

FARM ACCOUNTS

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FOREWORD

KEEPING reliable farm accounts is not only desirable, but obligatory for an ever expanding proportion of Britain's farming population. In particular, the provisions of the Finance Act 1948 will, in practice, entail the keeping of such accounts by many farmers who may never have considered them necessary before. The publication of this useful work is therefore particularly timely.

The process of preparing farm accounts for the sole purpose of assisting His Majesty's Collectors of Taxes would, however, be a lugubrious task. Fortunately these accounts have other and more attractive uses. Well-kept accounts are the best and indeed the only possible yardstick by which the individual farmer can measure his efficiency from one year to another. The farmer without accounts is like a mariner without instruments. He may arrive at the desired destination, but he will rarely know how he got there, and he will certainly find it difficult to get there again by exactly the same route.

The present volume will provide the modern farmer with all the guidance he requires in preparing clear and simple accounts of all his operations. It is intended for the farmer rather than the accountant, yet it omits nothing which is essential to sound accounting practice. It will prove of immense assistance to those who are keeping full accounts for the first time, and will scarcely be less helpful in improving the general standard prevailing at present.

Mr. Bray and Dr. Dawe are to be congratulated on producing so valuable and comprehensive a work. British agriculture has made great technical progress in recent years, and this book will help farmers in assessing the value and taking full advantage of new techniques.

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INTRODUCTION

THE literature of farm accounts has ancient origins but it is still developing. Practices of accounting in agriculture largely arose from two sources, absentee ownership and division of interests between owners of land and various types of operators on shares. In this country monastic houses, absentee lords, and later the political- or commercial-minded aristocracy who superseded the monasteries gave their stewards instructions on accounting and scrutinized the results of estate and farming enterprises shown in the accounts which were rendered. The movements of thought which caused the agricultural revolution of the eighteenth century and grew with it included some cogitations on accounts and their uses. Before the opening of the last century there were books which treated of the capitalization of farms and of their separate enterprises, and of costs of producing crops as well as of general financial results. Just over a century ago one author of a treatise on agriculture introduced the subject 'of the general management of a farm' with a section 'of the keeping of accounts' which itself began with the statement 'no one is ever ruined who keeps good accounts'. At that time stationers were printing and selling special forms of farmers' account books, some at least of which had features which would now be associated with costing processes.

Nevertheless, in the early part of this century the general public impression of agriculture was of an industry whose finances were controlled by rule-of-thumb methods, with only occasional formal accounting. It was often said that farmers were not interested in accounts and, in spite of the study which had been given to the subject, that accounts had little of practical value to offer to farmers and farming. From more intimate experience it was said that in the farming community there were different views of their uses and values. There have been farmers who have not wished to know exactly what were their net financial positions or their annual profits for the reason that, so long as these were not formally ascertained, no other person could know them and the farmer himself would have the closest knowledge however vague that might be. Dealing with this position, the present authors say that frankness of the farmer with himself is the first essential of accounting, but that frankness need not be extended to others unless he so chooses. There have been other farmers who had some desire to know their net worth and their profits but who believed that the means of

finding out were so troublesome and difficult as to be beyond their powers. There are still a few farmers and other people who will say that, because some of the effects of agricultural processes are not exactly measurable, their final economic results cannot be known and the intermediate accounting results are of relatively little value. On the other hand, there have always been farmers who have valued the accounts they have kept both as general financial checks and as guides to future management. And the effects of processes which are least subject to direct measurement always eventually appear in results of accounts.

A very considerable change began when provisions for the formal study of agricultural economics were made just before World War I. Ideas of the value of accounting have been continually presented to the farming community since that time, and experience has proved that these ideas had sound foundations. The development and extension of forms of accounting have been stimulated by economic conditions arising in war periods. As a result of experiments in agricultural costing and of the need of regulating prices the Government of 1918 set up a national costing organization. This was short-lived, but when it disappeared the system of providing economic advisory services for farmers began. Between 1920 and 1939 the Institute for Research in Agricultural Economics and the Provincial Departments of Agricultural Economics at the Universities of Cambridge, Reading, Bristol, Leeds, Manchester, Wales, and Durham, and the Wye, Harper Adams, Seale Hayne, and Midland Colleges of Agriculture, had proved to a large number of farmers the practical value of financial recording and accounting in many forms. Records have been made in the form of general financial accounts, cost accounts of all enterprises within the farm, and in the form of records of costs of single enterprises, with that known as the farm management survey. Individual and collective results of these systems of financial recording have been analysed and returned to farmers both individually and collectively. The enterprise of the Milk Marketing Board, for instance, has been responsible for the provision of continuous records of costs of milk production for a period of over twelve years. Some information is available on the costs of production of nearly all farm crops and other chief products. No other 'infant industry' was ever developed in this country with the assistance of so much financial information and economic analysis as was provided for the producers of sugar-beet.

