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Farm business analysis

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MAKING THE FARM PAY

By

G. B. CLARKE

B.Sc. (Econ.) Hons. Lond. Dip. Agric. Sci. (Cantab.)

Second Edition

FEBRUARY 1956

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FOREWORD

To kill two birds with one stone is generally sound economics and for many years now the Agricultural Economics Section in this University has used farmers' accounts, kept in the first place for income tax purposes, to analyse the financial position of farm businesses in order to increase farm profits. The importance of work of this kind has grown to the point where it has been deemed worth while making an appointment to the staff of the University of an Economist whose main concern is the furthering of the principles of farm management on which advice on cost cutting must be based. In this bulletin he attempts to describe how simple farm accounts can be used to show an individual farmer any weaknesses in his organisation by comparing his own accounts with standards based on the accounts from many other farms which are collected and analysed by the University Economists.

W. Harwood Long.

Department of Agriculture,
University of Leeds.
June, 1955.

INTRODUCTION

The Annual Price Review of 1955 has heavily underlined earlier official statements that the pattern of agricultural production must approach that most suited to the country's needs. Quantity of produce can no longer be the sole criterion for assessing the value of the farming contribution to national wellbeing. It is in the interests of all to ensure that resources such as land, labour and capital are used for providing those products which are scarcest and thus in greatest demand. In deciding just which these products are the farmers' best guide is their price in relation to production cost. It is this relationship which measures the productivity of the resources used by the farmer and the same relationship over total farm output will determine his final profit.

High profit is the reward for sound management of resources and this implies a close scrutiny of costs and returns coupled with the ability to appreciate the picture they can give of farm activities over a period of time.

This does not mean that the good farmer will be constantly changing his farming plan in response to every slight change of price. It does, however, mean that he will be keeping close watch on the relationship between his costs and receipts and considering at what stage some readjustment of production might be desirable. He will also be considering the varying effect of the alternatives which are available by way of readjustment. Making a change will almost certainly mean taking a risk but to carry on unchanged should be just as much a considered decision for it also involves risk.

These management considerations have relevance for successful farmers in helping to guide policy and determine profit but they are likely to be even more valuable for the farmer who feels that his returns compare unfavourably with those obtained by others on very similar types of farm. It is hoped that this bulletin will illustrate how a systematic analysis of the farm business may assist farmers and their advisers in diagnosing weaknesses which are impairing the efficiency of farming and thereby reducing profit.

CHAPTER I

THE PURPOSE OF FARM ANALYSIS

Note: Definitions of terms and formulae for calculating Efficiency Factors appear in the Appendix.

Whatever the present level of farm profit, there are two main ways of seeking improvement. One way is to change what the farm produces. Switching, for instance, from milk to beef production would be such a change. The other method is by improving the efficiency with which the present crops and livestock are produced. Increased arable yields as a result of field drainage could mean less costly production but no change in the pattern of farming. The farm policy might then be carried out with greater efficiency.

In practice of course an increase in profit is frequently the result of an improvement to which both methods have contributed. Higher arable yields could easily mean a greater stock carrying capacity which might be met by switching from milk production, limited by buildings, to a larger unit of beef cattle.

The type of farming appropriate for a particular holding is bound to be determined to some extent by local conditions of soil and climate. Such circumstances together with the size of farm will also affect the level of costs incurred in carrying out the farm plan. For these reasons it seems appropriate that for judging farm policy and measuring the efficiency of carrying it out the standards for comparison should be derived from similar farms of the district. This is in fact the object of making an economic analysis of any farm business.

If the pattern of farming on a particular farm differs from that normal for the district it is considered superior only to the extent that it can consistently yield higher profits. If farm profit is below normal for the district then attention must be given to assessing whether the farming plan which is being followed is adequate. A farm plan which is not capable of yielding a normal profit will usually be less intensive and result in a cash output lower than that of other similar farms.

