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THE RELATION OF LABOUR COST TO TOTAL COSTS OF PRODUCTION IN AGRICULTURE

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ERRATUM

In the diagram, page 11, include "(*c*) RENT" in "Return on private capital."

THE RELATION OF LABOUR COST TO TOTAL COSTS OF PRODUCTION IN AGRICULTURE

I. INTRODUCTORY

The subject of the present Memorandum is the relation of labour cost to total costs of agricultural production. The three productive factors in agriculture are invariably quoted as land, capital, and labour, and the relation of labour to the other two has to be considered.

The first point to make is that the relation of the three factors to each other varies all the time, varies so greatly as to cause even practical men to lose their bearings and to have only a vague idea, if any, as to whether their labour costs are in a sane relation to their other costs of production.

This variation is inevitable, because supplies of land, capital, and labour are neither unlimited nor even. That is to say, land of very different qualities and very different areas is available, capital to very different amounts — scarcity of capital has a profound influence on labour in agriculture — and labourers of very different worth and in very different numbers. Every farmer is aware of these variations, and indeed builds up the profits of his enterprise on a skilful, almost an agile, use of their occurrence. The reverse side is a great uncertainty as to their general ebb and flow, and, as already stated, great confusion as to whether the general policy of the farm is being guided in a sound direction.

Indeed, farming would be in a state of chaos were there not certain customary lines along which it worked. Each country has its own natural, broad combination of the three factors, land, capital, and labour, a combination arising out of geographical and historical causes, and this national formula, which is not easily altered, to a large extent governs the cost of labour in agriculture in that country.

However, uncertainty as regards all costs of production in agriculture is undoubtedly marked. The farmer has a much less precise idea of what his costs are, *or will be*, than the industrial manufacturer. If we add to this the consideration that he also has a much less precise idea of what his production is going to be (owing to natural causes and influences beyond his control), it is easy to realise why the economics of farming are a source of constant disquietude to him. This disquietude becomes much more pronounced in times of crises, such as the years after the war, when indeed it may almost amount to panic.

But important as these considerations may be to the producer, they are also important to society as a whole. It is obvious that society must ensure its own food supply. It is, or should be, equally obvious that society should ensure it on a basis of social justice to those members of its own body who produce it.

For this purpose knowledge of the facts is essential, for no just distribution of cost and of reward can be made without.

The present study has been prepared by the International Labour Office on behalf of the International Economic Conference, in pursuance of instructions laid down by the Agricultural Sub-Committee of the Preparatory Committee to that Conference.

II. DIFFICULTIES ARISING OUT OF THE EMPLOYMENT OF DIFFERENT METHODS

The factors governing cost of labour in agriculture are still obscure. The present Memorandum only attempts to deal with a very limited range of data in a certain number of countries. The enquiry has been restricted to discovering some of the facts and does not attempt any discussion of the theory of social justice.

A few words must be said on methods. Here it is hardly necessary to utter a series of cautions, so obvious will the need for these appear in the course of reading the present study. In the first place, there are three different methods of collecting data — the census method, the book-keeping method, and the survey or special enquiry. The census method consists of a census of the largest possible quantity of data on the agricultural population, the state of landownership, the total expenditure on production, and the expenditure on agricultural wages. After all these figures have been classified, e.g. by the type of farm, the necessary calculations are made to obtain the average cost of agricultural labour, either per unit of area cultivated, or per worker, or in relation to the total cost of production, etc. This method has the advantage of covering the largest possible number of facts. It has the disadvantage that in working up the data a considerable part is played by the central statistical offices, and that, whatever the experience and competence of such offices, the very fact that they are remote from the material examined tends to make their estimates arbitrary, especially when they are very generalised.

The book-keeping method, on the contrary, is extremely reliable. Book-keeping accounts are kept on a certain number of farms in some countries for practical purposes, often by professional accountants. There can be no doubt that this method is superior to all others in the accuracy of its information. The trouble is that it is used in so few countries and on so few farms. Moreover, as is inevitable, the actual separate accounts of separate farms have not been examined by the International Labour Office, but only the studies published thereon or supplied in manuscript by central accounting bureaux or other institutions. These studies often bear the highest authority and are indeed material of the most valuable kind, but the same methods are not used by all institutions [1]. In addition, there is one special disadvantage of the book-keeping or cost accounting method. It is not fully representative of the general agriculture of the country in which it is carried on. The reason is simple. Book-keeping in farming is a

[1] It is to be hoped that international agreement on some disputed points is not beyond the bounds of possibility. Thus an agreement has been reached for some years past between Danish and Swedish farm accounting authorities on general questions of method.

voluntary, and, in most cases, a fairly expensive process. Only very large farms can afford a special book-keeper. On smaller farms the busy farmer either has to keep his own books, which requires considerable knowledge, or has to apply to his local agricultural society to do it for him; or he may have a scientific investigator from a university or Government Department approach him for permission to be allowed to cost his farm for purposes of social research. In any case, it may safely be assumed that only the better-run farms will submit to accounting. Farming here affords a curious contrast to small commercial shop-keeping, where accounting is practically universal and in some countries even compulsory. In farming, book-keeping and accounting, especially cost accounting, are still in the experimental stage. It is to be observed that while cost accounting in manufacturing industry is prospective and therefore has an immediate and vital influence on the manufacturer's policy, enabling him to fix the price of what he has to sell, in agriculture it is still almost entirely retrospective: it mostly determines the costs of what has been produced and sold [1]. Its immediate benefit or utility seems not great [2], and it needs an advanced standard of intelligence and education in the farmer to appreciate it. The result is, as already stated, that, especially in countries where it is a recent practice, only the best farms will accept it, even as a labour of love on the part of outsiders [3].

Under these circumstances the character of farm accounts in all countries is that of an analysis of the books of a fairly selected type of farm, namely, of the more up-to-date and progressive farm. Even in Denmark, where a comparatively large number of farms keep books, it is certain that the results of that book-keeping represent farming a little above the average of the whole country. This is proved by the fact that crop production averages per hectare on the farms costed are superior to averages for the whole country. If this is so in Denmark it is certainly liable to be so in other countries.

The survey method has some of the characteristics both of a census and of book-keeping. Special enquiry is made (usually by a Government Office or agent, but not, of course, necessarily so) as to some item of agricultural economics over a series of farms, often situated in a particular district or region. The results of the enquiry are not unlike census results on a smaller scale, but as they often also depend on an investigation into the books and general finance of the farms covered, they can amount to a sort of rapid book-keeping method. No survey, however, professes actually to keep the farm books or to balance the accounts on each farm,

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[1] *Scottish Journal of Agriculture*, July 1926, p. 260. Cost accounting in farming could, however, become prospective, and is pretty nearly so in certain branches of animal production (where climatic factors do not cause unforeseen disturbances as they do in crop production); cf. the Danish pig-keeping industry.

[2] Most farmers have a pretty good idea of the immediate effects of a change in farming policy. It is the ultimate effects which elude them, especially the interaction of the different branches of farming on each other.

[3] A survey of existing farm accounting bureaux, up to the date of publication, will be found in *Les Offices de comptabilité agricole dans les divers pays*, published by the INTERNATIONAL INSTITUTE OF AGRICULTURE, Rome, 1924 ; 509 pp. For the theoretical basis of farm accounting, see E. LAUR : *Grundlagen und Methoden der Bewertung, Buchhaltung, und Kalkulation in der Landwirtschaft* ; second edition ; Berlin, Parey ; 600 pp.

and herein the survey differs fundamentally from true book-keeping. Surveys are not usually made with the practical object of immediate help to the farmer, but are undertaken as social enquiry studies. In this respect they should afford the International Labour Office valuable material, but not a great many surveys have been made that offer data on labour cost in agriculture.

Whatever the advantage or disadvantage of each method, comparison between data obtained by the different methods is decidedly difficult, if not impossible. If we add to this that national idiosyncrasies make international comparisons uncertain, we have a pretty substantial preliminary list of difficulties with which to cope. Agriculture does tend to get specialised in certain countries. It is difficult, for instance, to compare the cost of labour in agriculture in a country of medium-sized and small farming growing produce principally for an export market, like Denmark, except with the cost of labour in a country which carries on its agriculture on the same lines, and it is not so easy to find two countries similar in all really important factors. To take only groups of farms which seem really comparable in the two countries does not wholly solve the difficulty, for each group will be in the grip of that "national formula", to which reference was made above, governing the final combination of national economic elements; such things, for instance, as supply of capital, cheapness or dearness of credit, density of population (affording dear or cheap labour), etc., are governed by general national, and not only by agricultural, laws. However, in the long run, no doubt, international comparisons will be possible and will be desirable, but their correctness will depend on the comparability of a large number of details, to which reference is made below.

III. REWARD, OR NET OUTPUT, AND COSTS

"Net output", or the reward from farming, is the most important conception which has to be stated in farm economics [1]. A good definition is the Italian one, which states that net output is obtained by "subtracting from the value of gross production all those values which have had to be used up in order to arrive at that gross production" [2], principally, of course, seeds, fertilisers, feed, and other material of this kind, and also depreciation, inasmuch as depreciation is a used value. These materials had to be advanced by society before the processes of production could begin; they must, therefore, be subtracted from the final result before the remainder of gross production can be accounted as a value. When this has been done, the "net output" remains for society to spend or to accumulate, and net output is sometimes defined as the year's spending plus savings [3].

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[1] On the importance of the net output, as the total reward to all partners in production, see ASHBY: "Standards of Production in Scottish Agriculture", in the *Scottish Journal of Agriculture*, Oct. 1923.

[2] TASSINARI: see Section on Italy (p. 51).

[3] *Ibid.*

But net output, besides being the reward from farming as received by society in general, may also be conceived as the reward from farming as received by the farming industry. It is a narrower conception, but perhaps a more practical one, and the most commonly adopted. On this conception both taxes and rates and interest on outside loans, which are part of the reward from farming accruing to society in general, are excluded from net output: the community and the non-agricultural banker have no share in net output or reward in this narrower sense. Net output in this sense is occasionally spoken of as the "net return" [1], but "net output" or "net production" is so commonly used to designate the items classed as "net return" that it would be impossible throughout the present Memorandum to maintain such a distinction; nor has this been attempted.

Thirdly, net output may also be defined as the reward accruing to one section of the farming industry only, namely, the *farmer* or *exploiter*. The conception is now narrower again. From the point of view of the farmer *all* used values must be subtracted to arrive at what to him is net production, and these used values include — for the farmer — the hire of land from his landlord and the hire of labour from his workers. To the farmer such services are costs, and must be subtracted before he can arrive at net output. Where this process is pursued to its extreme limits, and the farmer's own work and management is reckoned as a "cost", net production is narrowed down almost to the limits of commercial profits.

The above may be called the three principal conceptions of the net output from agriculture, varying, as will be clear, according to the parties or interests who are concerned [2].

Intermediate conceptions, in their turn, may be arrived at. They need not detain us long, as they are only refinements of the three conceptions already described. Two of the most interesting are *farm income* and *exploitation income*. The terms are not very clear and could perhaps be amended. They are liable to be confused, which is not without some significance, for the two conceptions are closely allied. "Farm income" is the reward produced by the farm as such to all who own it *and* exploit it; "exploitation income" is the reward produced for exploitation *and* working. The first includes the landowner as a partner in the farm, but not the worker; the worker does not own, and does not exploit. The second includes the worker, but not the landlord; the landlord does not work. The exploiter or operator enters into both groups. Both terms are rather specialised conceptions of net output. An interesting contrast between farm income and labour income is given by one writer on Italy [3], while exploitation income is used in certain Irish and English analyses. "Return on capital" and "labour income" will, for the

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[1] The "net return" is also defined by one authority as the net output less depreciation of capital, net output being reckoned not to take account of that factor; see ASHBY, *loc. cit.*

[2] Most commentators are at present laying stress on the second combination, which defines net output as the reward to the farming industry as such. This is certainly the most useful conception for the immediate purpose of this Memorandum, and in speaking of the distribution of reward this conception has been adopted where possible.

[3] See Section on Italy (p. 51).

moment, explain themselves, but it should be noted that "labour income" has a special meaning in North American literature[1].

Net output was originally defined as that portion of gross production which was left over when the values used in order to arrive at that gross production had been subtracted. These values are "costs". Thus costs and net output are always stated in organic opposition to each other. An item defined as a cost cannot enter into net output; what is defined as belonging to net output cannot have been reckoned as a cost. It is quite unnecessary to work through the varying combinations of items making up "cost", which would correspond with the varying conceptions of net output set forth above. It is sufficiently clear that where net output is narrowed, costs will be large, and vice versa; every definition of net output is linked with a corresponding definition of costs. Costs and net output together equal gross production.

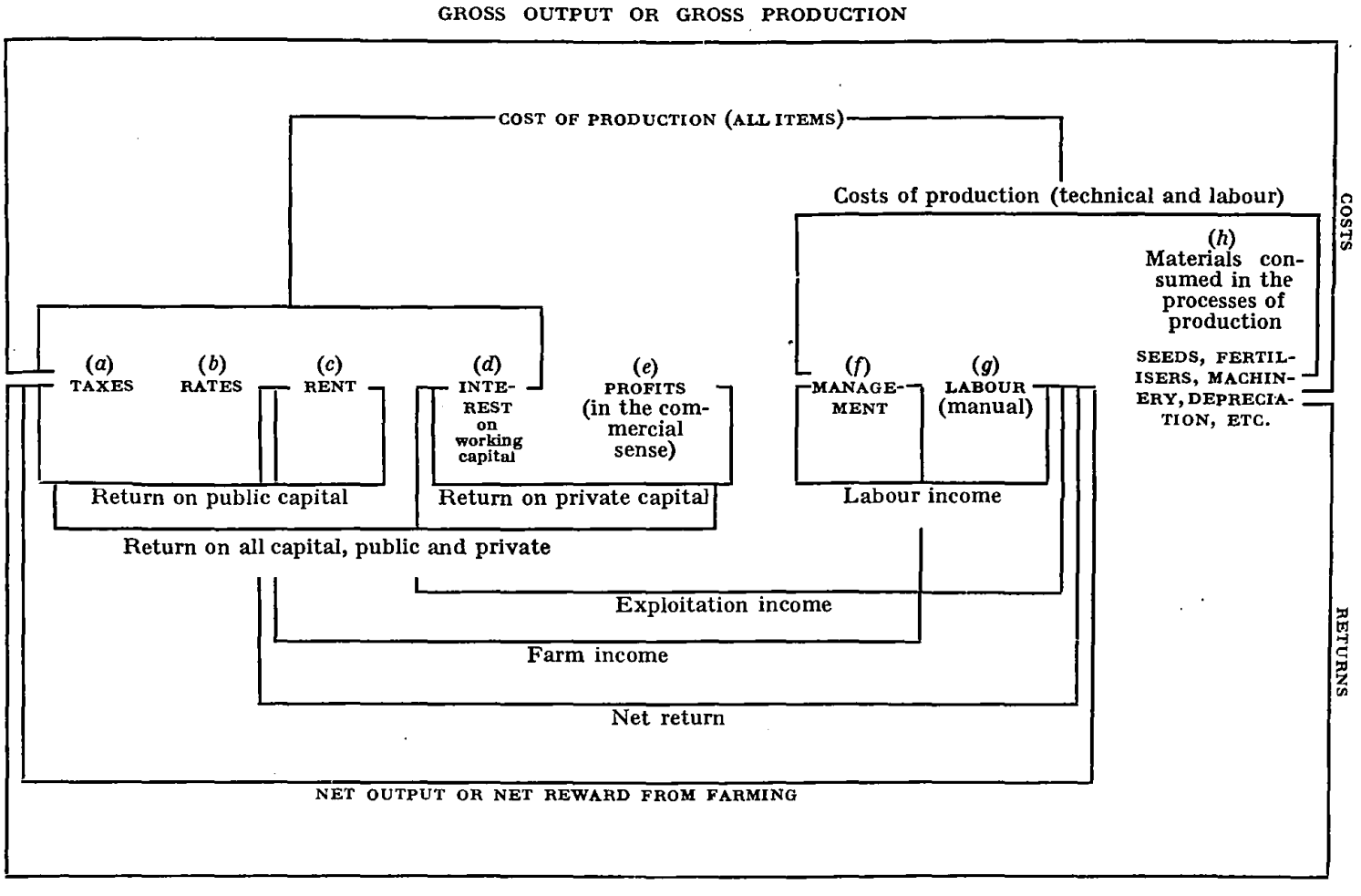
It follows that there is a choice in the allocation of particular items to net output or to costs. Not perhaps of all items. Profits in the commercial sense are always net output, and certain things like seeds, fertilisers, etc. are inevitably costs. But taxes, rates, rent, interest on farming capital, and other similar items are in a very different category. Taxes[2], for instance, are a cost to the exploiter; but they can also quite legitimately be viewed as the "public profits" drawn by the community from the farming industry. Rent is a cost to the tenant exploiting the farm, a reward to the landlord who owns the land. Interest on the capital used in farming is a cost to the person who pays it, a reward to the person who receives it.

This uncertainty as to whether an item should be treated as a cost or a reward attaches also to payment for labour. Payment for labour is a cost to the farmer, a reward to the worker. Fundamentally, labour *is* a cost. It is one of those "values" which society *must* advance before crops can be made to grow. From this point of view it ranks with technical costs like seeds, fertilisers, etc. It is essential. The same cannot quite be said of rent, taxes, or interest. Fields will grow wheat whether the rent on them is in arrears or not, whether the tax-gatherer has been satisfied or not, whether the farmer is bankrupt or not. But, on the other hand, under normal conditions payment for labour is also undoubtedly a reward. The widest, and possibly the most statesmanlike, view of net output groups together all those who have in any way contributed to agricultural production. At the one end of the scale this will include the community which lends services such as roads, transport, etc.; at the other, the agricultural labourer.

These two conceptions of labour as a cost and a reward give rise to two sets of percentage figures — the percentage of labour cost to all costs, and the percentage of labour reward to all reward. From some countries only figures of the first, or of the second, set are obtainable; from others both sets of figures can be had. It is not possible to restrict this Memorandum to cost percentages only, owing to

[1] The meaning will be found explained in the Section on Canada (p. 19).

[2] The taxes under consideration are land taxes; personal taxes on income derived from farming do not enter into this survey, and in one case a correction has been made to that effect.


GROSS OUTPUT OR GROSS PRODUCTION
COST OF PRODUCTION (ALL ITEMS)
Costs of production (technical and labour)
(h) Materials consumed in the processes of production
SEEDS, FERTILISERS, MACHINERY, DEPRECIATION, ETC.
COSTS
(a) TAXES
(b) RATES
(c) RENT
(d) INTEREST on working capital
(e) PROFITS (in the commercial sense)
(f) MANAGEMENT
(g) LABOUR (manual)
Return on public capital
Return on private capital
Labour income
Return on all capital, public and private
Exploitation income
Farm income
Net return
RETURNS
NET OUTPUT OR NET REWARD FROM FARMING
GROSS OUTPUT OR GROSS PRODUCTION

the fact that some important producing countries are accustomed to arrange their figures as distribution of reward ("net output") only.

