

PRODUCTION IN AGRICULTURE

STANDARDS OF PRODUCTION IN AGRICULTURE.

There is no subject in the social sphere of the economics of agriculture which requires more study than that of the standards by which the values of differing agricultural systems should be judged. At present the state of thought of farmers, economists, and politicians on this subject is chaotic. Opinions vary with changes in national or individual circumstances, and there is no clear apprehension of the fundamental requirements which a system of productive organization of agriculture should meet.

Every farmer knows that the quantity of goods produced by a given amount of land can be influenced by the choice of crops or animals and by the intensity of the cultivation of the crops or animals selected. But what would be the answer of any group of agriculturists to the following questions: -

Should the basis of selection of crops and stock be -

- (1) The physical quantity or the money value of the product?
- (2) The largest net return to the landowner?
- (3) The largest managerial income of the farmer?

- (4) The quantity of Labour required for production?
- (5) The scale of remuneration provided by the product for the labour required?

Within the last ten years different persons, all speaking apparently with the voice of authority, have suggested that each of these standards is the only one by which the productive organization should be judged. This conflict of opinion leaves those who wish to obtain and use a reliable standard without any guidance.

This series of questions, however, would start an enquiry into the general requirements of the country concerned, and into its political as well as economic conditions. Given knowledge of these general conditions in any country a categorical answer can be given to each of the questions. But to most of those who are concerned with the actual work of farming, either as directors or as labourers, the industry is regarded as a business - in other words, as the source of individual incomes. Under these circumstances these questions might be asked:-

Should the choice of crops and stock and the general organization of the industry be determined by -

- (1) The greatest gross return per acre of land?
- (2) The greatest net return per acre of land?
- (3) The greatest net return per unit of capital used?
- (4) The greatest net return per man engaged?

(5) The greatest net profit per acre x the number of acres in the country (or per acre)

Agriculturists are familiar with the method of judging the productivity of farming systems by the yield per acre: but it is to be feared that even in this case the crudest standard has been used most frequently, and little attention has been paid to the net yield per acre of land. When farmers are thinking of their craft few of them will be deceived by statements of gross yield of product per acre, without reference to the raw materials and labour required to produce such yield. When thinking politically, however, many agriculturists will use figures for the gross value of output per acre without any reference to the physical or the monetary cost.

The application of tests by any standard depends entirely upon statistical methods, and opinions on the value of results obtained by these methods vary widely. When the primary source of the data is a large number of individuals, the circumstances of whose business vary considerably, the data are bound to be simple and rather meagre. This is the case with collection of data for the annual agricultural returns in this country. Another method which will give more scope for detail and perhaps greater accuracy in individual returns is that of enumeration by a collector, as in the case of the census. But when detailed and complicated data are required they can not be obtained except by some form of frequent recording, or by extractions from records

kept for other purposes. A set of records may be kept for the purpose of ascertaining certain specific data, e. g., the amount of labour employed on farms or required for growing certain crops, or this information may be extracted from financial accounts if these are kept in sufficient detail. In most countries a certain amount of information is obtained from these sources but as a rule this is small. On the whole, agricultural statistics are obtained by the simpler and less laborious, but less reliable methods.

The results obtained by the simple methods may be checked in various ways, and the probability of error be measured. Even when this is done the data will remain simple, and being so the superstructure of reasoned conclusion based on them should be limited as much as possible.

However, credence has been given to statistics obtained by simple methods, and the results have exercised a certain amount of influence upon economic and social opinion as to the value of the organization of British agriculture. It might be considered desirable to examine the reliability of these statistics, but this is only a minor part of any examination of the standards by which the productivity of a system of farm organization should be judged. It might be discovered that figures which have been used were totally unreliable, or that the probable error was very considerable. Even if they were re-

liable it would still be necessary to examine the question whether they provided useful standards for the guidance of judgment. The main purpose of this study, therefore, must be to examine the validity and utility of the various standards, especially the production per acre, and the production per man.

