

**MONTHLY**  
**REVIEW**

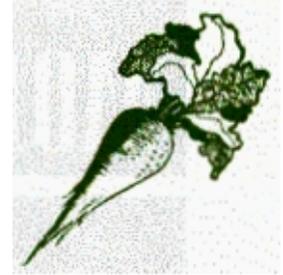
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**FEDERAL RESERVE BANK OF MINNEAPOLIS**

**MAY 1964**

# Sugar beets: the district's potential



In mid-December 1963, at the U. S. Department of Agriculture hearings, about thirty different sugar processors and producing groups presented arguments favoring the establishment of processing plants in specific areas. These groups came from such diverse places as Maine, Missouri, Tennessee, Texas, and Virginia; four were located in the Ninth Federal Reserve district. But twenty-seven of the thirty were destined for disappointment, for no more than three new plants can be assured a market for their product. Herein lies the confusing and complex story of the sugar beet.

As an alternative crop, the beet is highly coveted by farm producers in many parts of the nation, but its expansion is highly restricted by two major factors—government programs and the mechanics of the processing industry. This article will attempt to describe the sugar beet industry and discuss some of the reasons for its present importance and its probable prospects in the Ninth district.

## **The sugar beet industry**

A considerable and remarkably stable growth has characterized the U. S. sugar beet industry since 1948. Starting that year with a total production of 9.1 million tons, sugar beet output has expanded to an estimated total of 22.8 million tons in 1963. That 250 per cent growth in output was accompanied by an increase in processor payments to growers of 210 per cent, or from \$99.6 million in 1948 to \$208.9 million in 1962.

The Ninth district's sugar beet industry has been experiencing comparable growth. For example, the

district's average annual output during the 1958-1962 period amounted to about 2.5 million tons of beets, as compared to an average of 1.4 million tons in 1948-1953. District production, however, has grown from about 13 per cent of the total output in the earlier period to about 15 per cent in the latter period. The processor payments to district beet producers in the 1948-1953 period amounted to about \$16.2 million per year. That average increased to about \$27.9 million in the latter five-year period. The district proportion of the total processor payments was 14 per cent in both periods.

Despite the relative importance of district sugar beet production to the total beet production of the United States, the beet must be considered a minor specialty crop in the district. Beet production accounts for only about .3 per cent of the region's crop acreage and about 1 per cent of the total cash receipts. Finally, in the district as a whole, less than 1 per cent of the individual farms are engaged in producing the crop.

Production is, of course, concentrated in the areas adjoining processing plants, but even in these places beet production accounts for a relatively small proportion of farm income. For example, during the 1954-1958 period, 83 per cent of the Minnesota sugar crop was produced in the Red River Valley area, but the beet accounted for only 6 per cent of the total cash farm receipts in that region. The same situation prevailed in North Dakota; the Red River Valley portion of that state accounted for 87 per cent of the total value of the beets produced in North Dakota, but beets brought

in only 3 per cent of the total cash farm receipts in the area.

Beet production relative to total farm cash receipts assumes somewhat greater importance in the localized areas within Montana. Almost 50 per cent of the total value of beets is produced in the south central part of the state. In that area beets accounted for more than 9 per cent of the total cash farm income.

Historically, the growth in beet production among the district states has been mixed. As shown in Table 1, Minnesota replaced Montana in the mid-1950's as the district's leading beet producer. Beet output in North Dakota has also expanded considerably since World War II. Total production in South Dakota, although relatively small, has increased substantially since 1960 as a result of expanded beet production in the eastern part of the state.

**TABLE 1—HARVESTED ACRES, YIELD, TOTAL OUTPUT AND FARM VALUE OF SUGAR BEETS, NINTH DISTRICT—SELECTED YEARS**

	Minn.	Mont.	N.D.	S.D.	Dist.
Harvested acres (thousand acres)					
1948	35.8	55.2	19.2	3.7	113.9
1953	63.8	43.6	34.8	4.7	146.9
1958	72.9	55.9	37.6	5.6	172.0
1963	116.0	64.0	51.0	12.0	243.0
Yield per acre (tons)					
1948	10.8	12.2	10.2	10.7	
1953	10.5	13.4	9.5	8.4	
1958	12.1	15.0	12.4	13.2	
1963	13.0	16.5	13.5	15.5	
Total output (thousand tons)					
1948	387	671	196	40	1,294
1953	670	586	330	39	1,625
1958	883	839	464	74	2,260
1963	1,508	1,056	688	186	3,438
Total value of sugar beet crop* (thousand dollars)					
1948	5,330	8,750	2,683	499	17,262
1953	9,328	8,404	4,577	565	22,874
1958	12,352	12,320	6,641	1,116	32,429
1962**	15,654	13,433	8,332	1,787	39,206

\*Includes processor and government payments.

\*\*1963 data not available.

Source: U.S. Department of Agriculture.

As shown in Table 1, beet yield per acre has risen fairly uniformly throughout the period 1948-1963 in the beet-producing area, while the differences in yields among the states have remained constant. In general, yields are higher in the irrigated areas in Montana and South Dakota and decline as production moves eastward through the district. Sugar beet yields for the district, however, generally fall below the average yields for the entire United States.

Another measure of yield, the sugar content and commercially recoverable sugar in the beets, is shown for specified areas in Table 2. Again, the western part of the district produces a more valuable crop.

**TABLE 2—AVERAGE SUGAR CONTENT AND COMMERCIALY RECOVERABLE SUGAR, 1955-1961**

Area	% sugar content	Cwt. of comml. sugar per ton of beets
Billings, Mont.	16.67	3.121
Hardin, Mont.	16.47	3.083
Missoula, Mont.	16.34	3.059
Sidney, Mont.	16.31	3.053
Belle Fourche, S. D.	16.0	2.995
Red River Valley	15.64	2.928
Chaska, Minn.	14.29	2.675

Source: Federal Register

### Legislative control of production

A statistical description of the beet industry, however, only gives a superficial picture. The explanation of the industry's problems and scope is complex and involves the impact of various laws and governmental programs.

