

# CROP and BUSINESS CONDITIONS

NINTH FEDERAL RESERVE DISTRICT

REPORT OF

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TO THE

FEDERAL RESERVE BOARD

WASHINGTON, D. C.

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9th Report

MINNEAPOLIS, MINN.

July 28, 1922

EDITORIAL NOTICE:—This report is prepared monthly in the office of the Federal Reserve Agent for the purpose of providing the public with accurate and impartial information concerning current business conditions in the Northwest. This report will be mailed free of charge to anyone making request for it.

## SUMMARY

In this district the month is characterized by a continuation of the rapid movement of farm products to market in spite of falling prices. Manufacturing of all kinds, as well as new building operations projected, declined. Trade, labor conditions, and volume of business remain practically unchanged. Credit facilities are ample for crop needs even though a larger crop is in prospect. The outlook for coal this winter has reached a serious stage.

Crop conditions and prospective yields throughout this district on well-farmed lands indicate, at the present time, that a much better result will be obtained than last year. The causes of damage in different sections have varied, the greatest being lack of rainfall, with damage by hail second, followed by grasshoppers and rust. The ability of the individual farmer is showing up in the condition and prospective yield, even more markedly than usual this year, crops on well-prepared land being able in many sections to withstand the long dry spells, while the neighboring fields, which were stubbled in, have dried up. Similarly the fall-plowed lands, in the midst of the grasshopper areas, have been comparatively free of the pest.

The marketing of farm products continued at a rapid rate. Receipts of all grains, except barley and flax were above normal. Receipts of livestock were abnormally large except in the case of sheep. The prices of grain and livestock declined, the decline being greatest in the case of grains. The movement of feeders to the farms has substantially improved.

The volume of buying, both at retail and at wholesale, was about the same as in the preceding month but was much greater in the aggregate than a year ago. At retail, there were declines in general merchandise but an increase for lumber. At wholesale there were increases in dry goods, groceries,

and hardware, but declines in shoes and farm implements.

Stocks of merchandise and materials remained practically the same during the month except for a noticeable decline in grains, other than barley and flax. When stocks are compared with a year ago, it appears that there has been some reduction for retailers and manufacturers of lumber and a considerable increase for the grains, owing to the present large stocks of corn and oats.

Manufacturing declined during the month in all lines, the decline being greatest in flour production at Minneapolis which was 17 per cent below the 10-year normal. As compared with a year ago, manufacturing was at a higher level, the gain being particularly noticeable in copper and lumber although linseed production was less.

Building operations projected in the important cities in this district declined sharply in June as compared with May, both in number and in valuation of permits granted, but were larger than a year ago. An improvement in the housing situation in Minneapolis is indicated by what is equivalent to a doubling of rental advertisements over a year ago.

Employment conditions continue favorable, especially for skilled labor. Farm demand has increased.

The volume of general business, measured by bank debits, indicates a slight increase in June, but much less than the normal increase which should take place during this time of the year. However, the volume is practically the same as a year ago. This unfavorable showing in the general volume of business is to be accounted for partly by the cool summer weather which has affected merchandising. The effect of this unsatisfactory volume of business on profits is again reflected in the number of business failures which were as great as in the preceding

month and more than double those of a year ago.

The coal situation has reached a serious condition which is self-evident from the facts regarding receipts and stocks in the Northwest. Coal receipts at Duluth-Superior for the lake shipping season are about 1 per cent for anthracite and about 7 per cent for bituminous, as compared with what was received a year ago. Stocks on the docks on July 1 are about two-fifths and stocks in the Twin Cities about one-fifth of a year ago. Lumber companies operating about 400 retail yards in this district have reported to us that their coal stocks are less than one-half for anthracite and about one-third for bituminous as compared with a year ago. The most drastic remedy that it is possible to apply to this situation at this date will not enable us to avoid the necessity of bringing in a large quantity of coal by rail to meet the winter's needs.

The financial situation in the Northwest during June is characterized by increased ease of bank credit in the Twin Cities, orderly progress of financing the crop in the rural districts, increased absorption of United States securities for investment purposes by both Twin City and country banks, and continued slackness in the demand for accommodation from this Federal Reserve Bank. Market interest rates are practically unchanged although there has been a softening tendency. The rediscount rate at this Federal Reserve Bank remains unchanged at 5 per cent. The absorption of investments by this territory continues to increase at a rate more rapid than normal for this season of the year.