Where output is low but the farm policy is similar to that of comparable farms the cause must be sought in the yields obtained from the different crops grown and livestock carried. Below average performance here reflects a failure to obtain the full return which the enterprises are capable of giving.

Thus the farm policy may be limiting profit by not including sufficient intensive crops or livestock in relation to the farm acreage or the outcome of the enterprises may be disappointing. Low profit from either or both of these causes will be associated with low output. For this reason the first step in the economic analysis of any farm is to calculate the Net Output on a 'per 100 acres' basis and then compare this with the district average for similar farms. Any appreciable difference will be due either to the farm policy which is being followed or to the level of yields obtained from the crops and stock which make up the policy.

Although profit is often closely related to the level of output it is not wholly determined by it. Comparison may show output to be quite satisfactory and yet profit remain low due to a high level of expenditure in obtaining the output. This automatically suggests the next aspect of the farm business which should be subjected to scrutiny. It is the costs.

In analysing these costs it is reasonable to consider first those which account for the largest proportion of the farm expenses. Here the aim is to determine if these costs bear a normal relationship to the output which they have produced. The comparison to determine normality is once again with the average for similar farms of the district.

Labour will usually be the largest single cost item and this may be related to output in a form useful for comparison by calculating a factor of 'Net Output per £100 Labour.' The relationship may then be tested against the district average and the reasons for divergence determined.

One clear reason which may explain a high or low level of Net Output per £100 Labour is the extent to which the farm work has been mechanized. Since machinery is used to reduced the labour required in performing farm tasks, high machinery expenses may be justified by low labour costs. Thus it may sometimes be desirable to combine labour and machinery costs in the calculation of a factor of 'Net Output per £100 Labour and Machinery.' In this way the productivity of the labour is assessed with account taken of the tools at its disposal which may give a better check than analysing each separately.

The remaining major item of costs which should come under scrutiny is that of livestock feeding stuffs. Particularly is this so if any appreciable quantity of the feed is purchased. Food cost has been found to account for between 60 per cent. and 85 per cent. of all costs in livestock production. It would clearly be inappropriate, however, to relate stock feed to the Net Output of the whole farm since the cost of feed is incurred solely for the livestock enterprises. The feed must be considered in terms of Livestock Output alone. Two principal methods are available for doing this. Either, purchased feed can be expressed as an acreage equivalent and added to the farm acreage devoted to the stock, when Livestock Output may be expressed on a 'per feed acre' basis. Or, the forage crops consumed by the stock may be valued at market prices and added to the value of purchased feed, when Livestock Output can be measured 'per £100 of feeding stuffs.' In both cases the standard for comparison is taken from the average performance of similar farms in the district.

There are of course many more factors which can be calculated to measure the economic efficiency of a farm's activities and which provide useful information for management purposes. Those which have been mentioned do however form the basis for nearly all such farm analysis. More important than this, they illustrate the lines of reasoning which it is desirable for farmers to follow if satisfactory progress in developing agricultural efficiency is to be obtained with the aid of economic analysis of the farm business.

CHAPTER II

OBTAINING THE NECESSARY INFORMATION

The economic analysis of the farm business is but one of the tools available to farmers and agricultural advisers to help in making wise policy decisions. The pointers and measures which such analysis yields should always be considered along with the farmer's own intimate knowledge of his fields and stock as well as in relation to the established principles of the science of agriculture. It is no more than a sensible precaution to endeavour to obtain from such sources confirmation of the results which the farm analysis yields. There would be little point in recording a low level of output on a farm until a suitable adjustment had been made to compensate for an exceptionally high proportion of unproductive rough grazing.

In order to apply the principles of farm analysis and to calculate the various efficiency measures for a particular farm the necessary facts and figures must be made available. This is not always a simple matter. Care must be exercised that the data used in any calculation for comparison with a district standard has been derived on the same basis as that used for the calculation of the standard.

It would be tedious and possibly confusing to present a complete catalogue of all the adjustments which may be required in order to convert the information concerning a particular farm on to precisely the correct basis for assessment and comparison. A sound knowledge of the reasoning behind what is being attempted is perhaps the best safeguard in this matter although mention will be made of some of the more common adjustments which are desirable.

