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**INTERNATIONAL
JOURNAL OF
AGRARIAN AFFAIRS**

Vol. I, No. 6, June 1954

**Economic Aspects
of Mechanization
on Medium-sized
Farms**



Price 5s. 0d. net

OXFORD UNIVERSITY PRESS

LONDON: GEOFFREY CUMBERLEGE

ECONOMIC ASPECTS OF MECHANIZATION ON MEDIUM-SIZED FARMS

INTRODUCTION

AT the fourth annual conference of a European organization known as the Internationaler Ring für Landarbeit held at Oxford, England, in the summer of 1953, a morning was devoted to a discussion of the economic aspects of mechanization on medium-sized farms. As this is an important topic of general interest and one that may well find a place in the proceedings of the International Conference of Agricultural Economists next year it was decided, with the authors' permission, to publish in this number of the Journal the papers which were presented on that occasion translated where necessary.

They do not follow any particular pattern. That by the late Professor A. W. Ashby takes the form of notes, typically comprehensive and methodical, arranged in such a way as to set the scene and throw up the principles involved. Mr. Britton follows with an account of recent developments which he illustrates with statistical information derived from various European countries. The two main functions of mechanization, viz. to reduce the labour requirement and to increase production, are given very unequal emphasis according to the layout and social structure of a country's farming. Wherever the ratio of land to labour is high, whether because of advanced industrialization or because of mere abundance of land, the relative scarcity of labour stimulates and even compels the substitution of machines for men. Increased production and the reduction of fatigue are perhaps secondary to this paramount objective. In other countries, where the rural population is dense and where in fact there may already be some hidden unemployment, any suggestion that machinery should be used to displace workers is not only viewed with suspicion, but is ruled out as being anti-social. There are many such countries in Europe, most of them having small peasant holdings where a machine may be used to relieve toil and sweat or to increase production, but always with the proviso that it does not make for any reduction in the amount of work available for the people on the farms. Mr. Britton attempts, very tentatively, to suggest the points around which the transition between these diverse points of view may take place, and, for some systems of

farming at least, he puts them at such holdings of about 50 or 75 acres as give employment for 3 man-units a year.

This is a little larger than the size that Mr. Noilhan regards as typical small or medium-sized undertakings, so it is not surprising that he looks to machinery on such holdings mainly as a means of increasing production. Moreover, the great number of these holdings ensures that any improvement in their productivity offers the most hopeful source of winning more food from the soil of Europe. He goes on to show how difficult it is to mechanize some of them, how they tend to have small and scattered fields often in hilly or even mountainous terrain, whereas manufacturers have tended to produce large high-priced machines suitable for broad, level acres. Even if the machines were suitable—and he admits that progress is being made towards the small man's machine—finance often constitutes a serious obstacle.

The Swiss point of view is presented by Mr. Studer. Here, by contrast, even on the smaller peasant farms (and any holding of more than 75 acres is counted large), a shortage of labour has developed which can be met only by the increased use of machinery, particularly for field work. This is not simply a question of replacing horses by tractors, even if that were an easy and straightforward matter. Mechanical efficiency requires that tractors should work with implements designed for them. A complete change-over from cultivation by draught animals therefore involves a larger investment than a farmer with a small- or medium-sized holding can afford at one time. The change can only be made by stages during which a certain amount of dis-economy is liable to develop owing to the farmer's need to keep back some of his old implements and a horse or two until his machinery outfit is complete. The difficulties of this transition period may be mitigated to some extent by an interchange of horses and machines between neighbours. Mr. Studer calculates the points at which mechanization in its various forms may become an economic proposition on different kinds of holding.

The two concluding papers, by Messrs. Kreher and Blechstein, also view these problems in the light of estimated costs, or budgets, though it is pointed out that the decision to mechanize is not only a matter of cost. Even if the use of machinery leads sometimes to reduced profits, it may still be necessary where human labour is scarce. Normally, in Western Germany at present levels of cost and on farms with typical organization of enterprises, even partial

substitution of mechanical for animal draught power does not seem so far to have resulted in lower costs on holdings of less than about 75 acres. The benefits of introducing machinery other than mechanical draught power become evident, of course, on very much smaller holdings. Mr. Blechstein shows the working of a provisional and somewhat complex method for calculating the extent to which the introduction of machinery may be economic, taking as his example certain livestock and potato-growing farms at varying stages of mechanization.

Editor