**Crop Prospects**—The Government report of July 1 indicates a higher estimated production in this district than on June 1 for spring wheat, barley, and rye. Winter wheat showed some slight deterioration and oats a fairly substantial decrease, due to damage from dry weather in the southwestern part of Minnesota and the eastern and southeastern part of South Dakota. All grains, however, show increases in the estimated production, as compared with the final 1921 production. Potato production shows a 62 per cent increase, and flax a 33 per cent increase over the final 1921 estimates. The estimated corn production as of July 1 is approximately the same as the final figure for last year.

**Latest Crop Reports**—Conditions in the different sections of each state, when last reported to us, were as follows:

### MINNESOTA

**Southeastern Minnesota:** Prospective yields good, with very little rust, except in the immediate vicinity of Pine Island, with plenty of moisture and no grasshoppers.

**East central Minnesota:** Conditions and prospective yields good, with the exception of the vicinity of Hastings, where yields of oats will be poor, barley only fair, and the corn is very backward.

**North central sections:** Conditions and prospective yields good.

**Central Minnesota:** Yields good except in Todd and Morrison Counties, where lack of rain makes all crops only fair.

**South central sections:** Conditions and prospective yields only fair, due to lack of sufficient moisture.

**Northwestern Minnesota:** Conditions and prospective yields good, with crops sufficiently advanced to make the threatening rust of minor importance.

**West central sections:** Only fair on account of drouth, considerable rust in Clay County. Corn slow.

**Southwestern Minnesota:** Conditions and prospective yields good, particularly for corn and oats. More rain needed in the vicinity of Windom.

### SOUTH DAKOTA

**Southeastern South Dakota:** Conditions fair to good. A little rust present and yields cut down by lack of moisture. Oats and corn are spotty but should make fair crops.

**East central section:** Crops and conditions good. A little damage by hail in the vicinity of Claremont in Brown County, some rust present, but not to a damaging degree.

**North central South Dakota:** Very dry. Only a fair crop in sight. Considerable damage by hail at Redfield.

**South central section:** Conditions fair with fair crop prospects on account of damage by hail in Gregory, Tripp, and Charles Mix Counties, running from 60 per cent on corn to 100 per cent on rye.

**Central and north central sections:** Conditions good and prospective yields good.

**Northwestern South Dakota:** Conditions ideal, with no rust, no grasshoppers, plenty of moisture, and small grains all ripening nicely; plenty of hay, and corn looking unusually good.

### NORTH DAKOTA

All of the North Dakota reports condition of small grains good, with the exception of southeastern sections where drouth makes conditions and prospects only fair. Some rust is present in this locality, but not enough on the stems to have damaged the crops. Corn is backward throughout the state.

**East central North Dakota:** Conditions and prospective yields good. The darkest reports of rust, however, in the entire Ninth District are in the vicinity of Fargo, and with hot weather in the next week the rust will cut small grain yields from one-half to one-third in that territory.

Northeast section: Conditions good and prospective yields good. Rust present but small grains too far advanced for damage.

North central section: Prospective yields are good, but grasshoppers have been reported from a number of localities.

Central and south central sections: Good conditions and prospective yields, with the arrival of necessary additional moisture for Bismarck, but the hail which accompanied the rain did much damage in southeastern Oliver and northeastern Morton Counties.

Western section, and more particularly the southwestern section, reports the best conditions in the state with plenty of moisture in the ground to carry all crops to maturity. Wheat harvest will start about August 10. No rust has been reported and the few localities infested with grasshoppers have escaped serious damage. Yields will approximate three to four times the 1921 figures, if favorable conditions continue.

Northwestern and west central sections: Conditions and prospective yields good, with plenty of moisture in the ground to carry the crops through the season.

MONTANA

Eastern Montana: Conditions and prospective yields are all good, despite a battle with grasshoppers throughout the season.

Northern Montana: Conditions are only fair, due to drouth and hail, a number of localities from Harlem to Rudyard along the Highline being entirely hailed out.

