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REDUCING COSTS OF AGRICULTURAL PRODUCTION IN A HIGH-COST AREA

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IN talking to you about reducing costs in a high-cost area I must make it plain that there is only one area that I am at all qualified to talk about, namely, Great Britain. The reason I regard Great Britain as a high-cost area is that the controlled prices of most home-grown foods are higher than are paid for imports.

The following comparisons were given in Parliament and were quoted in *The Times* a few weeks ago:

	Home	*Imported c.i.f.*
Beef, ton	£136·08	£68·25 to £79·75
Lamb, ton	£216·25	£103·54
Mutton, ton	£165·33	£64·49
Bacon, cwt. ex factory	239*s.*	218*s.* 10*d.*
Shell eggs, box 30 doz.	£6. 6*s.* 8*d.*	£4. 5*s.* 6*d.*
Cbeese (exc. subsidy)	101*s.* 6*d.* to 217*s.*	206*s.* 10*d.* to 303*s.*
Wheat, ton	£20. 11*s.* 8*d.* to £23. 5*s.*	£23. 3*s.*
,, harvest 1949	£23. 5*s.*+acreage payment	
,, harvest 1950	£28	
Barley	£23. 10*s.* (min. for milling)	£32. 10*s.* 2*d.*

These prices are not quite up to date. For instance, the new Argentine Agreement brings the imported-beef price to £97 per ton. Nor do the prices necessarily refer to the same qualities of the foods that are compared. But they show the general position.

The disparity in price is large for most classes of meat and livestock products, but not great for grain. However, whereas the world price of corn and grain is tending downwards, the British price is still rising.

The fact that prices for home produce are mostly higher than imported food does not necessarily mean that home costs are higher. It may be that the British farmer is able to make a bigger profit out of what he produces than is usual for overseas farmers. Some interesting information on the profitableness of farming is given in the *Structure of the National Income* which was published about the time the Chancellor of the Exchequer produced his latest Budget. This shows that the income of farmers has risen from £60 million before the war to £248 million in 1947–8, a fourfold increase, whereas the total national income has risen from £4,640 million to £9,635 million or rather more than double.

Farming in 1947–8 gave an income of £664 per head, compared with an average income per employed person of £420 per head.

On the face of it, therefore, it seems that farmers could afford to take a cut in their incomes and still be as well off as the average employed person, particularly when the relative increase since before the war is taken into consideration.

I am not able to say whether an income no more and no less than the average of employed persons is a fair remuneration to a farmer; Marshall's estimate of the ability of farmers was that 'often the farmer has no greater ability and activity of mind than is commonly to be found among the better class of working foremen in manufactures.' But this estimate was made some fifty years ago.

There are, however, two rather important points to take into consideration in the comparison I have just given. One is that farming prosperity before the War was at a low ebb, and it needed a greater proportionate rise in profits to bring it to the level that most industries could offer on the capital and enterprise applied to them. The other is that profits in farming have to pay the farmer for more than the townsman's wage or salary stands for—they have to reward him for risking his capital in what is often a hazardous enterprise, as well as pay him for his time spent managing his farm or working with his hands. Moreover, the present controlled prices have consciously been set high to allow the farmer to take out of them sufficient capital to finance the changes in his methods of farming which wartime conditions have made necessary. It would, in fact, be difficult to sustain a case that farmers' incomes are substantially, if at all, out of line with the average incomes of the working population, and there is little doubt that if prices of individual commodities were reduced by the amount necessary to bring them in line with world prices, many farmers would find that their costs exceeded their returns. Not everyone, however, is dismayed at high costs of production. Judging by the emphasis that has been placed on production without thought of expense, one might be tempted to believe that so long as production was being intensified all was well, and that the costs of the extra production mattered not at all. For some time after the end of the War there was plenty of reason to believe that this was so. All that was produced, whether it was food or manufactured goods, found a ready market at prices that well repaid the costs of production, and a firm sellers' market encouraged manufactures and increased food regardless of costs. It was, in fact, not until the end of 1948 that the first government posters were exhibited warning workers in industry that full employment depended on a

reduction of costs to a level that would permit British goods to compete in a world buyers' market. Even then agricultural costs received scant attention, and very few references to the high cost of home agriculture appeared until the comparison between home and imported food prices which I have already quoted.