Sugar has had a long and varied legislative history. Some controls have been imposed on this commodity in virtually every major country of the world. In the United States, these controls have ranged from simple tariffs on imported sugar to a complex series of sugar laws beginning with the Jones-Costigan Act in 1934.<sup>1</sup> The most recent

<sup>1</sup> For a survey of sugar legislation see: *Special Study on Sugar: A Report of the Special Study Group on Sugar of the U. S. Department of Agriculture for the Committee on Agriculture, 87th Congress, issued February 14, 1961.*

amendments to the sugar laws, enacted in 1962, were designed to cover the period ending in 1966.

Broadly stated, the objective of current sugar legislation is to provide U. S. consumers with a safe and adequate supply of sugar at prices that will be fair to consumers and will maintain the domestic industry. This objective is attained by such means as: limitations on the total supply of sugar available to consumers, excise taxes on all sugar processed, import tariffs or fees, and government payment to growers.<sup>2</sup>

The government payments are designed to maintain grower incomes and to encourage farmers to adjust production. These payments are also aimed at assuring growers and field workers a fair share of the returns in the protected sugar industry and at preventing the employment of child labor in fieldwork.

In order to carry out the law, the U. S. Department of Agriculture must estimate the amount of sugar that will be required for domestic consumption over the coming year. This total is then allotted to the various domestic and foreign areas according to a quota system. Under the 1962 amendment, the domestic quota amounted to about 60 per cent of the basic total requirement; this quota is divided among U. S. producing areas as shown in Table 3. The domestic producing areas were also granted 65 per cent of any increase in total requirements in excess of a basic amount established in 1962. Approximately three quarters of any such increase over the basic quota is allocated to the domestic beet sugar area and one quarter to the domestic cane sugar area.

In the event that sugar supplies should become excessive and threaten to bring about severe price declines in the domestic market, the Secretary of Agriculture is empowered to allocate the domestic quota among processors. In addition to establishing market shares among the processors, the Secretary is also charged with the task of insuring

<sup>2</sup> For more detail see: The United States Sugar Program, Including Sugar Act Amendment of 1962, ASCS Background Information, Bul. No. 19, USDA, Sept. 1962.

TABLE 3—DISTRIBUTION OF DOMESTIC SUGAR QUOTA

	% of basic requirement
Domestic beet sugar	45.6
Mainland cane sugar	15.4
Hawaii	19.1
Puerto Rico	19.6
Virgin Islands	.3
	<hr/> 100.0

Source: U.S. Department of Agriculture.

that each sugar-producing farmer gets a fair share of the market. Thus, if supplies are excessive, farm production can be restricted, with each producer allocated a proportional share of the restricted production in terms of acres, tons of beets or cane, or quality of sugar. Such restrictions have not been imposed since 1960.

#### Sugar beet prices

The price received by the producer of the beets has remained remarkably stable since World War II. The absence of a distinct trend in per ton grower returns, shown in Chart 1, largely reflects the government protection that the industry enjoys. During the 15-year period, South Dakota led all other district states with a \$14.40 per ton average return. Montana averaged \$14.26 per ton, followed by North Dakota and Minnesota with respective returns of \$13.70 and \$13.61 per ton. These differences reflect the higher sugar content of the beets produced in the western areas. The similarity of price levels in Minnesota and North Dakota is undoubtedly due to the fact that major production in both states occurs in the Red River Valley. Higher yields, of course, together with a stable price situation, have meant a higher gross return per harvested acre of sugar beets.

The per ton return to the grower consists of: (1) the payments from the processor for the beets and (2) the direct payments from the government under the Sugar Act. The 1948-1962 average of both these payments is shown in Table 4.

The government payment is based on total out-

**TABLE 4—AVERAGE GROWER RETURNS PER TON OF SUGAR BEETS, 1948-1962**

	Processor payment	Sugar Act Payment		
		Production	Abandonment and deficiency	Total
Minnesota	\$11.21	\$2.41	\$.087	\$13.70
Montana	11.84	2.48	.053	14.71
North Dakota	11.26	2.44	.091	13.78
South Dakota	12.00	2.34	.121	14.46

Source: U.S. Department of Agriculture

put and growing conditions. The rate of output payment declines as the volume of commercially recoverable sugar in the beets marketed by the farmer increases. A second and much smaller payment provides some relief to growers when natural disaster in the growing area has resulted in crop abandonment or yield deficiency. Government payments of both types (see Table 5) have