Conditions and yields are reported excellent throughout Judith Basin, with plenty of moisture, no rust, and grasshoppers under control. Conditions and yields are poor from Great Falls to Havre, and from Shelby to Havre, where there has been insufficient moisture all season.

South central Montana: Prospective yields good, but a little rust present, which has done no appreciable damage as yet, and some grasshoppers which are pretty well under control. Some sections north and west of Billings have been damaged by hail.

Northwestern Montana: Prospective yields good, particularly around Kalispell, but more rain is necessary.

Harvesting Progress—South Dakota and Minnesota winter wheat and rye is practically all cut and the harvesting of oats and barley well under way at the present time. Harvesting of spring wheat in South Dakota will start the week of July 24, and will be a week later in Minnesota, and from two to three weeks later in North Dakota. In North Dakota the harvesting of rye which started the 15th of July, will be completed by the 25th, and will be followed immediately by oats and barley. In Montana rye harvesting did not start until July 20, and will not be completed before the 1st of August;

oats and barley will follow shortly thereafter, and the spring wheat harvest will begin about August 15.

Acreage Comparisons—The four principal states of this district have planted 142,000 more acres to the principal crops other than hay, raised in this district in 1922 than in 1921, according to the Government estimates. The reduction in spring wheat of 1,090,000 acres, and oats 249,000 acres, is more than offset by the increased acreage planted to rye (882,000), flax (174,000), potatoes (152,000), and corn (290,000). The heavy acreage planted to rye, potatoes, and corn is undoubtedly a result of the excellent crops harvested in this district last year. The increased flax acreage is planted in small tracts and is due more to the farmer's plan of rotating crops than to the breaking of new land. The figures follow:

	1922 Acres	1921 Acres
Spring wheat . . . . .	14,992,000	16,082,000
Winter wheat . . . . .	461,000	469,000
Corn . . . . .	8,448,000	8,158,000
Oats . . . . .	9,413,000	9,662,000
Barley . . . . .	3,052,000	3,061,000
Rye . . . . .	2,560,000	1,678,000
Flax . . . . .	1,298,000	1,124,000
Potatoes . . . . .	763,000	611,000
All hay . . . . .	13,466,000	12,500,000
	<u>54,453,000</u>	<u>53,345,000</u>

Grain Receipts at Minneapolis and Duluth were slightly larger in June than in May, but 10 per cent lower than in June last year. Although receipts of all grains, except barley and flax, were above normal for the month, wheat alone showed more than a normal strength as compared with the previous month's receipts. Oats and rye declined from the previous month's volume of receipts, but this was expected, for both grains have been running well ahead of normal. Corn, for which no normal is available, showed the largest increase for the month in physical volume of receipts and in percentage relation to last month. Flax, which showed an increase in receipts during May, continued its earlier decline during June.

As compared with last year corn receipts were more than double and receipts of oats and rye also showed increases. Wheat and barley declined and flax was down two-thirds from last year's figures.

Shipments of grain from Duluth were down one-half during June from the May total, and shipments from Minneapolis were down one-fourth. Minneapolis shipments were also somewhat lower than shipments in June last year, but Duluth shipments almost doubled last year's figures, due principally to great increases in shipments of oats, corn, and rye.

Grain Stocks in the Minneapolis and Duluth terminal elevators were one-sixth lower at the end of June than at the end of May, although stocks of barley and flax which have been at a very low figure showed increases. As compared with a year ago,

stocks of all grains combined were up one-third owing to a very large increase in stocks of corn and a more moderate increase in stocks of oats. Flax stocks were less than 10 per cent on June 30th of a year ago.

Livestock Marketing in South St. Paul was abnormally large in June, with the exception of sheep. Normally there are declines in receipts of all classes of live stock between May and June, but this year every class has shown an increase. Receipts of calves continued to be more than twice the normal amount. As compared with June last year, receipts of cattle, calves and hogs showed good increases, but receipts of sheep were little more than one-half as large as last year. For the first half of the year receipts of cattle, calves, and hogs have been larger, and receipts of sheep smaller than last year. The movement of feeder stock to the country, while not as large in volume during June as during May, showed a very favorable condition as compared with June last year. Nine times as many calves and almost twice as many cattle and hogs were shipped to the country this year in June as in June a year ago, and as many sheep were shipped this June as last.