The International Labour Office has endeavoured, within the limits of the space available in the present Memorandum, to indicate the exact combination of items adopted by each authority in arriving at total cost or total reward. The annexed diagram may make clearer the large number of variations possible. The correction of all data to one universal basis has not been possible, and this has been the principal difficulty in the way of effecting international comparisons.

IV. THE DEFINITION OF COSTS — INTERIOR TURNOVER

The bases for all the items which have been mentioned are annual gross production and annual gross costs. This can hardly be disputed, but a great difficulty at once arises as to whether these shall include only exterior[1] turnover, i.e. only what leaves the farm to go to market or comes to the farm from the market, or also interior turnover, i.e. what leaves one department of the farm to go to another department and be there consumed. Standard examples of interior turnover are the fodder which is grown on the farm and fed to the stock, and the manure which is taken from the cattlesheds and spread on the fields. Interior turnover is undoubtedly production in the most straightforward sense, for everything grown on the farm is production whatever may be the use to which it is put. It is also a part of cost, for every "used value" is a part of cost. But there are no real cash transactions on interior turnover in the farmer's books, only transfers of amounts, so that the total of interior turnover becomes a subject of estimate, and of very uncertain estimate at that, especially as the prices at which such transfers should be booked — if they are booked at all — is a matter of great dispute[2].

The short cut of excluding interior turnover is unsatisfactory, though it is, as a matter of fact, adopted by several authorities. The degree of its unsatisfactoriness varies with the amount of interior turnover[3]. Curious results could

[1] The consumption of the household living on the farm is properly reckoned as part of exterior turnover; the produce so consumed passes outside the farm, and is as much lost to the farm as though it were sold on the market. An exception might be made for that part of the produce consumed by members of the farmer's family giving their work to the farm; this could be counted as part of their remuneration (just as a resident farm servant's board is counted as part of his remuneration). In practice this refinement of cost accounting is seldom observed, and the whole of household consumption is treated as a unit.

[2] Cash turnover only, and not transfers from one department of farming to another, are dealt with in Denmark, Germany, Netherlands, Sweden, Switzerland.

[3] Thus an exception may be made for extensive one-crop farming. The cash expenditure is not far off being a true indication of costs of production on, e.g., one-crop cereal farming in the wheat zones of the North American Continent, or, to take another example, in Sicilian sheep-farming. In the latter case, Professor Tassinari is actually content to state the exterior and interior turnover as identical. In such systems of farming nothing passes from one branch of farming to another; all is produced for exterior marketing. Contrast the case of a farm where butter is produced from cream, the product of cows fed on feed grown on the farm, on fields perhaps manured from another department of the farming; the resulting costs of production of the butter are not easy to arrive at. In fact, it is most difficult to see the base against which the dairymaid's labour is to be measured. This is no unusual case. On many farms interior turnover exceeds the exterior.

be obtained, were figures used with carelessness. A farm producing and using its own raw material (manure and feeds) might *appear* to spend a great deal more in proportion on labour than a farm which purchased everything from outside (where total cash expenditure for outside supplies — the base against which labour was being measured — would be very high). This apparent result would not really be socially significant.

If interior turnover cannot be estimated, another way to measure cost of labour is to find absolute figures in £, $, francs, marks, etc. per unit area of land or per unit of crop or animal produce. Currency questions would then complicate international comparison, though it might be worth while, in any case, to consider the collection of a series of statistics on absolute cost of labour for a unit of some staple crop, like wheat, in a number of countries.

V. THE DEFINITION OF COSTS (*cont.*). — INTEREST ON CAPITAL — RENT — THEIR RELATION TO NET OUTPUT

If interior turnover is one difficulty in the way of a uniform definition of costs (and of gross and therefore of net production), another is the allocation of all forms of interest on the capital used in farming. Where should this interest be placed ? With net output or with costs ? Also, what is its exact amount ?

A good case can be made out for arguing that such interest [1] is a part of the whole reward from the farming industry, and should be treated as such, namely, as a profit or part of net output. Interest is, after all, that which is earned by capital, not that which is spent, and if agricultural capital contributes to agricultural production — as undoubtedly it does — then interest on agricultural capital is part of the whole reward from agriculture. On the other hand, where the farm is a tenancy, that part of interest on fixed capital which takes the form of rent is so apt to be conceived in practice by the farmer as nothing but a cost that any other treatment would appear to him meaningless; in countries where tenancy predominates, rent and also rates are almost invariably treated as costs by farm accounting authorities.

While this may be a matter of dispute — and the International Labour Office is of opinion that ultimately, at any rate for purposes of international comparisons touching labour, it will be advisable to eliminate rent from costs — there is at least the advantage that rent is a known amount which really does figure in the farmer's books. Difficulties are much greater when interest on working capital is dealt with. Whether treated as a cost or as a part of net output, this question of the "fair" interest on the capital used in the farming industry raises endless questions. The argument is that a sum should be computed out of yearly profits sufficient

[1] There is very general agreement that interest on outside loans may be treated as a cost. This principle has not always been followed in this Memorandum, as it has been thought best in the first place to compare cost of labour with technical costs, i.e. feed, seeds, machinery, fertilisers, etc.

to pay to the farmer such an interest on the working capital he is using on the farm as will bear a fair comparison with what that capital would have earned on his behalf if it had been invested on the ordinary securities market. The contention is in many ways a very just one, and the practice of allowing it is becoming more and more usual. The first trouble is that, in actual fact, no farmer worries to pay himself the interest which no doubt is due to him on his capital; only if he has borrowed that capital from an outsider must he, in the nature of things, make definite provision for the payment of interest. Where the payment is due to himself the item remains obscure [1].

But the further question is raised as to whether the item exists at all, and this further question has an important bearing on what seems to be the distribution of reward as between capital, management, and labour. It makes a great deal of difference in calculating the proportionate reward of labour as against the proportionate reward to the farmer whether or not interest on working capital is deducted from net returns. The farmer joins two persons: he is both capitalist and worker [2], and therefore there are two ways of reckoning his reward. Either interest is set aside first, and the remainder is the reward for the farmer's own work, his wages, so to say, or a sum corresponding to the wages of a full time worker is set aside first in payment of the farmer's own work, and the remainder is the interest on his capital. Where the theory is that his interest (at round about 5 per cent. but even at a higher rate) should be a first charge on profits, such interest may make a pretty big hole in the profits.

If the net returns of farming were higher than they have been in recent years, the question would not be very important. But as it is, one of two things is apt to happen: the profits (after the deduction of the wages of hired labour) do not sufficiently cover a really good interest *and* a really good reward for the farmer's own work. The farmer seems either to be earning next to nothing on his capital, or to have worked the whole year without pay. Certain American calculations have brought this out clearly.

The correctness of the facts cannot be impugned, and these facts are very important facts in summing up the whole problem of the remuneration of work — all types of work — in agriculture. It is, however, at least open to question whether it is not a thoroughly artificial process to estimate an interest which has never been paid, not even calculated, and apparently is not even being earned. As has been said with some force from the side of the workers, "there *is* no interest earned by capital if the capital is not earning a return in excess of what has been spent" [3]. If the question is conceived as a contentious one as between capital and labour, if it is argued, for instance, from the facts indicated that the farmer (capital) is being

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[1] Further complicated by the rate at which such hypothetical interest should be calculated. This may also greatly affect what seems to be the distribution of reward as between capital, management, and labour.

[2] Worker, even if only as manager. Farmers employing paid managers and undertaking no management themselves cannot, of course, be treated as workers.

[3] *The Scottish Farm Servant*, Aug. 1926, Vol. XIV, No. 161, p. 70.

penalised in respect of this reward, it is important that at least the problem should be fairly stated, and it is hoped that the above remarks may fulfil this purpose [1].

VI. THE DEFINITION AND PAYMENT OF LABOUR

Among the factors in the cost of production, that which must naturally be of most interest to the International Labour Office in view of the subject to be discussed is the exact determination of what is meant by agricultural labour, or more precisely by management and labour properly so called.

It has, for instance, not always been possible to discover whether the statistics include in labour costs the services of veterinary surgeons, the occasional work of saddlers or blacksmiths, the hiring of machinery and the pay of those who work it, allowances in kind, the value of free housing, the sums paid by the employer for different kinds of social insurance. The cost of improvements carried out preliminary to cultivation cannot be included in the ordinary annual costs of labour.

Another question arises out of the employment of seasonal workers. Agriculture is pre-eminently the spring and summer seasonal industry. During the winter one of two things happens. Either the seasonal agricultural worker is employed in other industries and agriculture does not bear the cost of his winter maintenance, or his maintenance is assumed in some form or other by agriculture itself. In the first case, a difference may arise between countries on the total amounts of their national bills for agricultural labour, owing to the fact that in some countries, but not in others, agriculture is thus relieved of the charge of winter maintenance of its workers [2]. In the second case, i.e. where agriculture does assume that charge, the arrangements differ according to circumstances. The worker who is a farmer or a member of a farmer's family is, as a matter of course, maintained on the farm during the winter; so is the resident farm servant (and his dependants). But other workers are not maintained *on the farm which employs them*; they retire during the winter to their own dwarf holding, and the burden of their winter maintenance is largely a burden on that holding. It is especially the really large farm which is able in this way to find a labour supply adapted to its needs, and the very large farm and the "dwarf" holding are thus seen to be in a certain recognisable economic relation to each other. The consideration is important because almost every investigator into farm accounting attempts at some point to group his items by size of farm, and no subject has been so much discussed as the relative labour requirements of the small and of the large farm. What happens ? In surveys such as are used in the present Memorandum the dwarf holding is not often referred to: to account such a holding would seem almost absurd. The

[1] The question cannot be eliminated in this Memorandum, for if interest is excluded from costs — and this has been done wherever possible — it *ipso facto* enters into net output and therefore powerfully affects the figures for labour treated as a reward.

[2] The point is also to be borne in mind in attempting any comparison whatever of the relative costs of agricultural and manufacturing labour.

result is that, when farm accounts are analysed statistically, the family or medium-sized farm is chargeable with the full cost of all-the-year-round maintenance of its labour, whereas the large farm has really pushed off part of its maintenance cost on to a class of holding which never enters the survey.

There is finally a last difficulty, perhaps the greatest of all, namely, that relating to the agricultural family. To what extent should the actual work of the head of the family be included in labour costs ? On a small farm his work includes all the management and most, or a large portion, of the manual labour. But a similar question arises in average-sized farms, although there the share of the head of the family in manual labour is smaller and his share in management larger. It scarcely exists in large farms, where the head of the family undertakes no manual work [1]. An equally difficult question is that of estimating the cost of the labour of the rest of the family. This cannot be left out of account, as a large proportion of the land throughout the world is cultivated by family labour; yet in this respect all that is available are more or less approximate or arbitrary statements, and there can be no hope of obtaining absolutely certain and exact figures. Such difficulties and approximations suggest that the greatest circumspection must be exercised in drawing conclusions. Other questions would arise if the object were to analyse the problem in its every aspect: for instance, that of deciding whether the maintenance of the farmer's family should be regarded as part of the cost of cultivation or of profits [2].

VII. THE ESTIMATION OF RESULTS

So much has been said above about the uncertainty attending computations of the cost or value of labour in agriculture, reckoned as a proportion of total costs or of total values, that any estimation of results would appear bold. International comparisons certainly seem risky until more information is available. But some of the national figures offer points which can be stated in a few words.

Cost of labour is beyond doubt an important item in costs of agricultural production. It is difficult to quote averages where so many figures are available. But a figure round about 40 per cent. of total costs is at least frequently met with for mixed farming. This figure sinks, as would be expected, where grass or stock farming predominates sometimes to under 20 per cent., rises in a few cases to over 60 per cent. in some very intensive forms of culture (Italian citron gardens), but

[1] The estimation of managerial work done by the farmer is, however, equally difficult. The most elaborate principle is that laid down in the Danish reports. A curve of payment for management done by the farmer is plotted which shall correspond as closely as possible to a curve of payment for hired management; starting from nothing the curve ends at the highest salary paid to managers on large-scale farms; allowance is made for intensity and type of farming. Elsewhere a flat rate for all work done by the farmer, management or manual, is adopted, e.g. £2 a week for manual labour, £200 a year for management in certain English accounts. Such estimates are necessarily arbitrary.

[2] It is important to note that estimation of the value of family labour is wholly excluded in Italy and the Netherlands.

it *also* rises to as high a figure where farming is carried on on poor soil and with small crops, as in Northern Sweden, because here labour is the principal contribution made by the producer to the cultivation of the earth.

Thus the cost of labour, though it does not often exceed a half, yet generally is more than one-third of the costs of production in agriculture.

In spite of the variation between land, capital, and labour to which attention was drawn in the opening words of this Introduction, costs of labour do not seem to alter violently from year to year. They do alter, but not so quickly as to be a cause of immediate dislocation to the agricultural industry. The fact is, that no farmer in the world can engage and dismiss men at hazard: quite apart from any humane considerations, the supply of agricultural labour is generally domiciled in the neighbourhood, and quite often domiciled on land belonging to the farmer. It is also usually limited, and is therefore released with reluctance and re-engaged with difficulty. In fact, the problem of an elastic supply of labour for agriculture, thoroughly suited to the needs of cultivation, has never been solved. It is probable that the annual ups and downs of the cost of labour should — from the point of view of pure economics — be much greater than they are.

Apart from immediate fluctuations in average cost of labour from year to year, there may exist a general movement. There is undoubtedly a general slight movement towards the payment of higher wages in many countries, but this by no means implies that labour costs the farmer more in proportion to increases in his other expenses. It is the opinion of the International Labour Office that sufficient evidence has not yet been accumulated to permit any statement as to a general alteration in the cost of labour in agriculture compared to total costs of production. Certainly, any statement that there has been in late years a large disproportionate rise in the cost of labour by comparison with other costs is far from being proved.

The question of the comparative cost of labour on the large and small farm is an interesting one and could be investigated. It is, however, much complicated by the element of family labour. One thing is clear — that size of farm alone is no criterion. Intensity of farming must also be taken into account, and this gives a combination of the three factors, land, capital, and labour, which it is not easy to sort out.

VIII. ARE THE FIGURES CITED RELIABLE AVERAGES ?

In the course of preparing this Memorandum it was at one point thought worth while to carry out a simple mathematical test in order to ascertain whether the averages cited were reliable averages. The results have not been very reassuring. It will be very difficult to divide farms into groups each representing one type of farm only, so that the farms, in spite of differences between the single farms, would group themselves round an average in such a way that this average would be considered statistically a reliable average. Assuming a group of 400 farms: if 36 per cent. is the average of labour costs to total costs of production on these farms, then, according to the normal law of error, 68.3 per cent. of the farms should have a

percentage cost lying between 31.2 and 40.8 per cent., 95.4 per cent. one lying between 26.4 per cent., and 45.6 per cent., and 99.73 per cent. one lying between 21.6 and 50.4 per cent. The actual dispersion of 585 farms in Denmark can be studied in table III in the Section on Denmark below; it will be seen that it differs considerably from this standard. In spite of the large amount of care bestowed by investigating authorities on the grouping of similar farms (i.e. farms similar in size and in methods of cultivation) for the purpose of calculating averages, it would yet appear that by no means all the farms selected can be representative of their class in respect of the labour factor. The groups must have been to some extent not homogeneous, and the averages arrived at concerning cost of labour must have been combinations of two or three different averages. Where only rough and ready results are expected, this is not necessarily fatal, as it is clear such groups are at any rate closely similar. But if more exact conclusions are to be drawn, e.g. concerning the rise and fall of labour cost over a period of years, such errors might have a very disturbing effect. The caution here given would appear to be necessary in view both of the inferences drawn in the text of the present Memorandum, and of any further inferences which readers might reasonably expect to draw for themselves.

AUSTRALIA

State of South Australia

Accounts of the State demonstration farm run upon business lines, known as Turretfield, are available since 1921 [1]. The average interest earned, after allowing for rent, interest on capital advanced, and even for estimated rates and taxes, was at the rate of 7.53 per cent. over a period just short of five years, "a satisfactory return for money invested in land under conditions involving the payment of standard rates of wages ".

The total area of the farm is 1,604 acres, of which 70 acres and 15 acres respectively are river-bed and buildings, yards, etc. The remainder is 1,279 acres arable and 239 acres rough grazing. A three-course and a four-course rotation are both followed (different parts of the farm). Fat lambs are carried, but cattle and pigs only to a very limited extent.

The farm was run on borrowed capital (borrowed from Government funds), and cash capital was secured in the form of an overdraft, together £18,321, or £11 19s. per acre (average of five years). On this borrowed capital interest was paid at 5 per cent. and this interest is entered below as part of yearly expenditure.

[1] *The Journal of the Department of Agriculture, South Australia*, Vol. XXX, No. 3, 15 Oct. 1926, pp. 201-215. The accounts have been published yearly in this journal. A large amount of valuable material on the cost of labour per unit of the crops grown will be found in the continuation of the article, No. 4 of the *Journal of Agriculture*, 15 Nov. 1926, pp. 326-346, which was received too late for incorporation in the present Memorandum.

Further, rent is calculated as 5 per cent. on the value of land and improvements and rates and taxes are established at just over £50. In the following table wages include salary to management and wages to labour engaged on buildings and improvement in the course of the years mentioned, and also workers' insurance.

PERCENTAGE OF COST OF LABOUR TO TOTAL EXPENDITURE ON TURRETFIELD DEMONSTRATION FARM, 1922-1926

	1922-1923	1923-1924	1924-1925	1925-1926	1922-1926 (average)		
					(average) Total	Per acre	%
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Rent, rates taxes . .	762 14 0	762 10 8	762 8 0	762 14 5	762 11 9	9 11	24.0
Interest on loans and on overdraft . . .	162 3 10	216 19 7	189 9 4	133 3 3	175 9 0	2 4	5.5
Labour management .	826 13 11	879 11 5	1,086 13 4	1,041 9 5	958 12 1	12 6	30.2
All other items [1] . . .	1,035 3 5	1,415 4 1	1,797 5 9	660 2 4	1,276 18 10	16 8	40.3
All items	2,786 15 2	3,274 5 9	3,835 16 5	2,797 9 5	3,173 11 8	2 1 5	100.0

[1] Including items of expenditure on buildings and improvements, plant, working horses, purchase of stock, etc.

CANADA

The questionnaire method is commonly adopted in Canada. Enumerators are sent to individual farms to obtain detailed accounts of business transactions. Special forms are used, and definite questions put. The method used is therefore a modified census method[1]. Information bearing on cost of labour is available from some Dominion publications, and more especially from a series of brochures on farm management published by the Ontario Department of Agriculture as the result of surveys made by the Ontario Agricultural College [2].

The principle conception sought is that of the "labour income". In order to avoid misconception it should be stated that the farmer (exploiter) is considered *the principal worker on his own farm.* The "labour income" therefore is the reward coming to him. It is arrived at by deducting from total receipts (including

[1] In view of the fact that complete book-keeping accounts for each farm are apparently not made up, it has been thought better to attempt no construction of figures on total "costs of production", except in so far as definite indications on that point are given. These indications refer to separate crops on the "analytical" method, and not to the whole farm.