**TABLE 5—SUGAR ACT PAYMENTS TO GROWERS—SELECTED YEARS**

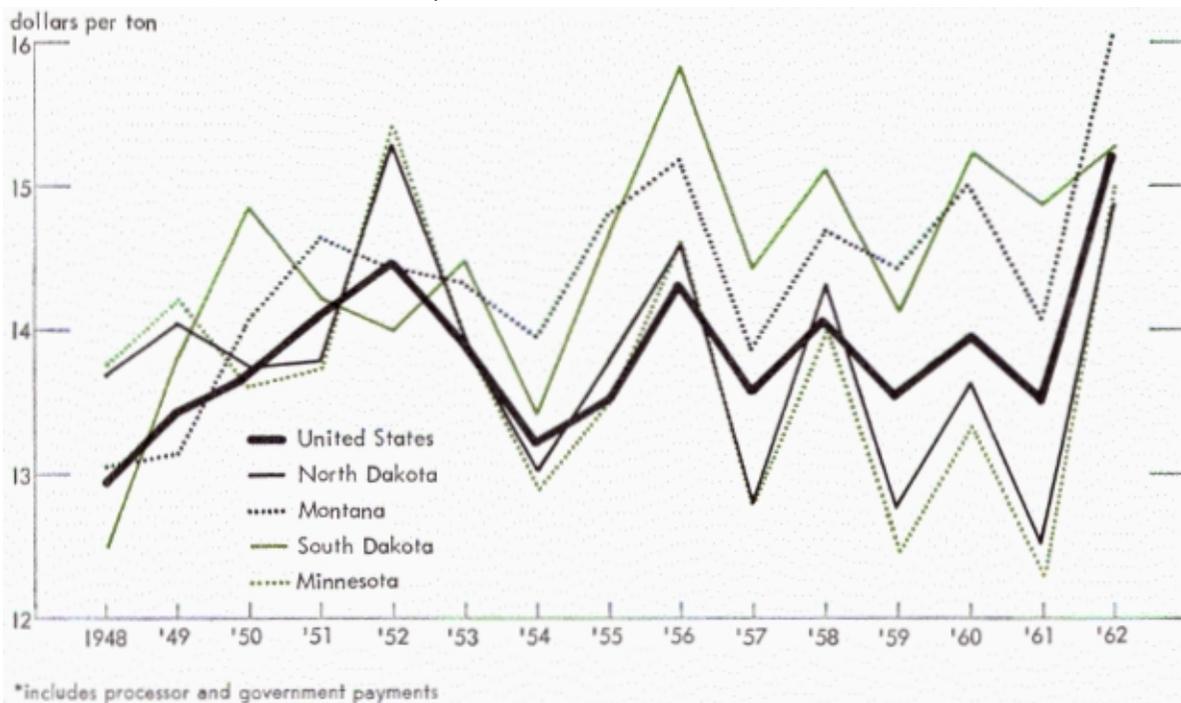
	(thousands of dollars)					U.S. beet area
	Minn.	Mont.	N.D.	S.D.	Dist. States	
1948	\$1,042	\$1,832	\$ 553	\$ 93	\$3,520	\$23,206
1953	1,690	1,448	841	107	4,086	29,974
1958	2,083	2,093	1,119	174	5,469	36,216
1962	2,781	2,128	1,414	297	6,620	43,208

Source: U.S. Department of Agriculture.

generally accounted for 20 per cent of the gross return to the district's sugar beet producers.

The stability of per ton beet returns in the district takes on added importance when compared to the downward trend among crops that are practical alternatives to beets. Thus, the earnings of sugar relative to other commodities have become more favorable. This situation helps explain the district growers' heightened interest in adding beets to their cropping enterprises.

**Chart 1—Average grower returns per ton of sugar beets\***



### **The establishment of new production areas**

This program, like any other that limits the supply of a commodity, has tended to raise sugar prices. Indeed, the high level of prices, combined with the stability of sugar beet income engendered by the program, has made beet production highly attractive. As a result, domestic sugar interests have exerted considerable pressure to increase the quota for various domestic producing areas and to expand production to new areas.

The 1962 amendment, besides increasing the domestic quota, included provisions for a sugar beet acreage reserve that was to be used primarily for new production areas. These provisions allowed for sufficient acreage to support about six new factories during the period the amendment is in effect. This provision guarantees that in the event of acreage restrictions, the entire acreage allotted to a new production area will not be reduced for the three succeeding years. Acreage expansion, other than that allowed for in the reserve, is *not* protected beyond the general provisions of the sugar act. Therefore, intense competition has arisen for the desirable but limited reserve acreage. Without the commitment by the government, there is no assurance that sufficient production for the new plant will continue through the period of the plant's establishment if over-all supplies of sugar should be excessive.

Several criteria determine the allocation of reserve acreages: (1) the firmness of the capital commitment for a new plant, (2) the suitability of the locality for the production of sugar beets, (3) the proximity of other processing plants, (4) the need for a cash crop or alternative enterprise by farmers in the locality, and (5) the accessibility of sugar markets and the relative qualifications of localities under these criteria.

As of January 1964, commitments from the acreage reserve had been made to support four new sugar beet factories. These factories are located in California (in operation in 1963), west Texas (to commence operation this year), Drayton, North Dakota (to be in operation in 1965),

and central New York (also to be in operation for the 1965 crop). Two previous commitments, one in southeastern South Dakota, were rescinded because of inadequate progress in the establishment of a processing plant. These acreages were reallocated to new areas in Maine and Arizona in late April of this year. Thus, allocations under the Sugar Act amendment acreage reserve are completed.

The new plant in Drayton, North Dakota, received a 31,000 acre commitment, enough to produce an estimated 50,000 tons of sugar per year. In addition to the five criteria mentioned above, the government in making this commitment, stipulated that: (1) only farmers who had not produced beets during the previous three years were eligible for allotted acreage and, (2) the maximum per farm commitment was the smaller of 80 acres or the acreage on the farm suitable for beet production. Thus, roughly 400 farms in the upper Red River Valley will be able to include sugar beets in their regular cropping patterns.

### **The processing industry<sup>3</sup>**

The second major influence on sugar beet production is the sugar processing industry. Since the first U. S. processing plant was built in 1838, some 170 plants have been erected in the United States, 60 of which are now operating. These operating plants are located in 14 different states, generally concentrated in the western half of the United States. California is the leading beet processing state, with eleven factories and a daily beet-slicing capacity of 34,400 tons, or about 23 per cent of the industry's total daily capacity.

The history of the industry in the Ninth district begins with the construction of a small, short-lived plant in St. Louis Park, Minnesota, in 1898. Since then, 14 plants have been built in the district, nine of them now operating (see Chart 2).

