ACCOUNTING

UNIVERSITY OF NOTTINGHAM

Department of Agricultural Economics

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FARM MANAGEMENT ACCOUNTING

by

H. W. T. KERR

FOREWORD

This publication has been prepared for the benefit of farmers, advisers and accountants who are closely concerned with the use of accounts for farm business management. It is hoped that it may go some way towards clearing up some of the misunderstandings surrounding the gross margin method so that it may play the important part it should in farm business management. The booklet includes fully worked examples of an account, a balance sheet and budgets for a change in policy. These examples are designed not only to be of general use in farm management but particularly having in mind the kind of problems which will undoubtedly arise when accounts are prepared from records kept under the Farm Business Recording Scheme of the Ministry of Agriculture.

D. K. BRITTON

Professor of Agricultural Economics

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H. W. T. KERR, M.A.(CANTAB.)

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UNIVERSITY OF NOTTINGHAM SCHOOL OF AGRICULTURE
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INTRODUCTION

One of the main difficulties besetting farm management work has been the lack of information on which to base advice because of an absence of a really satisfactory method of farm accounting. On the one hand the simple methods used for income tax purposes supply insufficient information, whereas on the other the full cost method has proved too complicated for general application. It is nearly 20 years since Liversage[1] and even longer since King[2] suggested the use of the gross margin method, as it has come to be called, for farm management work. Since then, however, agricultural economists have generally emphasised the budgeting rather than the accounting aspects of this technique. Much good work has been done in this direction and in developing practical ways of recording on the farm, but no very clear lead has been given as to the most suitable layout. Since a sound accounting method must be the foundation on which business management is based, budgets being no more than accounts of expected rather than past performance, it seems unlikely that work will progress as fast as it should until a satisfactory formal layout of account is defined. It is the purpose of this publication to demonstrate a method employed for the gross margin scheme conducted in the Department of Agricultural Economics, University of Nottingham, and to show how it can be used for analysis and planning purposes.

The aim of any account layout should be to assist an analysis of the present position and to provide information in a form which can be easily used for planning. The method demonstrated here, which uses the same layout for both account and budget, shows on one sheet the performance of the business as a whole as well as the contribution made to it by each individual enterprise. It is in a suitable form for analysis and the information contained in it can be used for forward planning. Control can be exercised by preparing forward budgets and comparing actual with budgeted figures. In this way failure in performance can be detected and put right at an early stage and the margin of error inevitably involved in making management decisions reduced.

It is sometimes suggested that accounts being by nature historical are of little value. But the more that is known about the past, particularly in agriculture where the managerial ability of the farmer himself is so important, the easier it is to avoid errors in planning for the future. Accounting, recording, planning and budgeting in fact constitute a continuous process of managerial control and the whole loses much of its value if a part is missing.

The record-keeping required for the account layout suggested here is well within the scope of most farmers. Indeed it is the minimum necessary for them to know their own business. As demonstrated the account can supply the foundation for this continuous process of analysis, forward planning and budgetary control so essential to the farmer in helping him make sound management decisions.

SECTION 1 — ACCOUNTING

Accounting Methods

The basic layout of a Trading Account is that shown below.

Expenditure		Income
Opening Valuation Purchases and Expenses		Closing Valuation Sales and Receipts
PROFIT	or	LOSS

The opening valuation, purchases and expenses are shown on the left hand side and the closing valuation, sales and receipts on the right hand side. A balance on the left hand side shows a profit; on the right hand side a loss.

Income tax accounts are normally laid out in this way. Although many accountants have done much to improve the form of their accounts, income tax accounts in general are still of little value for management analysis and indeed serve a completely different purpose. The main complaint concerns the detail given. Important items of expenditure such as feeding-stuffs, fertilisers and seeds are often lumped together whereas others which are unimportant from the management aspect are shown in great detail. Adjustments are not made to items of sales and expenditure for stocks-on-hand, neither are the valuations sufficiently detailed for them to be identified and the adjustments made. For this reason the output of individual enterprises (sales adjusted for the difference between the opening and closing valuations *less* livestock purchases)* cannot be obtained.

These refinements are, however, introduced in the account prepared by the Universities for farms co-operating in the Farm Management Survey. This account together with the gross margin and the full cost account constitute the three main types of account which have been used in farm management work. They can be distinguished as follows:

(1) Simple account: no allocation of costs to enterprises.

(2) Gross Margin account: partial allocation of costs to enterprises.

(3) Full Cost account: complete allocation of costs to enterprises.

They can be represented diagramatically as shown in Diagram 1. In each case the output is shown for the individual enterprises, the difference between the three accounts being the degree to which the costs are allocated.

In the gross margin account the "variable costs" are allocated to the individual enterprises, the difference between the "variable costs" and the output of each enterprise being its gross margin. The "fixed costs" remain as lump sums and the difference between the sum of the enterprise gross margins and the "fixed costs" is the farm profit. The final stage is reached in the full cost account where all the costs are

* Output = (Closing Valuation + Sales) — (Opening Valuation + Livestock Purchases).

THREE TYPES OF ACCOUNT LAYOUT

Diagram 1

	Fig. 1 Simple Account as prepared for Farm Management Survey							Fig. 2 Gross Margin Account							Fig. 3 Full Cost Account						
	Total	Enterprises						Total	Enterprises						Total	Enterprises					
		A	B	C	D	E	F		A	B	C	D	E	F		A	B	C	D	E	F
Output																					
Variable Costs:		Costs not allocated to individual enterprises																			
Purchased foods																					
Seeds																					
Fertilisers and sprays																					
Vet. and medicine																					
Haulage																					
Contract work																					
Casual labour																					
Miscellaneous																					
Total Variable Costs																					
Gross Margin																					
Fixed Costs:								Costs not allocated to individual enterprises													
Regular labour																					
Equipment depreciation																					
Equipment repairs																					
Fuel and power																					
Rent and rates																					
Building and other repairs																					
Miscellaneous																					
Total Fixed Costs																					
Profit																					

allocated, so giving a profit for each enterprise. In the simple account the costs can be divided into "variable" and "fixed" as in Diagram 1 and a total gross margin shown. Again in the full cost account gross margins for each enterprise can be shown as well as the profit.

The gross margin account is thus a half-way stage in a process of cost allocation to individual enterprises. The question is whether it goes far enough to be useful for business management. At first sight, the full cost account would seem to be the most desirable. However, there are two main objections to this method.

(i) The allocation of some costs (i.e. those not specific to any particular enterprise) can only be made on an arbitrary basis. Since such allocations often have little meaning and may, indeed, be misleading, it is better to leave these costs as lump sums to be carried by the business as a whole.

(ii) The financial allocation of labour and machinery in an account does not help analysis greatly and as an aid to budgeting it can be misleading. Particularly for arable crops, it is not the annual cost of labour incurred by the enterprise that is important, but the use of labour at peak periods. Where time records have been kept comparisons of the annual use of labour by enterprises can be made on an hourly basis without the necessity of converting into money.

The value of the simple account for farm management purposes is limited. It permits an examination of the contribution made by individual enterprises to farm profit only on the assumption that their profitability is directly connected with their output. While there is some correlation between output and profit, this is by no means universal, and it is the relationship between output and costs that is important.

This leaves the gross margin account. The allocation of costs in this method is the minimum necessary to be able to make a useful assessment of the contribution made to the business by individual enterprises, but for the reasons given above, little is usually gained by a further allocation of costs. The recording required is not excessive and generally this is the most useful of the three methods for farm management purposes. The rest of this publication is concerned with the gross margin method.

Definition and Explanation of Gross Margin Terminology

Fixed and Variable Costs. These are really budgeting terms, and much of the misunderstanding over the gross margin method has arisen because accounting and budgeting situations have not been clearly distinguished. When budgeting a specific change of policy the variable costs can be defined as those costs which will vary and the fixed costs as those which will not vary *in the circumstances under consideration.* The longer the time scale of the proposed plan the greater the number of costs which can be defined as variable in those specific circumstances.

This terminology cannot be applied precisely to accounting procedure. The time scale of an account is fixed, but the account may be used for considering a variety of situations, where the fixed and variable

costs in the budgeting sense will change from case to case. If accounts and information presented in account form such as that given in Farm Planning Handbooks are to be comparable, some reasonable agreement as to which costs are to be allocated to the enterprises and which are not, must be reached. The generally accepted classification is that shown in Diagram 1.

From the point of view of budgeting, the variable (or allocated) costs in the gross margin account will alter if small changes are made in the size or method of operation of an enterprise. The fixed (or unallocated) costs on the other hand, either will not alter or, if they do, they will move in "steps". For instance, if another regular man is taken on or another machine is purchased the whole annual cost will be incurred irrespective of the way in which these resources are employed in particular enterprises.

The variable costs can be allocated directly in the account by physical record without the necessity of making arbitrary assumptions as to their apportionment between different enterprises. The fixed costs are generally difficult to split between the different enterprises on any realistic basis. Fuel and power costs are usually included as fixed costs because the effort involved in recording their allocation is out of proportion to their importance relative to other costs. However, when a high fuel cost is incurred by one enterprise, e.g. electricity for corn drying or for poultry, it can be treated as a variable cost. In the case of those regular labour and machinery costs incurred by particular enterprises it has been suggested earlier that there is little advantage in their allocation in the account as an aid to analysis and budgeting.

In agriculture today individual workers and some machines, especially tractors, are usually employed on some or all of the enterprises making up the farm business as well as on general farm work not specific to any particular enterprise. Sometimes workers are employed exclusively for a particular enterprise such as pigs or poultry. Here the labour cost could be directly allocated to the enterprise, but the resulting margin would at present be more suitable for within-farm rather than between-farm analysis. It is possible that as farm businesses become larger there may be some diversification into enterprises viable in themselves where workers are employed exclusively for a particular enterprise. The labour cost and indeed some other fixed costs could then be allocated to the respective enterprises. However, so long as the structure of agricultural businesses remains such that several products are produced from the same base there will always be some costs (including some labour and machinery expenditure) the allocation of which would have little meaning for management purposes.

The division of costs into the two categories is helpful for both analysis and budgeting. The variable costs affect the profitability of an enterprise directly and the gross margin can therefore be used to assess the efficiency of an enterprise. Labour and machinery costs on the other hand are affected both by the selection of the enterprises making up the business and the efficiency of labour use within each enterprise. The remaining fixed costs are mostly related to the business as a whole rather than to individual enterprises.

When budgeting, it is known that if any changes are made in an enterprise, the variable costs allocated to it will automatically alter in proportion to the change in scale. Where the costs alter in constant proportion to scale the gross margin can be used as a short-hand method of budgeting without calculating the individual variable costs. It is also known that the fixed costs may or may not alter but if they do they will change in "steps". Therefore when changes are made in the gross margins, any possible effect on fixed costs must always be carefully considered.

The main advantage of the gross margin method is that it directs attention towards the effect which changes in management may have on income and expenditure. It is then easier to assess whether a particular change in policy will be beneficial or not.

Labour and Machinery Costs. Since these costs are not allocated in a gross margin account, the employment of labour and machinery must be anaylsed in some other way. An assessment of their total cost can be made on an acreage basis and by the use of such efficiency factors as Output per £100 labour and machinery employed. If time sheets are kept the annual employment of labour and machinery by different enterprises can be assessed on an hourly basis as suggested earlier.

