 1962, about one-fourth of all semolina flour ground was of straight durum. Currently, more than three-fourths of the semolina is a pure durum product and one-fourth a blended flour.

Exports of durum dropped sharply during the first half of the 1962-1963 crop year, totaling about 3 million bushels as compared to 14.2 million during the same period of the preceding crop year. Large amounts of durum supplies are available in several exporting countries, particularly Canada. That country produced an all-time record crop of 62.2 million bushels in 1962. This over-all world supply situation limits the U. S. export demand considerably beneath last year's levels. With a smaller export demand, the U. S. year end carry-over of durum wheat could well exceed 40 million bushels, which would be in excess of one year's normal production or disappearance.

Durum prices dropped markedly at the beginning of the crop year as farmers began marketing the near-record crop. Since September, prices have strengthened somewhat, reflecting in part a holding on the part of farmers and some improvement in demand. The July through January average price in Minneapolis averaged $.75 per bushel below the same month a year ago. In January of this year, the average price was $2.58 per bushel, $1.02 below the average price in January of 1962. Prices have been somewhat below the support level and in January ranged $.10 to $.15 below support level. No figures are available on the quantities of durum wheat put under government loans.