Recently, however, a Hampshire farmer, Mr. J. O. Cherrington, warned his hearers in a paper to the Canterbury Farmers' Club, that the margin between home-grown and imported-food prices would have to be narrowed. 'Ask yourselves', said Mr. Cherrington, 'how you would carry on if the price of what you have to sell were reduced by 25 per cent.' And Mr. Thomas Loveday, Chairman of the Joint Advisory Committee for agricultural education, and a former Vice-Chancellor of Bristol University, said a week or two ago, 'It is of increasing importance that not only should we produce as much as possible, but as economically as possible.'

Similarly, Mr. Noel Newsome, in an article in the *Sunday Observer* of July 10, accuses farmers at the present time of sloth because of the ease with which guaranteed prices and subsidies enable them to make an adequate livelihood in spite of low output at high costs.

But what is the necessity for lower costs? In so far as we import our food from the dollar areas there is no doubt that our present policy of growing as much as possible regardless of cost will help to lessen the gap between imports and exports, assuming that we do not increase agricultural production by importing as much more from dollar countries in raw materials as the increased production is worth, and do not deflect from the export market as much in value as our increased home production saves us from importing. But with many countries we have a favourable balance, and only by accepting their exports, largely food (which are mostly offered at lower prices than we pay for home-grown food), can we hope to continue to trade with them. With yet others, such as the Argentine, trading is still based on the traditional exchange of their foodstuffs for our manufactures. A recent White Paper shows the extent to which we rely on the Western Hemisphere, the sterling area, the O.E.E.C. countries, and eastern Europe for our imports of foods and feeding-stuffs.

	Total. Year 1948 *£ million f.o.b.*	*2nd Half 1948* *£ million f.o.b.*
Western Hemisphere	271	130
Sterling Area	366	177
O.E.E.C. Countries	111	57
Eastern Europe	63	26
Total foods and feeding-stuffs	811	390

While the shortage of foodstuffs which has been a feature of post-war conditions persists, the British producer has little to fear, for prices must be high enough to cover his costs of production if he is to continue to produce, and what he produces is too valuable to ignore at any cost. It is only when the supply of goods catches up with the demand for them that the high-cost producer has much to fear. But there are already signs that in at least some classes of food we are reaching that point, and no government that relied on urban votes to the extent that the Government of Britain does could then be satisfied with a scale of prices for home-grown foods that was much above the level at which the same foods could be imported.

Looking at the matter from a broader aspect, the whole standard of living of the British people depends to a very considerable extent on the efficiency of British farming. There was a time when farming could be allowed to languish without any appreciable effect on the rest of the population. Britain's industrial greatness was built in the eighteenth and nineteenth centuries on the international trade that developed between her manufactures and the cheap foods that she imported from the countries that were being developed by her exports of manufactures and capital. How far this food was bought at less than cost of production, how far it was the produce of virgin soil whose fertility was never restored until it degenerated into the dust bowl, and how far the losses on production were made possible to bear by the increase in the capital values of land, I need not go into here. The point is that British costs of production in the manufacturing towns were brought down lower than would ever have been possible if the working classes had been fed only by food sold at what had been the marginal costs of production on British farms.

By the twentieth century not only was the rest of the world providing Britain with food in payment for her manufactures, but food was also being received as interest on the British capital that had been sunk in the development of much of the territory that was first brought under cultivation in the nineteenth century. Britain's position as the world's greatest creditor nation was severely shaken as a result of the First World War, but the shocks we suffered then were small compared with those that arose out of the war just ended. Agriculturally, probably the greatest effect of the Second World War is the necessity it has placed on the home farmer to produce more food than ever before at the lowest cost. Although we must still import a substantial proportion of our food if we are to maintain our population and our standard of living, it is unlikely that we shall ever revert to the degree of international division of

labour which in the nineteenth century allowed us to concentrate so much of our energies on trade and manufacture, and neglect our agriculture. In 1948–9 37 per cent. of our total food consumption in calories and 51 per cent. in protein were home produced and if the agricultural programme proceeds as it is intended to do we shall shortly rely on our own agriculture for fully half of our food. To the extent that cheap food reduces costs of production of manufactures, the importance of reducing costs of home agriculture, if our exports are to compete successfully in world markets, is evident.

It is, all the same, probably true that with retail prices of food controlled at levels considerably lower than the Ministry of Food pays the farmers, the difference being paid for in taxation, high prices for food do not in fact affect the costs of production of manufactures directly. But it is equally true that the high cost of taxation, of which the food subsidies represent a considerable share, is one important reason for the indifference which producers show towards a reduction in their costs of production, and indirectly, therefore, the effect of high food costs on our ability to export is considerable.