The labour and machinery needs of the farming system can be examined with the aid of profile diagrams. These are drawn up to indicate the seasonal requirements and can be worked out either on a man hour or gang work day basis. The advantage of the gang work day method is that data relating to individual farms can be obtained without the use of time sheets. Furthermore it indicates more clearly the deployment of the labour force and shows how the men are employed on particular jobs in relation to the machines they are using. Attention is, therefore, focused on the efficient employment of labour on specific jobs as well as on the integration of labour in the farming system.

An example of a labour profile for a six-month period is given in Diagram 2. The way in which it can be constructed is described by the author in "Analysing the Use of Labour and Machinery", University of Nottingham, Farm Management Notes No. 35[3].

SECTION 2 — RECORDING

There is no point in keeping records simply for the sake of recording. Only sufficient records should be kept to produce the end result desired, and the same set of records can be used to complete an account for either income tax or farm management purposes. The aim of recording is to provide sufficient information for the management account to be prepared in the detail shown in the next section.

There are three main book-keeping methods:

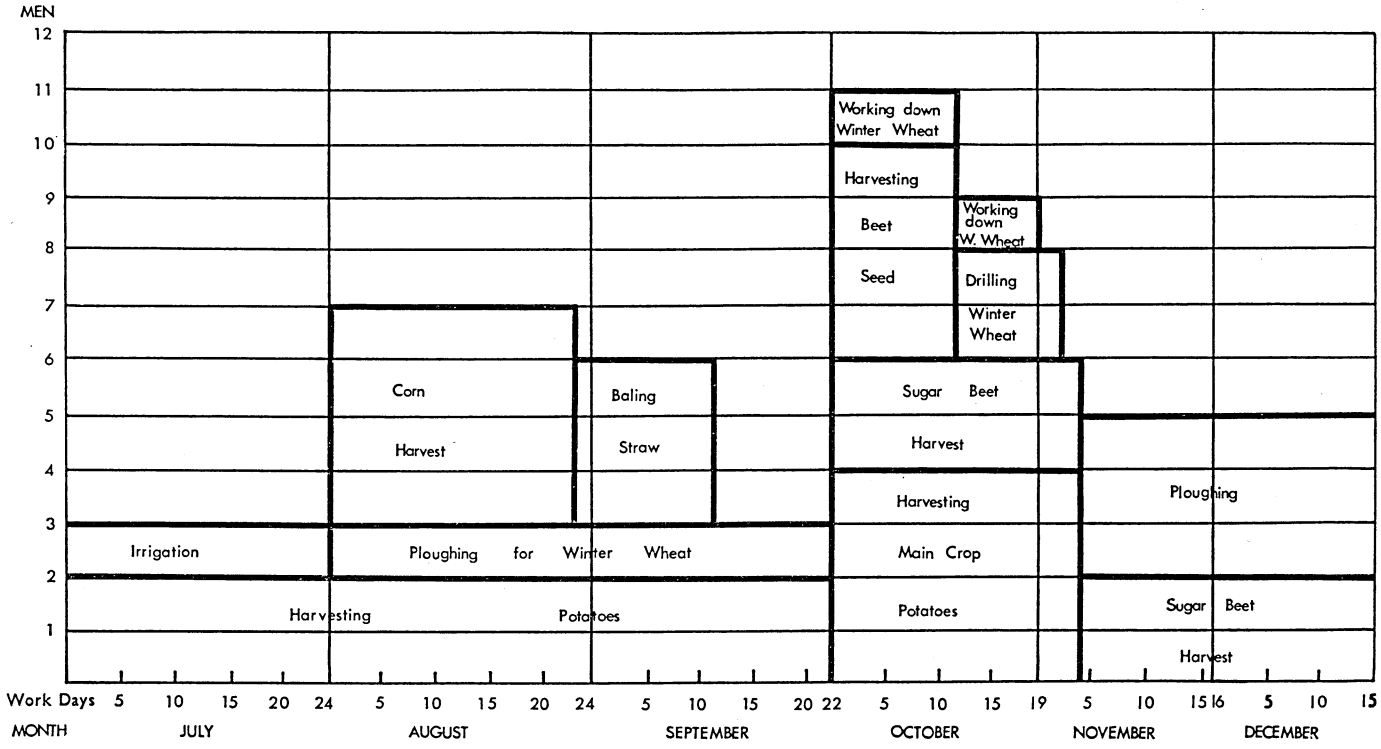
(i) Simple.

(ii) Columnar Cash Analysis.

(iii) Double-entry.

(i) **Simple.** In this method entries are made in a single column. Often large items are lumped together, but there is no reason why all

DIAGRAM 2

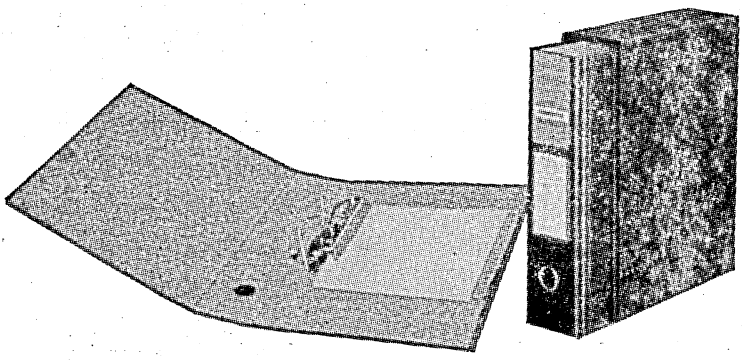

MEN
12
11
10
9
8
7
6
5
4
3
2
1
Working down Winter Wheat
Harvesting
Beet
Working down W. Wheat
Seed
Drilling
Winter Wheat
Corn
Baling
Sugar Beet
Harvest
Straw
Harvest
Harvesting
Ploughing
Irrigation
Ploughing for Winter Wheat
Main Crop
Harvesting
Potatoes
Potatoes
Sugar Beet
Harvest
Work Days 5 10 15 20 24 5 10 15 20 24 5 10 15 20 22 5 10 15 19 5 10 15 16 5 10 15
MONTH JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

entries should not be shown in detail to make whatever itemisation and allocation is necessary when preparing the account.

(ii) **Columnar Cash Analysis.** Entries are itemised under a number of column headings. The advantage of this method is that it forces the recorder to detail entries sufficiently to post them to the appropriate headings. Checks can also be made without difficulty on individual items of income and expenditure during the year.

(iii) **Double-entry.** This is the most accurate method of book-keeping, but also the most complicated. Accounts are opened on separate pages in a Ledger in place of the columns used in cash analysis Each sale or purchase is posted out of one account into another and a continuous check can be kept as the year proceeds. The system is usually found to be too complicated and laborious, but professional secretaries may prefer it because of the greater control it gives.

Whatever method of book-keeping is used, cheque book payments and paying-in slips provide the basic financial information. They should be supported by detailed invoices and bills. Separate files should be kept for payments and receipts respectively and the chits should be filed in chronological order corresponding to the entries in the cheque book and the paying-in book. The type of file suitable for the purpose is illustrated below.



The most common method employed for general use is the Columnar Cash Analysis Method, supplemented by separate sheets to allocate the variable costs to individual enterprises.* The aim in the cash analysis section is to classify items of income and expenditure under their broad headings before allocation to the enterprises. The variable costs are then allocated to the respective enterprises on separate forms. The entries on these sheets should cross-check with those in the cash analysis, so it is essential to show enough detail for this to be done easily. Some items such as fertilisers can be recorded physically on the enterprise sheets provided they can be reconciled with expenditure in the cash analysis at the end of the year.

* The simple method of book-keeping supplemented by enterprise variable cost sheets, however, may be just as appropriate as the Columnar Cash Analysis Method provided entries are made in sufficient detail. It is more difficult, however, to check individual items of income and expenditure as the year progresses.

It is particularly important to record food fed to different categories of stock. Separate barn sheets should be kept for each category of stock and the costs then allocated to the appropriate enterprise. In addition crop acreages, milk yields, monthly stock numbers and any other physical data useful for analysing the account should be recorded.

The NAAS/NFU Farm Business Records Book[4] contains the necessary forms for recording in this way. Instructions for completing the records are given in the book itself and in NAAS Short Term Leaflet No. 50.[5] If the Records Book is completed, a gross margin account can be prepared in the detail shown in the next section.

SECTION 3 — THE GROSS MARGIN ACCOUNT

The enterprise data in a gross margin account are generally prepared on a crop year basis. If crop years are strictly adhered to there will be no stocks of arable cash crops on hand at the end of the year. The gain in accuracy obtained by waiting until all cash crops have been sold is usually not worthwhile so valuations are often shown in the account. However, all stocks, including those of cash crops intended for livestock consumption on the farm, are treated as if they had been sold so that no valuations are carried through to the following year. Crop variable costs, including forage costs, should all refer to the crop year. Livestock enterprises should be treated on the basis of a year corresponding to the production cycle as far as possible. A milk production year running from 1st April to 31st March corresponds to the forage crop year and stocks of home grown bulk food on hand at the end of the year will be at a minimum. Grass conserved in the summer will have been eaten in the winter covered by the account so that the summer and winter periods will be complementary. For enterprises, such as breeding ewe flocks, the livestock year does not match the forage crop year, but it is more important from the management point of view to match the accounts of these enterprises to the livestock year. There will then be stocks of bulk food on hand. These can be assumed not to vary from year to year as long as the management policy remains the same.

If at any time there is a reserve of stock on hand as a result of a favourable season, it can be treated as part of the existing system of management and ignored, since it is unlikely to have given rise to any additional variable costs. If, however, there is a big difference in bulk food stocks on hand between the beginning and end of the year due to a change in policy such as increasing livestock numbers, then whatever method is used for valuing them, interpretation will be difficult in the year of expansion. Stocks can be valued at a standard variable cost per ton (silage, say 10s. and hay 30s.) and the forage acreage adjusted for the difference accordingly.*

* For example, if there is an increase in stock equivalent to the production from 10 forage acres, then the actual forage acreage would be reduced by 10 acres for calculating the grazing livestock gross margin per acre since the production from this acreage has not contributed to the gross margin in the current year.

Where selling hay is a definite part of the farm policy it should be treated as a separate enterprise. The relevant variable costs should be allocated to it and the acreage devoted to it subtracted from the forage acreage. Any stocks on hand at the end of the year would in this case be valued at market price and treated as sold in the same way as arable cash crop stocks. If the sales represent the disposal of surpluses due to a favourable season they can be included in miscellaneous income as a fortuitous occurrence and no adjustment made to either the variable forage costs or the forage acreage.

For simplicity, it is best to try to match the financial year* as nearly as possible to the crop year of the primary enterprise. Arable farms might end at some time between January and June; dairy farms, March or April depending on area and climate; beef, October to April depending on the system; and sheep, October to January. For mixed systems some compromise year-end date can usually be found to suit the main enterprises, e.g. for dairy/arable, March or April; for sheep/arable, January.

It may be easier in practice to treat subsidiary livestock enterprises on a financial year basis where their crop year does not correspond to that of the main enterprises. Care must be taken, however, in interpreting the results, say, of a ewe flock on a farm with accounts ending in April, where there have been changes in policy or in weather conditions between one lamb crop year and another.