<sup>3</sup> Data contained in this section are taken primarily from *Beet Sugar Factories of the U. S.*, Sugar Division CSS, USDA, March 1961 and "American Beet Sugar Companies—1962-1963," U. S. Beet Sugar Association.

The delineation of beet production areas, according to the plant locations shown on Chart 2, may be somewhat misleading. For example, a plant located in Des Moines, Iowa, draws some of its supply of beets from the south central portion of Minnesota. This part of the state also supplies the plant located in Chaska, Minnesota.

In South Dakota, some sugar beets are currently being produced in the eastern and southeastern

Chart 2—Sugar beet factories of the Ninth district



parts of the state for processing in Belle Fourche. It is highly unusual for beets to be transported this distance to a processing plant, but production there was begun as a means of establishing a beet center with the intention of acquiring a new processing plant. This area was successful in obtaining an acreage commitment from the reserve in 1962, but when a continuous supply of beets could not be assured, the commitment was rescinded.

In general, the returns to investment in a sugar processing plant are lower than those in other industries.<sup>4</sup> This low return, however, is offset by the certainty of a market and the stability of prices which the Sugar Act virtually guarantees. Capital for a new plant, which can range from \$16 million to \$20 million, is much easier to acquire by virtue of this assured market.

Farmers and community groups, because of their intense interest in acquiring plants in local areas, have provided an additional source of capi-

tal for plant investment. An example of this can be seen in the Breckenridge-Wahpeton area in the southern part of the Red River Valley, where investors hoped to have a plant in operation for the 1966 crop. To promote this project, a corporation of about 600 persons was formed. To help finance the plant, farmers in the group agreed to contribute \$1.00 per ton for the first 5 million tons of beets delivered to the plant. Further, the city of Wahpeton planned to issue \$20 million in industrial revenue bonds; the proceeds of these bonds would be used to build the plant, which would then be leased to the operating processor.<sup>5</sup> Local financial participation, particularly by the farmer-investors, has a further advantage of assuring the operator a continued supply of beets for a considerable period of time.

Besides the impact a sugar processing plant has on agricultural production and income in a localized area, it also has significant effects on the non-agricultural aspects of the community. The plants, which are usually located in rural areas, provide considerable amounts of seasonal as well as full-year employment. Secondly, plant operation requirements and new employment bring to the community a host of new service enterprises. Such community activity is already reported in Drayton, North Dakota.<sup>6</sup> Since many rural towns are closely tied to the prosperity of the surrounding agricultural producers, it is not surprising that joint efforts by farmers and townspeople are made to attract these plants.

#### Farmer-processor relationship

The individual farmer is restricted in his production of sugar beets not only by actual or potential acreage allotments but also by his ability to

<sup>4</sup> "How to Get Blood From a Beet," *Business Week*, p. 58, Dec. 21, 1963.

<sup>5</sup> *Minneapolis Star*, Jan. 16, 1964.

<sup>6</sup> *Minneapolis Sunday Tribune*, Mar. 29, 1964.

acquire a production contract with the processor. These contractual arrangements, which have a long history in the beet sugar industry, result from the processor's desire to assure a sufficient supply of beets to operate the plant and from the farmer's need to assure a market for his output. The Sugar Act obviously provides a link between farmers' acreage allotments and contractual arrangements.

Besides controlling supply, the contracts also allow the processor some measure of control over the agricultural techniques involved in beet production—particularly the timeliness of beet harvest and the quality of the crop. In addition to getting help with production techniques, the farmer also receives some production credit from the processor. The relationship between processor and producer apparently operates to the satisfaction of both, if one is to accept as typical the results of a North Dakota study<sup>7</sup> which showed general satisfaction on the part of the producer and little conflict between the parties in terms of decision-making prerogatives.

The contracts also specify a scale of payments to the producer based on sugar content of the beets produced and net return<sup>8</sup> to the processor from the sale of refined sugar. In recent years, growers have received about 58 per cent of the net return.

### Sugar beet production per farm

The significance of sugar beet production can best be seen perhaps from the viewpoint of the individual farm. In 1962, the most recent date for which figures are available, 3,003 district farms produced sugar beets. That number represents a negligible change from the total of 3,122 in 1948. Within the district, however, striking changes have occurred; as shown in Table 6, the number of beet

producing farms in Minnesota and North Dakota has increased significantly, while numbers in Montana have been steadily declining.

TABLE 6—BEEF PRODUCTION: NUMBER OF FARMS, AVERAGE PLANTED ACREAGE AND PER FARM RETURNS

	Minn.	Mont.	N.D.	S.D.	Dist.
<b>Number of beet producing farms</b>					
1948	630	1,973	370	149	3,122
1953	835	1,214	524	158	2,758
1958	943	1,307	592	128	2,970
1962	1,062	1,182	605	154	3,003
<b>Average planted acres</b>					
1948	64.4	33.4	59.8	29.7	
1953	82.3	36.5	69.4	32.5	
1958	77.7	42.9	64.7	46.3	
1962	108.8	55.2	92.7	76.0	
<b>Per farm returns from beet production*</b>					
1948	\$ 8,460	\$ 4,435	\$ 7,251	\$ 3,349	\$ 5,529
1953	11,171	6,772	8,735	3,576	8,294
1958	13,099	9,426	11,218	8,719	10,919
1962	14,740	11,364	12,242	9,071	13,055
<b>Per farm Sugar Act payments</b>					
1948	\$ 1,654	\$ 929	\$ 1,494	\$ 628	\$ 1,127
1953	2,023	1,166	1,605	676	1,481
1958	2,209	1,602	1,891	1,363	1,841
1962	2,619	1,800	2,337	1,903	2,205

\*Includes processor and government payments.