Much of the information which will be necessary should be available in the normal farm accounts—particularly the Trading Account—but this must relate to the farm on a tenant basis. If the farm is in owner occupation then a reasonable rent must be substituted for any expenditure which would normally be a landlord's responsibility.

The total figure for wages must include the value of any unpaid labour and an allowance for the manual work of the farmer or his wife at current wage rates.

Any cost such as a bank charge for interest on a loan or overdraft should be excluded since the size of this item will depend on the source of the farmer's capital and not on the efficiency of his farming.

Produce consumed in the house should be assessed as accurately as possible and the value added to the sales figure if this has not already been done. This is desirable since such produce has resulted from the items on the cost side and to omit it would be to underestimate the productivity of these resources.

The opening and closing valuations which appear in the Trading Account furnish information to assess any valuation change for crops and livestock between the beginning and the end of the period under review. Such valuation changes for farm stores, fertilisers, etc. should be used for adjusting the figure of cost expended on these inputs during the year.

The Balance Sheet from the farm accounts will yield information to assess the solvency of the business and the amount of cash in the assets which might be available to finance any desirable modifications of the farm plan. The Balance Sheet sets out how the machinery depreciation has been calculated and in this connection high machinery costs may be misleading if the initial allowances for income tax purposes have unduly raised the depreciation charge. Any initial allowances should be excluded and only the standard annual sums of depreciation included for the assessment of machinery cost.

The farmer himself will be able to supplement the financial data of the accounts with information of crop acreages, yields, tillages and so on. Such information will often provide a means of check-in the financial data and this should certainly be done wherever possible.

With these observations in mind and a clear appreciation of what is to be attempted most farmers and farm advisers should be in a position to undertake a fairly simple economic analysis of the farm business using for comparison the standards available from the local District Advisory Officer of the National Agricultural Advisory Service. By way of demonstration an example will be worked through in the next chapter.

CHAPTER III

AN EXAMPLE OF METHOD

The Farm

This demonstration concerns the analysis of a farm which is believed not to exist but which very well could. It consists of nearly 200 acres of light to medium land in the Vale of York. It is a mixed stock and arable holding—three quarters under the plough and one quarter pasture.

The farmer is quite rightly held in high esteem in the district for his crop yields are very good and his stock will stand comparison with those on any of the neighbouring farms. The cropping is typical of the district, and the stock kept include cattle, sheep and pigs. The return shown in the accounts however was not very impressive so it was decided to check the farm performance by comparison with published information for the district.*

Farm Policy

First of all a schedule of cropping was drawn up to show how the total farm acreage had been used during the year to which the accounts related. The acreage of each crop was then divided by the farm acreage and multiplied by 100. This gave a picture of the land utilization on a 'per 100 acres' basis which was set out for interest's sake beside the schedule of standard cropping for the district. The result is set out in the cropping schedule below.

The average size of the farms from which the cropping 'standard' was derived exceeded that of this farm by only 17 acres so the comparison suggested that further analysis of cropping to make a farm system comparison was hardly justified.

* Types of Farming in Yorkshire, Farmer's Report No. 122
University of Leeds, Economics Section,
Department of Agriculture.

Cropping Schedule per 100 acres:

<i>Crop:</i>	<i>This Farm:</i> <i>Acres</i>	<i>Standard:</i> <i>Acres</i>
Wheat	13½	12½
Barley	14	13
Oats & Mixed Corn	10½	10½
Other Sale Corn	—	1
Other Feed Corn	1½	1¾
<i>Total Corn</i>	<u>39¾</u>	<u>38¾</u>
Potatoes	6¼	5½
Sugar Beet	—	1½
Mangolds	2	2
Swedes & Turnips	3	2¾
Seeds Mown — 1 cut	11½	7½
— 2 cuts	—	1¼
Seeds grazed	10¼	8¼
Seeds for drying & silage	—	½
Other Crops	1	3¾
Fallow	—	—
<i>Total Arable</i>	<u>73¾</u>	<u>72</u>
Meadow	—	2¾
Pasture	26½	25½
<i>Total Acres</i>	<u>100</u>	<u>100</u>