Tenantright valuations are eliminated by basing the account on a crop year and individual items of expenditure in the account are adjusted for opening and closing stocks.

An example of a Gross Margin Farm Management Account, together with seven supplementary schedules, is given in the pocket at the back of this booklet, so permitting the example account and schedules to be examined in conjunction with the text. The farm to which the figures shown in the account refer is 379 acres in extent. Approximately half the acreage is arable, including 20 acres of potatoes, and the other half is in grass. The only livestock enterprise is a dairy herd consisting of 81 cows and 62 followers. Full details of livestock and cropping are listed on the front of the account.

This account shows the contribution made by each enterprise as well as the performance of the business as a whole. Further financial and physical details of each enterprise together with the valuations of livestock produce, stores and equipment and details of labour and machinery costs are given on separate schedules. The schedules are arranged so that they can be examined at the same time as the main account.

A column is used for each enterprise and the enterprise designation is entered at the top of the column together with acreage used and number of livestock. Output and variable cost figures are entered in total in the first column and then allocated to their respective enterprises.

* A financial year extends over an exact period of twelve months. Valuations of unfinished and unsold products and crops in the ground have to be taken at the year end date. A crop year, however, extends over the production cycle of the enterprise and may well extend over a period of more than twelve months.

Entries in the arable crop columns will be self-evident, but those for grazing livestock require further explanation. Reading from left to right the items for each livestock category are entered in the appropriate columns but excluding the variable forage costs, (seeds, fertilisers, etc.). The forage cost column is completed after the details for each livestock category have been entered and the livestock columns together with the forage costs finally combined into a single grazing livestock column.

The grazing livestock gross margin is the gross margin obtained from the acreage devoted to forage crops, which is comparable with the arable crop gross margins. Since the forage costs are not allocated to the livestock categories, they have not been deducted from the gross margin shown for each category and as an indication this figure is put in brackets. An allocation is made on the forage costs and livestock supplementary schedules where the method employed can be clearly shown, rather than in the main account.

Items of income and expenditure are listed down the left hand side of the form. Observations regarding important aspects of these entries are given below.

1. Output

(i) Livestock valuation changes are shown instead of the opening and closing valuations to indicate positive or negative differences so that their effect can be clearly seen. Animals are valued at an average annual market price for commercial stock. Changes in average value per head should only reflect changes in the quality of the animals or definite trends in market prices.

(ii) Livestock transfers refer to transfers from one category to another within the farm and should be made at an estimate of their market value.

(iii) Closing crop valuations. Sales and closing valuations of crops on hand are shown separately so that it can be seen clearly what proportion of the output has been estimated. The whole crop is treated as if it had been sold, so no opening valuation appears in the account. Any difference between valuation at a realistic market price less anticipated marketing costs and the ultimate sale price can be noted on the following year's account, but not included in it, so that an allowance can be made when referring to the previous year's results. Saleable crops fed to livestock are included in "sales" at average market price (e.g. barley, potatoes, pulses, but not forage crops grown specifically for livestock). In calculating farm gross output, their value must be deducted from the sum of the enterprise outputs since output has been obtained from them through the livestock enterprise.

(iv) Produce to house and men is valued at wholesale market price and included in the enterprise output.

(v) Livestock Purchases and Transfers In which are really variable costs are entered here so that enterprise outputs (sales adjusted for opening and closing valuations *less* livestock purchases) can be shown.

(vi) Miscellaneous items of income are not included in Output, but are entered under the heading Miscellaneous Income beneath the

sum of the enterprise gross margins. This heading is intended to cover occasional sales such as hay, manure, timber etc.; payment for services, such as contract work, rendered on other farms; and production grants which cannot be assigned to any particular enterprise. The addition of miscellaneous income to the sum of the enterprise gross margins gives the total gross margin of the farm. Full details of miscellaneous income are given on the back of the account record.

2. Variable Costs

(i) Home grown cereals and other sale crops fed to livestock are entered at the same market value as used when they were included in output above. The value of the amount fed may not correspond to the value included in the crop sales as being for feed, since the crop year will not necessarily correspond to the livestock year.

(ii) Fertiliser costs are shown after deduction of the subsidy.

(iii) Contract and casual labour specifically employed for an enterprise can be allocated to it directly.

(iv) Miscellaneous costs comprise any costs not detailed, which can be allocated directly to an enterprise, e.g. dairy sundries.

3. Fixed Costs

(i) An estimate of the manual labour contributed by the farmer and his wife is added to the cost of paid labour so providing a better between-farm comparison of the total labour employed. It can be assessed simply by taking a fair proportion of the average annual cost of employing a worker.

(ii) Contract and casual labour which is not employed specifically for a particular enterprise (e.g. hedging and ditching) is included in the fixed costs.

(iii) Equipment depreciation is usually calculated on the original cost at the Inland Revenue diminishing balance depreciation rates. It may, however, be more realistic, particularly in times of inflation, to use the current cost for calculating depreciation.

(iv) Fuel and power. A proportion of the fuel cost is strictly a variable cost, but because it is generally a small item and because of the difficulties of allocation it is included in the fixed costs. It is not usually possible to allocate electricity and other power to individual enterprises, but where there are heavy grain drying costs or large factory enterprises it is an advantage to do so, if the information is available. The cost would then be included in miscellaneous variable costs.

(v) Rent and rates. Rent is shown less an allowance for the value of the farm house based on its rateable value. An imputed rent is entered for owner-occupied farms assessed on the rent being paid for a repairing lease on similar farms in the area, and including interest on landlord improvements carried out after making allowance for grants received. It has been the convention for a long time to treat all farmers as tenants to facilitate a comparison of productive performance. In individual cases mortgage charges could be substituted for the rent charge

imputed for an owner-occupier together with other interest charges which are normally excluded because they invalidate comparison between the performance of farmers having different proportions of owned and borrowed capital.

(vi) Other repairs refer to repairs other than to machinery, for example repairs to buildings, roads, etc.

(vii) Miscellaneous fixed costs cover insurance premiums, accountants' fees etc. The cost of lime which cannot be ascribed to any particular enterprise is also included here. Full details are again shown on the back of the account record.

4. Management and Investment Income and Farm Income

The estimate of the farmer's and his wife's labour is included in the regular labour figure so that the total gross margin less the total fixed costs is the management and investment income. The estimate is then added to the management and investment income to obtain the net farm income.

5. Additional Data

To assist analysis, individual fixed costs are expressed per farm acre. Crop enterprise gross margins per acre occupied by the crop are given below the main body of the account together with yields per acre. The grazing livestock gross margin is shown per forage acre with the stocking rate, which has an important bearing on the figure obtained, immediately beneath it. Livestock gross margins before deduction of forage costs expressed per head can be entered where this has any meaning.

Several efficiency factors relating to output and labour and machinery costs are shown together with total gross margin per acre.

6. Reconciliation of Gross Margin with Financial Accounts

The gross margin net farm income is reconciled with the net farm income earned during the financial year on the back of the form. Differences arise due to the crop year basis of the gross margin account. They are most likely to occur in fertiliser and seed expenditure and in the valuations of home grown bulky foods and tenantright which are eliminated in the gross margin account. Differences will also result from crops produced in the previous year being sold at prices differing from their valuation. The adjusted farm income is used in the construction of the Balance Sheet (see Table 1).

SUPPLEMENTARY SCHEDULES

The first three schedules give details of valuations, and expenditure on machinery and equipment and labour. The remaining supplementary schedules (4-7) deal with individual enterprises. Information from the main account is transferred to them together with relevant physical data from the record book. The arable crops appear on one sheet but there are separate sheets for forage costs and each livestock category.

The layout of these schedules corresponds to that of the tables in the *Farm Planning Handbook* issued by the University of Nottingham, Department of Agricultural Economics[6].

Schedule 1: Valuations of Livestock, Produce, Stores, Machinery and Equipment

Details are given of the beginning and end of year valuations. Livestock and produce are valued at market price less an allowance for marketing costs, and stores at cost price. Machinery and equipment is written down at Inland Revenue depreciation rates after deduction of investment grants where applicable.

Schedule 2: Machinery and Equipment Purchases and Sales

Purchases and sales are shown together with the valuation and depreciation of the main classes of machinery and equipment.

Schedule 3: Labour

A break-down of labour costs is given with payments to individual regular workers. Although there is no sheet in the NAAS/NFU record book on which to enter individual workers' pay, the details can be obtained from the wages book.

Schedule 4: Arable Crops

Details of output and costs are given on a per acre basis. The barley and oats acreage payments are also shown as an aid for budgeting.

Schedule 5: Forage Crops and Grass

The variable forage costs are expressed per acre in the top half of the form. In the lower half they are allocated to the individual categories of livestock. Average monthly livestock numbers are multiplied by the appropriate livestock unit factor to give the total units in that category. The forage acres and variable costs are then allocated proportionately between the categories. Average monthly livestock numbers should be used where possible rather than the average of the opening and closing numbers, particularly when a big change has been made or where there has been a large turnover of animals during the year.

This method of allocation is rather rough and ready, and is most likely to be inaccurate in respect of the allocation of conserved bulk food. The simple method will usually suffice provided its obvious deficiencies are borne in mind. If it is considered important to obtain a better allocation more detailed records must be kept.

Schedule 6: Dairy Cows

Total figures are expressed per cow and per gallon. The gross margin is shown both before and after deduction of the forage costs, transferred from the forage cost schedule, so that either can be used

for budgeting.* Changes in valuation, sales and purchases or transfers of stock are combined to show a herd appreciation or depreciation, which does not appear as a specific item in the main account.

Schedule 7: Dairy Replacements

The cost of rearing a replacement into the herd is important. An approximation is obtained by expressing the young stock livestock units (see column 3 of lower table in Schedule 5) in terms of "replacement units". One replacement unit is taken here to be equivalent to 1.28 livestock units (i.e. one animal under 1 year old, one animal 1-2 years old on the farm for the whole year and one animal over 2 years old calving at $2\frac{1}{2}$ years old for half the year: $0.30+0.60+\frac{0.75}{2}=1.28$ livestock units). This figure is used to obtain the cost per replacement unit.

A more accurate assessment can be obtained by splitting the young stock into age groups, but more detailed recording would be required to split the variable costs between the different groups.

As the farm used in the example account only carries dairy cows and followers, supplementary schedules for beef, sheep, pig and poultry enterprises not connected with the example account are shown in Appendix 1 (i to vi). Often these enterprises contain more than one enterprise within themselves such as the breeding and fattening of pigs, or the production of weaner calves from a single-suckled beef cow herd and the fattening of the calves. If such sub-enterprises are are combined in the accounts, the total figures cannot be expressed per unit with any meaning. For a proper analysis, sufficient records would have to be kept to permit the separation of such a double enterprise into its component parts.

Examples of the following enterprise accounts are given in Appendix 1:—

(i) Single-suckled cows producing weaned calves.
(ii) Fattening weaned calves.
(iii) Ewe flock producing fat or store lambs off grass.
(iv) Breeding sows producing weaners.
(v) Fattening weaner pigs.
(vi) Laying hens.

In the case of the ewe flock enterprise the number of ewes put to the ram, not the average numbers on the farm during the year, should preferably be used to express the total figures per ewe. In a spring-ending account where the financial and not the crop year is used the opening number of ewes can be taken if no other information is available. Care, however, must be exercised in interpretation since the winter period included in the account will not correspond to the lamb crop sold during that year.