I have tried to establish my thesis that from the narrower viewpoint of the British farmer and from the wider viewpoint of the nation as a whole, it is essential that our costs of producing home grown food should be cut. How to do it? I think this question can be answered under two main headings—(1) functional or technical, (2) structural improvements.

There is, I suspect, no agricultural economist with any experience of farm management work who has not been impressed by the wide variations in the returns which are achieved on individual farms whose natural conditions would seem to make them very similar to each other. At a recent meeting of the Agricultural Economics Society my colleague, A. G. Jeffrey, showed that the individual profits of a group of arable farms in the same district of Yorkshire varied from 77 per cent. below the average profit to 65 per cent. above it. This is a wide difference and it suggests that the degree of efficiency on the best farms must be very much greater than on the majority. Jeffrey showed that on these farms, which rely for their income mainly on cash root crops, like potatoes, sugar-beet, and carrots, but also grow corn and, in order to maintain soil fertility, fatten livestock, the size of the farm profit depends mainly on some or all of the following factors: the intensity of production, the crop index, the percentage of land under high pay crops, the output per £100 labour, the livestock output per £100 foods fed, and the livestock output per animal unit, even though no one of these factors

seemed to have an over-ruling effect. The point I am trying to make is that there is a very great variation between the costs on individual farms. A price scale that may be just sufficient to provide a fair return to one farmer will turn another into a profiteer and will force a third out of business altogether. Obviously a big reduction in costs of production would be achieved by increasing the technical efficiency of all to the level of the best.

But important as technical efficiency may be, possibly even more can be expected from an improvement in the structural efficiency of farms. I am going to make this term inclusive, and cover with it the size and layout of farms, their permanent equipment, and the conditions of tenure.

Probably the farms of Britain give as good an example as any of almost complete lack of uniformity in size and layout. Since some types of farming are better suited to small-scale farms and others to larger units, complete uniformity of size could not be expected in a country like Britain, where natural conditions make the type of farming that is most suitable in one district much less satisfactory in another. But this is no explanation for the wide variations in size and layout that are so often found within individual parishes. There must be an optimum size, or an optimum range, in the acreage of farms following a certain system. Corn farming, for instance, invariably associates itself in one's mind with a larger acreage than is required for market gardening or dairy farming, but the variations in the size of corn farms are much greater than would be expected to fit into the optimum range. The same lack of planning exists in the shape and size of fields, and in the general layout of farms. We are proud of the degree of mechanization that has come over our farming during the last ten years. The number of tractors has increased from 50,000 to 250,000, and big increases have likewise occurred in the numbers of combine harvesters, pick-up balers, milking machines, &c. But it is well known that the best results from mechanization are usually achieved on units that are larger than the average in size. In fact the increasing mechanization of farming has made an anachronism of the farming pattern which itself has received only one major upset since the days of the medieval manor and open-field system. That upset was, of course, the inclosures which occurred in most parts of the country at least 150 to 200 years ago and in some places even earlier. Many of these inclosures were by Act of Parliament and they involved a redistribution of the land of each parish on such a scale as to make the achievements of present-day rural planners seem of very little

consequence. But the redistribution at the time of the inclosures was made on the basis of an economy that relied on the horse for its motive power, and had to perform by hand many of the operations that have since been taken over by machines. The size of field and the size of gateway that was satisfactory for horse-drawn cultivating implements and for a gang of harvesters with sickles or scythes can be much too small for the tractor-drawn implements and combine harvesters that often replace them nowadays. Yet little has been done to remodel the shapes and sizes of fields or farms to conform to the greater speed at which power machinery works and the greater room it needs to work in. 'God speed the plough', wrote C. S. Orwin, when he showed the effect on farming requirements of the greater speed at which the plough now runs.

Equally important is the problem of permanent equipment in farm buildings and other landlords' capital. In Great Britain relatively little building has been done since the golden age of agriculture in the middle of the last century, and the buildings that were suitable for the pattern of farming at that time must now be used, with what adaptations may have been possible, for a system of farming that may have changed very greatly since then. An examination of the Agricultural Statistics shows the vast change in agricultural production that has occurred since details were first published in the middle sixties and prepares one for the unoccupied stables that one encounters to-day, the bullock feeding yards so often given up to dairy cows or transformed into implement sheds, and the calf boxes nowadays often accommodating a bail milker instead of calves. But although improvisation has taken place to some extent, and sometimes new buildings have been erected, it is too much to claim that the buildings on many farms are adequate for the purposes they are now required for. Nor is this surprising when the prevailing system of land tenure is examined from this point of view. Although the system is less widespread now than it used to be, it is still true that most of the land in Great Britain is farmed by tenants. There was a time when much of the land was part of large estates and when the rent, which seldom represented a large percentage of the capital value of the land and buildings, was nevertheless sufficient to enable the landlord to maintain his property in good repair, to effect normal improvements, and still to live in some degree of opulence. Even before the latest war, however, it had been established that the percentage return on the capital value of farm land was very small, and a recent investigation indicates that the landlord's average net return, out of which he must still pay taxes before he can spend any