[2] (*a*) DOMINION OF CANADA. DEPARTMENT OF AGRICULTURE, DIVISION OF FIELD HUSBANDRY. *Report of the Dominion Field Husbandman for the Year 1925.* Ottawa, 1926. 38 pp. Cf. the same for 1922, 1923, 1924.

(*b*) ONTARIO DEPARTMENT OF AGRICULTURE. ONTARIO AGRICULTURAL COLLEGE. *Farm Management: Part I, The Dairy Farming Business in Western Ontario,* Bulletin 275, 24 pp.; *Part II, The Beef Raising Business in Western Ontario, The Mixed Farming Business in Western Ontario, The Dairy Farming Business in Eastern Ontario,* Bulletin 278, 39 pp.; *Part III, Mixed Farming and Apple Growing in Ontario,* Bulletin 282, 23 pp.; *Part IV, The Fruit Growing Business in the Niagara District,* Bulletin 286, 24 pp.; *Part V, Mixed Farming in the Ontario Corn Belt, Mixed Farming and Apple Orcharding in Ontario,* Bulletin 288, 31 pp. Toronto, 1920, 1921, and 1922.

TABLE I. — DISTRIBUTION OF NET OUTPUT AS BETWEEN LAND, EXPLOITER, AND HIRED LABOUR ON CANADIAN FARMS SURVEYED 1919-1921

Description of survey and size-group of farms	Number of farms	Average tillable area[1]	Total net output. Amount		Portion of net output distributed to:							
					Interest on land and buildings. Amount		Exploiter				Hired labour. Amount	
							Interest on working capital. Amount		Management and labour. Amount			
(1)	(2)	(3)	(4)		(5)		(6)		(7)		(8)	
	Per farm		$	%	$	%	$	%	$	%	$	%
I. Dairy farming in Western Ontario, 1918-1919.												
21-45 acres	21	39	1198	100	257	21.5	122	10.1	735	61.4	84	7.0
46-60 „	38	52	1593	100	310	19.5	163	10.2	936	58.8	184	11.6
61-75 „	49	70	1847	100	418	22.6	209	11.3	868	47.0	352	19.6
76-90 „	77	83	2290	100	474	20.7	243	10.6	1158	50.6	415	18.1
91-110 „	72	98	2405	100	514	21.4	164	6.8	1327	55.2	400	16.6
111-135 „	36	123	3070	100	642	20.9	318	10.4	1440	46.9	670	21.8
136-160 „	23	145	3609	100	715	19.8	347	9.6	1881	52.1	666	18.5
161-185 „	10	168	3580	100	401	11.2	413	11.5	2159	60.3	607	17.0
over 185 „	10	234	5352	100	1210	22.6	599	11.2	2330	45.8	1094	20.4
II. (a) *Beef raising in Western Ontario, 1919-1920.*												
Under 61 acres	15	52	776	100	232	29.9	130	16.8	235	30.3	179	23.0
61-75 „	35	69	1355	100	394	29.1	172	12.7	582	43.0	207	15.3
76-90 „	87	84	1394	100	412	29.6	177	12.7	545	39.1	260	18.7
91-110 „	46	97	1555	100	469	30.2	186	12.0	618	39.7	282	18.1
111-135 „	41	124	2213	100	597	27.0	230	10.4	952	43.0	434	19.6
136-160 „	33	148	2258	100	708	31.6	267	11.9	778	34.8	505	22.6
161-185 „	27	172	2849	100	735	25.8	325	11.4	1270	44.6	519	18.2
186-225 „	24	204	2888	100	864	29.3	335	11.6	895	30.9	794	27.5
over 225 „	21	285	4408	100	1298	29.5	533	12.1	1734	39.3	843	19.1
(b) *Mixed farming in Western Ontario, 1918-1920.*												
Under 76 acres	29	65	1060	100	266	25.1	137	12.9	498	47.0	159	15.0
76-90 „	60	85	1558	100	331	21.2	174	11.2	818	52.5	235	15.1
91-110 „	46	96	1606	100	371	23.1	170	7.7	802	49.9	263	16.4
111-135 „	37	126	2216	100	500	22.6	246	11.1	1018	45.9	452	20.4
136-160 „	38	146	2214	100	530	23.9	242	10.9	948	42.8	494	22.3
161-185 „	32	173	2679	100	595	22.1	312	11.7	1213	45.4	559	20.9
186-225 „	16	197	2915	100	720	24.7	310	10.6	1339	45.9	546	18.7
over 225 „	10	290	3918	100	980	25.0	377	9.6	1678	42.8	883	22.5
(c) *Dairy farming in Eastern Ontario, 1918-1919.*												
27-45 acres	22	39	907	100	243	37.8	121	13.3	396	43.6	147	16.2
46-60 „	50	51	1307	100	301	23.0	161	12.7	662	50.4	183	13.9
61-75 „	39	68	1627	100	381	23.4	187	11.5	812	50.0	247	15.2
76-90 „	61	80	1941	100	453	23.3	226	12.0	879	45.3	383	19.8
91-110 „	68	99	2230	100	545	24.3	299	13.4	968	43.5	418	18.8
111-135 „	31	121	2680	100	653	24.4	306	11.4	1110	41.4	611	22.8
136-160 „	9	143	3042	100	656	21.6	360	11.8	1260	41.4	766	25.2
over 160 „	10	197	3874	100	970	25.0	394	10.2	1691	43.6	819	21.1
III, (a) *Mixed farming and apple growing (whole Province), 1919-1920.*												
Under 76 acres	29	60.8	1369	100	386	28.2	170	12.4	511	37.3	302	22.1
76-90 „	38	82.6	2019	100	541	26.8	214	10.6	809	40.1	455	22.5
91-110 „	40	98	2234	100	539	24.1	252	11.3	915	41.0	528	23.6
111-135 „	19	122.6	2697	100	679	25.2	248	9.2	1230	45.6	540	20.0
136-160 „	22	145.9	2800	100	800	28.5	292	10.4	910	32.4	798	28.4
over 160 „	17	189.6	3646	100	924	25.0	318	8.6	1315	36.1	1089	29.9
(b) *The same, second survey, 1920-1921.*												
Under 76 acres	48	60.3	608	100	394	64.8	168	27.6	— 403	— 66.3	449	73.8
76-90 „	45	86	503	100	483	96.0	229	45.5	— 675	—134.2	466	92.6
91-110 „	48	99	681	100	554	81.4	248	36.4	— 650	— 95.4	529	77.7
111-135 „	32	123.3	826	100	643	56.1	265	32.1	— 742	— 89.8	660	79.9
136-160 „	24	147	1153	100	848	73.5	291	25.2	— 832	— 72.2	846	73.4
over 160 „	18	204	1113	100	1018	91.5	362	32.5	—1470	—132.1	1203	108.1
IV. Mixed farming in the Ontario corn belt, 1920-1921.												
Under 46 acres	12	39	609	100	344	46.5	104	14.8	— 5	— 0.7	256	36.4
46-60 „	35	49	1217	100	424	34.8	123	10.2	311	25.5	359	29.5
61-75 „	27	70	1669	100	617	37 0	160	9.6	206	12.3	686	41.1
76-90 „	43	84	1955	100	752	38.6	212	10.8	241	12.3	748	38.3
91-110 „	43	96.6	1768	100	757	42.7	208	11.7	27	1.5	781	44.0
111-135 „	21	122	2214	100	1089	49.2	278	12.6	— 411	— 18.6	1258	56.8
136-160 „	15	146	2657	100	1083	40.5	292	11.1	— 143	— 5.3	1425	53.7
161-185 „	18	170.5	3103	100	1448	46.7	410	13.2	— 495	— 16.0	1740	56.1
over 185 „	20	247	5501	100	1629	29.6	488	8.9	966	17.6	2418	44.0

[1] Three acres of rough land or 100 acres of wood pastured = 1 acre of tillable land. Calculations of percentages by the International Labour Office.

increase in value of stock) the amount of total expenditure during the year, including taxes, depreciation, the wages of hired labour and an estimated amount for payment of the labour of the farmer's family; further, interest on capital (both fixed and working) at 5 per cent. The residuum, or labour income, then represents (*a*) reward for the farmer's own manual labour, (*b*) reward (salary) for his management, (*c*) profits.

In order to introduce the greatest possible comparability with other tables in this Memorandum, a table (table I) has been constructed of distribution of net output, in the sense in which that term is used for other countries, i.e. including, first and foremost, the reward to hired labour, and, second, interest on fixed and on working capital [1].

In this table column (7) gives the "labour income" in the Canadian sense described above. In reference to the minus sign placed before that column from the years 1920 onwards (see surveys III (*b*) and IV), it should be stated that account was taken of estimated depreciation due to the great slump in prices in the year of depression. This depreciation was hypothetical [2], not actual, except where the farmer was compelled to realise all his assets and sell up his farm, and the minus labour income is therefore also to this extent hypothetical. In any case the farmer is presumed previously to have received interest on his capital. To get at the farmer's whole reward (both on his capital and on his labour plus managerial skill), columns (6) and (7) must be added together; or, if he is owner as well as occupier, columns (5), (6), and (7).

The cost of manual labour can, moreover, be measured against costs of production of certain crops on the Central Experimental Farm at Ottawa for the year 1925. The accounts serve to illustrate some of the difficulties of analytic accounting. Thus the cost of machinery is a matter of estimate; so is the cost of farmyard manure and the cost of applying it, or the cost of residual values of manuring applied to a previous crop. On the profit side, the high profits, e.g. for potatoes, were due to the combination of a high yield and a good price. It is clear that a large number of such accounts are needed before conclusions can be drawn.

In table II a summarised form of these accounts is presented. Manual labour is reckoned at 22 cents per hour [3].

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[1] It has not been possible to place in the table of net output constructed by the International Labour Office the amounts for taxes or for cost of labour done by the farmer's family, as these amounts are not separately given. As already stated, these items are treated as costs in the Canadian publications. They could, however, also have been treated as rewards (taxes as reward to the community from the industry of farming). The amounts given as interest in the table are calculations by the International Labour Office from indications of capital involved as stated in the brochures.

[2] A point to which attention is drawn by the Canadian authors. An alternative method would have been to estimate for wear and tear only and not for price depreciation. This alternative method is adopted in some countries, e.g. Denmark. The point is of importance where much stock is carried.

[3] Labour on spreading farmyard manure enters into "other items".

TABLE II. — COST OF LABOUR COMPARED WITH TOTAL COSTS OF PRODUCTION FOR VARIOUS CROPS ON THE OTTAWA EXPERIMENTAL FARM, 1925

(Per acre)

Costs of production	Oats		Hay		Corn (maize) silage		Mangels		Potatoes	
	$	%	$	%	$	%	$	%	$	%
Manual labour . .	5.06	14.3	5.92	20.6	19.43	33.5	41.10 [3]	55.6	45.54	38.7
Rent and taxes .	7.50	21.1	7.50	26.1	7.50	12.9	7.50	10.1	7.50	6.4
Other items [1] . . .	22.92	64.6	15.34	53.3	31.16 [2]	53.6	25.42	34.3	64.55	54.9
All items	35.48	100	28.76	100	58.09	100	74.02	100	117.59	100
Gross value of yield	46.24	—	54.86	—	62.70	—	32.73	—	332.30	—
Profit	10.76	—	26.10	—	4.61	—	- 41.29	—	214.71	—

[1] Threshing, which perhaps should better be counted as labour, accounts for $3.47 per acre.
[2] Machinery, including ensiling outfit, at $6 per acre (in the other accounts at $3 per acre).
[3] Including hauling.

DENMARK

The Danish Bureau for Farm Economics *(Landökonomisk Driftsbureau)*, established in 1918 and subsidised by the State, publishes each year farm accounts for farms of different types and sizes. The year 1923-1924 (April to March) will more especially be dealt with here. This year is the first really stable post-war year for Danish agriculture and is, in general, characterised as a favourable year for farming [1]. A few figures for the two previous years will also be found and also for the year 1924-1925, for which the report has just come to hand. This period, though very favourable for agriculture, must, however, be considered as less normal than the period 1923-1924 owing to the inflation of the Danish currency during 1924.

Costs of production correspond to the items (*a*), (*f*), (*g*) and (*h*) in the table in the Introduction; labour cost corresponds to the items (*f*) and (*g*). With regard to accounting methods, it should be noted that expenditure for purchase of stock or new capital outlay is not considered as costs of production, neither is interest on farmers' capital. Of taxes, only property taxes are reckoned as costs. The standards of cultivation on the farms costed are a little higher than on the average Danish farm.

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[1] DET LANDÖKONOMISKE DRIFTSBUREAU: *Undersögelser over Landbrugets Driftsforhold VI* Regnskabsresultater fra danske Landbrug i Aaret 1921-1922; the same, Vol. VII, 1922-1923; VIII, 1923-1924; and IX, 1924-1925.

TABLE I. — LABOUR COST AND TOTAL COSTS OF PRODUCTION ON FARMS COSTED IN DENMARK, 1921-1925, FOR DIFFERENT DISTRICTS AND FOR FARMS OF DIFFERENT SIZE

District and size-group of farms	Number of farms	Costs: Labour: Manual: Hired	Costs: Labour: Manual: Family	Costs: Labour: Management	Costs: Labour: Total labour	Costs: All items		Labour cost as percentage of total costs	
		1923-1924				1923-24	1924-25	1923-24	1924-25
		Kroner per hectare							
District:									
Zealand	132	179	60	79	326	893	1,070	36.5	33.2
Southern Islands	36	224	79	93	396	911	1,106	43.5	41.0
Funen	104	200	55	84	339	855	1,145	39.6	36.2
East Jutland	139	140	89	74	303	822	938	36.9	32.7
Western Limfiord	29	154	58	77	289	705	878	41.0	34.4
West and Mid-Jutland	146	110	95	57	262	700	766	37.4	33.4
Average size of farms: (hectares)									
up to 10	82	91	324	82	497	1,266	1,587	39.2	34.3
10–20	95	153	91	81	325	883	994	36.8	34.3
20–30	129	178	46	78	302	801	965	37.7	33.6
30–50	160	173	24	75	272	708	822	38.4	35.2
50–100	69	167	7	66	240	647	732	37.1	34.4
100 and over	51	163	—	44	207	541	634	38.3	36.9
All farms:									
1924–1925	671	168	97	76	341	989		34.5	
1923–1924	586	157	78	74	309	813		38.0	
1922-1923	534	154	60	73	287	692		41.5	
1921–1922	500	186	69	79	334	798		41.9	

Table I shows that the ratios between the cost of labour and total costs of production remain constant from 1921-1922 to 1922-1923, but drop between the the latter year and the year 1924-1925 and again next year. The reason for this was a rise in the total costs of production. Of total increases of 121 and 176 kroner respectively, only 22 and 32 kroner were attributed to the labour accounts, but 96 and 99 kroner to the feed accounts. In fact, a great expansion in animal production took place in these years [1].

Even within a short period characterised by quite small price changes, the relation of labour to other factors of production is not stable in Danish agriculture. The fact is that existing labour can be utilised more or less completely in comparison with other factors, i.e. it does not necessarily follow that much more labour has to be engaged because animal production has gone up. In other words, the other costs of animal production move, while labour remains the same, and the result is a changing relation between the two.

[1] Single crop accounts show that when an expansion of field production takes place, all costs of production, including labour, rise in the same proportion.

The grouping in the table is by three criteria, by year, by district, and by size of farm. The differences in labour cost percentages in the various districts into which the country is divided are bigger than the differences from year to year. The high labour cost percentage for the Southern Islands is due to sugar-beet cultivation; in the Western Limfiord it must be explained by the greater one-sidedness of the farming, more grass is grown for the stock and less cereal for the market, causing a lower exterior turnover.

Variations in labour cost percentages for farms classified by size are also less than for those classified by district. The figures show clearly that the total costs of production per hectare decline the bigger the farm is.

But it is impossible to state that, taking the country as a whole, the smaller holdings spend relatively more on labour than the larger holdings. There seems, however, to be some reason to suppose that, inside the same group of farms when classified by size, the higher the total cost of production the lower the labour cost percentage.

In table II the farms on Zealand, Funen, and East Jutland have been grouped by total costs of production and by labour cost percentages. Only the groups for farms of areas from 10 to 20, from 20 to 30, and from 30 to 50 hectares have been examined, the number of farms in the other groups being too small.

TABLE II. — DISTRIBUTION OF FARMS COSTED IN DENMARK, 10-20, 20-30, AND 30-50 HECTARES, BY TOTAL COSTS OF PRODUCTION AND BY AVERAGE PERCENTAGES OF LABOUR COSTS TO TOTAL COST [1]

Labour cost percentages	up to 28	29-33	34-36	37-39	40-42	43-47	48 and over	up to 36	37-39	40 and over	All farms
Number of — of total production costs per hectare											
farms 10–20 *ha.*											
with over 1000 kroner	3	7	3	4	2	1	1	13	4	4	21
„ 800–1000 „	2	4	1	2	4	1	5	7	2	10	19
„ under 800 „	—	2	1	4	1	6	2	3	4	9	16
farms 20–30 *ha.*											
with over 1000 kroner	4	9	2	1	1	2	—	15	1	3	19
„ 800–1000 „	—	9	5	4	4	4	—	14	4	8	26
„ under 800 „	—	1	5	5	7	8	8	6	5	23	34
farms 30–50 *ha.*											
with over 1000 kroner	4	4	—	2	—	—	—	8	2	0	10
„ 800–1000 „	4	3	9	7	3	4	—	16	7	7	30
„ 600– 800 „	—	3	9	10	7	11	4	12	10	22	44
„ under 600 „	—	1	6	2	6	9	3	7	2	18	27

[1] Calculations by the International Labour Office.

This table seems to prove the thesis set forth above that, inside the same group of farms when classified by size, the higher the total costs of production the lower the labour cost percentage. The proof is perhaps most easily seen reading from left to right in the summarised part of the table where the columns distinguish between farms with a labour cost percentage up to 36, between 37 and 39, and 40 per cent. and over; the weight of the figures is with the lower labour cost percentages where the total costs are higher, and shifts to the right to the higher labour cost percentages as the total costs sink.

Investigations into the relation of labour cost to profits give very varying results. It is not possible to say that high labour cost percentages are always due to bad organisation or that they necessarily tend to lower profits.

The amount of detail in the Danish reports has allowed the International Labour Office to penetrate a little into the important question whether the averages of labour cost to all costs quoted above are typical for the farms costed.

The farms [1] for which accounts exist for the year 1923-1924 have been grouped according to their labour cost percentage round the average for the whole country for that year, namely, 38.0 per cent. The result is shown in table III [2].

