

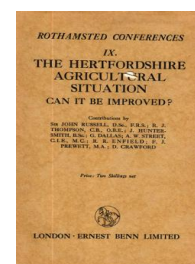
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LABOUR-SAVING MACHINERY AS A MEANS OF LOWERING COST OF PRODUCTION

By D. CRAWFORD

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I APPROACH this subject with a good deal of diffidence, especially after the able paper so recently read by Mr Bond at the Farmers' Club on 5th November, and published in their journal for November last. Also I have seen land well tilled and growing good crops where little machinery is used, but there the land-worker has not been accustomed to the same standard of living as in this country, the wages—so I was informed—being about 1s. per day for men, and 6d. per day for women. Naturally, with labour-costs as low as this, the land was well tilled and practically weed-free. In contrast to these low wages there are those paid by farmers in the young countries of the West, wages which are often eight and ten times as much, and workers difficult to obtain even at that price. Yet these countries are able to rule the world's cereal prices. It is an old adage that "necessity is the mother of invention," and here the agricultural engineer has tried, and partially filled the want.

I had a letter the other day from Mr Kerl, a friend I made in America in 1927, who visited here last year. He informed me that a man and his son, with an eight-bottom 14 in. plough, ploughed 75 acres in 24 hours, the power unit being a caterpillar tractor working night and day, using headlights. I do not say, nor do I think, that the same class of plough is suitable for all classes of soil in this country, or in this small county of Hertfordshire.

In the past we have concentrated too much on the output per acre, and forgotten the economic side—*i.e.* the capital output per man employed. Let us, therefore, consider whether with the adoption of labour-saving machines we may be able to increase the output per man and thereby lower cost of production.

I know I shall be met with the argument, Where is the capital to come from? Also, will it be economic, after the capital outlay, wear, tear and depreciation have been taken into consideration? These difficulties I can quite understand, considering the majority of implements on the farm are used for only two or three weeks out of the fifty-two. How are these machines to be housed to prevent weather decay during the period they are not in commission? These obstacles may perhaps be overcome by the Agricultural Credits Act. Nevertheless, bearing all these points in mind, I do not think the cost of production can be reduced without the land-worker reducing his or her standard of living, although he or she will need to use a little more brain and a little less brawn. More care should

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be given to farm machines after they have done their season's work, before they are stored. They should be properly cleaned, adjusted and coated with a preservative. The cheapest and most efficient that I have found is a mixture of gas tar and paraffin, in the proportion of two-thirds tar to one-third paraffin, thoroughly mixed and applied cold. This coating sets hard, resists weather and acids, and lengthens the life of the machine.

The advance of education is slowly overcoming the reluctance of some farmers to introduce new machinery. The modern generation is of a mechanical mind and is capable of using the new tools with the intelligence they require.

Cultivation, Seeding and Manuring

In my opinion, each machine controlled by one man will require to be larger, enabling him in the minimum to double his output. The power unit will likewise have to be increased, whether it be horses or tractors. If horses, he must double or treble his team, and to my mind the horses should be of the clean-legged type, so that they will not need so much grooming. All implements should be made of steel, to lessen weight—except those that require weight—and all fitted with a seat. Harrows should have hardened steel points, to prevent wear, as those with sharp points often do better work, once over, than twice with stubbed. I think the check-drill should be introduced where the crop has to be hand-singled, as this would lessen the hand-work later on. The crop could then be cleaned with the horse-hoe, working up and down as well as across the rows. Farmyard-manure spreaders would help, if they are procurable at a reasonable price, also manure loaders, as both these operations entail heavy manual labour.

Hay

This crop is now cut and cured with little manual labour, but the stacking is costing too much. The sweep and elevator have lessened the heavy labour on this crop, but the hay stacker—as used in America in place of the elevator—would still further lessen the stacking costs by several shillings per acre, and make the task of the worker much less muscular.

Harvesting Cereals

This operation is now much easier than it was in our forefathers' time, and I do not see how it can be very much improved in our climate, except by barley-growers, who might be able to use the header and thrasher with advantage. This machine is, however, very costly, and would be an economic proposition only for the large grower.

Thrashing machinery might be improved so that a less number of hands are required to operate it. One must bear in mind that it would

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not be an economic proposition to hash over and spoil the straw, as this is worth being taken care of, being a valuable by-product, especially of the wheat and oat crops.

Potato-raising

I do not see how potato-raising can be much simplified. In this county, with its stony soil, the hoover or elevator type of raiser does not work satisfactorily ; potatoes have to be gathered by hand.

Grading ready for market is done now often by machinery in place of hand-riddles. I have lately fixed a small $\frac{3}{4}$ h.p. internal-combustion engine on a circular potato-sorter to take the place of a man ; it is less costly, and the job of turning a wheel all day was never popular with my men. This small power unit weighs only 30 lb., which is a consideration, as the machine has to be man-handled when moved along the pit. This power unit might easily be used for other hand-power machines.

Dairying

This branch has made great strides during the last few years. The use of concentrates and drinking-bowls have done much to take the place of expensively grown root crops.

The milking machine is now gradually taking the place of the hand-milker ; but it will be some time yet before the farmer and his workers are educated to the proper handling of this machine to make it the success which it deserves.