It was also felt that the livestock policy was quite typical of the district. Nevertheless a quick check was decided on. To do this all the stock numbers were reduced to a common basis*—the animal unit—and again expressed on a 'per 100 acres' basis for comparison. The result showed that this farm was in fact, more intensively stocked than most of its type in the district. Furthermore, the proportions of the different types and classes of stock followed the pattern of the 'standard' stocking quite closely. The actual figures were as follows :—

Animal Units per 100 acres :

<i>Stock:</i>	<i>This Farm:</i>	<i>Standard:</i>
Cows & Bulls .. .. .	.5	1.5
Other Cattle	21.2	16.9
Ewes & Rams	7.2	3.4
Other Sheep .. .. .	.1	3.4
Sows, Gilts, Boars	2.8	1.6
Other Weaned Pigs	7.3	5.4
Poultry	—	1.6
Work Horses	1.0	.8
Other Horses	—	—
	<u>40.1</u>	<u>34.6</u>

* The actual scale used is set out in the Appendix.

The farmer was quite surprised at the result of this comparison so far, for his farm appeared to be representative of a group which together were farming over five thousand acres in his near neighbourhood. The similarity ceased rather abruptly however when he carried on to tabulate yields of the more important crops. The justification for his high reputation was amply confirmed.

Crop Yields :

<i>Crop:</i>	<i>This Farm:</i>	<i>Standard:</i>
Wheat (cwt.)	31½	24½
Barley (cwt.)	32	24½
Oats & Mixed Corn .. (cwt.)	27	23½
Potatoes (tons)	12	10½
Mangolds (tons)	25	28½
Swedes & Turnips .. (tons)	15	18½
Seeds Mown — 1 cut .. (cwt.)	50	36½

Looking at these yields it did seem that there was little cause for concern about the level of output on this farm—yields were well above average with the exception of the fodder roots and stocking was more intensive than the average. Nevertheless this complacency faded a little at the thought of just what the cash return would have been had crop yields been no more than normal. This prospect was a considerable spur to continue with the analysis.

The Farm Analysis

The next step was to examine the financial side of this farm business and it was decided to start with the output first.

In calculating the Livestock Outputs, sales were adjusted for the valuation change and any stock purchases deducted. For Crop Outputs the sales were adjusted for valuation changes and no account taken of the quantities used for stock feed or bought for that purpose. These outputs were put on the 'per 100 acres' basis and listed in the following order:—

Output per 100 acres:

	£
Cattle	694
Sheep & Wool	371
Pigs	1,125
Dairy Products	18
Cereals	1,145
Roots	774
Other Crops	123
Miscellaneous	22
Total	4,272

After this the inputs or expenses were assessed. An allowance was included under 'Labour' for the work of the farmer and his wife, and also for the work performed by a son (feeding the stock) at the weekends. Purchases of feed, seed and manure were adjusted for the change in amounts on hand in the opening and closing valuations. These expenses were also set out on a 'per 100 acres' basis.

Expenses per 100 acres :

	£
Rent	224
Labour	1,028
Purchased Food	880
Seeds	190
Manures	219
Power & Machinery	491
Miscellaneous	301
	<hr/>
Total	3,333

It was next possible to set out these inputs and outputs in the form of an account and calculate the balance of Profit. For comparison the average figure for similar farms of the district was set out alongside.