TABLE III. — DISTRIBUTION OF FARMS COSTED IN DENMARK ROUND AVERAGE PERCENTAGES OF LABOUR COSTS TO TOTAL COSTS OF PRODUCTION, 1923-1924

Labour cost percentages	less than 28	29-33	34-36	37-39	40-42	43-47	48 and over	Total[1]
Number of farms in —								
Zealand	8	23	26	21	22	26	5	131
Southern Islands	0	2	4	5	3	7	15	36
Funen	3	12	7	17	20	27	18	104
East Jutland	16	28	20	19	29	16	11	139
Western Limfiord	0	4	2	6	3	9	5	29
West and Mid Jutland	10	34	23	25	27	15	12	146
Number of farms of areas —								
up to 10 hectares	5	16	3	9	15	17	17	82
10 to 20 „	8	23	8	14	16	12	13	94
20 to 30 „	6	28	22	20	17	21	16	130
30 to 50 „	10	21	31	27	25	33	14	161
50 to 100 „	6	13	8	16	12	10	6	71
100 hectares and over	2	2	10	7	19	7	0	47
All farms	37	103	82	93	104	100	66	585

[1] The distribution according to size differs slightly from that given in table I.

Nearly 50 per cent. of the farms had a labour cost percentage lying between 34 per cent. and 42 per cent, i.e. not more than 4 points above or below the general average of 38 per cent. The dispersion is often greater within the single groups of farms classified by district or by size, even though the disturbing influence of

[1] For one farm in Zealand insufficient information.
[2] Calculations made by the International Labour Office.

different natural conditions in the various parts of the country or, alternatively, of various sizes of farms, are thereby eliminated. Only in those groups which comprise 131 or more farms and the groups for the farms between 50 and 100 hectares and over 100 hectares is the distribution round the average closer than for the whole country.

Table IV shows the distribution of net output or the reward received by society from the agricultural industry between the various partners.

TABLE IV. — DISTRIBUTION OF NET OUTPUT BETWEEN COMMUNITY, EXPLOITER, AND HIRED WORKER, ON FARMS COSTED IN DENMARK, 1921-1925

District and size-group of farms	Total net output		Portion of net output distributed to:							
			Community (taxes)		Interest on capital and profits (together)		Family labour and management		Hired worker	
	1923-1924	1924-1925	1923-1924	1924-1925	1923-1924	1924-1925	1923-1924	1924-1925	1923-1924	1924-1925
	Kroner per hectare									
I. (*a*) *District*										
Zealand	628	683	34	35	268	293	144	167	182	188
Southern Islands	703	810	33	38	274	319	169	226	227	227
Funen	585	730	33	33	213	283	136	206	203	208
East Jutland	523	563	27	28	193	228	160	144	143	163
West Limfiord	504	495	23	23	192	170	135	178	154	124
Jutland	443	463	20	23	161	184	151	132	111	124
(*b*) *Size of farms* (hectares)										
Up to 10	807	892	27	31	283	316	406	445	91	100
10–20	585	623	29	29	231	253	172	181	153	160
20–30	547	615	29	31	216	260	124	127	178	197
30-50	492	546	29	30	191	227	97	99	175	190
50–100	438	478	28	28	170	198	68	69	172	183
100 and over	391	438	28	29	156	175	32	30	175	204
	Kr.	%	Kr.	%	Kr.	%	Kr.	%	Kr.	%
II. *All farms*										
1924-1925	617	100	30	4.9	246	39.9	170	27.5	171	27.7
1923-1924	547	100	28	5.1	210	38.4	150	27.4	159	29.1
1922-1923	463	100	31	6.7	145	31.3	131	28.3	156	33.7
1921-1922	402	100	35	8.7	33	8.2	146	36.3	188	46.8

Table V shows net output in relation to the total numbers of persons engaged in the agricultural industry and the area cultivated per person.

TABLE V. — AREA CULTIVATED, AND NET OUTPUT PER PERSON ENGAGED IN AGRICULTURE ON FARMS COSTED IN DENMARK, 1923-1925

Farms of	less than 10	10-20	20-30	(hectares) 30-50	50-100	over 100	All farms
Area cultivated per person engaged in agriculture (hectares)	1924-1925: 3.72	6.28	6.61	7.37	8.43	8.72	6.15
	1923-1924: 3.52	5.33	6.42	7.39	8.75	10.31	6.24
Net output per person engaged in agriculture (kroner)	1924-1925: 3,318	3,912	4,065	4,024	4,030	3,819	3,795
	1923-1924: 2,841	3,118	3,512	3,636	3,833	4,031	3,413

FRANCE

On three occasions the Information Bureau of the French Ministry of Agriculture (*l'Office de renseignements agricole du Ministère de l'Agriculture*) has tried to establish the balance sheet of French agriculture. The material has been reproduced in a pamphlet published by the National Federation of Agricultural Associations (*Confédération nationale des associations agricoles*) [1], and on the basis of this pamphlet tables I and II below have been drawn up, showing the costs of production and the distribution of the net return from farming in 1912 and 1924. The year 1918, also dealt with by the Information Bureau, is here omitted as being a war year.

TABLE I. — COSTS OF LABOUR AND TOTAL COSTS OF PRODUCTION IN FRENCH AGRICULTURE

	1912 (millions of francs)	1914 (millions of francs)
Hired labour, labour of the farmer, managerial work . . .	6,000	20,000
Straw, fodder, feeds, both purchased and grown on the farm .	5,000	15,000
Seeds	383	1,333
Fertilisers	150	600
General expenses	3,480	11,060
Total	15,013	53,393
Labour in percentage of total costs	40%	37%

[1] CONFÉDÉRATION NATIONALE DES ASSOCIATIONS AGRICOLES : *La situation actuelle de l'agriculture française (Mai 1926)* ; 19 pp. An article by Professor Maurice LAIR : *Les prix de revient agricoles et les bénéfices de l'agriculture française*, in the *Revue économique internationale*, Vol. III, Nos. 2-3, Aug.-Sept. 1925, may also be consulted.

Labour comprises, apparently, all forms of labour. The feeds account shows both interior and exterior turnover. The same is now the case with fertilisers, no valuation of the manure being given; on the other hand, this item includes interest calculated on the capital laid down in fertilisers. This is the usual practice in France and Italy; other countries do not always adopt it. In the seeds account only the interest on the capital laid out in seeds is mentioned; assuming that interest to have been the same as that mentioned in other forms of working capital, namely 6 per cent., the cost of seed has been calculated from the amount of interest mentioned.

The general expenses comprise, among other items, workers' accident insurance, which strictly taken ought to be added to the labour costs; but as the amount is not separately mentioned, this has not been possible.

When it is remembered that the items stated show the interior turnover, at least in part, the labour cost percentage must be considered as high, which is undoubtedly to be attributed to the prevalence of smallholdings in France.

TABLE II. — DISTRIBUTION OF NET RETURN IN FRENCH AGRICULTURE

	1912 (millions of francs)	1924 (millions of francs)
Taxes	762	1,583
Rent (at 3 per cent.)	2,750	—
Or rent (at 5 per cent.)	—	7,500
Interest on buildings, machinery, etc. at 6 per cent.	563	2,000
Remuneration to labour	6,000	20,000
Profits	772	3,349
Totals	10,847	34,432

Taxes include all classes of taxes paid by the farming population. Rent is estimated at 3 per cent. before the war and at 5 per cent. after. A calculation at 5 per cent. before the war would have made agriculture unprofitable (— 1,058 million francs of loss), while a calculation at 3 per cent. in 1924 would have resulted in profits nearly the double set forth in the table (6,349 million francs). Labour (both hired labour and that of the farmer himself) received in 1912 a remuneration corresponding to 55 per cent. of the total net return. This ratio in 1924 increased to 58 per cent.

Information has also been received, through the agency of the National Federation of Agricultural Associations, on the costs of production of certain individual farms. This material is presented with all reserves, in view of the fact that the International Labour Office has been compelled, for purposes of convenience, to summarise the results of separate book-keepings on the various farms, the details of which have, of course, varied. In this summary treatment the

principles laid down in the Introduction to this Memorandum have been borne in mind, and in view of the scarcity of farm accounts in France the material is here set forth as of interest.

TABLE III. — COST OF LABOUR AND TOTAL PRODUCTION COSTS ON 7 FRENCH FARMS, PRINCIPALLY IN 1925

Department	Size (hectares)	Year	Labour costs (francs per ha.)	Total costs (francs per ha.)	Percentage of labour costs to total costs
(1) L'Aisne [1] . . .	285	1925	947	2,197	43
(2) L'Aude [2] . . .	30	before the war	485	650	74
		after „ „	2,000	2,760	72
(3) Hte-Garonne [3]	921	1925	1,971	874	49
(4) „ [4]	156	1925	1,165	536	47
(5) „ [5]	47	1925	1,218	551	45
(6) „ [6]	31	1925	1,067	597	56
(7) „ [7]	31.5	1925	1,000	444	44

[1] 65 hectares sugar beets, 145 hectares cereals.
[2] 20 hectares vine. A post-war electrification of the farm had reduced the amount of labour necessary.
[3] 45 hectares vine.
[4] 21 hectares vine. Owned by a public institution.
[5] 1.5 „ „ Owned by a public institution on the share-farming system.
[6] 1.0 „ „ „ „ „ „ „ „ „ „
[7] 1.0 „ „ „ „ „ „ „ „ „ „

Figures for three types of farms in the Haute-Garonne, of 25, 50, and 100 hectares respectively, are also available. The soil in this district is moderately fertile [1]. Mixed farming is carried on, the products of the poultry-yard are supplied to the big Paris market, and are of importance.

In each case the figures (exterior turnover only) for a single farm (type A for two farms) are presented. These farms are thoroughly typical farms of their district and size. Farming is carried on by the owner himself. Some interesting additional figures have been made out, showing probable cost of labour had farming been carried on on another system for the employment of labour. These additional figures have been put together from experience in the district and it is in view of the interest of this comparison that these figures are here presented in detail.

The two principal alternative systems for the employment of labour are the engagement of a resident farm servant *(maître-valet)* with his family or of a working share-holder *(métayer)*. The farm servant and male members of his family each receive a cash wage of about 500 to 600 francs per year, a wage in kind, 10 per cent. of certain harvests, and an important share of the poultry and some other

[1] Communication to the International Labour Office by Mr. CAMMORANESI, Consulting Director to Farms in the districts of Toulouse and Villefranche de Lauragais.

profits; female members of the family (working each about fifty days in the year) are paid by the day; the total cash earnings of the farm servant and his family made up about one-quarter of all values received by him and them (see figures below).

The working share-holder also contracts to supply the labour of his whole family. No direct cash wages are paid, even for the services of the female members of the family, all remuneration being expressed as a share in gross production. The share-holder participates also in working expenses (this further distinguishes him from the farm servant). He is not supposed to be responsible for management, but in practice is very often allowed to run the farm as he chooses.

It is usually reckoned that the labour of one adult male is required for every ten hectares in the plain and for every eight hectares in the hilly districts.

Type A. — Two Farms of 25 Hectares Each

Farm I

	francs [1]
Gross production (value)	36,000
Working expenses, other than labour	15,000
Net revenue	21,000

Working expenses cover the usual working expenses and depreciation (including depreciation of value of working animals), and taxes, but not, apparently, interest on working capital. Separate amounts are not stated.

The remuneration to labour is as follows:	francs
(*a*) Cash wages	1,800
(*b*) Wages in kind (wheat and wine)	9,000
(*c*) Share in certain crops	6,700
Together	17,500

It will be seen that labour swallows up a large part of the net revenue, but owing to the nature of the special cultivations carried on and owing to the somewhat summary character of the accounts, comparison with other farms is perhaps inadvisable [2].

Farm 2

Accounts for this farm are more complete, except that any statement on interest is again omitted. The amounts allowed for depreciation, 200 francs, and for upkeep of buildings and dead stock, 200 francs, seem very small.

	francs
Gross production (value)	40,000
Working expenses other than labour [3]	5,370
Net revenue	34,630

[1] Round figures throughout.

[2] The absolute maximum for working expenses on ordinary farms of this size in the district is 7,000 francs. See next example.

[3] Including taxes, 270 francs.

The remuneration to labour is as follows:

	francs
(*a*) cash wages	1,800
(*b*) wages in kind (wheat and wine)	6,300
(*c*) share in certain crops, etc	7,510[1]
Together	15,610

Labour here absorbs a much less high proportion of the net revenue, under 50 per cent. in fact.

Type B. — One Farm of 50 Hectares

On this farm cereals accounted for 20 hectares, roots for 10, pasture for 10, fallow for 5, woods, buildings, etc. for 5. Of stock, 6 oxen, 8 cows, 2 mares, and 12 smaller head were carried.

	francs
Gross production (value)	78,000
Working expenses other than labour and not including taxes	18,250
Net revenue	59,750

Interest on working capital (100,000 francs) at 6 per cent. would amount to 6,000 francs and taxes were 1,000 francs.

The labour used was that of the farm servant and of his family, together four adult men full time and two adult women part time. Remuneration for labour was as follows:

	francs
(*a*) cash wages — men (at 600 francs per year)	2,400
cash wages — women (at 10 francs per day, 100 days aggregate)	1,000
(*b*) wages in kind (wheat and wine)	9,000
(*c*) share in certain crops, etc.[2]	21,400
Together	33,800

[1] Including an item of 3,000 francs, being 50 per cent. of value of increase in flocks and herds.

[2] Including items of 7,500 francs, being 50 per cent. of gross profits on the stock, and of 3,000 francs, being 50 per cent. of the gross profits of the poultry-yard.

A table of the distribution of net revenue can now be constructed as follows:

Total net revenue		Net revenue distributed as							
		Taxes		Remuneration to exploiter				Remuneration to labour	
				Interest on working capital		Profits			
Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
59,750	100	1,000	1.7	6,000	10.0	18,950	31.7	33,800	56.5

The net profits, on a fixed capital of 150,000 francs and a working capital of 100,000 francs, work out at 7.6 per cent. per annum (i.e. in addition to the estimation of interest on working capital made above at 6 per cent.). "Profits" cover remuneration for the owner's managerial skill.

An estimate can be made of profits were the same farm to be run on a system of share-holding. The estimates are based on local experience of this form of tenure on farms of a similar size. It is assumed that gross production and working expenses are as before. In this case the owner —

	francs
would take one-half of gross profits	39,000
would pay one-half of working expenses	9,125
would pay all taxes.	1,000
would advance all [1] working capital and therefore would reckon as deducted from his share interest on that capital at 6 per cent.	6,000
Together	16,125

would receive as his share of net revenue . . . . . 22,875 francs, which works out at a profit of 9.2 per cent. on his capital (fixed and working).

The worker (share-holder) and his family —

	francs
would take one-half of gross profits.	39,000
would pay one-half working expenses	9,125

would receive as his share of net revenue . . . . . 29,875 francs, which is not quite 4,000 francs lower than their remuneration as paid labourers.

It is interesting that the worker's remuneration should come out over 8 per cent. lower as a share-holder than as a paid worker. At the same time it must

[1] This is not uncommon in the district.

be pointed out that the remuneration which is ostensibly given to the farm servant and his family as fixed remuneration for paid labour has largely not that character at all. It has become more and more usual to assimilate payment for employed labour to the share-holding system. The important items of 7,500 francs and 3,000 francs, making up together no less than one-third of the remuneration of the farm servant and his family, are not wages, but a share in profits on the share-holding system commonly prevailing in the district. It is stated that the great scarcity of agricultural labour has made it usual to offer these inducements even where a farm servant and not a regular share-holder is installed. It is clear that the share-holding system alone is less advantageous to the worker than this mixed system of paid labour and profit-sharing. Nor can it be argued that the difference is wholly due to the fact that under the share-holding system the women's work is "thrown in", as this item only accounts for 1,000 francs [1].

Type C. — One Farm of 100 Hectares

On this farm cereals accounted for 40 hectares, roots for 20, pasture for 20, fallow for 10, woods, buildings, etc. for 5. Of stock 10 oxen, 8 cows, 4 mares, and 20 smaller head were carried.

	francs
Gross production (value)	140,500
Working expenses other than labour and not including taxes	38,500
Net revenue	102,000

Interest on working capital (170,000 francs) reckoned at 6 per cent. would amount to 10,200 francs, and taxes were 1,500 francs.

The labour used was that of one or two farm-servants and their families (together 10 adult men full time and 5 adult women part time). Remuneration for labour was as follows:

	francs
(*a*) cash wages — men (at 600 francs per year)	6,000
„ „ — women (at 10 francs each a day, 200 days aggregate)	2,000
(*b*) wages in kind (wheat and wine)	22,500
(*c*) share in certain crops, etc. [2]	37,710
Together	68,210

[1] Contrast the Section on Italy, where the opinion is expressed that the share-holding system is more profitable to the worker.

[2] Including items of 10,000 francs, being 50 per cent. of the gross profits on the stock, and of 5,000 francs, being 50 per cent. of the gross profits on the poultry-yard.

A table of the distribution of net revenue can now be constructed as follows:

Total net revenue		Net revenue distributed as							
		Taxes		Remuneration to exploiter				Remuneration to labour	
				Interest on working capital		Profits			
Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
102,000	100	1,500	1.5	10,200	10.0	22,090	21.6	68,210	66.9

The net profits, on a fixed capital of 250,000 francs and a working capital of 170,000 francs, work out at an interest of 5.3 per cent. per annum (in addition to estimation of interest on working capital), and again cover remuneration for the owner's managerial skill.

In this case also an estimate can be made of profits which would accrue on a system of share-holding. The owner —

	francs
would take one-half of gross profits.	70,250
would pay one-half of working expenses.	19,250
would pay all taxes.	1,500
would advance all working capital and therefore would be reckoned as deducted from his share interest on that capital at 6 per cent.	7,800
Together	28,550

would receive as his share of net revenue . . . . . 41,700 francs, which works out at a profit of 19.7 per cent. on his capital (fixed and working). The workers (three share-holders and their families) —

	francs
would take one-half of gross profits.	70,250
would pay one-half of working expenses.	19,250

would receive as their share of the net revenue. . . . 51,000 francs, which is over 17,000 francs lower (over 20 per cent.) than their remuneration as paid labourers. The same remarks as were made above in the case of Type B apply with even added force.

GERMANY

Farm book-keeping had already been widely practised in Germany before the war, the German Agricultural Society *(Deutsche Landwirtschaftsgesellschaft)* paying considerable attention to it in their publications. Unfortunately little use can be made of the published material for the purpose of the present Memorandum. The reason is partly that the accounting methods followed fail to give the precise information required, partly that the reporters avoid the computation of any averages at all. The value of the information lies rather in the presentation of a large number of details both on the economics and on the cultivation factors of each farm, allowing an opinion to be formed of the interplay of the various elements in each case. The method has, of course, many advantages, but in a study such as the present it is impossible to present material farm by farm.

The only material which has allowed of general treatment dates from the period of the war, and refers both to the years of the war and to the year 1913-1914. The facts of the latter year are here selected for analysis, as they offer some points of interest even if comparison with any facts of the post-war period is as yet impossible. Information was officially collected from two sources, namely from 13 local bureaux of farm accounting, and from the Department of Farm Accounting of the German Agricultural Society [1]. The investigation comprised no real smallholdings, but in general the distribution of farms according to size corresponds with the conditions in the districts dealt with in this investigation.