The principles of accounting are fundamental to all these forms of financial and economic recording and analysis. Under pressure of

taxation during World War I many farmers sought the assistance of professional accountants. When taxation was eased the interests of farmers in the ascertainment of earnings flagged, but the interest of professional accountants was sustained. They have made valuable contributions to the special theories and practices of farm accountancy. And gradually during the inter-war period an appreciable number of accountants in private practice were extending their clientele amongst farmers. Some of these were associated with the Provincial Agricultural Economists in the processes of developing the uses of accounts for economic advisory purposes.

The change in the bases of taxation of farming profits in 1941 again stimulated extensive and keen interest in farm accounting. Many accountants have vastly increased their agricultural practices and everyone who was capable of offering advice or assistance to farmers has been called upon for service. On the whole it appears that the farming community has been excellently served in respect of the use of accounts for taxation purposes. There is, however, danger of wastage of effort in accounting processes if the results are treated merely as histories of profits or losses, of value chiefly in relation to individual taxation. While they are of immediate value and importance as records of results of past activities, their greater value should be realized as sources of information on causes of profits or losses and as guides to future uses of economic resources and to principles of management.

Altogether, many agencies and conditions have contributed to the current interest in methods and uses of farm accounting. Books on the subject have been written by agriculturists, agricultural economists, and professionally trained accountants. The present study is unique in that it has been prepared jointly by a Chartered Accountant and an Agricultural Economist who have not only studied the subject in all its theoretical aspects but have wide experience of the practical processes of accounting in all their many variations. Here are treated the principles and processes of valuation, of recording, of summarization, and of interpretation. Doubtless, as in every other case of the kind, other views may be possible at some points. The purposes for which records and accounts are kept and summaries are prepared will always influence to some extent the principles followed and the methods used. The chief considerations are that the principles and methods advocated shall be as simple as may be practical; shall be fully consistent; and shall yield such results as may be legally, rationally, and fairly dependable, but in particular such as will yield the individual farmer reliable information about

the structure, operation, and results of his own business. In relation to the objects set, the systems advocated here will successfully meet these tests.

While great progress has been made and highly valuable results have already been achieved, there is still much to be done in developing knowledge and practice in this field of farm accounting. This book may be welcomed by farmers, accountants, and agricultural economists, and by all those who are concerned with the establishment of an efficient and prosperous agricultural industry.

A. W. ASHBY

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ACKNOWLEDGEMENTS

IN writing this book we have been fully conscious of the debt we owe to many colleagues, since knowledge often only expands and increases by almost imperceptible additions to what is already known. In this continuous process of building, many have contributed their quota, some in recent years, others in much earlier times. From the nature of the present book, which ranges, albeit extremely briefly, from early economic history to present-day accounting practice, it is clearly impossible and, indeed, superfluous even to attempt to mention either the sources of information or their authors.

We feel, however, that two exceptions must be made. Firstly, we are indebted to J. T. Beresford, of Manor Farm, Fitzhead, Somerset, who has placed at our disposal his complete system of financial and cost accounts upon which we have drawn very freely.

Secondly, we must thank A. W. Ashby, Director of the Agricultural Economics Research Institute, University of Oxford, who has so carefully read the manuscript and made a number of valuable criticisms which, coming from a colleague of many years' standing, have been all the more appreciated.

August 1948

CONTENTS

FOREWORD. <i>By S. J. LEE, Economics Department, National Farmers' Union</i>	v
INTRODUCTION. <i>By A. W. ASHBY, Director of the Agricultural Economics Research Institute, in the University of Oxford</i>	vi
ACKNOWLEDGEMENTS	x
CHAPTER I. THE FARM ACCOUNTS	i
CHAPTER II. FARM COSTS	32
CHAPTER III. THE AGRICULTURAL ECONOMIST AND THE FARMER	74
CHAPTER IV. THE PROFESSIONAL ACCOUNTANT AND THE FARMER	90
APPENDIXES:	
I. FARM ACCOUNT BOOK AS DESIGNED BY THE DEPARTMENT OF AGRICULTURAL ECONOMICS IN THE UNIVERSITY OF BRISTOL	103
II. SPECIMEN FORMS	136
III. NOTE ON THE POSSIBLE EXPANSION OF THE PRIMARY RETURN	137
IV. TENTH SCHEDULE TO THE FINANCE ACT, 1947	141
INDEX	147

CHAPTER I

THE FARM ACCOUNTS

IT is no exaggeration to say that farming is an exacting occupation which requires the continuous exercise of both physical and mental capacities throughout the best part of a man's waking life. The working farmer is a busy man, and because of this he is a little apt to resent the time and trouble which are necessary to the keeping of proper accounts; nevertheless, there are good reasons why he should attempt a reasonable and simple method of keeping accounts of his farming transactions. Farming, like any other business enterprise, must be efficient if it is to be successful, and this is only really possible where the farmer knows with some show of accuracy the elements of strength or weakness in the management of his farm. Moreover, this kind of knowledge should be continuously before his notice, and for that reason it is a good thing that he should regularly consult accounting records which give him a clear and orderly picture of his farming operations.