of it on himself, has been reduced from 8*s.* 8*d.* pre-war to 5*s.* 3*d.* per acre. (Much of this land, by the way, if sold with vacant possession would make at the present time £80 to £100 per acre, the net rent representing therefore about ¼ per cent. of the capital value of the land.)

A low return on agricultural land is, of course, no new phenomenon. It has always been a feature of land tenure in Britain that the landlord was prepared to take a low return on his capital because of the prestige, social amenities, and political power that ownership of land carried with it. But most of these advantages have long since been dissipated by a succession of Agricultural Holdings Acts, which have immensely strengthened the position of the tenant against his landlord, by the progressive rates of taxation, and the increased cost of maintenance which have reduced the landlord's economic position, and by the extension of the franchise, which gives him no more voting power than is now enjoyed by the humblest of his tenants.

The landlords have lost, therefore, most of the opportunity to do their duty by the land by reason of their reduced circumstances, and most of the incentives to do so even if they had the money. It is difficult to imagine the present system of land tenure persisting without such an increase in rents as will at least enable the landlords to maintain their properties and to bring about those improvements which the changes in farming methods may make desirable.

I have mentioned these weaknesses in the organization of British farming not because they are not well known (if they were less well known there would be more point in hiding them from the rest of the world), but because enumerating them does draw attention to them and it indicates in what ways costs of production might be reduced. It is true, of course, that many of them are weaknesses which are not peculiar to British agriculture. The structural disadvantages under which most European countries labour are much greater than ours, and even the New World, with the advantages that a wider ratio of land to population gives it, can still find enough to teach its farmers to keep an army of extension and research workers fully employed.

There is, I feel, however, one aspect of its organization in which British farming is particularly vulnerable when it attempts to reduce its costs. This is its dependence on paid labour. During the last seventy or eighty years this dependence has been considerably reduced and whereas the proportion of regular workers to farmers was once about 4 to 1, it is now about 2 to 1. Increased wages have made it desirable, and increased mechanization and efficiency in

organization have made it possible, to bring this about without reducing the volume of production from farms. But even now the ratio of workers to farmers in Britain, and particularly in England, is, so far as I know, greater than in any other important agricultural area in the world. In theory, a paid labour force introduces more elasticity into the labour situation than is possible in a family farming organization or a society of peasant proprietors, which are the systems with which British agriculture has chiefly to compete. But in practice the farmer who employs one, two, or three men is probably at a greater disadvantage in times of falling prices than any other farmer; to reduce his labour force at all will probably mean cutting it down by at least 33 per cent. and perhaps by more than 50 per cent., and such a reduction may be more than the farm will bear without drastic reorganization. The peasant farmer, it is true, is unable to reduce his labour cost at all because all his labour is performed by himself and his family; but he can reduce his standard of living and this, though it is never agreeable, is at least usually practicable. The paid worker may, of course, be prepared to accept a lower wage, which would have a similar effect, but British agriculture, although it is an unsheltered industry much less protected from economic forces than are some other industries, yet has to compete in the labour market with industries which enjoy a considerable amount of natural protection. With a labour force highly organized to maintain its living standard I foresee great difficulty in British agriculture cutting its costs as effectively as many of its competitors unless it can do so by increased structural and technical efficiency. Arising from this, and bearing in mind that, until the substantial rises in the wages of agricultural workers relative to other workers, farm wages were very low, so that the farmer could afford to invest more in labour inputs than in other forms of input, it may be argued that the costs of British agriculture to-day are high largely because farming has developed around the structure of cheap labour.

