

Freight Costs and Market Values.

By FRANK ANDREWS,

Scientific Assistant in Transportation, Division of Foreign Markets, Bureau of Statistics.

FREIGHT COSTS AND MARKET VALUES OF COTTON AND WHEAT.

It is well known that goods whose value is high in proportion to their weight are likely to be charged higher freight rates than goods of relatively low value. It is understood, however, that value is not the only condition affecting freight charges; under some circumstances a higher rate may be charged for a less valuable than for a more valuable commodity between the same points. The influence of value and weight upon the cost of carrying is illustrated in the case of two of the most important farm products of the United States—cotton and wheat. And it is of no little interest to note that this rule of freight traffic applies to the cost incurred by farmers in hauling their products from farms to shipping points.

An investigation was made by the writer, under the authority of the Bureau of Statistics of the Department of Agriculture, in September, 1906, to learn certain facts about hauling farm products on country roads, and from results of this inquiry it is estimated that it costs an average of 16 cents per 100 pounds to haul cotton from farms to shipping points, while the cost for wheat is 9 cents. The average distance of cotton farms from local shipping points is 11.8 miles, the average weight of a wagon-load of cotton is 1,702 pounds, and the average cost of hauling the load, \$2.76; the corresponding averages for wheat are 9.4 miles, 3,323 pounds, and \$2.86. It is plain that cotton may be profitably hauled for greater distances and in smaller loads than wheat, since the value of an average load of the cotton picked in 1905 was more than \$170, while a load of wheat was worth about \$40.

CHARGING WHAT THE TRAFFIC WILL BEAR.

The average railway freight rate for cotton from local shipping points to seaports is estimated at 40 cents per 100 pounds, while the corresponding rate for wheat is about 20 cents. This difference in railway charges between these two commodities illustrates the tendency of value to influence transportation costs, and also shows one of the several phases of the principle of railway rate making which is often described as "charging what the traffic will bear."

RELATIVE VALUES AND OCEAN RATES.

On the ocean, also, freight charges for cotton are higher than those for wheat. The rates quoted for regular lines of steamers for carrying cotton from Galveston, New Orleans, and New York to Liverpool, averaged during the year ending June 30, 1906, about 32 cents per 100 pounds, while the corresponding rate for wheat was only one-fourth that sum, or 8 cents per 100 pounds. A cargo of cotton shipped from Galveston to Liverpool frequently contains as much as 5,500,000 pounds, and the value in 1905-6 of such a cargo at Galveston was not far from \$600,000, while the same quantity of wheat would have been worth from \$70,000 to \$90,000. The entire cost of carrying this amount of cotton from the farms in the United States to Liverpool, not including costs of transfer and terminal charges, at the average rates estimated in this article, would be about \$50,000 while the corresponding cost for wheat would be \$24,000.

WHEAT.

FROM FARMS TO LOCAL SHIPPING POINTS.

The average cost of 9 cents per hundredweight for hauling wheat from farms to shipping points, as mentioned at the beginning of this article, was obtained by the use of returns from 1,051 wheat-producing counties. The cost for the North Central States is 8 cents per 100 pounds, but in Kansas, Ohio, Indiana, and Michigan the rate is 6 cents, and farmers in Illinois, Wisconsin, Minnesota, Iowa, and Nebraska do this hauling at an average cost of 7 cents per 100 pounds. In Missouri the mean cost is 9 cents per 100 pounds, in North Dakota 10 cents, and in South Dakota 11 cents per 100 pounds. In the wheat region west of the Rocky Mountains the average cost is 10 cents per 100 pounds, the relatively high rate being largely due to the long distances over which the grain is moved.

The average farm value of wheat, as given by the Department of Agriculture, is the price at the local shipping points, for practically all wheat is sold by farmers at a price which includes delivery at some local market or shipping point. The average farm value of wheat in the United States on December 1st, 1905, was 74.8 cents per bushel, and the average cost to the farmers of delivering this wheat at 9 cents per 100 pounds is 5.4 cents per bushel. Hence the actual value on the farm would be 69.4 cents per bushel. As the wheat crop of 1905, excluding seed, was about 622,000,000 bushels, the cost of hauling the crop from farms to places of local delivery may be given as \$34,000,000, while the total value of the crop delivered at these markets and shipping points was \$465,000,000.