Output and Expenses per 100 acres:

Expenses.	This Farm: Standard:		Output.	This Farm: Standard :	
	£	£		£	£
Rent	224	168	Cattle	694	765
Labour	1,028	870	Sheep & Wool	371	264
Purch. Food	880	706	Pigs	1,125	958
Seeds	190	167	Dairy Products	18	16
Manures	219	263	Cereals	1,145	669
Power & Machinery	491	470	Roots	774	776
Miscellaneous	301	272	Other Crops ..	123	197
			Miscellaneous	22	41
			Poultry & Eggs	—	230
	<hr/>	<hr/>		<hr/>	<hr/>
Profit	3,333	2,916		4,272	3,916
	939	1,000			
	<hr/>	<hr/>		<hr/>	<hr/>
	4,272	3,916	Gross Output ..	4,272	3,916

This result proved rather irritating to the farmer. His yields were, by these standards, far above average yet his profit was more than ten shillings an acre below the average. There seemed nothing wrong with Gross Output which exceeded the normal level by a very comfortable margin. His system corresponded very closely with that customary in the district where, when less productive than on his farm, it gave a better cash return. The reasons for this could only be in his level of costs. Accordingly attention was concentrated on the inputs.

It was possible that comparable farms were not needing to supplement their own produce with quite such heavy purchases of the produce of other farms. In view of his high crop yields the farmer thought this unlikely. Nevertheless his purchases of feedingstuffs and seeds were higher than the standard although this was only to be expected since his Gross Output was also greater. To assess the productivity of his own land, with purchases from other farms eliminated, the factor of 'Net Output per 100 acres' was calculated. This was done by deducting the value of purchased feeding stuffs and seeds from the figure of Gross Output. The calculation gave the following result:—

Net Output per 100 acres:						
			<i>This Farm:</i>		<i>Standard:</i>	
			£	£	£	£
Gross Output	..	..		4,272		3,916
Less purchases of—						
Food	..	..	880		706	
Seeds	..	..	190		167	
			<hr/>	1,070	<hr/>	873
Net Output..	..	..		<hr/>3,202		<hr/> 3,043

This comparison confirmed the belief of the farmer, and the opinion of others, that the level of Net Output from this farm was above average even after adjusting for the stock feed and seeds acquired from other farms.

There remained the following inputs to consider from among the list of expenses set out on page 15.

				<i>This Farm:</i>	<i>Standard:</i>
				£	£
Rent	..	..	..	224	168
Labour	..	..	..	1,028	870
Manures	..	..	..	219	263
Power & Machinery	..	..	..	491	470
Miscellaneous	..	..	..	301	272

Of these the rent did appear comparatively high but on consideration the farmer still felt that his land and buildings justified this. He could get some excellent crops with yields that he knew his neighbours would have difficulty in bettering. Furthermore his crop results were obtained with an expenditure on manures lower than the standard by an amount which almost offset his higher rent. The buildings although far from ideal had been well maintained and even improved from time to time. The farmer did make a mental note to keep a closer check over his expenditure on all the day to day miscellaneous costs which in his case had amounted to three pounds an acre during the year.

Expenditure on power and machinery did not seem excessive by comparison with the standard, for on this farm great importance was attached to carrying out cultivation really well and of course the resulting high crop yields automatically meant higher harvesting costs.

Labour cost was, however, quite another matter. If some additional cost over that of the 'standard' was accepted (for the same reasons as applied to machinery) it was nevertheless difficult to justify nearly one fifth more, even bearing in mind the more intensive stocking of the farm. It seemed desirable to examine this input quite closely so the farmer proceeded to calculate the factor of 'Net Output per £100 Labour.'

Net Output per £100 Labour

Net Output (£3,202) ÷ Labour (£1,028) × 100 = £311

	<i>This Farm:</i>	<i>Standard:</i>
Net Output per £100 Labour	£311	£350

This was the first formal indication of a weakness in the organisation of what appeared to be a very good farm. Could it be that there existed some slack in the labour force—an element of underemployment—or was the labour more costly than on other farms? The farmer knew that all his men were very well worth their rate on any comparison with others in the district. He employed four grown men and a youth and he himself worked with them throughout the year. He could recall no time when they were idle; in fact, more than once he had been glad to engage some casual labour. Having no combine a certain amount of harvesting was done by contract. A fuller check on labour in relation to normal requirements might give some guidance in this matter. For this purpose the 'standard' amount of labour with which to compare the actual amount used on this farm was estimated with the aid of a table of Work Units*, which has been prepared to indicate a normal labour requirement, including general work not directly attributable to any particular enterprise.