In recent years, however, another factor has frequently prevented production from proceeding as satisfactorily as might be desired. I have already given examples of the considerable variations which occur in the technical efficiency of farms of the same type. I want now to consider the evidence of variations in efficiency of farms of different structure. The Ministry of Agriculture receive from the Provincial Economists annually records from some 2,000 to 3,000 farmers in England and Wales, and they show the income which these farms make in terms of the wages paid when grouped according to acreage. Now this should give a useful basis for comparison

since the larger farms can usually make more use of labour saving machinery than the smaller farms, and they should also be more likely to have larger fields better laid out than is often possible on smaller holdings. Moreover, as labour normally represents between 40 and 50 per cent. of the total farm expenses,[1] to express profits in terms of labour cost is likely to be one of the most significant ways of comparing results. The Ministry of Agriculture's tables present the average farm income and paid wages for each of eight groups of farms ranging from 0–50 acres to more than 1,000 acres. From this they show the income per £100 wages. No allowance is made in the official tables for the value of the farmers' own manual labour, and I feel that the table is not a satisfactory one for my purpose without taking this into consideration. I have, therefore, assumed that their work was worth £250 per year at 1947–8 wage levels, which is probably not very far from the truth. Recalculating the official table to allow for this addition to the wages, and deducting it from income, I get the following results:

Size (acres)	*No. of farms*	*Income per £100 labour*	*Total income per farm*
		£	£
0–50	379	12	309
50–100	539	17	367
100–150	435	15	397
150–300	603	22	596
300–500	231	26	948
500–700	55	33	1,492
700–1,000	25	21	1,489
1,000+	8	22	2,151

On the lower-sized groups there is a good deal to suggest that the labour was less profitably employed than where the farms were larger. An income of £17 for every £100 labour on farms of between 50 and 100 acres is a poor return compared with the £26 on the 300–500-acre group and £33 on the 500–700-acre group. Up to this point the table suggests that labour used on the larger farms is employed to much better purpose than the labour on the smaller farms.

But this tendency is not continued on the largest farms of all. The income from the two largest-sized groups falls to £21 and £22 respectively per £100 labour, which shows no improvement over any of the groups larger than 150 acres.

Statistically it is unfortunate that the number of farms in the two

[1] Recent Yorkshire farm accounting studies show that if the value of unpaid labour is allowed for the total labour cost invariably exceeds 40 per cent. of the total farm costs.

largest sized groups, 25 and 8 respectively, is so much smaller than in the others, but the change of trend is so pronounced that I am quite prepared to believe that a larger sample would not have reversed it. Moreover, similar tables for the years previous to 1947–8 show the same phenomenon.

There is in this table enough evidence to suggest that size of farm is an important factor in farming efficiency up to, say, 700 acres, but beyond this size no further improvements—but rather the reverse—seem to have been achieved in spite of the additional scope that the largest farms give for increased mechanization and labour economies.

It is nevertheless true that the actual profits made on the largest farms were greater than on any of the small and medium-sized groups. They amounted to £1,500 to £2,000 and the fact that the actual profits were as great as this probably explains why the profits per £100 wages were so small; for taxation bears excessively on the larger incomes and prevents the farmer who, by reason of the size of his business, can easily make a profit of £1,500 or £2,000, from wishing to increase his profit still further to the extent that he might otherwise do. In making this point I am not implying that there is anything in the system of taxation that affects farming profits more severely than profits or incomes made in any other industry or profession, but it is generally accepted that the State, by absorbing so much of the national income in direct taxation, is thereby taking away much of the incentive which the individual might otherwise have to produce more.

The question of incentives in farming, however, is not bound up entirely with taxation. Farming costs, like all other costs, can be divided into prime and overhead, and the degree of intensity to which it pays to push production depends very largely on the ratio between the two, coupled with the law of diminishing returns, which applies with particular force to agriculture. Where the ratio of overhead to prime costs is high, the farmer must produce intensively before he is able to make any profit, but having once covered his overheads, his subsequent costs will be small in relation to his output, and it should be some time before the law of diminishing returns causes him to call a halt.

When the ratio of overheads to prime costs is low, it is usually possible to make a profit at a low level of farming intensity, but diminishing returns will quickly reduce the returns from more intensive farming to a point where it will fail to repay the extra costs.

One of the best-known examples of overheads is, of course, rent,

and, in theory at least, rents should have a compensating effect on land, making it immaterial to the farmer whether he farms on highly productive land, well situated for markets at a high rent, or on poorer land, less well situated, at a lower rent, or at no rent at all. In practice, however, rents have but a small effect in offsetting the natural or economic advantages which some land holds over other land, and the farmer on good land can usually meet his overheads, even when they include a fairly stiff rent, much more easily than the farmer on poor land. This is one reason why farming profits vary to the extent they are known to do, and it is a factor that must complicate very considerably the task of those whose job it is to fix prices. A price per unit which may be necessary to make it worth the while of the man on poor land to continue to produce will bring in an excessive profit to the man on better land who can multiply the same price by so many more units. (To some extent the problem has been solved by the payment of subsidies to farmers on poor land, such as the Hill Cattle and Hill Sheep Subsidies, or by acreage payments which are made regardless of yield. These are in effect attempts to restore the balance between good and poor land which, in theory, is looked after by differences in rents, and in practice is nowadays very inadequately allowed for by them.)