Source: U.S. Department of Agriculture

The average beet acreage per beet-producing farm in the Ninth district typically exceeds that for the United States as a whole. The largest such acreages in the district are located in Minnesota and North Dakota, where in 1962 the average grower planted 109 and 93 acres of beets, respectively. The largest relative expansion occurred in South Dakota, where a 76 acre average of 1962 reflected a 266 per cent growth since 1948. Per farm beet acreages in Montana have increased 165 per cent since 1948 to attain a 55 acre average in 1962.

Several factors influence per farm beet acreage. Given the government program's actual or potential allotments and given the contractual agree-

<sup>7</sup> Loftsgard, L. D. and W. G. Miller, *Contracts and Allotments in Sugar Beet Production*, Tech. Bul. No. 434, Dept. of Ag. Econ., North Dakota Ag. Exp. Sta., North Dakota State University, Fargo, July 1961.

<sup>8</sup> This is defined as gross proceeds less excise tax, freight from the factory to destination, and marketing expenses. For further detail, see Loftsgard and Miller, op. cit.

ments with the processor, the farmer is not free to expand acreages according to his individual circumstances. The low relative acreages in Montana reflect, in part, the smallness of irrigated farm units and the necessity to rotate the beet crop to prevent the outbreak of disease often associated with continuous cropping. Such disease problems also set limitations on acreage size per unit in the corn belt area of the district. In the corn belt the farmer-grower usually has many other economically feasible alternatives and has therefore tended to minimize beet production. In the Red River Valley, on the other hand, beet-growing conditions are ideal. In addition, Valley producers need a row crop for weed control, and the beet has beneficial effects on Valley soils. As a result, the larger beet acreages are typically found in the Red River Valley.

The increase in per farm beet acreage is dictated largely by the costs of production. Sugar beet production, like many other farm operations, shows increasing economies of scale; that is, as the per farm beet acreage expands, the average per acre cost of production tends to diminish. This factor takes on a greater importance in beet production than in the production of the more typical farm crops because of the beet's specialized nature and because of the relatively large investment in capital and labor it requires. That farmers recognize this principle can be seen in the distribution of farm numbers within various beet acreage categories. As shown in Table 7, the proportion of farmers in the larger acreage categories has risen conspicuously.

Again, the influence of the large beet acreages in the Red River Valley is seen in the state figures for Minnesota and North Dakota: 84 per cent of beet-producing farms in Minnesota and 88 per cent in North Dakota had more than 50 acres per farm given over to beets in 1962. In South Dakota, 52 per cent of the beet-producing farms were in this category. Although small units are still the rule in Montana (only 45 per cent of the farms in 1962 had 50 or more beet acres), there is a distinct

trend toward larger units in that state. The distribution of farms by planted acreage in the district relative to the U. S. beet area indicates a more pronounced move to larger units in the district states.

TABLE 7—DISTRIBUTION OF FARMS BY SIZE OF PLANTED ACREAGE, 1955, 1959, 1962

	No. of farms	Acres				
		0.1-24.9	25.0-49.9	50-99.9	100-199.9	200 & over
4-States		(per cent of total)				
1955	2,878	23	37	29	10	1
1959	2,961	18	39	30	11	2
1962	3,003	8	24	41	21	6
U. S.						
1955	24,855	58	26	12	3	1
1959	25,259	51	30	14	4	1
1962	22,856	35	32	23	8	2

Source: U.S. Department of Agriculture

While the optimum size of the beet unit cannot be explicitly stated for each producing area in the district, research in the Red River Valley provides some general indications of that size. One study found considerable declines in average per acre costs as the number of beet acres per unit increased up to 80 or 90 acres but little additional cost advantage beyond that point.<sup>9</sup> Furthermore, as growers continue to adapt technologies to beet production, the optimum size can be expected to increase.

Additional evidence of the movement to larger size units is provided by the farmers themselves. When asked how they would adjust acreage size if all restrictions were removed, most of the growers included in the study cited above stated they would increase the size to the 120-200 acre category. Most of these farmers also related that they could increase acreages with little change in their labor needs or in their current investment in machinery or land. Much the same response on the part of the

(Continued on page 14)

<sup>9</sup> Jensen, H. R. and T. H. France, *Cost and Adjustment Opportunities in Sugar Beet Production in the Red River Valley*, Series No. 523, Dept. of Ag. Econ., U. of Minn., St. Paul, Minn., July 1962

# Current conditions . . .

**E**conomic activity in the Ninth district expanded further during the first quarter of 1964. Retail sales were good. The industrial use of electric power was 8 to 9 per cent above year earlier levels, which indicates expansion in the district's total manufacturing output. District construction has been particularly strong as measured by employment, building permits, and contract awards data. Bank debits during the first quarter averaged a strong 14 per cent ahead of the first period in 1963. And finally, the district's total personal income series (based on data for the first two months of the year) shows an approximate 4.5 per cent gain from the same period a year earlier.

A few of the economic indicators eased off a bit in March from the strong upward rates of January and February, but this is explained by better than average seasonal weather early in the year and by particularly severe weather in March which retarded sales and hindered outside work.

In general, businessmen are optimistic about economic prospects for this second quarter. About the only discouraging prospect is the trend towards lower farm incomes. Farm prices, particularly livestock prices, are below year-ago levels, and there appears to be no immediate prospect for improvement. Furthermore, a shortage of subsoil moisture in the western areas of the district may reduce yields somewhat.

In banking, the trend of deposits at member banks was about average for the period during the first quarter, with the large city banks showing

somewhat less than usual gains and the country banks a bit more. Loan demand at the larger city banks was noticeably weak during the quarter just ended but some strength in demand was observed in late March and in early April. Farmers appear to be borrowing aggressively now as spring farm operations get underway.