The acreages of each type of crop and the average numbers of the various livestock carried were multiplied by the appropriate work unit requirement which gave the following result:—

Work Units Required		
Total for crops .. ..	..	872
Total for stock .. ..	..	454
Total farm requirement ..	..	1,326

* See Appendix.

Work Units Available

2 Stockmen @ 300	..	600
2 Field men @ 250	..	500
1 Youth ..	..	200
Farmer (not full time)..		200
Total available on farm	..	<u>1,500</u>

The amount of regular labour available seemed adequate to handle the total amount of work which was indicated whereas in fact both casual labour and quite a lot of contract work was used.

After some consideration the farmer concluded that there might well be a case for getting his own combine to reduce the peak labour requirement at harvesting time. Furthermore he could see that his policy of only fattening pigs in the summer when he had some yards empty did not really free the pigman for other continuous work in the winter, since the man still had the breeding stock to tend and usually wished to be handy to the sows when they were near to farrowing or ready for the boar. Muck-spreading was another difficulty which often called for some extra labour and contract work.

Here indeed were some aspects worth considering and just as a matter of interest the farmer calculated that if his 'Net Output per £100 of Labour' could be adjusted, by labour saving, to the average, his labour cost per 100 acres would fall from £1,028 to £943. This would put his profit well in line with the district standard. Even then, merely an average return from a farm where yields were so far above the average seemed hardly satisfactory. There remained a further aspect of farm performance to consider. This was the livestock.

In livestock production there are three major categories of cost. These are (1) Food (2) Labour and (3) Miscellaneous Costs. Of these costs on this farm both total labour and miscellaneous costs had already been checked in relation to the Net Output of the whole farm but in calculating Net Output the purchased livestock feeding-stuffs, which represented produce introduced from other farms, had been eliminated from output. Now it was proposed to attempt a check of stock feed in terms of the actual Livestock Output it had produced.

No precise record of foods fed had been kept but nearly all the pig food was purchased so it was decided to examine the pig enterprise separately from the sheep and cattle. It was quite impossible to determine the quantities of food which had gone to sheep as distinct from cattle. Furthermore, these two classes of stock had grazed the same fields.

However, by working through the cropping schedule and allowing for crop sales and changes in the quantity of crops on hand between the beginning and the end of the year it was possible to allocate the acreages which had been consumed by the sheep and cattle together. For instance, the calculation in the case of oats was as follows:—

		Oats:	
		cwt.	cwt.
Total yield	.. ..	570 (21 acres 27 cwt. per acre)	
Less Quantity sold	.. ..	195	
Kept for seed	.. ..	23	
Increase in valuation	.. ..	100	
		<hr style="width: 100px; margin: 0 auto;"/>	
		318	
Amount Fed	.. ..	<hr style="width: 100px; margin: 0 auto;"/>252 cwt. = approx. 9 acres	

By carrying out similar calculations for all the cash crop acreage and accounting for all the fodder crops including amounts on hand at the beginning of the year it was possible to draw up a list of feed acres adjusted to take account also of purchased feed.

Feed Acres used by Cattle and Sheep

				<i>acres</i>
Feed grain	.. ..	.. ..	.. ..	15
Beans	.. ..	.. ..	.. ..	1
Roots	.. ..	.. ..	.. ..	10
Hay	.. ..	.. ..	.. ..	21
Pasture & aftermath grazing				51
Concentrates (1 ton = 1 acre)				5
				<hr style="width: 100px; margin: 0 auto;"/>
Total				103

The figures of Livestock Output for the farm were referred to and those for cattle and sheep extracted. These were then divided by the feed acres they had used and a figure of Livestock Output per Feed Acre was obtained:—

