

The Importance of Farm Machinery in General, and the Gang Plow in Particular.

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The contrast between the crude farmer of a century ago and the progressive agriculturist of to-day is due to improved education along agricultural lines and to the introduction and improvement of complex machinery for the cultivation of the soil and the economic handling of farm products.

The success of agricultural pursuits depends primarily upon the accomplishment of the largest possible results, both in quantity and quality of work, at a minimum cost.

To prove that this point is reached mainly through the influence of farm machinery one has only to refer to the farmers of the North American Continent who to-day are the largest users of farm machinery and through its use have made this the greatest agricultural country in the world.

In the first two hundred years after the pilgrims settled on the American shore the abundant natural resources of the country failed to bring any great increase in the products of agriculture, but the introduction of the most ancient implement in history formed the connecting link between soil and man and with its evolution the agricultural world has arisen from the drudgery of the hand power machinery of the seventeenth century to the engineering of the horse and steam power implements whereby with his own intelligence the farmer has at his command the most complicated machinery of the day. As late as 1845 the people of the United States did not raise enough wheat for their bread. With the advent of the steel plow, the self-binding harvester and the steam threshing machine there was a marked change in the producing power of America. The food supply increased from 4.33 bushels of wheat per capita in 1845 to 5.5 bushels in 1850, to 7.45 bushels in 1860 and became as high as 10 bushels in 1889. In the same epoch the farm laborers decreased from 80 per cent. in 1850 to 33 per cent. in 1900. The farmers of to-day employing less than one-third of the labor of the country, produce enough food to support, not only the other 67 per cent. of population, but they also exported, in the year 1908, agricultural products to the value of \$960,000,000.

Much of this achievement is, no doubt, attributable to the fertile soil of the great valleys and plains of the United States, much to the progressive spirit and intelligence of the farmers of America, but much more is due to the persons who have developed the modern farm implements and machines which enabled the farmers to sell their products in the open market of the world in competition with the poorly paid laborers of Russia and India.

Implements and machines will be still more important in the future, because it is mainly through them

that the farmer can reduce the cost of production. To illustrate this it is only necessary to state that in 1830 it required over three hours labor to raise one bushel of wheat while in 1906 it required ten minutes, making a saving in the cost of labor in one bushel of wheat equal to the difference between 17½ cents and 3½ cents.

In 1850 the labor represented in a bushel of corn was 4½ hours while in 1904 this labor had been reduced to 40 minutes. In 1860 the labor in one ton of hay in bales represented 35½ hours while in 1904 this was reduced to 9½ hours or from a cost of \$3 in labor to \$1.12. The agricultural implements in the United States saved in human labor in 1899 the vast sum of \$681,471,827.

American farmers buy annually \$100,000,000 worth of implements and the total value of the implements and machinery on the farms in this country is \$761,261,550. In no other country is such extensive use made of farm machinery and the scarcity of farm laborers will tend to increase its use rather than otherwise.

The introduction of the reaper marked the beginning of a revolution on the farm. With a machine to harvest the grain rapidly and to increase thereby the acreage which each farmer could grow, there was economy in the use of other machinery and a demand was thus created for modern farm tools.

This was followed by a remarkable change in commerce, transportation, manufacture and the development of the great natural resources of the country.

The most important of all farm implements and perhaps the most important implement, drawn by horse, steam or gasoline, known to mankind, is the plow. Its gradual evolution is coincident with the history of the race. The crooked stick, the plow of centuries merely scratched the ground. Inventors improved it by adding a sheet-iron ploughshare and moldboard. Afterward came the cast-iron plow, which was followed by the chilled plow, the soft centre steel moldboard and the all steel plow.

The walking plow was followed by the sulky riding-plow, the gang-plow and the disc-plow. With a gang plow and five horses a man can plow from five to seven acres per day, completely turning and thoroughly pulverizing the soil, whatsoever its nature. Plows are now introduced with 10 to 20 14-inch plows in a gang, the motive power of which is a steam traction engine and with which two men can plow from 40 to 60 acres per day.

A 110 horse-power machine plows, sows and harrows at the same time a strip 30 feet wide at the rate of three or four miles an hour turning over the soil at the rate of 80 to 100 acres a day or under favorable conditions 10 to 12

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