The combined effect of relatively low rents and high taxation on the better lands has been to make it very easy for the farmers on them to make a profit sufficient to live on, but very difficult for them to find any economic reasons for pushing production to the margin.

Take for example two farms, *A* and *B*, *A* growing wheat on good land, *B* on poor land. *B*'s unit costs become marginal at the application of, we will say, the 8th dose of input, but *A* could go on to, we will say, the 20th dose before the additional output resulting from the last dose failed to pay for itself. *A* finds, however, that there is little to induce him to produce beyond, say, the 14th unit, and he stops there, producing his last unit at a lower cost than *B* produces his. But the total output of *A* and *B* would obviously have been produced at a lower total cost if more of the 22 units that were actually produced had been grown by *A*, and fewer by *B*. We are in fact having to encourage more intensive production on already high-cost farms because taxation deters the lower-cost producer from wishing to push production as far as it would otherwise have been worth his while to do. Sometimes, in fact, farmers have preferred to farm for the future, following a system which will enhance the future productivity of their farms rather than one that will produce most food for sale at the present time. They cannot be

blamed for doing what they can to ensure that their land will produce big crops at the lowest unit cost when the time comes for prices to fall, but a system of taxation that encourages greater production in times of abundance than in times of scarcity must be admitted to have serious defects.

This weakness is, of course, inherent in a system that takes in taxation a large proportion of the results of enterprise and it is the same kind of weakness as is apparent in *metayage*. It is, as I have already suggested, by no means an agricultural problem only. But if it is true, as I believe it is, that the differences in individual farm profits as a result of varying abilities in the farmers are greater than in most other ways of making a living, then the brake on efficiency which taxation causes is particularly great, and one cannot help wishing that taxation could be levied on the earlier units of production rather than on the latter, so that it might act as a spur to increased efficiency and not as a deterrent. This it is interesting to note was the method which was applied to farmers until the early war years when for the first time farmers were taxed on their profits instead of on their rents. There were very good reasons for the change. There is no doubt, all the same, that the shift from Schedule B to Schedule D whereby farmers were taxed on their actual profits instead of on their rents has acted as a deterrent to more efficient farming instead of as the stimulus it might have been if, for instance, the rent basis had been retained but the number of times by which it was multiplied for assessing taxation liability had been increased to more than the three times which had been actually employed under Schedule B. However, I do not want to discuss the details of a new scheme of taxation; I am only concerned with drawing your attention to the advantages that might follow from making it more difficult for the producer to overcome certain overheads before he could hope for a surplus for himself, and then making it easy to add to that surplus once his fixed charges had been paid, by continuing to intensify production.

The subject of incentives would be incomplete if I did not refer to incentives for workers. Traditionally the farm labourer was the lowest paid of all workers. This probably reflects the unwritten responsibility which continued to be assumed by farmers long after the Poor Law Amendment Act of 1834 abrogated the duty hitherto laid on the parish of finding work for the unemployed. Agriculture has, in fact, been regarded as the dump of industry's unemployed whenever the supply of labour has exceeded the demand for it, and this, as well as the generally low output of labour in agriculture and

its unorganized condition, has in the nature of things reduced the farm workers' bargaining power. With the shortage of labour in recent years, the increase in the output per man which mechanization has made possible, the improved degree of Trade Union organization and the protection of the Agricultural Wages Boards, farm wages have increased by a much greater percentage than the increase in wages generally. But no satisfactory system of incentive payments has been adopted to any extensive degree on farms, and any increased zeal amongst the workers has not matched the increase in wages. It is, in fact, very easy for the unskilled man at the present time to enjoy the minimum agricultural wage, and very difficult for the skilled man to earn as much more as is represented by his greater skill.