Livestock Output Per Feed Acre

Livestock Output—		£
Cattle	.. ..	1,346
Sheep	.. ..	721
Dairy Produce	.. ..	36
		<hr style="width: 100px; margin: 0 auto;"/>
Total		2,103

Livestock Output (£2,103) ÷ Feed Acres (103) = £20.4

<i>This Farm:</i>	<i>Standard:</i>
£20.4	£20.7

This check cannot of course be regarded as very accurate but it is as good as can be achieved in view of the limited data available. It permits only of a rather negative conclusion which is that, compared with other similar types of farm, no abnormal misuse of food is indicated for the cattle and sheep. For a closer check on these enterprises and an assessment of their actual profitability more accurate records would be required.

Attention was then turned to the pigs and here since most of the food had been purchased it was possible to assess its cost and calculate a figure of 'Livestock Output per £100 Feedingstuffs.' The total figure of pig Livestock Output was £2,195 and the food consumed amounted to the following:—

Pig Food.				£
<i>Home Grown:</i>				
Feed grain	.. ..	90 cwt.		112
Beans	.. ..	40 "		60
Potatoes	.. ..	12 tons		48
Roots	.. ..	2 acres		100
Hay	.. ..	2 tons		20
Grazing	.. ..	20 acres		45
<i>Purchased:</i>				
Pig meals	.. ..	45 tons	1,380	
Total Cost				1,765

Using this information it was possible to arrive at an assessment of food utilization by the pigs.

Pig Livestock Output per £100 Food

$$\text{Pig Livestock Output } (\pounds 2,195) \div \text{Food Cost } (\pounds 1,765) \times 100 = \pounds 124$$

<i>This Farm:</i>	<i>Standard:</i>
£124	£140

There was a clear indication of room for improvement here. It had already been noted that fattening in summer alone was not conducive to efficient labour use but a scrutiny of the account book showed also that winter stores of about 3 months old had been sold for an average of only £6 apiece. There seemed to be quite a case for fattening all the weaners which were produced provided food conversion efficiency was satisfactory. To decide this it was proposed to ration the food strictly and attempt a simple form of food recording.

As a final point of interest the farmer calculated that if his pigs had achieved the standard Livestock Output of £140 per £100 feed it would have added £225 to his profit per 100 acres. The improvement in labour use together with the better pig results would thus have altered his account of output and expenses to the following extent:—

Output and Expenses Per 100 Acres:

<i>Expenses</i>	<i>This Farm:</i>		<i>Output</i>	<i>This Farm:</i>	
	<i>Old</i>	<i>New</i>		<i>Old</i>	<i>New</i>
	£	£		£	£
Rent	224	224	Cattle	694	694
Labour	1,028*	943†	Sheep & Wool ..	371	371
Purch. Food ..	880	880	Pigs	1,125*	1,350†
Seeds	190	190	Dairy Products ..	18	18
Manures	219	219	Cereals	1,145	1,145
Power & Machinery	491	491	Roots	774	774
Miscellaneous ..	301	301	Other Crops ..	123	123
			Miscellaneous ..	22	22
	3,333	3,248		4,272	4,497
Profit	939	1,249			
	4,272	4,497	Gross Output	4,272	4,497

* 'Standard' Profit £1,000

* Weakness detected

† Weakness corrected

At the conclusion of the analysis the farmer did not think that it had revealed a quick and easy way to greater profits. He did believe, however, that it had guided his thinking along logical lines when he was attempting to make a critical review of his farm business. He had now identified two sectors—one of cost and one of output—where he was prepared to concede that performance was detracting from the high standards he set himself. Even worse it was falling short of what other farmers achieved. The solution and improvement had still to be planned. There were several possibilities but all had their snags and problems. Nevertheless, for this farmer the first step had been successfully completed. He now knew why it was that in spite of high yields his farm had made below average profit.

CONCLUSION

Business analysis when based on the principles of economics involves studying ends in relation to scarce means which have alternative uses. For the farmer the scarce means are the inputs which he buys or hires, their alternative uses cover the whole range of agricultural products and the ends are those products which he does select to produce out of this range.