* It is sometimes an advantage when budgeting for mixed categories of grazing livestock to calculate first the margins before deducting the forage costs for each category and then to charge in the total forage costs afterwards at a level determined by the overall stocking rate.

SECTION 4 — THE BALANCE SHEET

The capital position of the business can be assessed by drawing up a balance sheet. This can be done at any time, but usually it is prepared at the same time as the profit and loss account and it therefore indicates the position at the end of the financial year. A suggested layout is shown in Table 1, the figures relating to the example account. The position at the end of the previous year is also given in this document. The assets are identified on the right hand side and the liabilities on the left hand side. Both assets and liabilities are listed in descending order of liquidity, beginning with cash in hand on the asset side and with sundry creditors on the liability side.

Assets:

The assets are arranged under two main headings, current assets and fixed assets. The current assets are sub-divided into liquid and working assets and the fixed assets into tenant and landlord assets. The liquid assets are those assets which are in the form of money or those which can be realised immediately without disturbing the managerial policy of the business. The working assets are products, ultimately for sale, in the process of being finished or assets which are used up in a single cycle of production. Although not as immediately realisable as the liquid assets, they are classed as current assets. The fixed assets are those assets which represent an investment over a number of productive cycles. They cannot be disposed of without replacement by another similar type of asset or without making changes in the managerial policy of the business if the level of output is to be maintained.

It is not always easy to distinguish to which category assets belong. All livestock, for instance, are often classified as current assets. While fattening and store stock are undoubtedly current assets and are here entered as such, it might make it difficult to continue the business or might represent a change in policy if breeding livestock were sold. This class of stock is therefore included in the fixed assets. Young stock required for replacement raise a further problem. Clearly, they are saleable at any particular point in time, but if they were to be sold money would have to be found at some time in the future to buy others from outside and a change from rearing to buying-in replacements would represent a new policy. The dairy young stock needed for replacement are therefore included in the fixed assets. Young stock reared specifically for sale would be counted as current assets like other stock for sale. The distinctions shown here are by no means rigid and indeed the banks normally consider not only livestock but also movable machinery and equipment as current assets.

Where the farmer is an owner-occupier the value of the land and buildings are shown in the fixed assets, usually at the original price paid. The value of the land can be brought into line with current land prices when desirable. For instance, if fresh borrowing facilities are sought it is wise to value land at its current level. It has been the usual practice to treat all farmers as tenants in farm management accounting and many comparative figures are given on this basis. Therefore a figure for Total Tenant's Assets (Current Assets + Tenant Fixed Assets) is

shown in the balance sheet. In the case of a tenant, this figure would, of course, be the same as the total assets of the business. Assets outside the farm business are not included, but it may be advantageous to include them in the total assets when applying for a loan.

Liabilities:

The liabilities are also divided into current and fixed. The current liabilities are those liabilities for which payment in cash may be required at any time. In practice lenders would be unlikely to call in short term loans until the end of the productive cycle for which the loan has been made. Fixed liabilities cover long term loans such as mortgages, usually negotiated for a fixed period, and also include the owner's own capital worth which is the difference between the total loans from outside the business and the total assets. Bank overdraft facilities are generally considered to be "at call" and have been included in the current liabilities in this balance sheet. However, where, as in most cases, the bank permits the overdraft to operate up to a certain limit or where there is a special long term arrangement, part, at least, of the overdraft facilities could be considered as a term loan and, therefore, included in the fixed liabilities.

Financial Assessment:

The financial stability, creditworthiness and financial efficiency of the business can be assessed by examining the relationships between various important items in the balance sheet. For instance, the short term position can be assessed by examining the relationship between the liquid assets and current liabilities (the liquidity ratio) and that between current assets and current liabilities. This indicates the funds that are available to meet the liabilities "at call". In a stable situation the current assets will at least match the current liabilities. It is generally accepted that fixed liabilities should at least match fixed assets so that some of the current assets will usually be financed by longer term loans or the owner's own capital. Whether this is so or not in the example would depend on how the assets are classified. The fixed liabilities would be financing a considerable portion of the current assets, if all livestock and machinery were classed as current rather than fixed assets.

The creditworthiness of the business can be assessed by examining the relationship between the capital worth and the total assets or other liabilities. Generally, an owner should have at least an equal share in his own business and lenders are unlikely to be happy to accommodate someone having only a small stake. In the example the capital worth of the business has funded more than 50 per cent of the total assets.

The financial efficiency of the business is shown by the return on capital invested. There is considerable difficulty in deciding which figures should be used for this assessment and it will undoubtedly depend on the situation being considered. Management and Investment Income (Net Farm Income less an estimate of the farmer's and his wife's labour) expressed as a percentage return on the present value of total tenant assets is often used as an efficiency factor. But in the last analysis the success of the business from the owner's point of view is indicated by

Table 1

FARM MANAGEMENT BALANCE SHEET

at 6th. April 1966

6th April 1965 £	Liabilities	£	£	£
	Current Liabilities:			
1526	Sundry Creditors		1260	
8547	Bank Overdraft		6203	
10073	**Total Current Liabilities**			7463
	Fixed Liabilities:			
	Long Term Loans			
27067	Agricultural Mortgage Corporation (less repaid)	26710		
	Total Long Term Loans		26710	
37140	Total Loans (including Creditors) 34173			
	Capital Account			
	Capital worth at 6th. April 1965	46050		
	Net Farm Income for Year	6911		
	Rental Value of Farm	2093		
		55054		
	Less: Mortgage Interest 1888			
	Bank Interest 562			
	Income Tax 640			
	Living Expenses 1495	4585		
46050	Capital worth at 6th. April 1966		50469	
73117	**Total Fixed Liabilities**			77179
83190	**Total Liabilities**			84642

6th April 1965 £	Assets	£	£	£
	Current Assets:			
	Liquid			
35	Cash in hand	20		
-	Bank Credit	-		
785	Sundry Debtors	890		
2057	Home Grown Produce for sale	783		
2877	Total Liquid Assets		1693	
	Working			
810	Home Grown Produce for consumption on Farm	259		
1054	Stores	1304		
3699	Tenantright	3275		
-	Fattening and Store Stock for sale	-		
5563	Total Working Assets		4838	
8440	**Total Current Assets**			6531
	Fixed Assets;			
	Tenant			
	Breeding Livestock			
6298	Dairy cows and Bulls	6440		
1700	Dairy Replacements	2580		
6112	Machinery and Equipment	8451		
-	Buildings and Fixed Equipment	-		
14110	Total Tenant Fixed Assets		17471	
22550	Total Tenant Assets (Current and Fixed) 24002			
	Landlord			
60640	Buildings, Land	60640		
60640	Total Landlord Fixed Assets		60640	
74750	**Total Fixed Assets**			78111
83190	**Total Assets**			84642

the return on his own capital after deduction of tax and interest on loans. In the case of an owner occupier the value of the land would be included. The valuation of assets shown in the balance sheet may not necessarily represent the average annual investment in the business. Indeed the valuation of short term assets can be seriously influenced by the date at which the valuation is taken and some adjustment may have to be made.

It is essential to assess the return to be expected from new investment when changes in policy involving further injections of capital are contemplated. One of the main purposes of the accounting method described here is to make it easier to calculate the margin resulting from any change of policy. The additional capital investment required to carry out a project can usually be determined without undue difficulty and the additional margin expressed as a return to it calculated. Several methods, fully described by the author in "Methods of Appraising New Capital Investment in Agriculture"[7] can be employed according to the complexity of the problem. This is the final stage in assessing whether or not a particular course of action involving a change in the quantity of capital employed is worthwhile.

SECTION 5 — ANALYSIS AND BUDGETING

The account together with its supplementary schedules is in a suitable form to analyse the present position. The fixed cost and enterprise gross margins can be compared on an acreage basis with guides for similar farming systems and enterprises, and the gross margins of different enterprises in the system can be compared within the account. Information for a more detailed appraisal of the performance of individual enterprises can be obtained from the schedules. Thus, an analysis of the business as a whole and the way in which the enterprises contribute to it can be made from the main account sheet and an assessment of the performance of the individual enterprises from the enterprise schedules. Once an assessment has been made budgets can be drawn up for changes in policy.

The answer to whether any specified change in policy is likely to be worthwhile can be found by following the simple scheme given below:

Increased Costs	Increased Income
plus	*plus*
Income Foregone	Costs Saved

If the right hand side is greater than the left the change will be worth making: if the reverse, it will not. Errors in budgeting occur because items are forgotten or costs which will change are not identified. Errors of omission are less likely if a budget is prepared for the whole farm business rather than a part of it. But if all the costs which will alter are identified, the answer given by a partial budget will be the same as that indicated by a whole-farm budget.

Account gross margins can be used as a shorthand method so that the output and variable costs allocated to an enterprise need not be written down in detail if they are not expected to alter. In many cases this will be only part of the problem and an assessment of the changes which may occur in the unallocated fixed costs must always be made.

Improvements in income can be made in two basic ways:—

(i) by increasing total gross margin without causing a commensurate rise in fixed costs.

(ii)by reducing fixed costs without causing a commensurate fall in total gross margin.

Subject to physical and technical restrictions, it will pay to substitute enterprises with higher gross margins for those with lower provided the change does not lead to an increase in fixed costs. If it does then it will pay to make the change so long as the increase in total gross margin is greater than the rise in fixed costs (including service charges on any additional capital investment). There is often scope for increasing the gross margin by improving the performance of individual enterprises, particularly livestock. This course may well lead to a rise in fixed costs if intensification of the enterprise is necessary to achieve it.

If labour and machinery costs are high in relation to the farming system practised it should be possible to reduce them directly by more efficient organisation without affecting the total gross margin of the farm.

The system of management can be changed to reduce the fixed costs but at the same time accepting a lower total gross margin provided the fall in fixed costs is greater than that in the gross margin. For instance, it may be right to substitute cereals for potatoes even though potatoes have the higher gross margin per acre, if a saving can be made in the annual cost of regular labour greater than the loss in total gross margin.

PREPARATION OF BUDGETS AND THEIR USE

Budgets for changes in plan can be drawn up in detail on the form shown in Table 2. This is similar to the account form, but the columns are extended down its whole length so that more than one budget can be prepared on it.

Management Summary

A series of actual and planned performances can be summarised on the form shown in Table 3. The physical data consists of crop acreages and livestock numbers with stocking rate and milk yield per cow. In the financial section, enterprise gross margins are given per acre used by the enterprise except for those of pigs and poultry. These together with miscellaneous income are shown as total sums since they have little meaning expressed per acre. Fixed costs are given per farm acre and an estimate of the farmer's and his wife's labour is included in the regular labour figure. The total farm income is shown at the bottom of the table.

Capital Summary

The actual and planned capital position can be shown over a number of years in the form represented in Table 4. The layout of the normal balance sheet has been altered so that the information can be presented in columnar form.