Wholesale Prices of the majority of farm products declined during June. Pronounced declines occurred in the median prices at Minneapolis of all grains. The price of flax fell 30½ cents; wheat, 17½ cents; rye, 16 cents; barley, 7 cents; oats, 2½ cents; and corn, 1¾ cents. Less marked declines occurred in the majority of the livestock prices at South St. Paul. The median price of stock and feeder steers declined 75 cents; veal calves 50 cents; and hogs 10 cents; while there was an increase of 25 cents in butcher steers and lambs, and butcher cows remained unchanged. Produce at the Minneapolis wholesale market showed about as many increases as decreases in price, but flour showed a slight increase between June 15 and July 15.

Retail Trade in general merchandise was slightly lower in June than in May, and 6 per cent lower than last year in June. There was not much change in stocks of merchandise held during the month. Retail lumber sales, however, increased one-fourth between May and June, as was to be expected following the spring peak of building permits. Sales were also somewhat larger than a year ago. Stocks of lumber, while about the same at the end of June as at the end of May, were one-sixth lower than a year ago.

Wholesale Trade showed increases in dry goods, groceries, and hardware in June over May, and decreases in shoes and farm implements. Farm implement sales, however, were more than one-half larger than a year ago, and there were also increases over last year in groceries and hardware.

Flour Production at Minneapolis in June was 8 per cent less than during May and 17 per cent below

the 10-year normal, although the production in June this year was 7 per cent higher than the production a year ago. Flour production at outside mills as reported by the Northwestern Miller increased between May and June, and was larger than in June last year, but the increase between May and June was not sufficient to offset the decrease at Minneapolis, so that the total production of flour in this district declined about 3 per cent between May and June.

Shipments of flour from Minneapolis and Duluth were slightly less in June than in May, but about the same as in June last year.

Shipments of Linseed Products from Minneapolis were almost as large in volume during June as in May, but little more than half of a year ago, showing that the dullness in the domestic linseed oil industry has not been relieved.

Lumber Manufacturers decreased their production slightly between May and June, but increased their shipments by about the same amount. Stocks of lumber in manufacturers' hands remained stationary during the month. As compared with a year ago, however, stocks were down one-fourth and production and shipments were up about one-half.

Copper Production in this district declined somewhat between May and June, but the June figure was almost six times as large as that for June last year.

New Building Projects, for which permits have been secured, showed a sharp decline in June from the May total. Both in number and valuation, permit totals during June were about midway between the March and April volume of this year. Building, however, continues in larger volume both in number and valuation of permits than a year ago.

The Minneapolis June permits were little more than one-half of those in May, both in number and in valuation, and while the number of permits was somewhat larger than in June last year, the valuation of permits granted was down two-fifths. Last year during June advertisements of dwellings to rent and of dwellings wanted to rent were in ratio of 10 to 1. This year the ratio has been increased to 18 to 1, showing that the housing situation is much easier this year than last, although the ratio declined slightly between May and June this year.

The Employment Situation throughout this district continues favorable for the skilled laborer. There is extensive road construction throughout the district. The building trades are fully employed with especially strong demand for plasterers, plumbers, and electricians. Lumber and mining activities have absorbed all available skilled workers in their lines. The railroads, before the maintenance-of-way strike commenced, were increasing their forces of road builders. Farm labor is in great demand, especially married couples for permanent residence on the farms. At this time the only surplus of labor appears to be that of transient unskilled labor in the mining district.

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## NINTH FEDERAL RESERVE DISTRICT

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The Volume of Business as indicated by debits to individual accounts at clearing house banks in selected cities of this district increased 4 per cent between May and June. A year ago there was an increase of almost 10 per cent between these two months. The volume of debits in June this year was practically the same as the volume a year ago. It is interesting to note that at Minneapolis the volume of debits declined 3 per cent between May and June this year, while last year they increased 6 per cent and that the June debits this year were 9 per cent lower than June debits a year ago.

Business Failures reported by R. G. Dun & Co., for June were about the same in number and liabilities as last month, but more than two and a half times as large as in June last year, indicating that business mortality is still at an unusually high level. Undoubtedly the fact that June is a dull month in many lines of business has made it impossible for many companies, which had been able to survive during the active spring selling period, to meet their creditors' demands during June, and this condition has forced them into bankruptcy. In addition, there are probably some companies whose business has been adversely affected by the cool summer weather, which has greatly curtailed the sale of hot weather goods.