The efficiency or productivity of the inputs is measured in relation to the market value of what is produced. Thus the economic approach to the farm business is concerned to increase the efficiency of resources which are employed in agriculture. If this is achieved a contribution is made to material well being and, for the individual farmer, the margin between costs and returns is increased.

This philosophy takes a practical form in this publication which has described the simpler EFFICIENCY FACTORS with which an interested farmer or adviser could carry out the job of farm analysis. These measures may appear to relate rather more to the past than to the future but in agriculture, change is normally a slow process so that the recent past may fairly be regarded as representative of the present and also of the near future. Furthermore in farming a good long term return is usually better policy than an outstanding profit which cannot be maintained. For this reason the lessons of the past deserve close study. The difficulties restricting quick adjustment make it quite imperative that any change which is instituted should be well considered for, once initiated, a farming policy is seldom highly flexible.

Nevertheless these considerations are no argument for permitting the full potential of a farm to remain undeveloped. To the extent that the economic analysis of a farm business can assist management to identify any weakness of system or achievement it will be providing a sound basis on which to draw up plans for the future.

Once familiar with the logic and the practice of the analysis which has been described a farmer may expect to derive still greater satisfaction from his chosen way of life as a result of an increased measure of control over the return it gives him. The effects on his income which result from market changes may be quickly assessed and the changes in the relationship between ends and scarce means measured in a way which has a clear significance for all who aspire to really successful farm management.

APPENDIX

DEFINITIONS

Gross Output—total annual income (excluding sales of capital equipment) less livestock purchases, plus or minus the valuation change of crops and livestock.

Net Output— Gross Output less purchased feed and seeds.

Labour— includes the value of unpaid work, employers insurance contributions, cottages and perquisites. It also includes the value of the work of the farmer and his wife.

Livestock Output— livestock sales less livestock purchases plus or minus the livestock valuation change.

Feed Acres— acreage of all forage crops, home grown grain and roots which have been fed, plus an addition for purchased feed converted to acres on the basis of local yields per acre of equivalent feeds.

EFFICIENCY FACTORS

Net Output per 100 Acres=
$$\frac{\text{Net Output} \times 100}{\text{Farm Acreage}}$$

Net Output per £100 Labour=
$$\frac{\text{Net Output} \times 100}{\text{Labour}}$$

Livestock Output per Feed Acre=
$$\frac{\text{Livestock Output}}{\text{total feed acres}}$$

Livestock Output per £100 Feed=
$$\frac{\text{Livestock Output} \times 100}{\text{total value of all feed}}$$

LIVESTOCK UNITS

The average number of each type of stock carried on the farm during the year is converted to a common basis according to the following scale :—

Dairy Cows & Fattening Cattle ..	1	unit
Beef Cows	$\frac{3}{4}$	”
Store Cattle	$\frac{1}{3} - \frac{2}{5}$	”
Ewes and rams	$\frac{1}{5}$	”
Other sheep	$\frac{1}{4} - \frac{1}{6}$	”
Sows, Gilts, Boars	$\frac{1}{3}$	”
Other weaned pigs .. .. .	..	”
Poultry	100	”
Work horses	1	”

WORK UNITS

These indicate the physical amount of labour normally required to grow crops or tend livestock. The rates used in this study are:—

<i>Work Units per annum</i>	<i>per acre</i>	<i>Work Units per annum</i>	<i>per head</i>
Cereals	4	Cows	20
Potatoes	25	Other cattle	3
Sugar Beet	20	Sheep	1
Other roots & kale	15	Sows	5
Hay, silage & bare fallow	3	Other pigs (after weaning)	2
Grazing	$\frac{1}{4}$	Poultry	$\frac{1}{2}$

It has been found that farm workers normally contribute labour at the following annual rates:—

Stockmen ..	300	work units
Field men ..	250	” ”

Printed by
Jowett & Sowry, Ltd.,
Leeds, 1