Cash Flow Budget

When changes in policy are proposed involving an investment of borrowed money, it may be necessary to draw up a cash flow budget. This is simply a more detailed version of the normal bank statement. The layout shown in Table 5 can be used for this purpose. The itemisation corresponds to that on the budget and account forms so that it is a simple matter to transfer items from one form to the other where this is possible. Thirteen columns are provided so that the annual totals can be entered and then divided into twelve monthly flows. Alternatively, the form can be used to show quarterly or half-yearly flows over several years. If a big change of policy is contemplated it may be necessary to represent the flows over a number of years to reveal the full effect.

The cash flow budget can be used for three purposes:

(i) To find the peak short term borrowings required to finance a change in policy. This is obtained from the cumulative balance shown at the bottom of the form.

(ii) To indicate the opportunities for manipulating purchases and sales so as to lessen the peak requirement.

(iii) As a check on actual cash income and expenditure as an investment project progresses.

Budgetary Control

Once these forms have been drawn up, control can be exercised by comparing actual with budgeted performance. A budget for the coming year consistent with the long term plan for the farm can be prepared annually based on previous performance and an estimate of the likely outcome of the current year. For an account ending in April mid-winter is the most convenient time. The budget can be checked against the current year's results when they become available and adjustments made if there appears to be any serious error in the forecast. When the account is finally completed it can be set beside the budget and the reasons for differences closely examined. Short term control of important inputs such as feeding-stuffs fed to different classes of livestock over which management has day-to-day control can be obtained by regular physical checks. A similar check on cash income and expenditure can be made by periodical comparisons with the cash flow budget. The relevant information can be extracted from a cash analysis book as the year progresses.

The Example

The figures given in Tables 2, 3, 4 and 5 demonstrate how budgets can be prepared. They refer to the same farm the account for which is shown as an example on the main account forms. It is assumed that

Table 2

Enterprises	TOTAL	DAIRY COWS	DAIRY FOLLOWERS	FORAGE COSTS	GRAZING LIVESTOCK (LESS FORAGE COSTS)	WHEAT	BARLEY	POTATOES			TOTAL	DAIRY COWS	WHEAT	BARLEY	POTATOES		
Acres	374			180		80	94	20			374	180	80	94	20		
Livestock Numbers		110	70									130					
Output																	
Livestock valuation changes	1620	420	(-)258	-	1620	-	-	-			-	-	-	-	-		
Livestock sales and deficiency payments	2830	1790	1040	-	2830	-	-	-			2670	2670	-	-	-		
Livestock transfers out	2200	-	2200	-	2200	-	-	-			-	-	-	-	-		
Product sales and deficiency payments	24202	14604	-	-	14604	3520	3478	2600			27538	17940	3520	3478	2600		
Closing crop valuations	-	-	-	-	-	-	-	-			-	-	-	-	-		
Other allocated subsidies	-	-	-	-	-	-	-	-			-	-	-	-	-		
Produce to house and men	-	-	-	-	-	-	-	-			-	-	-	-	-		
Total	30852	20594	660	-	21254	3520	3478	2600			30208	20610	3520	3478	2600		
Less livestock purchases	4100	4100	-	-	4100	-	-	-			3000	3000	-	-	-		
Less livestock transfers in	2200	2200	-	-	2200	-	-	-			-	-	-	-	-		
Enterprise Output	24552	14294	660	-	14954	3520	3478	2600			27208	17610	3520	3478	2600		
Variable Costs																	
Homegrown cereals and pulses	445	429	16	-	445	-	-	-			520	520	-	-	-		
Purchased concentrates	2651	2651	-	-	2651	-	-	-			3250	3250	-	-	-		
Other purchased foodstuffs	-	-	-	-	-	-	-	-			-	-	-	-	-		
Seeds (purchased and homegrown)	1172	-	-	170	170	320	282	400			1172	170	320	282	400		
Fertilisers (net)	2312	-	-	1470	1470	320	282	240			2312	1470	320	282	240		
Crop sprays	234	-	-	-	-	80	94	60			234	-	80	94	60		
Vet. and medicines	260	260	-	-	260	-	-	-			260	260	-	-	-		
A.I. and N.M.R. fees	-	-	-	-	-	-	-	-			-	-	-	-	-		
Haulage	-	-	-	-	-	-	-	-			-	-	-	-	-		
Contract work	-	-	-	-	-	-	-	-			-	-	-	-	-		
Casual labour	200	-	-	-	-	-	-	200			200	-	-	-	200		
Miscellaneous	540	440	-	-	440	-	-	100			620	520	-	-	100		
Total Variable Costs	7774	3740	16	1640	5396	720	658	1000			8568	6190	720	658	1000		
Enterprise Gross Margin	16778	(1055)	(644)	-	9558	2800	2820	1600			18640	11420	2800	2820	1600		
Miscellaneous income	300										300						
Total Gross Margin	17078										18940						
Fixed Costs																	
Labour—Regular (inc. est. farmer and wife)	4270										4270						
—Casual	-										-						
Contract work	-										-						
Equipment depreciation	1400										1400						
Equipment repairs	1200										1200						
Fuel and power	1000										1000						
Rent and rates	2326										2326						
Other repairs	500										500						
Miscellaneous	420										420						
Total Fixed Costs	11116										11116						
Management and Investment Income	5962										7824						
Add est. for farmer and wife's labour	500										500						
Net Farm Income	6462										8324						

MANAGEMENT SUMMARY

Table 3

			62-63	63-64	64-65	65-66	65-66	66-67		TARGET
	Year									
	Actual or Budget		A	A	A	A	B	B		B
	Total Farm Acreage		379	379	379	379	379	379		379
	Waste and Buildings		5	5	5	5	5	5		5
PHYSICAL DATA	**Arable:**	acres								
	Wheat		80	80	81	118½	80	80		80
	Barley		70	80	76	64	94	94		94
	Oats		10	-	-	-	-	-		-
	Potatoes		-	-	10	20	20	20		20
	Sugar Beet		-	-	-	-	-	-		-
	Other		-	-	-	-	-	-		-
	Total Arable		160	160	167	202½	194	194		194
	Forage:									
	Grass		-	-	-	-	-	-		-
	Other		-	-	-	-	-	-		-
	Total Forage		214	214	207	171½	180	180		180
	Livestock:	Nos.								
	Dairy cows		60	73	73	79	80	110		130
	Other dairy cattle		51	71	54	51	40	-		-
	Beef cows		-	-	-	-	-	-		-
	Other beef cattle		-	-	-	-	-	-		-
	Ewes		154	123	51	-	-	-		-
	Other sheep		-	-	-	-	-	-		-
	Sows		-	-	-	-	-	-		-
	Other pigs		-	-	-	-	-	-		-
	Poultry		3000	2800	-	-	-	-		-
	Stocking Rate Acres/L.U.		1·9	1·8	1·9	1·6	1·8	1·6		1·4
	Yield per cow, gals.		760	775	780	857	850	820		850
FINANCIAL DATA	**Gross Margin:**	per enterprise acre	£	£	£	£	£	£	£	£
	Wheat		22·7	29·4	38·0	28·6	38·0	35·0		35·0
	Barley		25·3	31·2	32·3	34·0	32·0	30·0		30·0
	Oats		10·0	-	-	-	-	-		-
	Potatoes		-	-	72·7	89·7	70·0	80·0		80·0
	Sugar beet		-	-	-	-	-	-		-
	Other crops		-	-	-	-	-	-		-
	All crops		23·1	30·7	37·3	36·4	38·4	37·2		37·2
	Grazing livestock (forage costs deducted)		20·3	27·6	30·2	43·0	46·9	53·1		63·4
	Pigs	total	-	-	-	-	-	-		-
	Poultry		559	535	-	-	-	-		-
	Other non-grazing livestock		-	-	-	-	-	-		-
	Miscellaneous income		1283	300	597	343	300	300		300
	Total Gross Margin	per farm acre	26·5	31·6	35·1	39·7	42·7	45·1		50·0
	Fixed Costs:									
	Labour—Regular[1]		8·8	8·1	10·4	10·5	10·3	11·3		11·3
	—Casual		-	-	-	-	-	-		-
	Contract work		-	0·1	-	-	-	-		-
	Equipment depreciation		2·7	3·6	3·1	3·1	3·2	3·7		3·7
	Equipment repairs		1·9	2·5	2·9	1·7	2·9	3·2		3·2
	Fuel and power		2·1	1·8	2·1	1·7	2·4	2·6		2·6
	Rent and rates		4·9	5·0	4·9	5·4	4·9	6·1		6·1
	Other repairs		1·6	1·1	1·3	0·2	1·3	1·3		1·3
	Miscellaneous		1·3	1·2	1·1	0·6	1·1	1·1		1·1
	Total Fixed Costs		23·3	23·4	25·8	23·2	26·1	29·3		29·3
	M. & I. Income		3·2	8·2	9·3	16·5	16·6	15·8		20·7
	Net Farm Income		4·5	9·5	10·6	18·5	17·9	17·1		22·0
	Total Net Farm Income		1706	3604	4011	7010	6808	6462		8324

(1) Including estimate of farmer and wife's labour

CAPITAL SUMMARY

Table 4

Liabilities	6TH. APRIL 1964	6TH. APRIL 1965	6TH. APRIL 1966			AFTER EXPANSION
Sundry Creditors	1320	1526	1260			1840
Bank Overdraft	8331	8547	6203			-
Loans	-	-	-			-
Mortgage	27401	27067	26710			25479
Total Loans	37052	37140	34173			27319
Capital Worth	44245	46050	50469			63415
Total	81297	83190	84642			90734
Assets						
Cash in Hand	25	35	20			20
Bank Credit	-	-	-			2434
Sundry Debtors	762	785	890			1470
Home Grown Produce	880	2867	1042			1042
Stores	642	1054	1304			1304
Tenantright	3743	3699	3275			3275
Livestock	8564	7998	9020			10640
Machinery and Implements	6041	6112	8451			7719
Tenant's Buildings and Fixed Equipment	-	-	-			2190
Buildings	60640	60640	60640			60640
Land						
Total	81297	83190	84642			90734
Capital						
Capital Worth — brought forward	42300	44245	46050			58487
Capital Introduced	-	-	-			-
Net Farm Income	3604	4011	6911			8324
Owner Occupier — Rental Value	1800	1800	2093			2270
Total	47704	50056	55054			69081
Less:— Mortgage Interest	1934	1911	1888			1806
Bank Interest	520	600	562			210
Other Loan Interest	-	-	-			-
Income Tax	120	550	640			2150
Household Expenses	885	945	1195			1500
Capital Worth — carried forward	44245	46050	50469			63415

This form is based on a balance sheet runner used by the Midland Bank Ltd.

Note.—The figure for Income Tax refers to the tax paid on the previous year's income. Therefore to obtain a true comparison between the capital position at 6th April, 1966 and that after expansion, tax of £1,580 payable on the income for the year ending 6th April, 1966, would have to be substituted for the figure of £640 shown.

the farmer intends to increase his herd immediately from 80 to 130 cows without altering the cropping. He can do this by bringing in 22 in-calf heifers he has on hand, buying in the balance and selling out his remaining young stock. He would continue to buy in his replacements from outside sources in the future. £3,000 would also have to be spent on building alterations. A discussion of the planning involved in coming to this decision and budgets for alternative courses of action on this farm can be found in "An Exercise in Planning" by H. W. T. Kerr and H. A. Thomas[8]. Budgets for the first transitional year and the second year are shown in detail on the budget form (Table 2). Quarterly cash flows for three years are entered on the cash flow budget form (Table 5) and a monthly cash flow budget for the first transitional year of the project is given in Appendix 2.