The following comparative figures for the value of produce per acre in certain European countries were published a few years before the war.*

Yield per acre -		$\frac{£}{100}$	S	P
Belgium	£	20	0	0
Denmark		38	0	0 (approx.)
France		25	9	0
Germany		25	5	0
Great Britain under U.S.		24	0	0

Mr. Christopher Turnor, who was responsible for these figures added - 'It is to my mind regrettable that farm statistics are not given in terms of so much per acre, as this method affords the best and clearest method of comparison.** Yet Mr. Turnor admitted that this method did not afford anything like an accurate comparison when he found it necessary to state that 'much land is cultivated in France which in England would be considered too poor for cultivation';

* Turnor, "Land Problems and National Welfare, pp. 57-66.
** Turnor, op. cit., p. 57.

and that 'the average land in Denmark is of much poorer quality and the climate more severe, than in England.' He also remarked that the British yield was low 'considering the richness "of our soil."'* If these complications have to be met in the simple and crude comparison of gross value of yield per acre, the complications involved when the net values are considered are much greater.

The official estimate of the gross value of the yield of land in Great Britain was nearly £4 10s. per acre on 32,000,000 acres of 'cultivated' land or £3 3s. on nearly 48,000,000 acres, including all the varying qualities of land.** While such estimates or records provide some indication of the productivity (in money value) per acre, they do not provide any indication at all of the productivity of either the capital or labour used upon the land.

Between 1908 and 1911 the Report on the Census of Production required by the Act of 1908 was being prepared. This census applied to practically all forms of business, and it was necessary to bring the information with regard to agriculture into line with that obtained as regards other industries. Consequently, an effort was made to

* It should also be noted that it is not clear whether allowance has been made for the different price levels ruling in the various countries, e. g., whether allowance has been made for the effect of the tariff in France.

** Report on Agricultural Output. Cd. 6277. 1912. p. 27.

ascertain the production per man engaged in agriculture, and this standard obtained more prominence in the report than the production per acre. It was then stated that the value of the gross product per person engaged in British agriculture was £90 per annum if the occupiers of holdings were included, or £ 129 per annum if occupiers were excluded. We then had two standards: production per acre and production per man; but there was little or no information on the yield of continental agriculture when judged by the standard per man engaged. So far as I can ascertain no attempt was made to give any definite comparison of the money value of output per man engaged in agriculture in different countries until Mr. Ellis Barker published a comparison of British and German agriculture in 1916. The essential part of this comparison is contained in the statement that 'while the German output of food per square mile of agricultural area is roughly three times that of the United Kingdom the output per head of the population employed in agriculture is about half that of the United Kingdom.'*

But in 1913 Sir Henry Rew had tried to make, with the data available, a general comparison of the productivity of agriculture in the United Kingdom and some other European countries.** The results of this enquiry, although inconclusive, are worthy of study at the present

* Edinburgh Review, October 1916 (No. 458). p. 285.

** Agricultural Statistics. Pt. v. Cd. 7271. 1914. p 381-388.

time. It was then recognized publicly, almost for the first time in recent years, that comparative statements of the average yield per acre, 'taken by themselves (provide) 'a very imperfect guide to the relative productiveness of farming 'in different countries.' Similarly, it was pointed out that statements of the numbers of livestock kept per unit of land would provide only a partial measure of livestock production unless account is taken of early maturity and other factors in productivity. Of greater importance was the fact that an attempt was made to measure the relative amounts of manual and other labour required to produce the yields of various countries, and the following table was prepared.

HUMAN AND HORSE LABOUR.

Country or Division:	: Per 1000 acres of:		: Per 1000 acres of	
	Cultivated Area	:	Arable Land	:
	: Persons	: Horses	: Persons	: Horses
United Kingdom - -	: 48	: 43 ✓	:: 115 ✓	: 101 ✓
England - -	: 45	: 45	:: 103	: 104
" Div. I.	: 51	: 52	:: 76	: 77
" " II.	: 48	: 40	:: 120	: 101
" " III.	: 41	: 44	:: 116	: 126
" " IV.	: 39	: 44	:: 125	: 140 ✓
Austria - -	: 180	: 40 ✓	:: 312 ✓	: 69 ✓
Belgium - -	: 155	: 58 ✓	:: 218 ✓	: 62 ✓
Denmark - -	: 72	: 76 ✓	:: 81 ✓	: 86 ✓
Hungary - -	: 139	: 54 ✓	:: 171 ✓	: 66 ✓
Italy - - -	: 187	: 18 ✓	:: 264 ✓	: 25 ✓
Netherlands - - -	: 116	: 62 ✓	:: 280 ✓	: 149 ✓
Prussia - - - -	: 113	: 62 ✓	:: 141 ✓	: 77 ✓

U.S.

26

33'

30

45'