Freight Tonnage passing through the Soo Canals was two and a half times as large in June as in May and about as large as in June last year. The increase in June over May was largely due to the increase in east bound traffic as west bound traffic increased only one-fourth. Among the commodities moving east there were pronounced increases in June over May in iron ore, lumber, and copper, and declines in flour and grains. As compared with last year east bound traffic increased more than one-half and west bound traffic was down about seven-eighths, owing to the very small volume of coal coming to the head of the lakes this year as compared with last.

Iron Ore shipments from upper lake ports reported by the M. A. Hanna Co., were almost two and a half times as large in June as in May and almost twice as large as in June last year. So far this season, one-third more iron ore has gone down the lakes than a year ago.

The Coal Situation calls for strong remedial action to insure the safety of life and health in the Northwest during the coming winter. No hard coal was received during June at the Duluth and Superior harbor as compared with 193,000 tons in June last year, and for the season through June 30th only 4,563 tons of hard coal have been received, which is about 1 per cent of the amount received last year. The soft coal situation is not much better. While some soft coal has been shipped up the lakes this season, the total amount received through June

30th was only 284,000 tons, or 7.5 per cent of the receipts for the same period last year.

Coal stocks are very low at present throughout the Northwest. At the Duluth-Superior harbor the stocks of soft coal on July 1 were only about one-third of the stocks a year ago, and stocks of hard coal were also somewhat lower than last year as shown by the following table:

	July 1, 1922	July 1, 1921	Pct. 1922 of 1921
Soft	1,498,276 Tons	4,342,457 Tons	34.4
Hard	364,771 Tons	400,395 Tons	91.2
Total	1,863,047 Tons	4,742,852 Tons	39.3

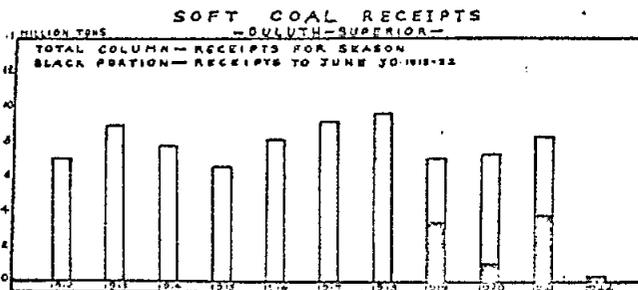
Stocks of coal at Minneapolis and St. Paul on July 1 are estimated to be only 25,000 tons including all soft and hard coal as compared with 125,000 tons a year ago. Coal stocks held by retail lumber companies operating about 400 yards throughout this district were less than one-half of a year ago for hard coal and a little more than one-third of a year ago for soft coal as shown in the following table:

	July 1, 1922	July 1, 1921	Pct. July, 1922 of July, 1921
Soft	14,187 Tons	38,547 Tons	36.8
Hard	6,229 Tons	13,169 Tons	47.3
Total	20,416 Tons	51,716 Tons	39.4

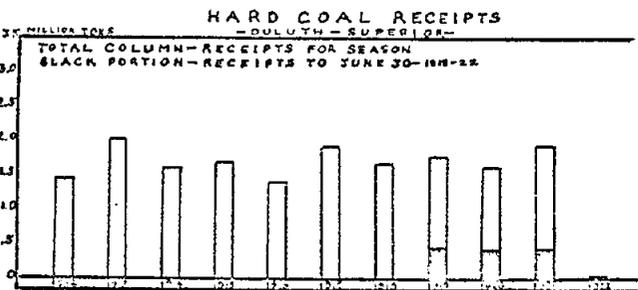
While it is possible that some coal might be distributed eastward from the lignite fields of North Dakota, the relief afforded by this distribution would not be sufficient to carry the district through the winter. If 1922 receipts of all coal at Duluth-Superior are to equal the average receipts for five years (10,104,828 tons), 9,816,092 tons of coal will have to arrive at Duluth-Superior between July 1 and the close of the season. This means an average of 1,963,218 tons a month. As the weather is more propitious for heavy receipts early in the season it is very doubtful if so high an average can be maintained for the rest of the year. During the three years, 1919, 1920, and 1921, the largest monthly receipt recorded was 2,318,283 tons, which occurred during the month of June. At no time during the three years were the monthly receipts as heavy after July as the amount required this year if we are to reach the average receipts for five years. The highest monthly receipts after July for the three years was 1,831,836 tons, while only once in July did receipts come up to the requirement for this year (1,990,012 tons in July, 1921).