The notes given on the book-keeping methods employed are too few to allow of comparison with the items given in the Introduction. The items given are: fertilisers, feed, stock-keeping (various items), upkeep of machinery and implements, wages and salary, and miscellaneous. "Wages and salary" does not appear to include remuneration for the chief manager. In most of the accounts from the local bureaux the item "stock-keeping (various items)", which is otherwise without importance for the total results, included purchase of stock. A correction has been made to avoid this disturbing factor by showing also the labour cost in relation to total costs in the table with the exception of this item.

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[1] *Untersuchungen über die Steigerung des landwirtschaftlichen Betriebsaufwandes in den Jahren 1913/1914 bis 1917/1918 auf Grund buchmässig ermittelter Betriebsergebnisse.* Bericht der Zentralstelle zur Erforschung der landwirtschaftlichen Betriebsverhältnisse an das Reichsernährungsministerium. Berlin, Sittenfeld, 1919. 67 pp.

TABLE I. — COST OF LABOUR AS A PERCENTAGE OF TOTAL COSTS OF PRODUCTION ON 163 FARMS IN GERMANY, 1913-1914

District	Number of farms	Average size of farms (hectares)	Total costs (marks per hectare of cultivable land)	Wages and salaries (marks per hectare of cultivable land)	Percentage of labour cost to total cost: including stock-keeping	Percentage of labour cost to total cost: excluding stock-keeping
Chemnitz	12	36.5	611.25	220.47	36.0	40.6
Stuttgart	10	50.0	500.86	221.33	44.1	44.6
Dresden	15	54.1 [1]	497.93	154.08	30.9	37.9
Weimar	6	56.3 [2]	414.39	195.48	47.7	51.7
Bonn	12	72.2	484.27	186.81	38.5	39.9
Münster in Westphalia	11	74.5	493.00	174.31	35.4	44.4
Cassel	2	133.4	519.40	200.82	38.7	39.7
Halle on the Saale	6	152.4	616.32	179.74	29.0	41.9
Breslau	12	253.6	397.92	141.48	35.5	44.7
Rostock	30	387.7	279.62	108.03	38.5	42.1
Königsberg	13	415.3	239.60	77.36	32.3	36.4
Posen	10	428.5	381.10	117.20	30.7	35.4
Local bureaux	139	220.4	419.85	151.79	36.2	41.3
Silesia	5	271.9	255.70	117.22	45.8	46.1
Brandenburg	8	393.5	264.38	111.29	42.2	42.4
Other farms	11	559.1	253.56	107.76	42.4	43.6
G. A. S. farms	24	444.1	257.61	110.91	43.05	43.6
All farms	163	255.0	395.96	145.77	36.8	41.5

[1] Average of eleven farms only. [2] Average of two farms only.

The results given in the table are more characteristic for the various districts than for the various sizes of farms. In this connection it may be noted that the districts comprised by the accounts from the German Agricultural Society and from Posen, all large-scale farming districts, had an average of more than 20 per cent. of their total area laid out with roots which, of course, sent the labour bill up. However, in general the impression given by the report, which is also confirmed elsewhere, is that the difference in intensity of cultivation between large-scale and small-scale farming is not so marked as in other countries. One explanation may be the tariff policy, which has been designed to favour grain growing

carried on by large-scale cultivation. The correction made in the table to exclude stock-keeping has had the effect of largely eliminating the differences in percentage figures arrived at by the local bureaux and by the Agricultural Society.

Since the stabilisation of the German currency farm book-keeping has again been systematically pursued; especial attention may be drawn to the results to be expected from the Government enquiry into the economics of German industry, which has included an enquiry into the economics of agriculture, and has involved an investigation into the economics of 3,000 farms. No results are, however, as yet available in a form suitable to the purposes of this Memorandum, and the International Labour Office, while acknowledging communications from the Director of the above enquiry, from the German Agricultural Society, and from the Federal Agricultural Alliance *(Reichslandbund)*, is for the present reluctantly compelled to confine itself to the facts mentioned above.

GREAT BRITAIN

England

As far back as 1868 scattered information on cost of labour in agriculture is available. A summary of much of this material can be found in an article by W. H. R. Curtler [1]. The author shows the enormous variation in the wages bill per acre in English agriculture according to type of farming. In 1913-1914 the wages on typical mixed farms ranged from £1 per acre to £1 7s. 10d., rising to £11 4s. on fruit farms and then to £24 14s. 10d. on hop gardens. This wide variety of absolute wages cost per acre still characterises English farming. For this reason, and because of the decentralisation in English farm cost accounting work, it is difficult to do more than give a selection of available results.

The first information which may be given are some figures which have been much quoted as showing the proportionate distribution of net return from farming between the partners in production over a series of years, 1913-1914 to 1919-1920. Net output is arrived at in the usual way, but a further deduction is made of 30 per cent.[2] of the landlord's share presumed to have been spent in alterations and repairs and of 7 per cent. interest on the farmer's capital[3]; the remainder is termed strictly the net return. Of this return, before the war, about 40 per cent. is estimated to have gone to the farmer, 40 per cent. to the workers, and 20 per cent. to the landlord, with comparatively slight variations in individual cases[4].

[1] "An Enquiry into the Rate of Wages per Acre in England, 1913-1914." By W. H. R. Curtler. *International Review of Agricultural Economics*, 1916, Aug., pp. 85-103, and Oct., pp. 88-103. See also J. A. Venn: *Foundations of Agricultural Economics*, Cambridge University Press, 1925, pp. 237 sqq., for some remarks on Mr. Curtler's results. Since Mr. Curtler's article was published the Royal Commission on Agriculture of 1919 has published its report. As, however, the material on production costs of agriculture there collected deals largely with the war years, it has been thought preferable, on the whole, to concentrate in this Memorandum on more recent material.

[2] Figure arrived at by an enquiry made by the Land Agents' Society in 1909, covering 224 estates and 2,000,000 acres.

[3] The elimination of interest from the "net return" should be borne in mind in attempting any comparison with other tables in this Memorandum.

[4] C. S. Orwin: *Farming Costs*. Oxford University Press, 1921, pp. 109 sqq.

Assuming the 1913-1914 return to each partner in production as normal and giving it the figure 100, the following interesting table may be constructed showing the increased or decreased reward of each partner up to 1919-1920. The figures are taken from an East Midlands farm.

TABLE I. — DISTRIBUTION OF NET RETURNS FROM FARMING ON AN EAST MIDLANDS FARM, 1913-1914 TO 1919-1920 [1]

	1913-1914	1914-1915	1915-1916	1916-1917	1917-1918	1918-1919	1919-1920
Landlord	100	97	94.5	90.5	90	87	89
Farmer	100	104.5	108	115	111	115	109
Employed worker.	100	99	98	95	99.5	98.5	103

[1] Figures deduced from a graph in ORWIN, *op. cit.*

The figures are here quoted as being perhaps the best summary account available at the present moment of the effect of legislative action (setting up of the Agricultural Wages Boards under the Corn Production Acts) on agricultural wages and therefore on the comparative cost of labour. Until the passing of Orders on wages the farmer was gaining notably at the expense both of landlord and of worker. The Wages Orders had the effect of restoring the share of the worker, the landlord, however, still remaining at a disadvantage [1].

More reliance may perhaps be based on figures founded on a wider range of facts, such as are being gradually accumulated at the five principal centres where farm accounting is now developing in England, namely, Cambridge, Leeds, Oxford, Reading, Wye. At these five centres a great deal of attention is paid to analytic cost accountig of separate crops.

The Agricultural Economic Research Institute, Oxford, has enquired into farm economics in the Midlands [2]. Farms are grouped according to district, size, and type of farming. Distinction is made between the following types of farming: "arable" farms with over 60 per cent. of arable land, "mixed" farms with 40 to 60 per cent. of arable land, and "grass" farms with less than 40 per cent. of arable land, and finally, mild-producing farms. "Expenditure" includes rent, rates, wages, purchase of manures, feedingstuffs, and miscellaneous. The figures are presented in table II.

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[1] The facts that the figures refer to war years, and also only to a single farm, are a disadvantage — the accumulated results of the Agricultural Wages (Regulation) Act will in the future offer better material.

[2] Figures on cost of labour specially communicated to the International Labour Office.

TABLE II. — PERCENTAGE OF COST OF LABOUR TO TOTAL EXPENDITURE ON ENGLISH FARMS IN THE MIDLANDS

Size group	Number of farms in group	Total acreage of group	Expenditure, including remuneration for family labour		
			All items	Hired and family labour	
				Amount	Percentage [1]
		(per 1,000 acres)			
A. By size.			£	£	
South Oxfordshire (acres)					
0–50	25	831	9,535	3,793	39.8
50–100	26	1,755	7,157	2,974	41.5
100–150	23	2,888	6,722	2,531	37.5
150–200	26	4,419	6,145	2,345	38.2
200–300	28	6,620	5,741	1,935	33.7
300–500	26	9,758	5,333	1,806	33.8
500 and over	10	7,532	5,450	1,869	34.3
South East Oxfordshire					
0–50	33	724	11,300	5,118	45.3
50–100	21	1,693	8,450	2,595	34.5
100–150	15	1,777	6,850	2,587	36.3
150–200	6	1,054	5,800	2,575	44.4
200–300	21	5,138	7,250	2,712	37.4
300–500	14	5,026	6,100	2,250	36.9
500 and over	11	8,404	5,050	1,934	38.3
Wiltshire					
0–100	60	3,894	11,727	3,387	28.8
100–300	118	21,622	7,171	1,765	24.5
300–500	22	10,100	6,091	1,838	30.2
Thames Valley area of North Berkshire and South Oxfordshire					
0–100	24	1,526	7,587	3,460	45.7
100–300	24	4,464	5,646	2,541	45.1
300–500	19	7,819	4,958	1,942	39.2
500 and over	21	15,375	5,255	2,046	38.9
B. By type of farming.					
South Oxfordshire					
Arable	34	9,100	5,323	1,981	37.2
Mixed	24	6,296	5,472	1,959	35.8
Milk-selling	84	13,898	6,231	2,261	36.2
Grass	14	2,545	5,092	1,345	26.4
South East Oxfordshire					
Arable	20	7,094	4,475	1,859	41.3
Milk-selling	78	14,550	7,102	2,646	37.3
Grass	18	1,793	7,502	2,008	26.7
Wiltshire					
Milk-selling	200	35,616	7,363	1,957	26.6

[1] Weighted by acreages of the farms costed.

Table III presents a summary view of the figures in table II, separately by size and again separately by type of farming.

TABLE III. — PERCENTAGE OF COST OF LABOUR TO TOTAL EXPENDITURE ON ENGLISH FARMS IN THE MIDLANDS BY SIZE AND TYPE OF FARM (SUMMARY RESULTS)

Size and type of farms	Number of farms	Percentage of expenditure on labour to total expenditure
Size of farm		
0–100 acres	189	36.3
100–300 „	261	34.9
300–500 „	81	34.4
500 acres [1].	42	37.6
All farms	573	35.6
Type of farm		
Arable	54	38.9
Mixed.	24	35.8
Milk-selling	362	31.1
Grass	32	26.5
	472	—

[1] Omitting Wiltshire farms, which are chiefly grass and milk producing.

Taking tables I and II together, it appears that the percentage of labour cost to all production costs is, as would be expected, highest in arable farming. It is also higher on the smaller than on the larger farms, a marked drop being noticeable where the farm begins to exceed 200 acres (South East Oxfordshire an exception), but begins to rise again when the farm exceeds 500 acres. This general movement, however, does not apply to grass and milk farms in Wiltshire, as here increase or decrease in labour cost in not so definitely linked with size of farm.

Another set of figures may be found in the results of research work done in Eastern countries, from Cambridge [1]. For a full appreciation of the figures cited below, reference must be made to the original publications, and it must here be borne in mind that the averages are constructed from a somewhat small number of particulars. Reports 1 and 3 refer to the same farms for two following years (with subtraction of two farms and addition of three); Report 2 to another set of farms. Estimation of the labour of the occupier enters into Report 3 *only*, which, of course, accounts for the higher percentages of labour cost to total cost on this

[1] CAMBRIDGE UNIVERSITY, SCHOOL OF AGRICULTURE, FARM ECONOMICS BRANCH: *An Economic and Financial Analysis of Fourteen East Anglian Farms in 1923-1924*, by J. A. VENN, M.A., 10 pp., tables; the same, 1924-1925, 15 pp., tables (these two reports are referred to as Reports 1 and 3); and *An Economic and Financial Analysis of Six Eastern Counties Farms* in *1924-1925*, by J. A. VENN, M.A., and R. Mcb. CARLSLAW, B.A., 12 pp., tables. (referred to as Report 2).

Report; the estimation was made at £2 a week for the occupier's manual work, and £200 a year for his managerial work. The absence of an estimation for the occupier's work in Reports 1 and 2 is especially important in the case of certain of the smaller farms, and in general the size of the farms differed a good deal [1]. Wages include allowance for cottage rent, wages in kind, and workers' insurance, but exclude payments to casual labour, which, however, were unimportant. Expenditure includes rent and rates, but in constructing table V on the distribution of return these items have been restored as "reward to the landlord" [2].

TABLE IV. — EXPENDITURE ON LABOUR COMPARED WITH TOTAL EXPENDITURE ON 14, 15, AND 6 ENGLISH FARMS, 1923-1925 [1]

Type of farming	Number of farms		All outgoings				Outgoings on labour per acre		Percentage of outgoings on labour to all outgoings	
			Total		Per acre					
	1923-1924	1924-1925	1923-1924	1924-1925	1923-1924	1924-1925	1923-1924	1924-1925	1923-1924	1924-1925
Reports 1 and 3: East Anglian farms										
			£	£	£ s. d.	£ s. d.	£ s. d.	£ s. d.		
Heavy soil: mixed arable	4	3	8,216	6,628	14 17 7	12 2 4	3 7 3	3 5 3	22.6	26.9
Medium soil: mixed arable and dairy	4	7	7,387	17,204	10 0 5	11 17 11½	2 5 6	3 13 10½	22.7	31.0
Light soil: mixed arable, dairy and sheep	6	5	13,017	10,914	8 18 5	18 18 4	1 18 11	2 0 11	21.8	22.9
All farms	14	15	28,620	34,746	10 8 3	10 18 11	2 5 10	3 1 2	22.0	27.9
Report 2: Eastern counties farms										
Mixed	—	4	—	14,093	—	6 9 10	—	2 0 6	—	31.2
Grass	—	2	—	12,158	—	4 4 10	—	1 11 7	—	37.2
All farms	—	6	—	26,251	—	5 14 10	—	1 17 6	—	32.7

[1] Calculations in part by the International Labour Office. The averages given per acre are arithmetic averages of farms, unweighted by acreage.

[1] The total areas were: Report 1 (14 farms), 2,748 acres (average 196 acres; smallest holding 30, largest 559 acres); Report 3 (15 farms, mostly identical with those in Report 1), 3,217 acres (average 214½ acres; smallest holding 33, largest 647 acres); Report 2 (6 farms), 5,037 acres (average 439½ acres; smallest holding 298, largest 1,702 acres).

[2] It has not been possible to separate rates (i.e. reward to the community) from rent (i.e. reward to the landlord) in this table, nor interest on borrowed capital (usually treated as a cost and not as a reward) from estimated interest on tenants' capital or "farmers' assets". Interest on borrowed capital can, of course, be treated as a reward, but one coming to the bank or lender, not to the borrowing farmer. Distribution of return is not available on Report 1.

TABLE V. — DISTRIBUTION OF NET RETURN ON 15 AND ON 6 ENGLISH FARMS, 1924-1925 [1]

Type of farming	Number of farms	Total net return		Net return distributed to: Landlord — Rent and rates		Exploiter — Interest on capital [2]	Exploiter — Reward for labour and management	Exploiter — Profits	Exploiter — Together		Employed worker — Wages, cottage rent, insurance	
		£	%	£	%	£	£	£	£	%	£	%
Report 3: East Anglian farms												
Heavy soil: mixed arable	3	2,345	100	773	33	503	504	— 1,301	— 294	—12	1,866	79
Medium soil: mixed arable and dairy	7	11,167	100	2,001	18	1,351	860	640	2,851	25	6,315	57
Light soil: mixed arable, dairy and sheep	5	8,939	100	1,751	20	753	876	2,353	3,982	44	3,206	36
All farms	15	22,451	100	4,525	20	2,607	2,240	1,692	6,539	29	11,387	51
Report 2: Eastern Counties farms												
Mixed arable and grass	4	7,865	100	1,823	23	1,227	764		1,991	25	4,051	52
Grass	2	7,288	100	2,193	30	928	— 348		580	8	4,515	62
All farms	6	15,153	100	4,016	26	2,155	416		2,571	17	8,566	57

[1] Calculations in part by the International Labour Office.
[2] But includes interest on borrowed capital also.

We now come to some examples of analytic crop accounting, as carried on at English farm accounting centres. The difficulties attending this type of accounting are well known. To do it justice, each set of accounts should be cited separately with full details as to the exact methods followed, as it is precisely on these details that the results turn. To do this would be impossible within the limits of the present Memorandum. In order, however, not to omit this type of accounting, which should be of great importance as a corrective and supplement to other results, a few examples are given below of some of the figures obtained [1].

In Yorkshire investigations have been carried on since 1908, from Leeds as a centre, into the costs of milk-production [2]. The investigations have well brought out the extraordinary variety in England of the labour bill from farm to farm in the same district and on the same items. An enquiry in 1916-1917 (14 herds) showed a year's labour bills ranging from £4 4s. 3d. per cow (1½ d. per gallon) (lowest bill) to £10 7s. 9d. per cow (4d. per gallon) (highest bill). Part of this variation was to be attributed to different *rates* of wages paid (26s. to 40s. per

[1] Further figures can be studied in *The Royal Commission on Agriculture 1919, Minutes of Evidence*, 5 vols. London, H.M. Stationery Office, 1919, and in other sources.
[2] *Journal of Ministry of Agriculture*, Aug. 1922, pp. 411-419: "The Cost of Manual Labour in Milk Production", by A. G. RUSTON and R. S. SETON. See also: UNIVERSITY OF LEEDS AND YORKSHIRE COUNCIL FOR AGRICULTURAL EDUCATION: *Factors influencing the Cost of Production of Milk;* Leeds, Jowett and Sowry, 1921; 46 pp.

week adult male labour), these variations themselves being due to the vicinity of some farms to industrial districts where wages were higher. Nevertheless "this variation in the wages bill per head was not so important a factor as the relative amount of labour employed in attendance on the cows", and this variation continued even when wages were later levelled up to uniformity under the Wages Board. The following table speaks for itself.