Efficiency depends also on production being carried on at the right degree of intensity. Before the war, when there was an abundant supply of all physical inputs, it was easy to strike the optimum intensity, if the optimum was known. But with shortages of feeding-stuffs, manures, and other factors of production, many farms have in recent years found it impossible to build up their output to its optimum size, and their fixed overhead charges per unit of production have therefore been greater than they would have been if more inputs had been available. This shortage has been apparent particularly on farms which used to achieve high outputs of livestock and livestock products by the use of large quantities of imported foods. Supplies of purchased cakes and meals for pig, egg, and even milk production have been distressingly low in recent years owing to the world shortage of these foods, and to the shortage of dollars which many countries are experiencing for spending on them. Many farmers wonder, however, if more Marshall Aid dollars might not with advantage be spent on importing coarse grains instead of on the finished product. The preference which this country is showing for the finished product rather than the raw materials which might be used for producing more food at home is shown in the following table:

Expenditure of Marshall Aid dollars on food and feeding-stuffs by May 31st, 1949

	W. European countries $ *millions*	*U.K.* $ *millions*
Meat	111	79
Dairy produce	101	64
Coarse grains	145	..

Presumably it is considered that our imports of coarse grains from Russia and the Argentine are adequate. It is difficult otherwise to understand why we do not import more from U.S.A.

I feel very conscious that in this paper I have touched on nothing that is not widely known, and nothing I have said, I fear, will of itself do much to reduce costs immediately. Yet I believe that my subject is not out of place at the present time and the very fact that I have to treat it in such a general way is an indication of its breadth. I do not believe that the need for reducing farming costs has ever been taken seriously since prices were first controlled in 1939, though I am quite aware that many of the improvements I have recommended could be undertaken only by investing vast quantities of new capital in farming, much of which might have an alternative use.

I have tried to show, however, that the opportunities for increasing farming efficiency are widespread and that the effect of taking them can be phenomenal. But I am sure that the improvements that it is necessary to bring about will elude us until much more is known about what constitutes efficient farming. At present, although the wide variations that exist in the efficiency of running different holdings has been established, far too little is known of the factors on which efficiency depends. It is easy to point to the weaknesses in farm layout and size, but less easy to speak with authority on the optimum size and layout for any type of farming. Similarly with efficiency factors. Some work has been done on this subject; Sturrock has shown the varying hours of labour spent on cows depending on the size of herd, whether milking was performed by hand or by machine, the type of cowshed, the routine or arrangement of work, and so on. Pettitt has suggested that the efficiency of cows in converting concentrates into milk increases as the yield increases up to 800 gallons per cow, but that thereafter it diminishes. And many publications on financial accounts have established that there is a fairly constant ratio on most types of farms between labour input and the value of the output. But as I have already tried to emphasize, there is need for much more of this sort of thing. Nor do I think that the responsibility for the lack of data should be laid at the door of the economists. As a Provincial Economist myself, I am fully conscious of the small contribution I have made to this subject, yet I can assure you that during the last twenty years I have not been idle, nor do I feel that I have wasted my time. The weakness, I believe, is in the lack of attention that has up to the present been paid to the need for economic investigations. Until 1939 this nation could afford the luxury of an inefficient and depressed agriculture, and there was no

particular reason for subsidizing research into farming systems or costs of production when cheaper food was almost invariably available from abroad. To-day's problem is a different one for we are short of currency to pay for many of the imports that used to be freely available to us, and so far as it is possible to foresee the future, there is little likelihood of the pre-war abundance of cheap food being resumed.

But investigations into the economics of farm management by themselves are of no value unless they are put over to the farmers, and I feel that it is still necessary to build up more sympathy for science amongst practising farmers than has so far been achieved. This is not to suggest that progress in this direction has been slow. Much of the findings of science have been presented to farmers in meetings, in the press and over the radio, at conferences and courses, and have been absorbed into practice; and economic adjustments have often been forced upon farmers by sheer necessity. But few farmers, even of those who have had the opportunity of attending a farm institute, agricultural college, or university school of agriculture, have learnt all that would have been useful to them about farm organization, partly because time was not set aside for it in their curriculum, and partly because adequate information was lacking in any case.

Not everyone, too, will agree that a technical training by itself is necessarily the best way to produce the most efficient farming. Probably Denmark possesses the most enlightened farmers in the world, yet it is admitted that she owes more to Bishop Grundtvig and the Folk High Schools, which are general and not vocational, than to anything else for transforming the 'boorish Danish peasantry of the mid-nineteenth Century into the most progressive farm community of the twentieth Century'.

Let me sum up, then, by suggesting that the necessity for cost reduction in British agriculture is to-day greater than it ever was before, and that the likeliest avenues up which it may be approached are economic research to establish optimum standards, and education of the farming community to put them into practice. Whether putting it like this is a fitting climax to my subject, or merely an anticlimax it is now for you to say.