RAILWAY CHARGES TO INTERIOR MARKETS.

From the wheat regions east of the Rocky Mountains large quantities of the grain are gathered into

such interior cities as Minneapolis, Chicago, and Kansas City. The mean of the railway freight rates on wheat from 562 local stations in Illinois and Nebraska to Chicago in 1905-6 was 16 cents per 100 pounds, the same as the mean rate to Minneapolis from 311 local stations in Minnesota, North Dakota, South Dakota, and Nebraska. In estimating the mean charge to Chicago from all local shipping points, rates from Illinois and Nebraska were taken as typical of low and high rates, respectively. To Kansas City, from 456 stations in Kansas, Missouri, and Oklahoma, the mean rate is found to be about 14 cents per 100 pounds. Making allowances for the relative quantities of wheat received at each of these three primary markets during the year 1905-6, the average rate on wheat from local shipping points to primary markets in 1905-6 was 15.5 cents per 100 pounds, which, added to the average cost of hauling wheat from farms in the North Central States, makes a total cost of transportation of 24.5 cents per 100 pounds, or 14.7 cents per bushel from farm to primary market.



W. F. GUILD, KEMNAY, MAN.

Winner of five sweepstakes at seven plowing matches, and made the highest score in Manitoba, 95 points. Mr. Guild is a second year student at the Manitoba College.

MINNEAPOLIS AND CHICAGO.

The mean annual price of No. 1 northern wheat at Minneapolis for 1905-6 was 86.3 cents, and the mean freight rate from 311 stations in Minnesota, North Dakota, South Dakota, and Nebraska, was 9.6 cents per bushel. The average price of wheat at local shipping points in these four States on December 1st, 1905, was 68.6 cents per bushel, so that the cost of this wheat at Minneapolis would be 78.2 cents, plus such items as elevator charges, fees for inspection and weighing, and dealers' profits, making a total cost of probably not more than 80 cents per bushel, or about 6 cents less than the value of No. 1 northern.

At Chicago the mean price of No. 2 red winter wheat for the year named was 86.9 cents, and the average farm price in Nebraska and Illinois for all wheat on December 1st, 1905, was 71.8 cents, including cost of hauling from farms, while the mean freight rate to Chicago from local stations in those two States was 9.6 cents per bushel. According to these figures all the marketable grades of Nebraska and Illinois wheat were worth, in the Chicago market, probably about 83 cents per bushel, or 3.9 cents less than No. 2 red winter.

RATES AND PRICES AT KANSAS CITY.

In Kansas, Nebraska, Missouri, and Oklahoma the average value of wheat at local points December 1st, 1905, was 70.8 cents, and the mean freight charge from these stations to Kansas City was 8.4 cents per bushel. The cost, then, at Kansas City, would be 79.2 cents, plus minor charges. The mean annual value of No. 2 hard wheat at this market for 1905-6 was 81.1 cents. In this case, the only one of the three mentioned, there is an approximate agreement in the prices used; the farm value and the price at the primary market seem to apply to grades of about the same average quality.

The average of the three prices just mentioned for Chicago, Minneapolis, and Kansas City, allowing for the relative importance of each price in proportion to the quantity of wheat received at each market, is 85.1 cents per bushel, and the average farm value, including cost of hauling, of the crop in the States and Territory named, was 70.8 cents. The average freight rate being 9.3 cents, the average

value on December 1st, 1905, at the three primary markets for all marketable grades of the wheat of this region, would be probably not more than 82 cents. This would make only 3.1 cents difference between the average value of all wheat and the price of three of the better grades.

RAIL AND WATER ROUTES TO SEABOARD.

From the interior wheat markets to the seaboard there are two general routes, one eastward to Atlantic ports and the other leading south to the Gulf of Mexico. Along the eastward routes the railroads have to share their traffic with the waterways formed by the Great Lakes and the connecting rivers and canals.

The Mississippi River is a potential although not always an active competitor for the traffic from the wheat regions to New Orleans. During 1904 and 1905 practically no wheat was carried by river from St. Louis to New Orleans.