Every farmer must have the means of knowing within fairly close limits the amount of profit which his efforts are yielding, not only in relation to the farm as a whole, but for each department of his activities. He should also know with some precision the amount of capital which he is employing in his farming business, how it is represented by net assets, and whether or not his profit result constitutes a proper return from the use of that capital. Neither can he afford to neglect the correct ascertainment of the claims of the Inland Revenue, since taxation assessments on farming operations are now based on the profits earned.

Yet again, it seems that if farming in this country is to be carried on at a reasonably remunerative level there must be some form of control which, if it is effective, must resort to the statistical accounting information brought together by central organizations like the Agricultural Economics Departments of our universities, or the National Farmers' Union, organizations which in their turn must rely upon the contribution of the individual farmer. It is therefore plain that in these days farm accounts are a necessity *not* to be lightly put on one side as subsidiary to the real purposes of farming, and it is the main object of this book to show a farmer quite simply how to keep farm accounts and how to arrive at his costs of

farming operations in a manner consistent with accepted accounting principles.

At the foundation of the recommended system of account keeping is the Farm Account Book, devised by the Department of Agricultural Economics of the University of Bristol, which is set out in detail as Appendix I of this book. A quick perusal will show that this Farm Account Book has been mainly designed to classify those transactions which relate to the profit or loss of a farming year in a manner consistent with the statistical requirements of the department. From an accounting point of view the most important statement in the book is the form of profit and loss account in which the opening valuations, the farm expenditure, the closing valuations, and the farm income are brought together in order to reveal the profit or loss on the working of the farm for the year. It is intended that there shall be a separate Farm Account Book for each year. In addition there are two permanent books of record which a farmer should keep. The first is the Cash Book and the second the Private Ledger. When instituting both of these books it will be found to save a great deal of trouble if well-bound, durable, and sufficiently large books are bought in the first instance. Adequate account-keeping entries cannot be made in either small books or in exercise-books; this has sometimes been attempted in the past with the result that it has not been long before they have had to be replaced by more substantial books. The means must be adequate to justify the ends, and in the case of farming the means are properly kept account books, while the ends are the ready preparation of accurate accounts which will enable the farmer to have a clear idea of the financial effect of what he is doing. It is probable that the keeping of a cash book will come quite naturally and easily to most farmers, for it is nothing more than a plain enunciation of the day-to-day farm receipts and farm payments; or, looked at another way, it is a simple statement in date order of the cash transactions to be classified in either the Farm Account Book, which as we have seen is concerned with profit formulation, or the Private Ledger, which is concerned with proprietorship matters.

We pass on to the Farm Cash Book, but before explaining the daily routine of recording receipts and payments there are one or two preliminary considerations to which we should wish to draw attention. In the first place all receipts and payments which in any way refer to the *business* of farming should be passed through a separate farm banking account. This means that a farm banking

account should be opened quite apart from the farmer's private banking account. If this is done at the start of a farming venture the farmer will make a proper beginning so far as his business records are concerned. For one thing there will be less danger of confusing his personal affairs with those of his business, and, for another, such adjustments as are necessary to give effect to the economic implications resulting from the intimate and personal association of a farmer with his business will be reduced to a minimum. Clearly it is easier to build up reliable farm accounts from a plain statement of bank credits and charges which have their origin in farming operations rather than from a mixed account. It has also to be remembered that personal receipts and payments do not ordinarily assume quite the same degree of importance in the mind of the farmer as his business receipts and payments, with the consequence that he is less likely to recognize them for what they are when it comes to making up accounts. In all that follows we shall assume the institution of a separate farm banking account.