TABLE VI. — COMPARISON OF DENSITY AND COST OF LABOUR IN MILK PRODUCTION ON 11 YORKSHIRE FARMS, 1916-1917 AND 1919-1920

Herd number	Average number of cows attended to by one man		Cost of labour per gallon of milk produced			
			1916-1917		1919-1920	
	Summer	Winter	Summer	Winter	Summer	Winter
			d.	d.	d.	d.
O.	29	16	1	1 3/4	2	4 1/2
C.	23	16	1 1/4	2	2 1/2	3 3/4
W	21	14	1 1/2	2 1/2	3	4 3/4
T.	20	14	1 1/2	2 3/4	3 1/2	5
K	17	13	1 3/4	3	3 1/2	5 1/2
N.	17	12	1 3/4	3	3 3/4	6
OA	16	12	1 3/4	3	3 3/4	6
I	15	11	2	3	5	7 1/2
L.	14	10	2 1/4	3 1/4	5 1/2	8 1/4
S.	14	10	2 1/2	3 1/4	6 1/2	1s. 0 3/4
G.	14	10	2 3/4	3 1/2	10 1/4	1s. 0 1/2
Average.	18	12	2	3	4 1/2	7

The investigation further showed the relation of "direct" to "indirect" labour. "Direct" labour covers milking, feeding, cleaning out byres, bedding down, scalding and cleaning milk utensils and attention to bull; "indirect" labour covers that used to produce the home-grown foods fed to the cows. Where the interior turnover of a farm is important (as it is bound to be when stock is kept and fed in part on home-grown fodder), the labour used on producing the interior turnover is an important part of the total labour bill of the farm. The following little table is an example of the choice of alternatives open to the investigator in arriving at percentages of cost of labour to total costs, and is quoted for illustrative purposes. It could be further elaborated if percentages of "direct" and "indirect" labour were separately calculated.

TABLE VII. — PERCENTAGES OF COST OF (*a*) DIRECT AND (*b*) INDIRECT LABOUR TO (*a*) TOTAL GROSS COSTS OF PRODUCTION, (*b*) THE SAME LESS RENT AND RATES, AND (*c*) TOTAL FINAL COSTS OF PRODUCTION OF MILK, ON 22 YORKSHIRE FARMS, 1919-1920

Costs of production	Average		Percentage of total labour cost to		
	Cost of upkeep per cow	Cost of producing a gallon of milk	Gross costs	Gross costs less rent and rates	Final costs
Labour:	£ s. d.	s. d.			
Direct	10 3 4	4 1/2	per upkeep of cow		
Indirect	3 3 7	1 1/4			
Together	13 6 11	5 3/4	30.3	33.4	25.4
Rent and rates	4 2 9	1 1/2			
Total gross costs	44 1 6	1 6 1/2	per gallon of milk		
Plus depreciation of cows	8 0 0	3 1/2			
Total final costs	52 1 6	1 10	31.1	33.8	28.8

Table VIII gives a selection of percentages of labour cost to costs of production on a limited number of farms for certain crops and products; as actual figures per acre in £ s. d. were not available throughout, percentages only have been quoted. Costs of production include rent and rates (but not purchases of live-stock for the milk account), and allowance must be made for uncertainties of estimation. The table, which is put together from two different sources, will serve to show the different percentages which can be arrived at in different years and in different parts of the country, and is set forth with a view to proving two points, (*a*) that such percentages can be obtained, or at least nearly estimated, (*b*) that a great deal of data would have to be assembled, and probably some fairly close agreement arrived at on disputable points of detail [1], before the results could be used as a foundation for further inferences. Nevertheless, as already stated, the value of crop accounting should not be overlooked in discussing the cost of labour in agriculture. It would certainly be of the utmost value if the producers of a staple crop like wheat could say, per bushel, in different parts of the world, what had been the relation of their labour costs to their other costs of production [2].

[1] Special efforts are made at the various farm accounting centres in England in this direction.

[2] A more elaborate study of the labour bill in agriculture, with a discussion of many interesting points, will be found in the *Journal of the Ministry of Agriculture*, Nov. and Dec. 1922, pp. 697-705 and 801-808: "Labour on the Farm", by A. G. RUSTON and J. S. SIMPSON.

TABLE VIII. — PERCENTAGES OF LABOUR COST TO TOTAL COSTS OF PRODUCTION OF CERTAIN CROPS AND PRODUCTS IN ENGLAND (SOME EXAMPLES ONLY) [1]

Crop		Percentages								
Farms (Midlands)	numbers	1	2	3	4	5	6	7	8	9
				1924				1925		
Wheat		18	17	12	18	16	—	17	17	—
Barley		20	17	—	22	12	13	23	17	—
Oats		—	—	13	—	—	—	—	—	—
Mangolds		35	50	35	37	33	25	46	32	38
Other roots		19	—	—	30	30	22	31	—	33
Farms	numbers	1	2	3	4	5	6	7	8	9
Milk		29	26	28	27	25	26	28	20	23
10 farms (Yorkshire), 175 acres — 1919 [2]										
				to gross costs					to gross costs less manurial residues	
Wheat				26.9					25	
12 farms (Yorkshire), 178 acres — 1919 [2]										
Oats				30.1					29	

[1] Communication to the International Labour Office from the Agricultural Economics Research Institute, Oxford.
[2] AGRICULTURAL EDUCATION ASSOCIATION: *Minutes of the Annual General Meeting 1921: The Cost of Production of Wheat and Oats.* By Arthur G. RUSTON.

Scotland

The appointment was recently made by the Scottish Board of Agriculture of a Committee on Farm Economics and Accounting. The report [1] of this Committee discusses the principles on which farm accounting could be started in Scotland on a fairly extensive scale, and pays special attention to many of the points touching labour which are raised in the Introduction to this Memorandum.

Meanwhile some other information is available from a survey, made in 1920-1921, of over 50 farms, including most of the types of farming used in 23 counties [2]. The accounts were classified into 11 groups, according to the type of farming. Table I shows the distribution of net output between the partners in production.

[1] *Report of the Committee appointed by the Board of Agriculture for Scotland in February 1925 to Examine and Report on Questions of Farm Accounting and Economics.* Edinburgh, H.M. Stationery Office, 1926. 34 pp. 9d. The report includes analysis of, and remarks on, the Danish, Swiss, and other systems of farm accounting. A preliminary account of the work of the Committee will be found in the *Scottish Journal of Agriculture*, July 1926, pp. 256-262.

[2] *Financial Results of Sixty-Five Farms.* By J. WYLLIE. H.M. Stationery Office, 1922. The present account is taken from the analysis contained in the article entitled: "Standards of Production and Net Output on Scottish Farms", by A. W. ASHBY in the *Scottish Journal of Agriculture*, Oct. 1923.

TABLE I. — DISTRIBUTION OF NET OUTPUT PER ACRE AS BETWEEN COMMUNITY, LANDOWNER, CAPITAL, AND LABOUR, ON 56 SCOTTISH FARMS, 1920-1921

Group	Type of farming	No. of farms	Average size (acres)	Capital employed (in £ per 100 acres)		Net output		Net output distributed to							
				Land	Working capital	Amount	%	Community (rates)		Landowner (rent)		Exploiter (farmer) (profit or loss)		Labour (wages)	
								Amount	%[1]	Amount	%[1]	Amount	%[1]	Amount	%[1]
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)		(9)		(10)		(11)	
						£ s. d.		s. d.		£ s. d.		£ s. d.		£ s. d.	
						(in £ per acre)									
I(*a*)	Dairying, milk-selling	2	206	2,300	1,615	6 0 2	100	1 11	1.6	1 3 0	19.2	1 6 9	22.3	3 8 6	57.1
(*b*)	Cheese-making	3	329	2,258	2,387	3 2 6	100	1 10	2.9	1 2 7	36.1	–2 3 6	–69.6 [2]	4 1 6	130.4
(*c*)	Milk-selling	7	198	2,300	2,055	6 12 1	100	2 3	1.7	1 3 0	17.4	1 19 2	29.7	3 7 8	51.2
II(*a*)	Mixed	4	326	3,733	2,612	13 5 5	100	2 8	1.0	1 17 4	14.1	6 18 5	52.2	4 7 0	32.8
(*b*)	The same	3	285	3,183	2,262	6 0 2	100	2 10	2.4	1 11 10	26.5	–11 9	–9.8 [2]	4 17 3	80.9
III(*a*)	Mixed	12	371	2,500	2,038	8 9 10	100	1 11	1.1	1 5 0	14.7	3 16 5	45.0	3 6 6	39.2
(*b*)	The same, more specialised	2	291	7,216	4,658	24 12 7	100	5 8	1.2	3 12 2	14.7	12 1 7	49.0	8 13 2	35.2
(*c*)	The same, more specialised (small holdings)	4	52	2,250	3,255	9 13 8	100	5 3	2.7	1 2 6	11.6	4 8 4	45.6	3 17 7	40.1
(*d*)	The same	15	314	2,208	1,765	5 10 9	100	1 10	1.7	1 2 1	19.9	1 4 11	22.5	3 1 11	55.9
IV(*a*)	Stock-rearing and feeding	2	444	1,858	1,617	4 6 11	100	7	0.7	18 7	21.4	1 14 7	39.8	1 13 2	38.2
(*b*)	The same	2	462	1,350	1,406	5 2 3	100	1 2	1.1	13 6	13.2	2 8 1	47.0	1 19 6	38.6
	All farms	56	298	2,575	2,079	7 10 9	100	2 1	1.4	1 5 9	17.0	2 12 11	35.1	3 10 0	46.4

[1] Calculations of the International Labour Office.
[2] Loss.

The reporter enters into a further series of very interesting calculations, designed to show the relative productivity on each class of farm of land, capital, and labour, and concludes with an "order of merit" or "efficiency factor", which is assigned to the various types on a combination of their gross output per acre, net output per man, gross returns on farmers' capital, and wages per acre. Owing to considerations of space, the whole of these data are not given, but a selection of certain items is made in the small combined table, table II, which is designed to show to some extent the varying labour consumption of the farms costed. A comparison of the capital employed may be obtained from columns (5) and (6) in table I, and thereby an idea of the varying intensity of farming on the holdings may be arrived at.

TABLE II. — NUMBER OF "STANDARD" [1] MEN EMPLOYED PER 100 ACRES OF LAND AND PER £1,000 OF NET OUTPUT AND AMOUNT OF NET OUTPUT PER "STANDARD" MAN ON 56 SCOTTISH FARMS, 1920-1921

Class of farm	Number of standard men employed		Net output per standard man
	per 100 acres of land	per £1,000 of net output	
			£
I (*a*)	2.54	4.29	232.7
(*b*)	3.02	9.97	100.3
(*c*)	2.50	3.85	259.6
II (*a*)	3.22	2.45	408.0
(*b*)	3.60	6.13	162.9
III (*a*)	2.46	2.93	341.3
(*b*)	6.41	2.63	379.8
(*c*)	2.89	1.49	672.0
(*d*)	2.29	4.20	237.8
IV (*a*)	1.23	2.85	350.8
(*b*)	1.46	2.89	346.1
All farms	2.59	3.48	287.0

[1] A "standard" man represents a payment of £135 per year in wages.

The results in Type III (*c*), which seem to show the most perfect use of labour, may possibly be affected by a looseness of calculation in the conversion of family labour to "standard" men and too much reliance must not be placed on this particular result.

Another series of data are available in the form of estimates, based on prolonged local experience, for certain types of Scottish farming[1]. These estimates mention the number of persons employed, the expenditure on wages (including allowances), on rent, and the "return to the farmer". The latter must be reckoned to include reward for the farmer's own labour, his managerial skill, and any possible interest on capital. It is mostly the opinion of the reporters that there would be nothing over for such interest on capital "after the expenses of the farmer and his family had been paid". This method of computation, however, would appear to introduce an uncertain element and it is perhaps better, as has been done elsewhere in this Memorandum, to make a mental deduction from the

[1] Special communication to the International Labour Office by the Deputy-Commissioner of Agriculture for Scotland.

"return to the farmer" of an amount corresponding to the highest wage to an adult male worker paid on the farm (where such wage is mentioned), and to reckon the remainder as having to cover (*a*) reward for managerial skill, (*b*) reward to the farmer's wife and family for their labour, (*c*) interest on capital. Where such deduction cannot be made on the figures given, the "return to the farmer" cannot be analysed into its component parts, even on the theoretical basis indicated.

TABLE III. — DISTRIBUTION OF NET RETURNS FROM FARMING ON FIVE TYPICAL SCOTTISH FARMS, 1925 (ESTIMATED)

Type of farm and district	Size (acres)	Number of persons employed [1]	Total net return		Distribution of net return to						Highest adult male wage paid per year
					Rent		Farmer		Labour		
			£	%	£	%	£	%	£	%	£
Arable, Forfarshire . .	250	7 and casual labour	1,468	100	475	32	214 [2]	15	779 [3]	49	110
Arable, Lothians . . .	300	13	2,255	100	675	30	480	21	1,100	49	—
Arable and beef-raising, Aberdeenshire . . .	150	5 [4]	760	100	180	24	180	24	400	52	91
Dairy, Ayrshire . . .	150 35 milch cows	4 and casual labour	1,160	100	300	26	410	35	450 [5]	39	100
Hill sheep run, Border district	2,100 sheep (breeding stock)	5 and 2 extra for lambing and hay	1906–16 1,145 1916–26 1,785	100	1906–16 630 1916–26 630 [7]	55 35	1906–16 [6] 175 1916–26 385	15 22	1906–16 340 1916–26 770	30 43	— —

[1] Excluding the farmer and his family.
[2] Capital £3,500; deduction must be made for rates, here not included in rent.
[3] Including insurance £20, and labour on tradesmen's bills, £45.
[4] Including 1 boy and 1 domestic servant.
[5] Including joiners' and blacksmith's bills, £70.
[6] Capital £7,000.
[7] The assumption that rent would not be raised after the war is, according to the reporter, doubtful; more working capital would probably also be required.

IRISH FREE STATE

The recorded accounts (February 1920 to February 1921) of a farm of 68 acres, carrying on mixed farming, are available on the authority of the chief costing officer [1], whose work was originally begun in connection with the Agricultural Costings Committee set up in 1919 for the whole of the British Isles. In addition, a costing analysis of 18 farms, principally live-stock and dairy farms,

[1] *Journal of the Department of Agriculture and Technical Instruction for Ireland*, Nov. 1922, pp. 197-273: "Farm Costings in Ireland", by James M. ADAMS.

was made for 1920 [1]. The total acreage of these farms was 3,796 acres, the farms falling into three groups under 100, between 100 and 200, and over 200 acres. These two sets of accounts are here in part presented together, in order to save space, in spite of the fact that they depend on different surveys.

Table I gives a comparison of costs of labour and total costs of production. On the single farm of 68 acres total costs of production are available in analytic form for special crops, and reference may be made to table II. It should be added that the greatest care was taken on this farm to get an absolutely correct estimate of the cost of labour, family labour being valued both by amount and by grade of skill. Rates of pay varied from 1s. 2d. per hour to 4d. per hour (girl labour). The inclusion of juvenile and female labour in "hired labour" reduces the average value of this labour by comparison with "family labour", where most of the work, being done by the farmer himself, was reckoned at the top rate. No allowance is made for management in the second survey.

TABLE I. — LABOUR COSTS AND TOTAL COSTS OF PRODUCTION ON (*a*) AN IRISH FARM, (*b*) 18 IRISH FARMS, 1920

Costs of production	(*a*) 1 farm of 68 acres	(*b*) 18 farms							
		7 farms under 100 acres			3 farms 100-200 acres			8 farms over 200 acres	
	(per acre)	(per acre)							
	£ s. d.	£ s. d.		%	£ s. d.		%	£ s. d.	%
Labour, family . . .	1 5 3	3 0 5		20.6	0 10 9		5.5	0 3 8	2.9
„ hired	4 4 8	3 3 5		21.6	3 2 9		33.0	2 7 7	39.3
„ together . .	5 9 11	6 3 10		42.2	3 13 6		38.5	2 11 3	42.2
All costs of production [1]	—	14 12 11		100	9 9 5		100	6 1 9	100

[1] Including rent and rates, but not including live-stock purchased.

The relative expenditure on labour on the small and large farms respectively under (*b*) is striking.

On table II the comparison of labour costs was made with gross costs of production. Net costs are added, however, and a comparison with these would only be a matter of calculation.

The distribution of net return [2] is presented in table III. The figures for 1923 are also available in the second survey, and are obviously influenced by the agricultural depression. The net return in this year is small, and as the payment of labour (including family labour) is made a first charge on the profits, the share left over for capital and management is much reduced. Once more, however,

[1] *Journal of the Department of Lands and Agriculture*, Feb. 1925, pp. 351-373: "Farm Costings (extracts from the Public Evidence given before the Agricultural Commission by J. M. ADAMS, Department of Agriculture)."

[2] The net return excludes rent. The reason, in the words of the reporter, is that "in Ireland the charge on land, be it annuity, judicial rent, or other charge, is not rent in the economic sense, and the amount of annual payments under this head cannot be regarded as the reward for land". Rent is considered as a cost throughout these accounts.

attention must be drawn to the fact that the working farmer would receive his reward on both counts, both as "capitalist-manager" and as worker. From the percentages quoted in notes (2) and (3) it might perhaps be inferred that the proportionate reward of capital and management increases with the size of the farm, but the number of farms is rather small for supporting such deductions.

TABLE II. — LABOUR COSTS AND TOTAL COSTS OF PRODUCTION FOR CERTAIN CROPS AND PRODUCE ON AN IRISH FARM IN 1920-1921

	Per acre, etc.											
	Oats		Conacre oats [1]		Hay (first crop)		Potatoes		Turnips			
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%		
	£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.			
Labour	3 12 2	37	2 7 0	13	1 11 9	20	9 9 8	33	5 1 2	28		
Rent and rates	0 18 5	9	11 9 9	66	0 18 5	12	0 18 11	3	0 18 5	5		
Other items	5 5 9	54	3 13 8	21	5 9 3	68	18 3 2	64	12 1 11	67		
Total gross costs	9 16 4	100	17 10 5	100	7 19 5	100	28 11 9	100	18 1 6	100		
Less residual or other increased value					— 8 5		—3 0 11		—2 12 1			
Total net costs	9 16 4		17 10 5		7 11 0		25 10 10		15 9 5			

	Per acre, etc.								
	Flax		Pasture		Milk (per gallon)		Eggs (per dozen)		
	Amount	%	Amount	%	Amount	%	Amount	%	
	£ s. d.		£ s. d.		d.		s. d.		
Labour	8 14 2	41	0 3 9	11	$2^{3}/_{4}$	26	0 $2^{1}/_{2}$	18	
Rent and rates	0 18 5	4	0 18 5	52	—	—	—	—	
Other items	11 14 1	55	0 13 3	37	8	74	0 $11^{1}/_{2}$	82	
Total gross costs	21 6 8	100	1 15 5	100	$10^{3}/_{4}$	100	1 2	100	
Less residual or other increased value					$1^{1}/_{2}$				
Total net costs	21 6 8		1 15 5		$9^{1}/_{4}$		1 2		

[1] Land let to cultivator in a state of preparedness.