A summary of the actual results for the years 1962-63 to 1965-66 and of the budgets for the first and second years of the expansion programme is shown on the Management Summary (Table 3). The budget for 1965-66 is also given. The budgeted income is very close to the income actually achieved in 1965-66, but both total gross margin and fixed costs are lower than anticipated. Allowance for these differences has been made in the subsequent budgets.

The Capital Summary (Table 4) shows the capital position at 5th April, 1964, 1965 and 1966 and the anticipated situation in three years time at the end of the expansion period. The value of the land has not been changed over the period.

The budgets indicate that a satisfactory increase in farm income could be expected to result from the change although there would be a fall in the first transitional year.

The Cash Flow budget (Table 5) suggests that a peak overdraft of £12,045 would be required at the end of the second quarter of the first year if the project were to be entirely financed by the bank. This would be halved by the end of the year. Thereafter it could be expected to decline to reach a surplus balance at the end of the final quarter of the third year. Small overdraft facilities would probably still be required again in the second quarter of the following year. However, the monthly cash flow budget for the first year (Appendix 2) shows a peak of £13,228 at the end of October, some £1,200 higher than the peak indicated by the quarterly cash flows. Where large sums are involved it may be prudent to draw up cash flow budgets for periods of not longer than one month.

The farmer has been improving his performance rapidly over the last four years (Management Summary). His capital worth has been rising even though the value of the land has not been increased in the balance sheet. The capital worth is also in excess of the minimum usually required by lenders (50 per cent) and should be even greater by the end of the expansion period (Capital Summary). In normal circumstances, it could be expected that the bank would be prepared to provide the overdraft facilities to carry out the expansion programme. The farmer's chances of obtaining the money would be enhanced by presenting the case in the detail shown here. He would also be able to maintain a tight financial control over the expansion policy by using the budgets in conjunction with the accounting method suggested in this booklet to ensure that performance in practice matched that anticipated in the plan.

CASH FLOW

Table 5

Period	1st. Year April May June	1st. Year July Aug. Sept.	1st. Year Oct. Nov. Dec.	1st. Year Jan. Feb. March	2nd. Year April May June	2nd. Year July Aug. Sept.	2nd. Year Oct. Nov. Dec.	2nd. Year Jan. Feb. March	3rd. Year April May June	3rd. Year July Aug. Sept.	3rd. Year Oct. Nov. Dec.	3rd. Year Jan. Feb. March
Receipts												
Livestock sales	1280	500	620	430	250	850	1250	320	250	850	1250	320
Livestock deficiency payments												
Livestock products	2450	2905	4484	4765	4200	3855	4850	5035	4200	3855	4850	5035
Cereal crops	-	-	2240	4150	-	-	2240	4150	-	-	2240	4150
Cereal deficiency payments	-	53	329	-	-	53	329	-	-	53	329	-
Cash root crops	783	-	800	1017	783	-	800	1017	783	-	800	1017
Other crops	-	-	-	-	-	-	-	-	-	-	-	-
Fertiliser subsidies	-	-	-	-	-	-	-	-	-	-	-	-
Other grants and subsidies	-	-	-	-	-	-	-	-	-	-	-	-
Sales of equipment	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous income	-	250	-	50	-	250	-	50	-	250	-	50
Total Receipts	4513	3708	8473	10412	5233	5008	9469	10572	5233	5008	9469	10572
Variable Costs												
Livestock purchases	300	1800	2000	-	-	1000	2000	-	-	1000	2000	-
Purchased concentrates	580	325	725	1240	720	390	1054	1380	720	390	1054	1380
Other purchased foodstuffs	-	-	-	-	-	-	-	-	-	-	-	-
Seeds	600	-	100	472	600	-	100	472	600	-	100	472
Fertilisers	300	200	400	1412	300	200	400	1412	300	200	400	1412
Crop sprays	234	-	-	-	234	-	-	-	234	-	-	-
Vet. and medicine	40	70	60	50	70	54	66	70	70	54	66	70
A.I. and N.M.R. fees	-	-	-	-	-	-	-	-	-	-	-	-
Haulage	-	-	-	-	-	-	-	-	-	-	-	-
Contract work	-	-	-	-	-	-	-	-	-	-	-	-
Casual labour	-	-	170	30	-	-	170	30	-	-	170	30
Miscellaneous	149	135	152	104	169	153	174	124	169	153	174	124
Total Variable Costs	2203	2530	3607	3308	2093	1797	3964	3488	2093	1797	3964	3488
Fixed Costs												
Regular labour	870	960	1130	810	870	960	1130	810	870	960	1130	810
Casual labour	-	-	-	-	-	-	-	-	-	-	-	-
Contract work	-	-	-	-	-	-	-	-	-	-	-	-
Equipment repairs	300	300	300	300	300	300	300	300	300	300	300	300
Fuel and power	305	195	285	215	305	195	285	215	305	195	285	215
Rent and rates	28	-	28	-	28	-	28	-	28	-	28	-
Other repairs	120	130	120	130	120	130	120	130	120	130	120	130
Miscellaneous	100	110	110	100	100	110	110	100	100	110	110	100
Equipment purchases	-	-	-	200	600	-	-	899	600	-	-	899
Other capital expenditure	300	2700	-	-	-	-	-	-	-	-	-	-
Personal drawings	375	375	375	375	375	375	375	375	375	375	375	375
Income Tax	-	790	-	790	-	725	-	725	-	1075	-	1075
Bank interest	250	-	310	-	260	-	220	-	120	-	90	-
Loan interest and repayment	561	561	561	562	561	561	561	562	561	561	561	562
Total Fixed Costs	3209	6121	3219	3482	3519	3356	3129	4116	3379	3706	2999	4466
Total Costs	5412	8651	6826	6790	5612	5153	7093	7604	5472	5503	6963	7954
Surplus or Deficit	(-) 899	(-) 4943	(+) 1647	(+) 3622	(-) 379	(-) 145	(+) 2376	(+) 2968	(-) 239	(-) 495	(+) 2506	(+) 2618
Accumulated Balance	(-) 7102	(-)12 045	(-)10 398	(-) 6776	(-) 7155	(-) 7300	(-) 4924	(-) 1956	(-) 2195	(-) 2690	(-) 184	(+) 2434

Balance b/f (-) 6203

REFERENCES

(1) LIVERSAGE, V. "Farm Costs". *Journal of Agricultural Economics Society*, Vol. 9, No. 1, July 1950.

(2) KING, J. S. "The Interpretation of Farm Accounts". *Essex County Farmers' Union Year Book*, 1926.

(3) KERR, H. W. T. "Analysing the Use of Labour and Machinery". University of Nottingham, Department of Agricultural Economics, *Farm Management Notes No. 35*, Spring 1966.

(4) N.A.A.S./N.F.U. Farm Business Records Book, published by the National Farmers' Union.

(5) N.A.A.S. Business Records Leaflet—"Guide for Completion of N.A.A.S./N.F.U. Farm Business Record Book". N.A.A.S. Short Term Leaflet No. 50, published by M.A.F.F., November 1965.

(6) KERR, H. W. T. *Farm Planning Handbook*. University of Nottingham, Department of Agricultural Economics.

(7) KERR, H. W. T. *Methods of Appraising New Capital Investment in Agriculture*. University of Nottingham, Department of Agricultural Economics, F.R. No. 161, September 1966.

(8) KERR, H. W. T. and THOMAS, H. A. *An Exercise in Planning*. University of Nottingham, Department of Agricultural Economics, F.R. No. 166, March 1967.

GENERAL BIBLIOGRAPHY

STURROCK, FORD. *Farm Accounting and Management*. Pitman and Sons, London, 1967.

REID, IAN G. "The Nomenclature of Costs". *The Farm Economist*, Vol. X, No. 3, 1963.

LIVERSAGE, V. "Accounting for Farm Planning". *Journal of Agricultural Economics Society*, Vol. XI, No. 4, January 1956.

GILES, A. K. *Budgetary Control as an Aid to Farm Management*. University of Reading, Miscellaneous Studies No. 33, 1964.

COBHAM, R. O. and STRONG, W. M. *The Farmer and the Lender*. I.C.I. Ltd., December 1966.

DAVIES, G. D. D. and DUNFORD, W. J. *The Farm Balance Sheet—Its Construction and Interpretation*. University of Exeter, Department of Agricultural Economics Report No. 167. October 1967.

Appendix 1(i)

ACCOUNTING YEAR .....1965-66.... **BEEF CATTLE**
Suckler Cows

GROSS MARGIN SUMMARY

Average number of cows		50
Number of calves reared		48
Forage acres per cow and calf		2.0
Concentrates fed per cow (including that fed to calf)	cwt.	5.7
Concentrates fed per animal sold	cwt.	-

Details	Total		Suckler Cows	Fattening and store cattle
	No.	£	Per Cow £	Per animal sold £
Valuation changes (+) or (−)	-	(−) 120	(−) 2.4	-
Sales (including D.Ps.)	48	2502	50.0	-
Cull cows	8	355	7.1	-
Subsidies (calf subsidy, etc.)		438	8.8	-
Total		3175	63.5	-
Less purchases	10	676	13.5	-
Gross Output		2499	50.0	-
Variable Costs:	cwt.			
Homegrown concentrates	250	263	5.3	-
Purchased concentrates	37	74	1.5	-
Other purchased foods		55	1.1	-
Vet. and medicines		52	1.0	-
Haulage		10	0.2	-
Miscellaneous		153	3.1	-
Total Variable Costs		607	12.2	-
Gross Margin (forage costs not deducted)		1892	37.8	-
Forage Costs		301	6.0	-
Gross Margin (forage costs deducted)		1591	31.8	-
Gross Margin per Forage Acre		15.9		

Appendix 1(ii)

ACCOUNTING YEAR ...1965-66.....

BEEF CATTLE
Fattening Cattle

GROSS MARGIN SUMMARY

Average number of cows		----------
Number of calves reared		----------
Forage acres per head		0·3
Concentrates fed per cow	cwt.	----------
Concentrates fed per animal sold	cwt.	11·45

Details	Total		Suckler Cows	Fattening and store cattle
	No.	£	Per Cow £	Per animal sold £
Valuation changes (+) or (−)	-	-	-	-
Sales (including D.Ps.)	48	3547	-	73·9
Cull cows	-	-	-	-
Subsidies	-	-	-	-
Total		3547	-	73·9
Less purchases	48	2382	-	49·6
Gross Output		1165	-	24·3
Variable Costs:	cwt.			
Homegrown concentrates	550	576	-	12·0
Purchased concentrates	-	-	-	-
Other purchased foods		-	-	-
Vet. and medicines		24	-	0·5
Haulage		48	-	1·0
Miscellaneous		72	-	1·5
Total Variable Costs		720	-	15·0
Gross Margin (forage costs not deducted)		445	-	9·3
Forage Costs		48	-	1·0
Gross Margin (forage costs deducted)		397	-	8·3
Gross Margin per Forage Acre		27·6		

Appendix 1(iii)

ACCOUNTING YEAR ....1965-66..... SHEEP

GROSS MARGIN SUMMARY

Ewes put to ram		176·0
Lambs reared per ewe		1·3
Concentrates per ewe	lb.	0·43
Ewes per forage acre		2·3

Details	Total		Ewe Flock	Hoggs
	No.	£	Per Ewe £	Per Hogg £
Valuation changes (+) or (—)	-	(+) 30	0·2	-
Sales	286	1694	9·6	-
Wool		274	1·6	-
Total		1998	11·4	-
Less purchases	47	470	2·7	-
Gross Output		1528	8·7	-
Variable Costs:	cwt.			
Homegrown concentrates	7	7	..	-
Purchased concentrates	68	109	0·7	-
Other purchased food	-	-	-	-
Vet. and medicines		74	0·4	-
Haulage		4	..	-
Contract work		-	-	-
Casual labour		7	..	-
Total Variable Costs		201	1·1	-
Gross Margin (forage costs not deducted)		1327	7·6	-
Forage Costs		429	2·5	-
Gross Margin (forage costs deducted)		898	5·1	-
Gross Margin per Forage Acre		11·5		

Appendix 1(iv)

ACCOUNTING YEAR ..1965-66..... PIGS

Sows and Weaners

GROSS MARGIN SUMMARY

Average number of sows		20·0
Numbers weaned per sow		16·0
Concentrates per sow	cwts.	30·0
Concentrates per animal sold	cwts.	