It is apparent that it will be practically impossible to receive by boat enough coal to bring the season's receipts at Duluth-Superior up to the five-year average for that port. It is also very doubtful if even the minimum receipts for the season in five years can be attained this year. The smallest receipts for five

years was 8,875,097 tons received in 1919, a strike year. In order to reach that total this year we must receive a monthly average of 1,717,272 tons, which figure has been reached in only one month after July in the three years, 1919, 1920, and 1921.



Anthracite coal receipts at Duluth-Superior harbor have suffered more from the strike than have bituminous receipts. The total receipts of hard coal for the season have averaged during the last five years 1,754,123 tons. If we are to reach that total this year we have yet to receive 1,749,561 tons or 349,912 tons a month.

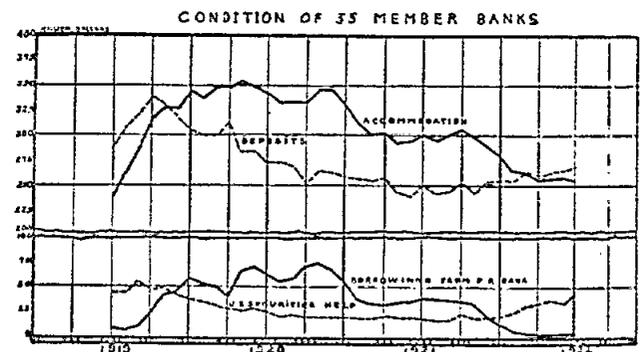


**Financial Activity of Member Banks**—In the Twin Cities, loans by member banks to their customers declined \$3,000,000 and deposits increased \$5,500,000. The funds so made available were used to increase holdings of United States securities more than \$8,000,000, and to increase reserves and decrease borrowings from this bank. This is in contrast with a year ago when there was a rise in loans by Twin City banks of \$10,000,000 during June, balanced by a rise in deposits of \$5,000,000, and an increase in borrowings from this bank of \$5,000,000.

Changes in the balance sheets of member banks in six other cities of this district, chosen to be representative geographically, indicate that progress is being made in financing this year's crop as in former

years. Loans to customers were up \$2,000,000, of which \$1,500,000 were withdrawn, so that deposits increased only \$500,000. As borrowed money secured from this bank declined almost \$1,000,000, and United States securities owned increased about the same amount, it is evident that these banks have appreciably drawn down their balances or increased their loans with correspondent banks. This situation also is in contrast with last year when loans of these banks declined \$1,000,000 during June and deposits were drawn out to the amount of \$6,000,000, and borrowings from this bank increased \$4,000,000.

A comparison of the combined balance sheets of selected member banks in the eight cities, including the Twin Cities, on July 5, 1922, with that of July 6 a year ago, indicates clearly that the problem of frozen credits, as far as these member banks and their relation with this Federal Reserve Bank is concerned, has been substantially solved, although some of the frozen loans have doubtless been transferred temporarily to the War Finance Corporation. Borrowings from this Federal Reserve Bank by these selected banks have been reduced from almost \$40,000,000 to less than \$2,000,000 during the year. Loans declined \$46,000,000 during the year to \$257,000,000 and deposits rose \$19,000,000 to \$272,000,000. This release of funds has enabled these banks to more than double their holdings of United States securities, which amounted on July 5, 1922, to about \$43,000,000.



**Federal Reserve Bank Operations**—There was no change of moment during June in the balance sheet of this bank. A slight rise occurred in notes outstanding and in deposits, a rise of \$1,500,000 in reserves and a decline of the same amount in United States securities held.