RATES FROM PRIMARY MARKETS.

The freight charge from Chicago to New York or Boston for wheat intended for export was 15 cents per 100 pounds in 1905-6, by all-rail routes. During the same year boats on the Great Lakes were chartered to carry wheat from Chicago to Buffalo at rates ranging from 1.25 to 3 cents per bushel, and the railway charge from Buffalo to New York was 4.5 cents per bushel on wheat intended for export.

The lake-and-rail rate, then, from Chicago to New York, ranged between 5.75 and 7.50 cents per bushel. Shipments by way of the lakes and Erie Canal were sent at still lower rates. During the calendar year 1905 the mean rate by lake and canal to New York from Chicago was 5.53 cents per bushel, by lake and rail the rate was 6.40 cents, and the railroads charged 9.90 cents for carrying the wheat the entire distance. The all-rail rate from Chicago to Baltimore and Norfolk was 3 cents per 100 pounds less than the rate to New York or Boston and 1 cent below the charge to Philadelphia, on exported wheat. The mean all-rail rate on exported wheat from Chicago to the Atlantic seaboard may be taken as about 13 cents per 100 pounds, or 7.8 cents per bushel. On wheat intended for domestic consumption the rate to Boston from Chicago was 4.5 cents per 100 lbs. above the export rate and the mean rate on domestic wheat from Chicago to Boston, New York, Philadelphia, Baltimore, and Norfolk exceeded the mean export rate by 3 cents per 100 pounds, or 1.8 cents per bushel.

SHIPS CHEAPER CARRIERS THAN WAGONS.

Ocean rates were higher than usual during the year 1905-6, and the mean charge for carrying wheat by regular steamship lines to Liverpool from New York, a distance of about 3,100 miles, was 3.8 cents per bushel, or 1.6 cents less than it cost a farmer to haul the wheat 9.4 miles from his farm to a neighboring railroad station. Sometimes the rate on wheat from an Atlantic port from the United States to Liverpool is as low as 1.5 cents per bushel, or 3.9 cents less than the average cost of hauling from the farms. The cost of shipment in chartered vessels from Baltimore to ports in the United Kingdom for the year 1905-6 was about 7.8 cents per bushel on an average, a cost much higher than the rate charged by vessels of regular lines, and 2.4 cents more than the cost of wagon transportation. The mean rate by regular lines from New Orleans was about 6.8 cents per bushel and may be taken to represent the Gulf coast as the New York rate is in general typical of the rates from Atlantic ports.

The large number of grain ships chartered at Baltimore during 1905-6 makes it fairly safe to take the cost of charters at that port as an approximate average for the whole coast and not far removed from charter rates from the Gulf to England. The average of the rates on wheat to Liverpool by regular lines from New Orleans and New York and by chartered vessels from Baltimore, not including costs of transfer, may be taken as 4.8 cents per bushel, or 0.6 cents less than the cost of hauling in wagons from farms to shipping points.

PRICES AT LIVERPOOL.

The mean price at Liverpool for "No. 2 red winter" wheat for five months ending June 30, 1906, the season when this grade was most frequently quoted there, was 92.6 cents per bushel, and the cost of transportation to Liverpool from local points in the Middle West is estimated at 17.4 cents per bushel. Deducting this freight charge from the price just quoted, and allowing 1.5 cents for profits and minor costs, the value of this quality of wheat at local shipping points in Illinois, Minnesota, Missouri, North Dakota, South Dakota, Nebraska, Kansas, and Oklahoma would be 73.7 cents, or only 2.9 cents per bushel above the average value of all wheat at those points.

EXPORTS AND FARM VALUES.

The apparent increase in the consumption of wheat in the United States in the five years ending June 30, 1906, and the accompanying decrease in exports was attended by a rise in local prices, which, if distributed proportionally in all parts of the country, would almost forbid the exportation of any wheat at all. During the year ending June 30, 1902, the exports of wheat, including flour (in terms of grain), from the United States amounted to 235,000,000 bushels and the average farm value, including cost of hauling, was 62.4 cents per bushel