Details	Total		Per sow	Per animal sold
	No.	£	£	£
Valuation changes (+) or (−)	-	(−) 200	(−) 10·0	-
Sales	320	1680	84·0	-
Cull sows	-	-	-	-
Produce to house and men	-	-	-	-
Total		1480	74·0	-
Less purchases		-	-	-
Gross Output		1480	74·0	-
Variable Costs:	cwt.			
Homegrown concentrates	-	-	-	-
Purchased concentrates	600	940	47·0	-
Other purchased foods		-	-	-
Vet. and medicines		80	4·0	-
Haulage		-	-	-
Miscellaneous		60	3·0	-
Total Variable Costs		1080	54·0	-
Gross Margin		400	20·0	-

Appendix 1(v)

ACCOUNTING YEAR ....1965-66..... **PIGS**
Fattening

GROSS MARGIN SUMMARY

Average number of sows		-
Numbers weaned per sow		-
Concentrates per sow	cwts.	-
Concentrates per animal sold	cwts.	5·3

Details	Total		Per sow	Per animal sold
	No.	£	£	£
Valuation changes (+) or (−)	-	-	-	-
Sales	305	5185	-	17·0
Cull sows	-	-	-	-
Produce to house and men	-	-	-	-
Total		5185	-	17·0
Less purchases	320	1680	-	5·5
Gross Output		3505	-	11·5
Variable Costs:	cwt.			
Homegrown concentrates	-	-	-	-
Purchased concentrates	1616	2554	-	8·4
Other purchased food		-	-	-
Vet. and medicines		92	-	0·3
Haulage		-	-	-
Miscellaneous		61	-	0·2
Total Variable Costs		2707	-	8·9
Gross Margin		798	-	2·6

Appendix 1(vi)

ACCOUNTING YEAR ...1965-66..... **POULTRY**

GROSS MARGIN SUMMARY

Average number of layers	2000
Eggs per bird	220
Average number of broilers	-

Details		Total		Per laying bird	Per broiler
		No.	£	£	£
Valuation changes (+) or (−)		-	(+) 70	..	-
Sales of eggs	dozs.	34670	5800	2·9	-
Sales of birds			530	0·3	-
Produce to house and men			—	—	-
Total			6400	3·2	-
Less purchases			2200	1·1	-
Gross Output			4200	2·1	-
Variable Costs:		cwt.			
Homegrown concentrates		-	-	-	-
Purchased concentrates		2000	3400	1·7	-
Other purchased food			-	-	-
Vet. and medicines			180	0·1	-
Miscellaneous			20	..	-
Total Variable Costs			3600	1·8	-
Gross Margin			600	0·3	-

Appendix 2

CASH FLOW

Period	TOTAL	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH
Receipts													
Livestock sales	2830	1145	75	60	70	80	350	360	120	140	120	140	170
Livestock deficiency payments	14604	890	880	680	650	990	1265	1304	1560	1620	1625	1580	1560
Livestock products	6390	-	-	-	-	-	-	-	1000	1240	1000	1500	1650
Cereal crops	382	-	-	-	-	53	-	-	-	329	-	-	-
Cereal deficiency payments	2600	-	783	-	-	-	-	-	400	400	-	-	1017
Cash root crops	-	-	-	-	-	-	-	-	-	-	-	-	-
Other crops	-	-	-	-	-	-	-	-	-	-	-	-	-
Fertiliser subsidies	-	-	-	-	-	-	-	-	-	-	-	-	-
Other grants and subsidies	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales of equipment	300	-	-	-	-	50	200	-	-	-	-	-	50
Miscellaneous income													
Total Receipts	27106	2035	1738	740	720	1173	1815	1664	3080	3729	2745	3220	4447
Variable Costs													
Livestock purchases	4100	-	300	-	-	800	1000	1000	1000	-	-	-	-
Purchased concentrates	2870	360	130	90	90	115	120	125	200	400	400	410	430
Other purchased foodstuffs	-	-	-	-	-	-	-	-	-	-	-	-	-
Seeds	1172	600	-	-	-	-	-	100	-	-	-	-	472
Fertilisers	2312	300	-	-	-	200	-	400	-	-	812	-	600
Crop sprays	234	100	134	-	-	-	-	-	-	-	-	-	-
Vet. and medicines	220	-	-	40	-	-	70	-	-	60	-	-	50
A.I. and N.M.R. fees	-	-	-	-	-	-	-	-	-	-	-	-	-
Haulage	-	-	-	-	-	-	-	-	-	-	-	-	-
Contract work	-	-	-	-	-	-	-	-	-	-	-	-	-
Casual labour	200	-	-	-	-	-	-	120	30	20	-	30	-
Miscellaneous	540	69	35	45	73	37	25	90	32	30	38	30	36
Total Variable Costs	11643	1429	599	175	163	1152	1215	1835	1262	510	1250	470	1588
Fixed Costs													
Regular labour	3770	260	260	350	270	290	400	460	400	270	270	270	270
Casual labour	-	-	-	-	-	-	-	-	-	-	-	-	-
Contract work	-	-	-	-	-	-	-	-	-	-	-	-	-
Equipment repairs	1200	100	100	100	100	100	100	100	100	100	100	100	100
Fuel and power	1000	175	70	60	75	45	75	70	120	95	170	20	25
Rent and rates	56	-	28	-	-	-	-	-	28	-	-	-	-
Other repairs	500	40	40	40	50	40	40	40	40	40	40	40	50
Miscellaneous	420	30	30	40	30	30	50	30	30	50	30	30	40
Equipment purchases	200	-	-	-	-	-	-	-	-	-	-	150	50
Other capital expenditure	3000	-	-	300	-	-	2700	-	-	-	-	-	-
Personal drawings	1500	125	125	125	125	125	125	125	125	125	125	125	125
Income Tax	1580	-	-	-	790	-	-	-	-	-	790	-	-
Bank interest	560	-	-	250	-	-	-	-	-	310	-	-	-
Loan interest and repayment	2245	187	187	187	187	187	187	187	187	187	187	187	188
Total Fixed Costs	16031	917	840	1452	1627	817	3677	1012	1030	1177	1712	922	848
Total Costs	27679	2346	1439	1627	1790	1969	4892	2847	2292	1687	2962	1392	2436
Surplus or Deficit		(-) 311	(+) 299	(-) 887	(-) 1070	(-) 796	(-) 3077	(-) 11183	(+) 788	(+) 2042	(-) 217	(+) 1828	(+) 2011
Accumulated Balance		(-) 6514	(-) 6215	(-) 7102	(-) 8172	(-) 8968	(-) 12045	(-) 13228	(-) 12440	(-) 10398	(-) 10615	(-) 8787	(-) 6776
Balance b/f (-) 6203													

Schedule 1

ACCOUNTING YEAR ....1965:66.....

DETAILS OF LIVESTOCK, PRODUCE, STORES AND EQUIPMENT VALUATIONS

Opening Valuation			Item	Closing Valuation		
Total	Value per head	Nos.		Nos.	Value per head	Total
£	£				£	£
			Livestock			
40	40	1	Dairy: Bulls	1	40	40
6258	82	76	Cows	80	80	6400
770	70	11	Followers over 2 years	22	70	1540
810	34	24	Followers 1-2 years	6	50	300
120	20	6	Followers under 1 year	34	22	740
			Beef: Bulls			
			Cows			
			Others over 2 years			
			Others 1-2 years			
			Others under 1 year			
			Sheep: Rams			
			Ewes			
			Other (over weaning)			
			Pigs: Boars			
			Sows			
			Other (over weaning)			
			Poultry:			
7998			**Total Livestock**			9020

Total	Quantity		Quantity	Total
		Home Grown Produce		
1608	1400 cwts	Wheat	-	-
281	281 cwts	Barley	-	-
-	-	Oats	-	-
168	10½ tons	Potatoes	67½ tons	783
-	-	Sugar beet	-	-
768	96 tons	Hay	32 tons	256
42	12 tons	Straw	1 ton	3
-	-	Silage	-	-
-	-	Other crops	-	-
2867		**Total Home Grown Produce**		1042
		Stores		
304		Purchased foods		340
569		Purchased seeds		804
136		Purchased fertilisers		111
45		General stores		49
1054		**Total Stores**		1304
		Machinery and Equipment		
942		Tractors		1398
1220		Combines		2186
170		Motor vehicles		127
3780		Other equipment		4740
6112		**Total Machinery and Equipment**		8451
18031		**Total Items**		19817

Schedule 2

ACCOUNTING YEAR ....1965 :66....

MACHINERY AND EQUIPMENT

Purchases and Sales

Purchases		Sales	
Type of Machine or Equipment	£	Type of Machine or Equipment	£
Tractor	1122	Tractor	259
Combine	1650	Combine	650
Drill	495	Muck Spreader	65
Forage Harvester	350	Forage Harvester	80
Disc Harrow	240	General	40
Plough	170		
Trailer	200		
Muck Spreader	300		
General	63		
Total	4590	Total	1094

MACHINERY AND EQUIPMENT VALUATIONS

Type of Equipment	Value before Depreciation	Depreciation		Value after Depreciation
		Rate	Amount	
		%	£	£
Tractor	1122	$28\frac{1}{8}$	316	806
Tractor	403		113	290
Tractor	420		118	302
Combine	1650	$18\frac{3}{4}$	309	1341
Combine	1040		195	845
Drill	495		62	433
Forage Harvester	350		44	306
Disc Harrow	240		30	210
Plough	170	$12\frac{1}{2}$	21	149
Muck Spreader	300		38	262
Trailer	200		25	175
Cultivating and Harvesting equipment	2907		363	2544
General equipment	756		95	661
Motor Car	170	25	43	127
Totals	10223		1772	8451
Subtract Profit / ~~Add Loss~~ on Sales			615	
Depreciation (adjusted)			1157	

Schedule 3

ACCOUNTING YEAR ...1965-66.....

