

## Influence of Farm Machinery

All careful observers and students of mechanization or the introduction of engineering techniques of agricultural production agree that it has been one of the most significant factors in the development and progress of agriculture in Iowa. These machines, and techniques for their use, have made the farm worker a larger producer and have thus advanced his economic position. He has a larger volume of product to trade for the commodities and services produced by others, which he cannot produce efficiently, if at all, for himself.

The influence of mechanization on the production of the individual worker is made clear by a study of the labor required to produce the crops that have been fully mechanized, like corn, wheat, or oats. It should be remembered that advance practice is usually much more efficient of labor expenditures than average practice, and the physical conditions such as topography and character of the soil determine the practicability of introducing machine methods. Data from the Iowa Agricultural Experiment Station report that corn has been produced with an expenditure of 3.88 man-hours per acre; thus in the case of a yield of 70 bushels per acre, the labor per bushel is less than



4 minutes. Furthermore, with favorable conditions it is entirely practicable for one worker to produce 6,000 or more bushels in a season.

In the wheat growing area the wheat production in the Great Plains in 1933 was 3.3 hours per acre. Since that time, still further advances have been made. It is now possible for one worker to grow 150 to 200 acres or to produce a total of 3,000 to 5,000 bushels in a year, in addition to other duties.

In Iowa, the second most important cereal crop is oats. The harvesting methods now used for oats are similar to those for harvesting wheat, except a more extensive use is made of the self-binder and the stationary threshing machine. Oat straw is valued by many farmers for feed and for bedding. Recently plant breeders have developed varieties of oats which may be allowed to ripen fully in the field without endangering the crop. When the combined harvester-thresher is used, the oat straw may be harvested with hay-making machines.

Soya beans have become the third most important field crop in Iowa. Here again the combined harvester-thresher is generally recognized as the most satisfactory and economical machine for harvesting this crop.

The introduction of machines has greatly improved the character of farm labor. With hand tools, farm work was more a matter of brawn than of brains. Work with hoes, sickles, scythes, forks, and other hand tools was necessarily slow and la-



borious. With hand implements, farm labor was looked upon as of the lowest grade. With farm machines, farm labor for the most part not only requires skill and intelligence, but it is also pleasant and fascinating. The economic and social status of the farm worker has been greatly advanced. The wages and working conditions of farm workers compare favorably with those in other vocations.

When hand tools were used, it was necessary to labor from early to late during the rush seasons of planting and harvesting. It was customary in New England to store the small grain crops in a barn where most of the winter was spent in threshing with the flail. When hand implements were used, the entire family, young and old, the women as well as the men, were needed to do the farm work. Now, in countries using machines, the services of women are not needed in the fields.

A smaller and smaller proportion of the workers has been needed to achieve the ever increasing agricultural production in the United States. In 1820, 83.1 per cent of the persons gainfully employed in the United States were engaged in agriculture. In 1840 the percentage had declined to 77.5 per cent; in 1870 to 47.4 per cent; in 1900 to 35.7 per cent; in 1930 to 21.5 per cent; and in 1949 the percentage is estimated at 15 per cent. No other change in American agriculture is so significant. It has been beneficial to all people and has



strengthened our country economically and in resources of defense.

J. R. Dodge summarized the benefits of mechanized agriculture when he wrote, "As to the influence of farm machinery on farm labor, all intelligent expert observation declares it beneficial. It has relieved the laborer of much drudgery; made his work and hours of service shorter; stimulated his mental faculties; given an equilibrium of effort to mind and body; and made the laborer a more efficient worker, a broader man and a better citizen."

The question is often raised as to whether the use of engineering techniques in agriculture has just about run its course and whether changes will be less rapid in the future. There is no evidence or indication that this is the case. On the other hand, there are many influences which may justify the view that changes will be more rapid in the future than in the past. Labor continues to be high priced and farmers and farm workers are more mechanically minded than at any time in history. The manufacturers now have capable engineering departments which are effective in developing new and better equipment, which the prosperous Iowa farmer buys. Lastly, rural education has cultivated a desire on the part of farmers for a larger measure of well-being. This can be satisfied only by increased production per worker.

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