Federal Reserve Bank bill holdings are of doubtful value as a business indicator, for changes in the volume of bills held are results of changes in business conditions rather than being causes of changes in business. There is a lag of some months between the major peaks or troughs of business and high and low points of Federal Reserve Bank bill holdings. It has already been seen that, whereas the peak of business in this district occurred in May, 1920, the peak load of Federal Reserve Bank accommodation was not reached until November, 1920. More recently, business started to revive in this district early in 1922, according to the indicators of production and prices, but the bill holdings of this bank are yet low and have not begun to increase with the increasing volume of business. This fact is explained by the desire, which is always present, on the part of member banks to pay up their borrowings at the earliest possible time, and as deposits have risen more rapidly than loans, funds have been readily available to discharge their obligations. Another cause tending to delay the increase in Federal Reserve bill holdings is the expansion of War Finance Corporation, and Federal Land Bank loans continuing monthly since January 1st.

The twelve Federal Reserve Banks combined have experienced some expansion during June. Accommodation to member banks increased \$64,000,000 or more than one-tenth. Federal Reserve notes in circulation increased \$50,000,000, deposits were up \$19,000,000, and there was a slight gain in reserves of \$3,000,000.

Sales of Investments by Twin City houses declined one-tenth between May and June, which is less than normal, but were almost one-half larger than sales in June last year. In comparing May and June, the greatest decline in favor occurred in foreign securities and stocks. In comparing June this year with June a year ago the most important increases occurred in corporation bonds, municipal bonds and city mortgages.

Interest Rates at Minneapolis remained fairly stationary during the month ending July 15, although there were fractional declines in the rates on prime commercial paper purchased in the open market, on bankers' acceptances and on the longer maturities of stock exchange secured time notes. The customary rate of discount charged by banks for prime commercial paper eligible for rediscount with the Federal Reserve Bank remained at  $5\frac{1}{2}$  per cent, although the highest quotation during the month stated was  $\frac{1}{2}$  per cent lower than during the previous month. The Federal Reserve Bank rediscount rate is 5 per cent at Minneapolis.

## BLACK RUST AND THE COMMON BARBERRY

Great rust epidemics have occurred in 1904, 1912, and 1916, and more recently for three years in succession, in the years 1919, 1920, and 1921, black stem rust has taken toll—not only of wheat, but also of rye, oats, and barley. A decreased yield of grain has resulted, not only because of the shriveled grain borne by the rusted stalks, but also from decreased acreage—the latter being the direct result of the increasing fear of rust inculcated in the mind of the grain grower through successive losses.

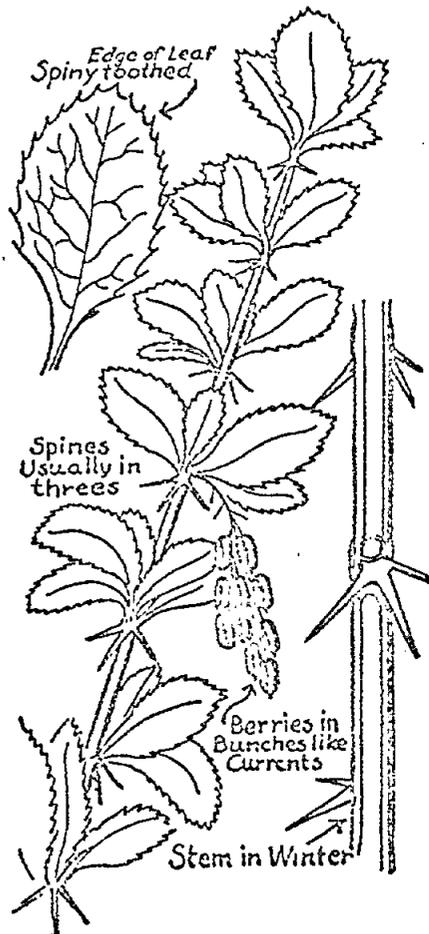
In 1916, when black stem rust took an appalling toll, the destruction of wheat alone amounted to 180,000,000 bushels in the United States, while in Canada an additional 100,000,000 bushels was lost. In 1904 the loss was even greater, 300,000,000 bushels of wheat alone being destroyed in the United States and Canada. For the four years following 1916, aggregate losses in all small grains suffered by the several states in this district were: North Dakota, 57,601,000 bushels; Minnesota, 24,456,250 bushels; South Dakota, 27,169,760 bushels; Wisconsin, 10,344,950 bushels, and Montana, 5,069,525 bushels; and for all the North Central States, 163,092,360 bushels.