LABOUR

Regular Worker's Name	Basic Wage	Overtime and Bonuses	Total Wage	National Insurances Employer's Contribution	Cottages and Perquisites	Total Labour Cost
	£	£	£	£	£	£
J. Brown	700	120	820	3H	26	880
F. Smith	700	110	810	3H	26	870
A. Jones	650	87	737	3H	26	797
W. Morris	600	140	640	3H	26	700
Total Regular Labour	2650	357	3007	136	10H	3247
Casual Labour	—	—	185	8	—	193
Total Labour	2650	357	3192	11HH	10H	3440

Schedule 4

ACCOUNTING YEAR 1965-66

CROPS

SUMMARY OF GROSS MARGINS

Details \ Crop	Barley		Oats		Wheat		Potatoes					
Acres	64·0		–		118·5		20·0					
	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre	Total	Per acre
Total Yield	cwts 2418	cwts 37¾	–	–	cwts 3343	cwts 28¼	tons 251	tons 12½				
Total Output	£ 2653	£ 41·5	£	£	£ 4653	£ 39·3	£ 2684	£ 134·2	£	£	£	£
Variable Costs:												
Seeds	194	3·0	–	–	583	4·9	321	16·0				
Fertilisers	234	3·7	–	–	508	4·3	236	11·8				
Crop sprays	49	0·8	–	–	178	1·5	56	2·8				
Haulage	–	–	–	–	–	–	–	–				
Contract operations	–	–	–	–	–	–	–	–				
Casual labour	–	–	–	–	–	–	193	9·6				
Miscellaneous	–	–	–	–	–	–	85	4·3				
Total Variable Costs	477	7·5	–	–	1269	10·7	891	44·5				
Gross Margin	2176	34·0	–	–	3384	28·6	1793	89·7				
Including Deficiency Payments	Per acre	4·6	Per acre	–								

Schedule 5

ACCOUNTING YEAR ....1965-66..... FORAGE CROPS AND GRASS

Acreage .....171·5.....

VARIABLE COSTS

Details	Total £	Per acre £
Seed	279	1·6
Fertilisers	778	4·5
Crop sprays	120	0·7
Contract work	-	-
Casual labour	-	-
Miscellaneous	116	0·7
Total Variable Costs	1293	7·5
Deduct Variable Costs on Forage Crops Sold (if any)	-	-
Variable Costs Chargeable to Enterprise	1293	7·5

CALCULATION OF LIVESTOCK UNITS ON FARM AND ALLOCATION OF FORAGE ACRES AND VARIABLE COSTS TO ENTERPRISE

Enterprise	Average ~~monthly~~ numbers*	Livestock unit factor	Total livestock units	Allocation of forage acres	Allocation of variable costs
					£
Dairy cows (incl. bulls)	79·0	1.00	79·0	127·3	960
Dairy followers—over 2 years	16·5	0.75	12·4	20·0	151
Dairy followers—1-2 years	15·0	0.60	9·0	14·5	109
Dairy followers—under 1 year	20·0	0.30	6·0	9·7	73
Beef cows (incl. bulls)		0.75			
Beef stores—over 2 years		0.75			
Beef stores—1-2 years		0.60			
Beef stores—under 1 year		0.30			
Sheep: Ewes and rams		0.25			
Sheep over weaning		0.10			
* Average of opening and closing valuations. Totals			106·4	171·5	1293

Schedule 6

ACCOUNTING YEAR ....1965-66..... **DAIRY COWS**

GROSS MARGIN SUMMARY

Total milk sales	gallons	66 870
Average number of cows		78·0
Yield per cow	gallons	857·3
Concentrates per cow	cwt.	25·8
Concentrates per gallon	lb.	3·4
Forage acres per cow		1·63

Details	Total No.	Total £	Per cow £	Per gallon d.
Valuation changes (+) or (−)	−	(+) 142		
Sales of cows	7	293		
Sales of calves	50	390		
Value of calves transferred to followers	34	510		
Sub total		1335		
Less purchases of cows	−	−		
Less value of first calvings	11	990		
Herd depreciation (−) or appreciation (+)		345	4·4	1·24
Milk sales	66870	11010	142·5	39·87
Produce to house and men		100		
Gross Output		11455	146·9	41·11
Variable Costs:	cwt.			
Homegrown concentrates	718	718	9·2	2·57
Purchased concentrates	1298	2142	27·5	7·69
Other purchased foods		−	−	−
Vet. and medicines		187	2·4	0·67
Haulage		−	−	−
Miscellaneous		462	5·9	1·66
Total Variable Costs		3509	45·0	12·59
Gross Margin (forage costs not deducted)		7946	101·9	28·52
Forage Costs		960	12·3	3·45
Gross Margin (forage costs deducted)		6986	89·6	25·07
Gross Margin per Forage Acre		54·9		

Schedule 7

ACCOUNTING YEAR ....1965..66..... **DAIRY FOLLOWERS**

GROSS MARGIN SUMMARY

Number of first calvings		11
Age at calving	Years	–
Forage acres per livestock replacement unit		2·1
Concentrates per livestock replacement unit	cwt.	22·6

Details	Total No.	Total £	Per livestock replacement unit £
Valuation changes (+) or (−)		(+) 880	
Value of down calving heifers	11	990	
Sales	2	90	
Total		1960	
Less value of calves transferred from Dairy Cows	34	510	
Gross Output		1450	67·8
Variable Costs:	cwt.		
Homegrown concentrates	178	178	8·3
Purchased concentrates	306	535	25·0
Other purchased foods		–	–
Vet. and medicines		36	1·7
Haulage		–	–
Miscellaneous		–	–
Total Variable Costs		749	35·0
Gross Margin (forage costs not deducted)		701	32·8
Forage Costs		333	15·6
Gross Margin (forage costs deducted)		368	17·2
Gross Margin per Forage Acre		8·3	

Enterprises	Totals	Dairy Cows	Dairy Followers	Forage costs	Grazing livestock	Wheat	Barley	Potatoes							
Acres				171½	(Less	118½	64	20							
Livestock Numbers					forage costs)										
Output															
Livestock valuation changes	1022	142	880	–	1022	–	–	–							
Livestock sales and deficiency payments	773	683	90	–	773	–	–	–							
Livestock transfers out	1500	510	990	–	1500	–	–	–							
Product sales and deficiency payments	20217	11010	–	–	11010	4653	2653	1901							
Closing crop valuations	783	–	–	–	–	–	–	783							
Other allocated subsidies	–	–	–	–	–	–	–	–							
Produce to house and men	100	100	–	–	100	–	–	–							
Total	24395	12445	1960	–	14405	4653	2653	2684							
Less livestock purchases	–	–	–	–	–	–	–	–							
Less livestock transfers in	1500	990	510	–	1500	–	–	–							
Enterprise Output	22895	11455	1450	–	12905	4653	2653	2684							
Variable Costs															
Homegrown cereals and pulses	896	718	178	–	896	–	–	–							
Purchased concentrates	2677	2142	535	–	2677	–	–	–							
Other purchased foodstuffs	–	–	–	–	–	–	–	–							
Seeds (purchased and homegrown)	1377	–	–	279	279	583	194	321							
Fertilisers (net)	1756	–	–	778	778	508	234	236							
Crop sprays	403	–	–	120	120	178	49	56							
Vet. and medicines	223	187	36	–	223	–	–	–							
A.I. and N.M.R. fees	212	212	–	–	212	–	–	–							
Haulage	–	–	–	–	–	–	–	–							
Contract work	–	–	–	–	–	–	–	–							
Casual labour	193	–	–	–	–	–	–	193							
Miscellaneous	451	250	–	116	366	–	–	85							
Total Variable Costs	8188	3509	749	1293	5551	1269	477	891							
Enterprise Gross Margin	14707	(7946)	(701)	–	7354	3384	2176	1793							
Miscellaneous income*	343	per acre													
Total Gross Margin	15050	39·7													
Fixed Costs															
Labour—Regular (incl. est. farmer and wife)	3997	10·5													
—Casual	–	–													
Contract work	–	–													
Equipment depreciation	1157	3·1													
Equipment repairs	634	1·7													
Fuel and power	655	1·7													
Rent and rates	2056	5·4													
Other repairs	67	0·2													
Miscellaneous*	224	0·6													
Total Fixed Costs	8790	23·2													
Management and Investment Income	6260	16·5													
Add est. for farmer and wife's labour	750	2·0													
Net Farm Income	7010	18·5													

Forage costs per acre £ 7·5

Summary of Enterprise Gross Margins (per acre and per head)

Crops	Yield per acre	£ per acre
Wheat	28¼ cwts	28·6
Barley	37¾ cwts	34·0
Potatoes	12½ tons	89·7

Grazing Livestock (Less forage costs) £43·0 per acre

Stocking Rate 1·6 forage acres per livestock unit

Livestock (forage costs not deducted)	£ per head

Some Efficiency Factors

	£
Gross output per acre	58·5
Net output per acre	48·2
Total gross margin per acre	39·7
Net output per £100 total labour	436
Net output per £100 total labour and machinery	267

* For details see over.

Details of Miscellaneous Income

	£
Ploughing Grant	198
Sundries	145
	£ 343

Details of Miscellaneous Fixed Costs

	£
Vehicle Tax + Insurance	80
Sundries	144
	£ 224

Reconciliation of Net Farm Income (as shown overleaf) with Statement of Accounts

	£
Net Farm Income (per Gross Margin record)	(+) 7010
Difference in Tenantright Valuations (+) or (−)	(-) 424
Other items (specify)	
Balance of 1964 wheat sales over valuation	(+) 551
Overestimate of 1964 barley in stock	(-) 39
Overestimate of 1964 potatoes in stock	(-) 56
Hay: 1964 Hay crop sold (+) 554	
Difference in Forage valuations (-) 551	(+) 3
Differences in Variable Costs between Accounts + Gross Margin: Seeds	(+) 172
Fertilisers	(-) 391
Sprays	(+) 15
Net Farm Income (per Statement of Accounts)	£(+) 6911

GROSS MARGIN ACCOUNT RECORD

Code Number .....

Year Ending 5th April 1966

Crops	Acres
Wheat	118½
Barley	64
Oats	–
Beans and peas (fodder)	–
Potatoes	20
Sugar beet	–
Peas—green	–
—threshed	–
Vegetables (specify)	–
Herbage seed	–
Turnips and swedes	–
Mangolds	–
Kale	19¾
Temporary grass—hay	40½
—grazing	48¾
—silage	48½
Permanent grass—hay	–
—grazing	14
—silage	–
Rough grazings	–
Total Forage Acreage	171½
Woodlands buildings, roads, etc.	5
Bare fallow	–
Total Acreage	379

Livestock Numbers

Class of Stock	At opening valuation	At closing valuation	~~Monthly~~ * average
Dairy Herd			
Cows + Bull	77	81	79·0
Followers—over 2 years	11	22	16·5
—1-2 years	24	6	15·0
—under 1 year	6	34	20·0
Beef Herd			
Cows	–	–	–
Others—over 2 years	–	–	–
—1-2 years	–	–	–
—under 1 year	–	–	–
Sheep			
Ewes	–	–	–
Others (over weaning)	–	–	–
Pigs			
Sows (excl. gilts)	–	–	–
Others (over weaning)	–	–	–
Poultry	–	–	–
Other Livestock	–	–	–

* Average of opening and closing valuations

Rough grazings (pasture equivalent)

Total Forage Acreage (adjusted)

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