In reply to questions, Mr. Long *continued*:

Professor Norton asks, with reference to the table at the beginning of my paper, if there is not a good deal of difference in quality. In some cases there is. Many of us nowadays, when we look at our

Sunday joint sometimes wonder if the small ration is not dear at the price we pay for it. We are particularly tempted to think so when the meat is frozen beef, as it so often is. But not all our home-produced beef is of first-rate quality either. In pre-war days, compared with the imported Argentine chilled, a lot of our own beef suffered from the fact that it was cow beef and that a lot of other beef came from steers which had been reared from dairy bred dams. Although I believe the quality of most home-killed beef is very superior to the beef we import nowadays, I feel, nevertheless, that the difference in price is significant. If this difference represents the difference in the cost of production it behoves us to consider whether we can still afford to consume such a high-cost article as home-fed beef, or, at any rate, how much of it we can afford.

Dr. Natarajan asks if the Agriculture Act of 1947 has put up the cost of production in any way. I am trying to think of any case in which the Agriculture Act of 1947 has put up the costs. Wages have increased since 1947, but agricultural wages are covered by the Agricultural Wages (Regulation) Act, and not by the Agriculture Act. I cannot think of any case where the Agriculture Act of 1947 has yet put up costs of agricultural production. That is not to say that costs of production have not risen since the Agriculture Act was passed.

The answer to Professor Skovgaard is necessarily problematical. If prices were reduced by 25 per cent. the short-term effect would be a very bad one on production. It would undermine the confidence of farmers, and this would react on the incentives deriving from patriotism which have helped to keep agricultural production high during the war and the post-war period. Whether the long-term effect might work in the other direction I am not sure, but I am prepared to believe that it might on some farms.

My difficulty in answering the question is that, as I have already pointed out, on some farms high costs are due to technical inefficiency or lethargy, and on others to structural weaknesses in the farms. Though a reduction in prices would probably lead to an improvement in technical efficiency where this was lacking, I do not see how those farmers who suffer from handicaps in the structure of their farms would be able to reduce their costs, and lower prices might make it very difficult for such farmers to maintain their production.

J. F. Booth

I was much impressed by the statement made by Professor Long that labour represents 40–50 per cent. of the total cost of production.

Is that an average for Britain as a whole or simply for a particular area? This percentage is higher than I would have expected.

It has frequently been said that in the New World countries we 'farm' land because it is the most abundant and the cheapest factor whereas in the Old World they 'farm' labour for the same reason. The figures given us cast doubt on the accuracy of that statement. Comparing these with similar data for Canada I recall that in a study of some five hundred farms producing milk for consumption in the cities of Ontario just prior to the last war, labour represented from 20–30 per cent. of the total in different districts. In the production of crops like sugar beets and potatoes the proportion of costs represented by labour will be higher, whereas with grain crops it will be lower. There is reason to believe that labour's share of total cost has risen since 1939. The increase in wage rates has probably more than offset the decline in labour content in most branches of Canadian agriculture.

It may be of some significance to know that labour as a cost factor is not as rigidly fixed in Canada as in some other countries. We do not have minimum wage rates, limitations on the hours of labour, and other regulations. Therefore the wages paid tend to be more closely related to the income of farmers and to prices of farm products than might be the case elsewhere. This may be an important factor when the matter of competition in international trade is being considered.

W. H. Long (*in reply*):

The answer to Dr. Booth's specific question is that I took the figures from a selection of Yorkshire farms—or rather groups of farms in Yorkshire—and used them because in my opinion they represent conditions which occur over quite a wide proportion of the British Isles. I should explain, however, that in our accounting studies we include in our *wages* total the estimated value of the manual labour of the farmer and his wife. If we did not do that, some groups (especially those composed of small farms) would not have such a large proportion of its expenses absorbed by labour. Some of the larger groups, however, have more than 40 per cent. taken by paid wages.

Dr. Booth's suggestion that the higher proportion spent on wages in Britain compared with Canada is due to historical causes is entirely right, and it is only during the present century that labour with us has become sufficiently expensive to make it unwise to be prodigal with it. The mention of the small amount of labour on Canadian farms reminded me of the farm that I took Larry Norton to two years

ago between Doncaster and Leeds. This farm was about 250 acres, almost exactly the same size as Professor Norton's own in Illinois, but, whereas the only regular labour on Norton's farm is that of the operator himself, the man in Yorkshire had twelve regular men and employed also a lot of casual labour. But that does not necessarily mean that Norton's farm is organized more efficiently for labour than the Yorkshire farm. The Yorkshire man is in fact a particularly efficient farmer and has a high output but obviously his labour expenditure is bound to be very much higher than that of Norton's farm in Illinois.