District bank liquidity, as measured by the loan-deposit ratios, has been holding steady at about the same rates as in 1963. Furthermore, member banks have not been borrowing from the Federal Reserve bank to any great extent in recent months. As a further indication of liquidity, member banks have been net sellers of federal funds much more often than they have been net buyers since the first of the year.

*The following selected topics describe particular aspects of the district's current economic scene:*

## **NINTH DISTRICT MINERAL PRODUCTION EXPANDS**

The outlook for mineral production in the district is favorable for further expansion this year. Copper output has been rising annually since 1950, and iron ore output, which declined to a low point in 1959, has been making a gradual recovery since then. As of yet, the decline of employment in the district mining industry has not been arrested.

Each year fewer workers are on company payrolls, but the utilization of more equipment has created more employment opportunities in secondary industries.

The demand for both copper and iron ore should continue fairly strong in 1964. In 1963, the consumption of copper in the United States aggregated 1,422,000 tons—within a few thousand tons of the record highs in 1950 and 1953. The consumption of iron ore totaled 104 million gross tons, higher than in any year since 1957. The general economic expansion currently taking place will result in larger quantities of these raw materials needed to fabricate both producer and consumer products. For instance, the sale of automobiles and other consumer durables has been at a high level.

Although copper produced in district mining regions accounts for only one seventh of total domestic consumption, the demand at district firms is sensitive to changes in annual consumption. Therefore, there is a fairly close annual relationship between U. S. consumption and the tonnage produced in this district. Furthermore, since 1950, tonnage of copper produced in this district has increased from 6 per cent to 14 per cent of total U. S. consumption in recent years. (see Chart 1). The annual production of iron ore in this district is still over half of the total U. S. consumption and obviously is tied closely to the annual rise or decline in the tonnage used by U. S. steel mills. District production has declined from 77 per cent in 1953 to 53 per cent in 1963 of U. S. consumption (see Chart 2).

The activity in district mining regions in early 1964 suggests some expansion this year. A new copper concentrator was completed at Butte, Montana, and operation was started during the first quarter. In Upper Michigan, new deposits have been tapped and new equipment has been installed to expand output.

Some iron ore producers are also increasing their output. Oliver Mining Company is expanding its operations in Minnesota to produce more than

Chart 1 — Mine production of recoverable copper in the Ninth district, and consumption of copper in the United States

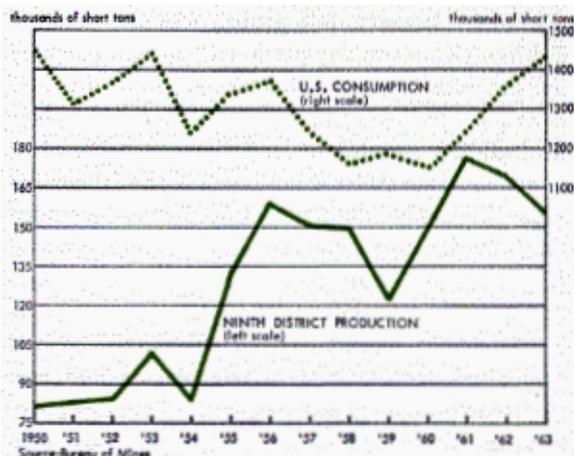
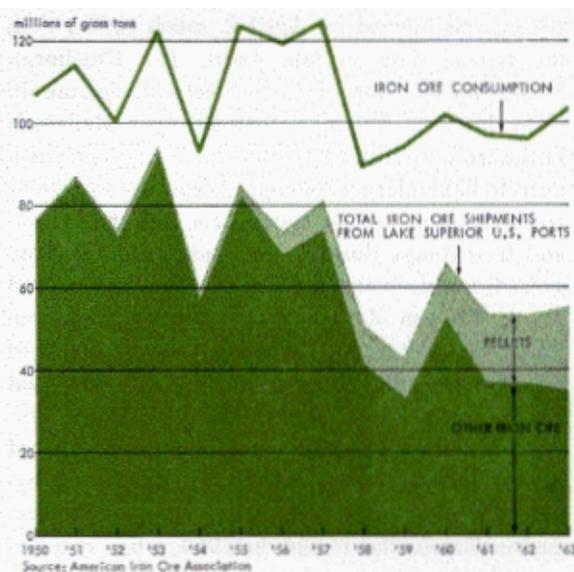


Chart 2—Iron ore shipments from Lake Superior U.S. ports and total iron ore consumption at U.S. iron and steel plants



the 14 million gross tons of last year. In December 1963, the Cleveland-Cliffs Iron Company, the largest iron ore company in Michigan, completed a

concentrator and an agglomerating plant at the Empire mine south of Negaunee, its third development for the production of high grade iron ore pellets. By January, this project was operating on a three-shift, seven day-per-week schedule reaching the projected capacity of 1,200,000 tons of pellets per year. Cleveland-Cliffs also has announced plans for building a multimillion dollar pelletizing plant to agglomerate underground ores in the Ishpeming area. Pickands Mather and Company extended their work schedule at an underground mine at Bessemer, Michigan, from one shift of four days per week to two shifts of five days per week, recalling about seventy men. Furthermore, several companies are engaged in engineering and cost studies to develop new deposits. If operations prove economically feasible, the companies may construct concentration and pelletizing plants and thereby expand the output of pellets in future years.

Transportation companies anticipate larger shipments of Lake Superior ore in 1964. The shipping season was opened on April 2, much earlier than the typical date in late April. The Pittsburgh Steamship Division of U. S. Steel will operate 40 ships this year, five more than last year. Railroads in the iron ore mining regions have made preparations to haul a larger tonnage. According to reports from the head of the Lakes, the Duluth, Mesabi and Iron Range Railway may move 800,000 more gross tons this year than in 1963. The Chicago and North Western Railway's ore dock at Escanaba, Michigan, will be rebuilt and the harbor dredged to accommodate the largest ore boats on the Great Lakes.