For 1921 detailed figures for the North Central States have not yet been announced by the Department of Agriculture, but the loss of wheat alone due to black stem rust is estimated by the department to be 22,800,000 bushels. At \$1.40 per bushel the loss in wheat alone was \$31,920,000, an appalling figure, although 1921 was not a bad rust year.

Black stem rust is a microscopic fungous parasite, which grows alternately on the common barberry bush and on the stem of wheat and other grasses and grains. Perhaps most familiar is its winter stage, when it appears on straw and stubble as black streaks along the stem. In the spring these black streaks, which are really hundreds of little plants, germinate and give forth seeds called spores. These spores are blown about by the wind, but cannot—and this is the essence of the whole proposition—take root and grow anywhere except on the leaf of the common barberry bush. The new rust plants which develop now give forth new spores by the million, and each one of the spores in this stage is capable of taking root on the stem of a grain plant and not only choking the life out of that plant but reproducing itself thousands of times over to infect neighboring plants. The rust in this stage cannot again infect the common barberry bush. In the fall the rust which has appeared in the form of brick red streaks on the stems of the grain passes into the winter or black stage and in the spring the life cycle begins again with the rooting and growth of the spores on the barberry. From this it is clear that if

there were no barberry bushes, the rust would not get a start in the spring and no amount of weather favorable to the development of rust could cause damage to crops. Given the presence of the spores produced on the leaf of the common barberry bush, however, there is a condition which needs only a spell of warm, damp weather to wreak havoc in the grain fields.

The characteristics of the "Common Barberry" bush are given in the accompanying diagram.



Every common barberry bush in these North Central States is a possible source of a local epidemic of grain rust. There have been local infections in various places this summer, such as that resulting from a field of 1,500 bushes near Pine Island, Minnesota, which caused a total loss of wheat in nearby fields, and seriously curtailed the yield of other small grains. Unless the spread of common barberry bushes is checked, they will soon be found everywhere in the abundance that characterizes the bush in the Eastern states. Black stem rust is too serious a problem to omit any chance or means of destroying it. It is not a question of barberry eradication or raising grain varieties that are rust resistant

but of how to do both as thoroughly and quickly as possible.

From April 1, 1918, to December 31, 1921, the Government had been conducting a campaign to eradicate the common barberry. Nearly 6,000,000 bushes had been discovered and about 4,500,000 of these destroyed. More than 2,000,000 of these bushes were found in cities and towns, and a barberry bush on a city street is as great a source of danger as is one in a farmer's wood lot.

Despite this showing, the agricultural interests and other groups directly concerned with larger grain crops felt that the combined federal-state-county campaign throughout the thirteen states could be made more intensive, and at the same time speeded up. With these particular objects in mind there was established at a meeting of representatives of the several states in March at the University Farm, St. Paul, the Conference for the Prevention of Grain Rust, with offices at 512 First National-Soo Line Building, Minneapolis.

Each of the thirteen North Central States is represented in this conference by four members, the Governor, the Commissioner of Agriculture, a representative of the college of agriculture, and the president of the State Farm Bureau Federation. The membership list includes also millers, railroad men, farm implement men and others.

The conference, now operating through every available channel, correlates the work of all forces engaged in barberry eradication, including the United States Department of Agriculture, which department, through the office of cereal investigations of the Bureau of Plant Industry, has assigned a field assistant to represent it in the work. Farm bureaus, county agents, fairs, railroads, banks, and other groups are lending valuable aid. Educational work, including publicity in every kind of medium is a particular field of the conference's work. There are congressional and some state appropriations available and in use in the barberry campaign but such funds are used solely in actual field and investigation work of federal and state agents. The congressional appropriation for the eradication area of thirteen states was \$147,200 in each of the years 1918, 1919, and 1921. Through the efforts of the conference, \$350,000 was appropriated for the current fiscal year.

What is important is that additional states are expected to set aside sums for the work in their respective districts, and where appropriations already are in effect, larger sums will be sought. It is only upon a good appropriation showing by the respective states that a request for additional funds from Congress for the ensuing year can be properly based. In such state and federal appropriation work lies one of the activities of the conference. Furthermore, a uniform barberry eradication law in the respective states will be sought.