TABLE III. — DISTRIBUTION OF NET RETURN FROM FARMING ON (*a*) AN IRISH FARM, (*b*) 18 IRISH FARMS, 1920 [1]

	Total net return (per acre)		Net return distributed to							
			Capital and management		Labour					
					Family		Hired		Together	
	£ s. d.	%	£ s. d.	%	£ s. d.	%	£ s. d.	%	£ s. d.	%
(*a*) One farm of 68 acres. . .	11 3 0	100	5 13 0	51	—	—	—	—	5 10 0	49
(*b*) 18 farms 1920 . . .	7 1 0	100	3 19 0	56 [2]	11 0	8	2 12 0	36	3 3 0	44 [3]
1923 . . .	2 12 0	100	5 0	10	8 0	16	1 19 0	74	2 7 0	90

[1] Calculations per acre by the International Labour Office to the nearest shilling from totals quoted.
[2] Percentages for farms under 100, between 100 and 200, and over 200 acres were respectively 46, 48, 60.
[3] Percentages for farms under 100, between 100 and 200, and over 200 acres were respectively 54, 52, 40.

ITALY

For Italy there are the results of an enquiry undertaken by Professor G. Tassinari, of the Bologna Agricultural College, which were recently published by the Italian Federation of Agricultural Consortia of Piacenza [1].

This enquiry covered twenty typical farms, each representing, for the various regions of Italy, a particular group of farms with the same kind of organisation and approximately the same requirements and revenue. The object, as Mr. Tassinari states, was to determine the distribution of agricultural revenue among the economic persons who took part in production, for the years 1912 to 1914, and 1921 to 1922.

Net output is calculated as gross output (including interior turnover) less what are called "materials consumed in productive processes". These seem to be pretty well identical with what is called "current expenditure" or "outgoings" in other accounts. They include insurance, upkeep, and depreciation. Taxation and interest [2] on capital are both reckoned a charge against profits. The latter enters into table I below.

If, on the one hand, the accounts have the advantage of including interior turnover [3], on the other they have the important disadvantage of omitting any estimations of the value of the farmer's own labour or that of his family. The

[1] FEDERAZIONE ITALIANA DEI CONSORZI AGRARI: *Saggio intorno alla distribuzione de reddito nell' agricoltura italiana.* By G. TASSINARI. Piacenza, 1926. 179 pp.

[2] Computed at 5 per cent. before, and 7 per cent. after, the war. Note is taken of the entry or exit of capital in the course of the year.

[3] Reckoned in Sicilian sheep-farming as nil. Here the production is all sold off the sheep-run. The figures for this type of farming are omitted in the present Memorandum owing to want of space. As might be expected they show a very low cost of labour reckoned in terms of gross or net output. Any comparison with other "costs of production" is almost meaningless, as these costs (apart from management expenses and cost of leases, where the run is hired) are extremely small.

separate estimate for managerial work, however, allows for a series of combinations as to the distribution of reward, which are set forth in table II. In this table, on the first four columns, the partners in production are reduced to two (*a*) labour and management, and (*b*) all forms of capital and ownership; the reward allotted to the latter is called the "exploitation income".

The resulting comparison of percentages of reward taken by the two sides is undoubtedly interesting. In the last two columns a separate set of percentages of reward taken by management plus working capital are given: these usefully show the reward obtained by the occupier who does his own management, and offer many points of comparison with United States figures dealing with a similar conception [1].

An analysis of the figures given is not easy in view of the variety of farming practised all over the country. The author traces a distinct movement as between wage-paid manual labour and labour paid on the share-farming system [2]. With some exceptions, the proportion of the reward from farming secured by labour on the share-farming system was greater, before the war, than that secured by it when paid as employed labour; the difference rather disappears after the war, owing to rises in nominal agricultural wages not wholly compensated for by comparable rises in prices obtained for farm produce; this, by reducing all net reward, had the effect of raising the proportion allotted to wage-paid labour, while labour paid on the share-farming system naturally bore its part in any total net diminution of profits.

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[1] His own manual labour excluded, as already stated.

[2] Indicated respectively by the letters (W) and (S) placed after the description of the farm in table I.

TABLE I. — DISTRIBUTION OF NET OUTPUT AS BETWEEN LANDOWNER, CAPITAL, MANAGEMENT, AND LABOUR ON ITALIAN FARMS, 1912-1914 AND 1921-1922 [1]

	1912-1914										1921-1922									
	Net output		Part of net output distributed to:								Net output		Part of net output distributed to:							
			Manual labour		Management		Capital		Landowner [2]				Manual labour		Management		Capital		Landowner	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Intensive Farming	(Value in lire per hectare)																			
A. *Irrigation farming in Lombardy and Piedmont:*	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(*a*) Mixed dairy and rice farming (W)	740	100	250	33.8	41	5.5	94	12.7	355	48.0	3,750	100	2,100	56.0	180	4.8	541	14.4	929	24.8
(*b*) Rice farming (W)	—	—	—	—	—	—	—	—	—	—	4,371	100	2,580	59.0	257	5.9	554	12.7	980	22.4
(*c*) Dairy farming (W)	—	—	—	—	—	—	—	—	—	—	3,230	100	1,500	46.4	220	6.8	275	8.5	1,235	38.3
B. Farming on non-irrigated lands in Emilia, with cultivation of industrial crops:																				
(*a*) Vine and other crops round Bologna (S)	514	100	229	44.5	25	4.9	55	10.7	205	39.9	2,330	100	1,019	43.7	95	4.1	393	16.9	823	35.3
(*b*) Fruit and other crops in the Romagna (S)	464	100	229	49.3	18	3.8	57	12.4	160	34.5	2,860	100	1,336	46.7	75	2.6	410	14.4	1,039	36.6
C. Mixed and vine-farming in the Montferrat:																				
(*a*) On the share-farming system (W)	512	100	251	49.0	42	8.2	30	5.9	189	36.9	3,375	100	1,640	48.6	160	4.7	193	5.7	1,382	41.0
(*b*) Direct exploitation (W)	—	—	—	—	—	—	—	—	—	—	2,330	100	1,350	47.7	240	8.5	233	8.2	1,007	35.6
D. Mixed, vine and olive-farming in Central Italy:																				
(*a*) Vine and other crops, Tuscany plain (S)	397	100	204	51.4	20	5.0	26	6.6	147	37.0	2,218	100	1,176	53.0	100	4.5	170	7.7	772	34.8
(*b*) Olive and other crops, Tuscany coast (S)	327	100	169	51.7	11	3.4	24	7.3	123	37.6	1,746	100	900	51.5	50	2.9	206	11.8	590	33.8
(*c*) Vine and other crops, Umbrian plain (S)	292	100	150	51.4	18	6.2	36	12.3	88	30.1	1,600	100	822	51.4	86	5.4	253	15.8	439	27.4
(*d*) Olive and other crops, Umbrian hills (S)	223	100	114	51.1	14	6.3	28	12.6	67	30.0	1,237	100	632	51.1	68	5.6	217	17.5	320	25.8
E. Specialised farming:																				
(*a*) Vine and olive, Apulia (W)	440	100	246	55.9	44	10.0	9	2.1	141	32.0	2,279	100	1,155	50.7	180	7.9	13	0.5	931	40.9
(*b*) Vine, Sicily (W) [3]	899	100	276	30.7	60	6.7	24	2.7	539	59.9	4,010	100	1,628	40.6	210	5.2	161	4.1	2,011	50.1
(*c*) Citron cultivation, Sicily (S)	1,954	100	390	19.9	135	6.9	45	2.4	1,384	70.8	3,650	100	1,843	50.5	290	8.0	209	5.7	1,308	35.8
(*d*) Orange cultivation (W)	—	—	—	—	—	—	—	—	—	—	10876	100	2,202	20.2	600	5.5	223	2.1	7,851	72.2
Extensive Farming																				
F. Cereal Farming (Large scale):																				
(*a*) Cereal farming in the Tavoliere, Apulia (W)	121	100	48	39.7	6	4.9	14	11.6	53	43.8	470	100	240	51.0	29	6.1	73	15.5	128	27.4
(*b*) Another example of the same (W)	167	100	68	40.7	13	7.8	14	8.4	72	43.1	656	100	370	56.4	66	10.0	76	11.6	144	21.9
G. Mixed cereal and pasture farming (latifundia):																				
(*a*) Mixed cereals and pasture in Sicily (W)	103	100	47	45.6	3	2.9	6	5.9	47	45.6	378	100	177	46.8	12	3.0	31	8.2	158	42.0

[1] In this table the letters W and S indicate respectively that the farm is carried on on a system of wage-paid labour and a system of share-farming.
[2] Including taxes.
[3] Smallholding.

TABLE II. — PERCENTAGES OF NET OUTPUT AS DISTRIBUTED TO LABOUR AND CAPITAL ("EXPLOITATION INCOME") AND TO FARMER-MANAGER ON 18 ITALIAN FARMS, 1912-1914 AND 1921-1922 [1]

	1912-1914		1921-1922		1912-1914	1921-1922
	Labour and management	Capital (all forms) and ownership ("exploitation income")	Labour and management	Capital (all forms) and ownership ("exploitation income")	Management plus working capital (reward to farmer-manager)	
	(1)	(2)	(3)	(4)	(5)	(6)
Intensive Farming						
A. *Irrigation farming in Lombardy and Piedmont:*						
(*a*) Mixed dairy and rice farming (W)	39.3	60.7	60.8	39.2	18.2	19.2
(*b*) Rice farming (W)	—	—	64.9	35.1	—	15.3
(*c*) Dairy farming (W)	—	—	53.2	46.8	—	18.6
B. *Farming on non-irrigated lands in Emilia, with cultivation of industrial crops:*						
(*a*) Vine and other crops round Bologna (S)	49.4	50.6	47.8	52.2	15.6	21.0
(*b*) Fruit and other crops in the Romagna (S)	53.1	46.9	49.3	50.7	16.2	17.0
C. *Mixed and vine-farming in the Montferrat:*						
(*a*) On the share-farming system (S)	57.2	42.8	53.3	46.7	14.1	10.4
(*b*) Direct exploitation (W)	—	—	56.2	43.8	—	16.7
D. *Mixed, vine and olive-farming in Central Italy:*						
(*a*) Vine and other crops, Tuscan plain (S)	56.4	43.6	57.5	42.5	11.6	12.2
(*b*) Olive and other crops, Tuscacany coast (S)	55.1	44.9	54.4	45.6	10.7	14.7
(*c*) Vine and other crops, Umbrian plain (S)	57.6	42.4	56.8	43.2	18.5	21.2
(*d*) Olive and other crops, Umbrian hills (S)	57.4	42.6	56.7	43.3	18.9	23.1
E. *Specialised farming:*						
(*a*) Vine and olive, Apulia (W)	65.9	34.1	58.6	41.4	12.1	8.4
(*b*) Vine, Sicily (W) [2]	37.4	62.6	45.8	54.2	9.4	9.3
(*c*) Citron cultivation, Sicily (S)	26.8	73.2	58.5	41.5	9.3	13.7
(*d*) Orange cultivation, Sicily (W)	—	—	25.7	74.3	—	7.6
Extensive Farming						
F. *Cereal farming (large scale):*						
(*a*) Cereal farming in the Tavoliere, Apulia (W)	44.6	55.4	57.1	42.9	16.5	21.6
(*b*) Another example of the same (W)	48.4	51.6	66.4	33.6	16.1	21.6
G. *Mixed cereal and pasture farming (latifundia):*						
(*a*) Mixed cereals and pasture in Sicily (W)	48.5	51.5	49.8	50.2	8.8	11.2

[1] In this table the letters W and S indicate respectively that the farm is carried on on a system of wage-paid labour and a system of share-farming.
[2] Smallholding.

NETHERLANDS

In the Netherlands book-keeping in agriculture is organised through various central accounting bureaux. The principal results are published by the Department of Agriculture [1]. In 1924-1925 accounting results had been obtained from 1,226 farms in all. In the present analysis only those districts in which more than 25 farms are dealt with will be covered. The farms divide themselves sharply into crop farms and grazing farms.

The costing methods do not allow of comparison with the items in the table in the Introduction. The costing methods used by the various bureaux are not quite identical; wages do not include remuneration to the farmer for his own labour and management (no indication is given as to whether the labour of his family has been reckoned or not). The figures given for the total labour costs and for labour cost percentages are therefore too low and the smaller the farm the larger in proportion is the disturbance from this omitted factor.

TABLE I. — COST OF LABOUR AND TOTAL COSTS OF PRODUCTION, AND PERCENTAGE OF LABOUR COST TO TOTAL COST PER HECTARE IN THE NETHERLANDS, 1924-1925

Distiict	Number of farms	Average size of farms			Wages	Total cost of production	Percentage of wages to total costs
		Arable	Grazing	Together			
		hectares			Gulden per hectare		
Groningen							
Northern (arable dist.)	156	40.25	6.50	46.75	167.21	268.52	62.2
Nieuw-Oldambt . .	34	50.25	5.50	55.75	153.25	247.83	61.7
Oud-Oldamt	28	39.20	7.30	46.50	143.99	248.73	57.8
Friesland							
Grazing (clay soil) .	155	2.60	26.80	29.20	105.88	277.57	38.0
Grazing (peat-land) .	78	—	29.60	29.60	85.17	264.77	32.7
Forests	119	2.10	30.60	32.70	78.58	262.44	30.0
Arable (clay soil) . .	261	14.50	21.30	35.80	144.25	296.78	48.5
Overijssel							
Grazing district . .	27	1.80	19.20	21.00	59.88	222.84	26.8
Sandy district . . .	80	3.20	9.40	12.60	66.14	359.86	18.4
Noordholland							
Central district. . .	65	0.20	18.30	18.50	66.13	331.50	20.0
Noordbrabant							
North-Western distr. Marine region (clay soil).	65	35.50	10.25	45.75	165.12	354.24	46.8

[1] DEPARTMENT VAN BINNENLANDSCHE ZAKEN EN LANDBOUW: *Verslagen en Mededeelingen van de Directie van den Landbouw, 1926*, No. 2. *Verslag over den Landbouw in Nederland over 1925* (Hierin is opgenomen een overzicht van de "Bedrijfsuitkomsten in den Landbouw in 1924"). The Hague, 1926.

The total cost of production on crop farms is not very big, but their percentages of labour costs to total costs are very high. The grazing farms have very high total costs of production due to high expenditure for bought fodder. The absolute figures for labour costs are lower than on the crop farms and as a result the labour cost percentages are only half those on the crop farms. True, the grazing farms are smaller, consequently the farmer's own labour, not accounted, plays a big rôle. However, results from mixed farming show that there is a real difference between the amount of labour needed per hectare on crop farming and that needed on grazing farms.

POLAND

The International Labour Office is in communication with the Central Office of Farm Accounting in Poland and hopes at a future date to be able to present figures on cost of labour in Polish agriculture. The Central Office has established nine branch offices, located in various parts of Poland. These offices make use of the services of the staff of the local government agricultural schools. Farms are visited once a week and book-keeping figures are forwarded to the local offices once every three or four weeks. Detailed book-keeping was started on 1 July 1926 on 750 smaller farms; 20 per cent. of these did not continue it, so that the number now practising it is about 600. The central office is not yet in possession of complete information on the size of all these farms, but can state that

16	farms	are	under		3	hectares	
47	,,	,,	between		3	and 5	hectares
132	,,	,,	,,		5	,, 10	,,
87	,,	,,	,,		10	,, 15	,,
106	,,	,,	,,		15	,, 30	,,
35	,,	,,	,,		30	,, 50	,,
4	,,	,,	,,		50	,, 90	,,

The keeping of accounts on farms of the smaller sizes may be expected to yield particularly useful results. The farms are scattered throughout the country.

SWEDEN

Results from Swedish farm accounting are published each year in a series issued by the Royal Board of Agriculture. Only the results published for 1922-1923 and 1923-1924 (1 July to 30 June) will be treated here [1]. These years were influenced by the development in prices which reduced the prices for agricultural produce more than those for other industries. In 1923-1924 the situation was still unfavourable for the grain-growing industry, while animal production was more profitable than in the previous year.

[1] *Meddelande från Kungl. Lantbruksstyrelsen*, Nr. 254 (Nr. 1 år 1925): "Räkenskapsresultat från Svenska Jordbruk IX Bokföringsaret 1922-1923", på uppdrag av. Kungl. Lantbrukstyrelsen bearbetade av Ludvid NANNESON. — The same: Nr. 260 (Nr. 7 år 1925), X, 1923-1924.

The cost of production corresponds to the items (*a*), (*f*), (*g*), (*h*) in the table in the Introduction; the labour cost corresponds to the items (*f*) and (*g*); cash expenditure on capital items and the interest on the farmer's working capital have not been considered as working expenses; remuneration for work done in the forests belonging to the farms is excluded from the costs of production of farming proper.

The table shows the costs of production in three parts of Sweden, the wheat and beet-field districts in Southern Sweden, where of the arable area about 50 per cent. is used for grain and 20 per cent. for beets, potatoes and fodder roots; Central Sweden, where of that area 40 per cent. is used for grain and 40 per cent. for meadow; Northern Sweden, where in 1923-1924 about 13 per cent. was used for grain (in previous years 20 per cent.), 67 per cent. for meadow and 14 per cent. for green fodder (in previous years 9 per cent.), to which must be added a big area of natural pasture land.

TABLE I. — LABOUR COSTS AND TOTAL COSTS OF PRODUCTION ON FARMS COSTED IN SWEDEN EXPRESSED IN KRONOR PER HECTARE AND AS PERCENTAGES, 1922-1923 AND 1923-1924

Size of farm (hectares of cultivable land)	1922-1923				1923-1924			
	Number of farms costed	Total costs	Labour costs	Percentage of labour costs to total costs	Number of farms costed	Total costs	Labour costs	Percentage of labour costs to total costs
		Amount				Amount		
		Kronor				Kronor		
Southern Sweden								
10.1–25 . . .	6	604	249	41.2	6	523	214	40.9
25.1–50 . . .	15	607	253	41.7	9	552	227	41.1
50.1–100. . .	8	506	186	36.8	5	—	—	—
100.1 and over	20	451	221	49.0	10	459	218	47.5
All farms [1]. . .	52	474	221	46.6	32	482	217	45.0
Central Sweden								
Up to 10. . .	26	458	314	68.6	19	425	258	60.7
10.1–25 . . .	16	308	201	65.3	10	315	197	62.5
50.1–100. . .	—	—	—	—	10	387	213	55.0
100.1 and over	51	363	196	54.0	60	339	177	52.2
All farms [1]. . .	103	367	199	54.2	104	342	180	52.6
Northern Sweden								
Up to 10 . .	75	377	265	70.4	65	388	250	64.4
10.1–25 . . .	70	302	214	70.9	72	330	213	64.5
All farms [1]. . .	147	326	228	69.9	140	330	213	64.5

[1] "All farms" include also farms from groups of sizes not mentioned.