In spite of the expansion in the production of copper and of iron ore pellets since 1955, employment in district metal mining since 1957 has declined annually, except in 1960, when employment in iron ore mining rose sharply. In 1957, monthly employment in mining averaged 38,500, while in 1963, it was only 22,300 (see Table).

In copper production, monthly employment has declined from about 12,000 to 7,000 in the last

six years. The adoption of new mining methods, made economically feasible with new equipment, has raised output per worker. The new equipment installed has created employment opportunities in the equipment-fabricating industrial centers but not in the mining regions.

In iron ore mining, employment has fallen from 26,600 in 1957 to 15,300 in 1963. When taconite pellets were first produced in commercial plants, it was estimated that two and a half times as much labor would be required to produce a ton of pellets as was required to produce a ton of natural ore. But with the rapid rise of labor productivity in taconite plants, it now takes no more man hours to produce a ton of taconite pellets than a ton of high-grade ore upgraded by an elementary method of beneficiation.

#### AVERAGE MONTHLY EMPLOYMENT IN DISTRICT METAL MINING

	(in thousands of workers)						
	Copper			Iron Ore			Grand Total
	Mon-tana	Upper Michigan	Total	Minne-sota	Upper Michigan	Total	
1949	7.5	1.7	9.2	14.2	6.9	21.1	30.3
1950	7.4	2.2	9.6	15.6	7.9	23.5	33.1
1951	8.1	2.4	10.5	16.9	8.2	25.1	35.6
1952	8.1	2.1	10.2	14.6	7.4	22.0	32.2
1953	8.3	2.6	10.9	18.6	8.9	27.5	38.4
1954	8.2	2.8	11.0	16.0	7.5	23.5	34.5
1955	7.1	2.6	9.7	15.7	7.4	23.1	32.8
1956	8.6	3.3	11.9	17.5*	7.1	24.6	36.5
1957	8.7	3.2	11.9	18.9	7.7	26.6	38.5
1958	5.3	2.9	8.2	15.6	5.6	21.2	29.4
1959	4.5*	2.5*	7.0	13.5*	4.8*	18.3	25.3
1960	4.5*	2.6*	7.1	16.6	6.1	22.7	29.8
1961	4.2	2.9	7.1	13.5	4.4	17.9	25.0
1962	3.9*	3.0	6.9	12.9	4.3	17.2	24.1
1963	4.1	2.9	7.0	11.2	4.1	15.3	22.3

\*Labor-management disputes.

Source: State employment releases.

#### BANK CREDIT

Outstanding loans at district member banks, after showing an unusually small increase of \$7 million during February, moved ahead in March

at a more normal pace. The increase totaled \$21 million, considerably better than the gain of last March and slightly above the average increase for the period.

Loans at weekly reporting city banks advanced only \$6 million to account for a relatively small proportion of the total March expansion. Consumer loans were up more than usual at city banks, but not enough to compensate for the continued slow pace of commercial and industrial loans. At country banks the March increase in loans was a fairly sizable \$15 million, about twice the usual gain for the period. A strong demand for credit by farmers accounts for part of this extra-seasonal expansion. A recently completed survey of country bankers indicates that farm demand for operating loans has been high during the past several weeks. Real estate credit has also been in demand as farmers have attempted to stretch out their debt load and bring debt servicing payments to lower levels that correspond more reasonably with their reduced incomes.

Bank investments, which usually decline in March, were up \$15 million with acquisitions of state, local, and federal agency issues accounting for the bulk of the rise. At city banks the increase in investments totaled \$16 million, considerably more than the usual March increase. Since deposits were off during the month, city bankers financed their security purchases with funds obtained on a temporary basis through the federal funds market. Investments at country banks declined \$1 million as securities were sold in order to accommodate customer loan demands.

A broader perspective on recent credit developments can be obtained by considering first quarter changes. As indicated in Table 1, both loans and investments were down during the first three months of the year despite the increases which occurred during March. The drop in investments, however, was relatively minor in comparison with the average first quarter downswing of the past four years. Loans present a completely different picture. The \$24 million first quarter decline stands

in sharp contrast to the \$51 million advance in the comparable months of 1963, as well as the average first quarter increase of \$38 million. Most of the decline in loans must be attributed to a reduced demand for commercial and industrial loans at city banks. Indeed, had commercial loans increased during the first three months of the year as they have during corresponding periods in the past four years, total loans in the district would have registered a \$30 million increase rather than the actual decline of \$24 million.

TABLE 1—CHANGE IN LOANS AND INVESTMENTS

	End of December through End of March (millions of dollars)		First Quarter Average 1960-63
	First Quarter 1964	1963	
<b>All Member Banks</b>			
Total credit	\$ -37	\$ -16	\$ -23
Loans*	-24	51	38
Investments	-13	-67	-61
<b>Weekly Reporting City Banks</b>			
Total credit	-28	-19	2
Loans*	-40	5	15
Investments	12	-24	-13
<b>Nonweekly Reporting Country Banks</b>			
Total credit	-9	3	-24
Loans*	16	46	23
Investments	-25	-43	-47

\*Excluding interbank loans.

The expansion in loans and investments which occurred during March appears to have continued into April. During the two weeks ended April 8, total credit at city banks, possibly because of substantial deposit inflows, increased \$33 million with strong gains of \$11 million in loans and \$22 million in security holdings. Most of the loan expansion resulted from increases in credits to consumers, brokers and dealers, and nonbank financial institutions. Commercial and industrial loans, in keeping with the first quarter pattern, declined \$5 million.

END

*(Sugar beets: the district's potential:  
continued from page 9)*

growers was found in another study of Valley beet production,<sup>10</sup> which indicated that given 1959 price levels, almost 90 per cent of the growers desired larger beet acreages than they were then maintaining.

### **Per farm income from sugar beet production**

Sugar beets can provide an important source of cash receipts to the individual grower. In 1962 the average gross income from sugar beets per beet-producing farm in the Ninth district amounted to \$13,055, ranging from a per farm high of \$14,740 in Minnesota to a low of \$9,071 in South Dakota. Per farm sugar beet income has grown steadily, and in Montana and South Dakota it has more than doubled since 1948. This trend, of course, reflects both a higher yield and an increase in the average beet acreage per farm.

Because the production of beets is typically only one phase in the individual grower's over-all production program, it is difficult to assess the net income attributable to the crop. We can get some indication of its value within the over-all farm enterprise, however, by comparing beets with alternative crops. In 1963, an evaluation of cost and returns of major field crops in the Red River Valley revealed that beets returned approximately \$52.80 per acre to the grower after production expenses, as compared to a per acre return of \$36.20 for wheat and \$29.80 for potatoes.<sup>11</sup>

That beets are currently a particularly good alternative crop in the Valley is suggested by the large number of applications from that area for commitments from the acreage reserve. More direct evidence is found in the fact that when acreage was restricted, during the period from 1955 to 1960, requests for allotments exceeded the total allotted by as much as 23 per cent.<sup>12</sup>

<sup>10</sup> Loftsgard and Miller, *op. cit.*

<sup>11</sup> Sobering, F. D. and L. D. Loftsgard, *Crop Costs and Returns*, Cir. FM-63-7, Co-op Ext. Serv. and Ag. Exp. Sta., North Dakota State University, Fargo, March 1963.

The return to sugar beet production, relative to other crops in the Valley, represents perhaps the most favorable alternative comparison in the district. At what might be considered the other end of the comparative scale is the situation found in southern Minnesota. Under current price conditions, the beet crop there is rated only slightly better than corn as an alternative income producer.<sup>13</sup> The net return advantage of beets in that area, however, is offset by larger capital and labor requirements and by the farmers' preference for corn production. Evidence would seem to give sugar beet production in the district's western irrigated parts about the same status as it has in the corn belt areas.

In areas where beets are not so favored as an alternative crop, the processors have experienced some difficulty in contracting sufficient acreages to operate their plants at capacity. The failure to complete the plant in southern South Dakota reflects the farmers' decisions to shift to alternative crops and their reluctance to divert sufficient resources to the production of beets rather than traditional crops.<sup>14</sup> Recognition of the competitiveness of alternative crops in these areas is also evidenced in the many steps that the processors take to assure themselves of a continuous supply of beets before committing themselves to new plant projects.

### **The future of beet production**

As implied in the discussion of alternative crop options, the future of beet production in the district depends on prevailing price differences between beets and alternative crops. An estimate of potential sugar beet production in the United States in 1970, made under varying price assumptions,<sup>15</sup> yields the projections for the Red River

<sup>12</sup> Loftsgard and Miller, *op. cit.*

<sup>13</sup> Sundquist, W. B., "Projected Sugarbeet Production in Minnesota," *Ag. Exp. Sta., Univ. of Minnesota, St. Paul, 1963.*

<sup>14</sup> Russell, Marvin, "You Can Make Money With Sugar Beets," *Nebraska Farmer*, p. 8, Jan. 4, 1964.

Valley and southern Minnesota shown in Table 8. The projections were based on the assumption that the alternative prices for other crops would be the

TABLE 8—ESTIMATED SUGAR BEET PRODUCTION  
—1970, SELECTED AREAS IN MINNESOTA

	Red River Valley	Southern Minnesota
Production with 1959 beet prices		
Total acres	180,000	36,000
Total production (tons)	2,070,000	432,000
Production with beet prices 25 per cent above 1959		
Total acres	200,000	200,000
Total production (tons)	2,260,000	2,420,000
Production with beet prices 25 per cent below 1959		
Total acres	90,000	8,000
Total production (tons)	1,035,000	96,000

Source: "Projected Sugar Beet Production in Minnesota in 1970" by W. B. Sundquist, Ag. Exp. Sta., University of Minnesota.

prime determinants in the change in beet production. As revealed in the table, production in southern Minnesota appears to be highly responsive to price. The advantage of beets over other crops, given 1959 prices, would not result in a much larger output than in 1970. With higher or lower price assumptions, however, production would expand or contract considerably. The situation in the Red River Valley is different. While some expansion in production would occur under the current price assumption, additional increments to price

would not induce much greater production. Under conditions of lower prices, beet production in the Valley would be reduced, but not nearly as much as it would under similar circumstances in southern Minnesota. The estimated production response to changes in prices in areas including Montana and South Dakota was similar to that occurring in southern Minnesota but with less fluctuation.

While the above estimates are instructive in conceptualizing the value of beets as compared to alternative crops, and in suggesting the potential importance of future beet production in the district, they cannot give a realistic prediction of what the future will actually bring. For one thing, the government's protection of the beet industry virtually guarantees stability of price levels, which may give beet prices a future advantage over other agricultural prices. Moreover, the future of beet production must be discussed within the framework of a highly controlled industry and not of one characterized mainly by price-responsiveness. What will happen to the beet in the district will depend more on the world situation and the extent to which sugar policy is used as an implement of foreign policy. These considerations will be offset to the extent that the domestic industry succeeds in expanding its own quota. Finally, production in localized areas within this district will depend on the will of Congress, the advantage a given region can gain in competition with others, and, of course, the locational preference of the sugar beet processors.

<sup>15</sup> Special Study on Sugar.

—RICHARD J. HERDER



*50th Anniversary*