In Southern Sweden the total costs of production are nearly the same as in Denmark, the labour cost percentage being a little higher. The labour costs per hectare are nearly the same throughout Sweden, but the total costs decline from Southern Sweden to the central districts and again to Northern Sweden. The result is that in Northern Sweden two-thirds or even more of the total costs of production are spent on labour; owing to the size of the farms most labour here is family labour. Figures for the whole country are of no interest, the agricultural conditions differ too much. The general average of labour cost percentages for all farms costed throughout the country would be 51.9. The table below showing the distribution of farms costed round such an average proves that the items entirely fail to group themselves round this figure as a reliable average. In fact the dispersion is very great even for the districts taken separately.

TABLE II. — DISTRIBUTION OF FARMS COSTED ROUND AVERAGE PERCENTAGES OF LABOUR COSTS TO TOTAL COSTS OF PRODUCTION IN SWEDEN (ALL DISTRICTS), 1923-1924

Percentages of labour costs to total costs of production	up to 37	38-42	43-47	48-50	51-53	54-56	57-16	62-66	67 and over
Number of farms showing the above percentages (total 273)	13	13	24	18	26	25	50	34	72

Table I shows with regard to Southern and Central Sweden a drop in labour cost percentages between 1922-1923 and 1923-1924, but in both cases the differences in labour cost percentages due to different size of farms are greater than those from year to year. In Southern Sweden the rule is that the larger the farm the lower the total costs of production in kronor per hectare, but the same is not true of labour costs. In some cases the larger-sized farm has a greater expenditure on labour per hectare than the size of farm next smallest. The percentage figures show the clear rise in the proportion of labour to total costs as the farms get bigger, interrupted by the group of farms 50 to 100 hectares; the largest farms undoubtedly have the heaviest labour cost percentages.

In Central Sweden the movement is still more complicated. Total costs do not decline regularly with the increased size of the farm; on the contrary, farms between 50 and 100 hectares spend more on total costs per hectare than farms between 10 and 25 hectares. Labour costs show much the same movement, though modified. The general result is that, with one exception, the percentage of labour to total costs decline on the larger farms.

In Northern Sweden the difference in size plays no rôle. On the other hand, a heavy fall in labour cost took place between 1922-1923 and 1923-1924 — compare the change in crop areas quoted above.

The author of the Swedish reports, Mr. Nanneson, by help of the records on the amount of labour used in the various branches of farming on agricultural holdings throughout Sweden, has been able to compute what he calls the "normal need" for labour in Swedish agriculture. The normal labour need is given in man-hours. These results have been applied to some individual farms costed, namely, those showing the "best" and the "worst" results from farming. The actual amount of labour used on these farms has been calculated by dividing the aggregate amount spent on labour by the normal wage rates per hour. The ratio between the actual amount of labour and the "normal need" of labour multiplied by 100 is called the "labour cost index". Where this index is over 100, it means that the farm has used more labour than was necessary. No allowance has been made for special topographical conditions on the farm or for payment of wage-rates diverging from the normal rates. These facts must be taken into consideration when estimating the value of the results. These calculations have been used in the Swedish reports for the purpose of examining the relation of the cost of labour to profit.

In the two following tables the relation of labour costs to rates per cent. of profits on capital and to "labour cost index" is shown for a certain number of the "best" and the "worst" farms in Southern and in Central Sweden.

TABLE III. — RELATION OF LABOUR COSTS TO RATE OF PROFITS ON CAPITAL AND TO "LABOUR COST INDEX" (NORMAL NEED FOR LABOUR) ON FARMS COSTED IN SOUTHERN SWEDEN, 1921-1924

	1921-1922		1922-1923		1923-1924	
	Worst	Best	Worst	Best	Worst	Best
Size-groups (hectares) . . .	25.1–50		100 and over		10.1–50	
Number of farms.	10	10	10	10	5	5
Rate of profits on capital .	2.6	10.6	–1.2	2.4	1.6	6.1
Labour costs (kronor per ha.)	347	324	231	219	217	210
Total costs of production (kronor per ha.)	819	744	484	455	492	469
Percentage of labour costs to total costs.	42.4	44.9	47.9	48.1	44.1	44.7
Normal labour need (man-hours per ha.)	460	500	377	355	441	446
Labour cost index	99	89	95	96	89	85

In Southern Sweden the "best" farms — this means farms showing the highest rate of profit on capital invested — have both lower actual total costs of production per hectare and lower actual labour costs; but the percentage of their labour costs to total costs is higher than on the "worst" farms. If an inference may be drawn, this would serve to show that the bad results on the "worst" farms are not specially due to over-expenditure on labour. In correspondence is the fact that the "labour cost index", though in two years lowest on the "best" farms, is in 1922-1923 one point higher on these than on the "worst", indicating that, while both groups of farms used less than their "normal" labour requirements (both figures are below 100), the "best" farms were a degree less economical in labour than the "worst". The calculations are made for three different sizes of farms (different over the three years).

TABLE IV. — RELATION OF LABOUR COSTS TO RATE OF PROFITS ON CAPITAL AND TO "LABOUR COST INDEX" (NORMAL NEED FOR LABOUR) ON FARMS COSTED IN CENTRAL SWEDEN, 1921-1924

	1921-1922		1922-1923		1921-1922		1922-1923		1923-1924	
	Worst	Best	Worst	Best	Worst	Best	Worst	Best	Worst	Best
Size group (ha.)	0-10		0-10		100 and over		100 and over		100 and over	
Number of farms	10	10	10	10	10	10	10	10	10	10
Rate of profits on capital	–8.0	5.8	–4.0	8.6	–8.8	2.9	–6.8	3.2	–2.7	6.2
Labour costs (kr. per ha.)	443	377	383	291	301	214	229	165	198	158
Total costs of production (kr. per ha.)	644	553	517	452	544	415	413	334	363	305
Percentage of labour costs to total costs	68.8	68.2	74.1	64.4	55.3	51.6	55.4	49.3	44.6	51.8
Normal labour need (man-hours per year per ha.)	480	530	453	476	310	310	316	330	308	315
Labour cost index	128	97	147	105	125	93	115	78	120	93

In Central Sweden the total costs of production of the "worst" farms, which on an average register a considerable loss, are throughout the years and groups higher than on the "best" farms. The labour costs of these farms are specially high and the percentage of labour to total costs stand above those on the "best" farms. The "labour cost index", which stands very much above the 100 for these groups, shows that there has been an extravagant use of labour. The texts of the reports strongly emphasise the point that uneconomic use of labour has run away with farming profits.

The situation is exactly the same in Northern Sweden, for which reason no special table is given here.

The calculations of Mr. Nanneson, mentioned above, also show how different is the normal labour need for the same crop in the different parts of the country. Farming in Northern Sweden, in spite of the low output per hectare, demands a heavy expenditure of labour per hectare (see table V).

TABLE V. — COMPARISON OF MAN-HOURS PER YEAR PER HECTARE NORMALLY REQUIRED FOR VARIOUS CROPS, ETC. ON FARMS COSTED IN SOUTHERN, CENTRAL AND NORTHERN SWEDEN

Crops[1] and stock	Southern Sweden	Central Sweden	Northern Sweden
Autumn sowings	190	240	350
Spring sowings	120	160	300
Potatoes	450	500	600
Sugar-beets	800	850	—
Fodder roots	550	600	650
Meadow	60	80	100
Green fodders	70	120	200
Grazing and pasture	20	20	50
Other work	180	180	170
Stock (per head)	60	60-70	120

[1] Fallow reckoned with each crop.

SWITZERLAND

In Switzerland results of farm cost accounting are presented each year to the Federal Department of Public Economy by the Secretariat of the Swiss Farmers' Association *(Union des paysans suisses; Schweizerischer Bauernverband)* [1]. As this practice is of long standing it is possible to make comparison between pre- and post-war periods. The years here chosen have been the period 1908-1912, the year 1912, and the years 1922, 1923 (1 March to 28 February); the two last years marked a return to more normal conditions after the war period. In 1922 the agricultural crisis was acute, in 1923 the crisis had passed and prices again began to rise. Figures for the year 1924 are also available, but as they differ only very little from those for the year 1923, the years already mentioned have been preferred to facilitate comparison with other countries for which no figures for the year 1924 have been available in time.

The reports do not include an agricultural description of the farms costed. Agricultural conditions differ very much in Switzerland. According to a census of 1905 [2], arable land averaged 11.7 per cent.; it varied from nothing in some cantons

[1] Published in the *Annuaire agricole de la Suisse*, by the Federal Department of Public Economy.

[2] Census of 1905. *Statistique de la Suisse. Resultats du recensement fédéral des entreprises agricoles, industrielles et commerciales du 9 août 1905. 2e volume. Exploitation des produits du sol.* Berne, 1910.

to nearly 40 per cent. in others; natural pasture (mountain pasture) varied from nothing to 72 per cent. The farms are also very different according to size. Farms with an area up to 15 hectares have an average of 18 per cent. arable land and from 60 to 64 per cent. meadow. It is only on the smallest farms that vine-cultivation plays any rôle. On farms with an area of 15-30 hectares, pasture land begins to expel meadow; farms of over 70 hectares consist of 6 per cent. meadow, 85 per cent. pasture land, 1 per cent. arable.

The cost of production corresponds to the items (*a*), (*f*), (*g*) and (*h*) in the table in the Introduction; the labour costs correspond to (*f*) and (*g*). The item "taxes" also includes personal taxes, taxes on capital placed in the farm, and on income derived from the farm. For the year 1922 extraordinary depreciation on live-stock had been recorded to cover the fall in prices, raising the percentage of this item, "depreciation on live-stock", to total costs of production from 2 to 9. Such losses are not considered as costs of production according to Danish and Swedish accounting methods. The labour costs are, therefore, in the Swiss table also put in a relation to total costs exclusive of the item "depreciation of live-stock". The Swiss reports include interest on farming capital among the costs of production. For the same reason this item has been excluded in this Memorandum.

TABLE I. — LABOUR COSTS AND TOTAL COSTS OF PRODUCTION ON SWISS FARMS EXPRESSED IN FRANCS PER HECTARE AND AS PERCENTAGES, 1908-1912, 1912, 1922, 1923

Size of farm (hectares)	1908-1912			1912			1922			1923		
	Total costs of production	Labour costs	Percentage of labour to total costs	Total costs of production	Labour costs	Percentage of labour to total costs	Total costs of production	Labour costs	Percentage of labour to total costs	Total costs of production	Labour costs	Percentage of labour to total costs
(a) Costs of production including depreciation on live-stock												
	Fr.	Fr.		Fr.	Fr.		Fr.	Fr.		Fr.	Fr.	
Up to 5	761	474	62.2	802	464	57.8	1,849	1,010	54.6	1,528	948	62.0
5–10	686	352	51.3	744	368	49.4	1,301	690	53.0	1,185	682	57.6
10–15	500	286	57.2	549	297	54.1	1,166	567	48.6	1,060	563	53.1
15–30	444	244	54.9	483	257	53.2	1,040	467	44.9	896	455	50.7
30 and over	390	195	50.0	433	210	48.4	908	385	42.4	806	371	46.0
All farms	551	324	58.8	598	333	55.6	1,240	624	50.3	1,094	605	55.3
(b) Costs of production excluding depreciation on live-stock												
Up to 5	750	474	63.2	781	464	59.4	1,599	1,010	63.1	1,483	948	63.9
5–10	675	352	52.1	717	368	51.3	1,129	690	61.1	1,133	682	60.1
10–15	488	286	58.6	522	297	56.8	1,012	567	56.0	996	563	56.5
15–30	434	244	56.2	462	257	55.6	878	467	53.1	840	455	54.1
30 and over	377	195	51.7	392	210	53.5	761	385	50.6	749	371	49.5
All farms	542	324	59.8	572	333	50.2	1,068	624	58.4	1,039	605	58.9

The absolute figure for 1908-1912 and for 1922 and 1923 differ greatly, but the percentages of labour cost to the total costs of production are almost

unchanged. This is specially true of the "corrected" figures. For both periods the small farms have total costs of production nearly double those on the big farms, while their labour costs are from more than double up to two-and-a-half times as much per hectare. The consequence is that the percentage of labour costs to total costs on the small farms is approximately 60 per cent., while on the big farms it is approximately only 50 per cent. The decline is extraordinarily regular from group to group. A similar decline when at all observed in other countries has always been at a slower rate.

That what in Switzerland counts as a large holding is relatively still a small estate is clear from figures (table II), which show how large a part family labour still plays on such holdings.

TABLE II. — PERCENTAGE DISTRIBUTION OF LABOUR COST AS BETWEEN FAMILY AND HIRED LABOUR ON SWISS FARMS COSTED IN 1923

Size of farm (hectares)	Percentage of labour supplied by	
	the farmer and his family	hired employees
Up to 5	88	12
5–10	79	21
10–15	69	31
15–30	50	50
30 and over	31	69
All farms	60	40

UNITED STATES OF AMERICA

Two sets of figures are available each year in the United States of America, from which information may be obtained about the cost of labour in agriculture. The first are based on national crop statistics and statistics of production; the second on a more limited number of detailed reports from individual farm owners. Information based on national crop statistics is representative of the country as a whole; information based on the more detailed reports represents the farms making these returns; these farms are all owned, not tenancies, and are larger than the average American farm [1].

[1] UNITED STATES DEPARTMENT OF AGRICULTURE: *Crops and Markets*. Vol. II, Supplement 7, July 1925, and Vol. III, Supplement 7, July 1926. The tables may also be consulted annually in the *Agricultural Yearbook* of the Department.

All studies on farm economics in the United States of America centre round the fact that the farmer is the principal worker on his own farm; the "hired hand" plays a more subordinate part. Labour cost, therefore, means in the first place the cost of the labour done by the farmer, and, of course, also by his family.

A comparison of labour cost with total costs of production is presented in table I; the figures in this table are taken from the more detailed reports made by individual farmers. Costs of production include live-stock bought, feed bought, fertiliser, seed, machinery and tools, and miscellaneous, but not taxes [1]; also, of course, wages to hired labour and an estimate of wages to the farmer himself and his family. Board represents full board, not only the value of food and fuel consumed off the farm; no allowance, however, is made for lodging.

TABLE I. — COST OF LABOUR COMPARED WITH TOTAL COSTS OF PRODUCTION, 1922-1925

Costs	1921-1922	1922-1923	1923-1924	1924-1925
	(dollars per farm per year)			
Hired labour				
Cash wages	331	350	384	386
Board	156	144	161	158
Family labour				
Cash wages	716	870	789	793
Board	337	357	331	325
All labour, cash and board	1,540	1,721	1,665	1,662
All costs of production	2,292	2,531	2,499	2,562
Percentage of all labour to all costs	67.0	68.0	67.0	65.0
Percentage of all labour (cash only) to all costs	58.0	60.0	58.0	57.0

The figures for board have been calculated by the International Labour Office. For each of the years given the ratios between the *monthly* wages with and without board have been calculated on the base of a table of monthly wage rates per hired worker. On the assumption that all hired workers are boarded, the amounts represented by board have been found by applying these ratios to the amounts mentioned for cash wages. The same process was then undertaken for family labour. As a matter of fact, only 63 per cent. of hired workers on American farms are boarded. Labour cost percentages have, therefore, also been calculated for cash wages only. In this way maximum and minimum percentages are obtained, and the truth must lie somewhere between the two.

[1] Eliminated by the International Labour Office.

The distribution of the net output from farming is presented in tables II and III. In table II all the partners in production, including the community and outside capital, are represented. In table III the net return to the exploiter[1] only is set forth. This has been done on two alternative methods. On the first method, interest on his capital at 4.5 per cent. is deducted and the remainder of what comes to him is counted as his reward for labour and management; on the second method, an amount equal to what he would have earned as hired worker is first deducted and the remainder is then counted as the interest on his capital; the rate of interest this produces is added, and comparison may be made with rate of interest earned by other capital invested in agriculture. The two alternatives bring out the point made in the Introduction to this Memorandum, that the total reward earned by the farmer is often not adequate to provide both interest on capital and reward for his work as though for paid labour.

TABLE II. — DISTRIBUTION OF NET OUTPUT FROM FARMING, 1919-1926

Year	Total net output		Net output distributed to											
			Community (taxes)		Non-farming capital interest on mortgages, etc.[2]		Landowner (rent[1])		Exploiter (interest on capital, reward for labour and management)				Hired worker	
									as food[2]		as cash			
	Amounts in millions of dollars													
		%		%		%		%		%		%		%
1919–1920	12,413	100	388	3.1	787	6.3	1,712	13.8	2,887	23.3	5,147	41.5	1,492	12.0
1920–1921	8,979	100	545	6.1	897	9.9	1,399	15.6	2,645	29.5	1,761	19.6	1,732	19.3
1921–1922	6,766	100	582	8.6	840	12.4	959	14.2	2,129	31.5	1,168	17.3	1,088	16.0
1922–1923	7,865	100	617	7.8	809	10.3	1,014	12.9	2,168	27.6	2,196	27.9	1,061	13.5
1923–1924	8,528	100	626	7.3	774	9.1	1,034	12.1	2,360	27.7	2,530	29.7	1,204	14.1
1924–1925	9,138	100	635	6.9	758	8.3	1,094	12.0	2,327	25.5	3,117	34.1	1,207	13.2
1925–1926	9,339	100	635	6.8	758	8.1	1,127	12.1	2,524	27.0	3,079	33.0	1,216	13.0

[1] For rates at which interest is paid see table III.
[2] No allowance for value of dwelling accommodation.

[1] And to his family.

TABLE III. — DISTRIBUTION OF EXPLOITER'S SHARE IN NET RETURN FROM FARMING, TOGETHER WITH COMPARISON OF RATE OF INTEREST EARNED ON EXPLOITER'S CAPITAL WITH RATES EARNED ON OTHER FARMING CAPITAL, 1919-1926

Year	Exploiter's share in net return from farming						or					Rate of interest earned on		
	Total		Deduct interest on his capital at 4.5 per cent.		Remaining reward for his labour and management		Deduct normal reward for his labour and management		Remaining interest, and rate of interest, on his capital			all capital invested in agriculture	mortgages and other debts	land leased in tenancy for farming
	per farm										rate of interest			
	$	%	$	%	$	%	$	%	$	%				
1919–1920	1,246	100	329	26.4	917	73.6	830	66.6	416	33.4	5.7	6.3	6.7	8.3
1920–1921	684	100	287	42.0	397	58.0	870	127.2	–186	–27.2	–4.2	0.5	7.0	7.3
1921–1922	514	100	244	47.5	270	52.5	638	124.1	–124	–24.1	–2.3	1.2	6.8	5.7
1922–1923	682	100	242	35.3	440	64.5	617	90.5	65	9.5	1.2	3.2	6.8	6.2
1923–1924	766	100	233	30.4	533	69.6	683	89.2	83	10.8	1.6	3.5	6.6	6.6
1924–1925	854	100	230	26.9	624	73.1	691	80.9	163	19.1	3.2	4.4	6.4	7.1
1925–1926	879	100	231	26.3	648	73.7	699	79.5	180	20.5	3.5	4.6	6.4	7.4