As a second point we recommend that all farm receipts, whether in the form of cash or cheque, should be banked promptly and *intact*. If this recommendation is conscientiously adhered to it will put an end to the undesirable practice of making cash payments out of cash receipts and only paying the balance into the farm banking account, a practice which creates more trouble than enough for accountants who must have in front of them every originating detail influencing the periodical statement of accounts. Where this recommendation has not been observed, as has been, alas, only too often the case, it has become at a later stage quite a difficult matter to conjure up just what were the amounts in fact received and just what were the amounts paid away in cash out of those receipts before arriving at the balance of cash banked. Again, the desirability of depositing all farm receipts, whether in the form of cash or cheque, into the bank as soon as possible after they have come in should not need emphasizing. We suggest it is well to form the habit of attending and paying into the bank at frequent and regular intervals, more especially in the case of a large farm where cash items are likely to be numerous. There is no particular merit in retaining a float of unbanked receipts.

From what has been said it will be apparent that the farmer who superficially thinks that it is to his advantage to receive cash and to use it without banking it never has any complete and effective check on his incomings and outgoings. His knowledge of the sources of the one and the uses of the other is bound to be defective.

Moreover, he will never have any very complete check on either his business or his private transactions; he will know neither what his business yields nor what he really spends on living. The value of a complete knowledge of business transactions, and a general knowledge of the amount available to be used and disposed of for personal purposes, is far greater than any relatively minor saving in time. We should here observe that complete frankness and openness, primarily with one's self, is at the very basis of accurate accounting, and we would add the comment that, although farm and private transactions are separated, this frankness need not necessarily extend to any other person.

A third consideration has to do with the expenditure side of the farm administration. All bills for goods delivered and services rendered to the farmer should be paid, as promptly as possible, by cheque for the amount of the bill after deducting trade and cash discounts or other permissible allowances, so as to reduce the accounting for creditors. To secure a cash discount it is more often than not essential to pay an account promptly, a point which the farmer should not overlook since cash discounts when taken up in this way can constitute quite an appreciable reduction of expenditure over the farming year.

Payments in cash should be reduced to a minimum, and so far as ever possible the farmer should see to it that he gets a receipt voucher or a receipted bill for every payment he makes whether by cheque or in cash. These vouchers should be carefully filed away, preferably in the order in which the payments have been made, since later on they may have to be consulted either by the farmer himself in connexion with his costings or by a professional accountant who has been asked to audit the farm accounts.

It is not altogether unusual, when working capital resources are low, to find that a farmer instead of paying a bill in full will sometimes pay a round sum on account. Accounting experience suggests that this practice is to be avoided because it tends to provoke an accumulation of unpaid balances, a situation which requires a careful system of accounting for creditors imposing extra office work which hardly seems justified in the case of farmers. Moreover, unpaid balances, not recorded in a creditors' ledger, are very apt to be overlooked in determining the real expenditure assignable to the farming year, and there is the added difficulty of deciding the allocation of payments on account to specific expenditure classifications, particularly where a bill covers a whole number of diverse items.

The Farm Cash Book

It should be emphasized at the outset that a Farm Cash Book is quite simple to keep providing it is done consistently as a matter of routine. The cash book has two sides, a left-hand page to record receipts and a right-hand page to record payments. Both pages should be double-columned for money entries, the one to carry inset detailed items, and the other to show extended totals equivalent to the amounts of money passing into and out of the farm banking account. On both pages there should be spaces provided to enter the date and description of a transaction with a folio column for reference to the Farm Account Book and Private Ledger. The place for descriptive narrative should be spacious so as to provide for full and clear explanatory information. This is important because in the system we are describing cash receipts and payments are foundation entries, and as such a source for continual reference.

Where a Farm Cash Book is but newly brought into being, the starting balance to be taken on to the cash book is that shown by the bank statement after adjusting for unrepresented cheques and such-like items. If this balance is in credit, the opening entry will be made on the left-hand side of the cash book. On the other hand, if the farm is working on an overdraft the opening entry will be made on the right-hand side of the cash book.

All receipts should be entered on the left-hand side of the cash book, under as complete a narrative as possible, when they come in. The money entry will be made in the detail column and a receipt form made out for transmission to the person remitting the cash or cheque. A book of receipt forms suitably counterfoiled and numbered is much to be commended; care should be taken to fill in the counterparts in strict conformity with the receipt forms, and the appropriate numbers might, with advantage, be noted in the cash book. Incorrectly drawn or spoiled receipt forms should be cancelled and retained in the receipt book, attached to the counterpart.

As soon as it is convenient to make payment into the bank, the detail column is ruled off and the total extended into the bank column. The Bank Paying-in Book is completed to conform with the cash book receipt entries and the total agreed with the amount extended into the bank column of the cash book. In this way the extended totals appearing in the second column on the left-hand side of the cash book are plainly reconcilable with the credit entries recorded by the bank in the statement of the farm banking account when the time comes for this to be called for.

As we have recommended earlier in this chapter, farm payments should ordinarily be made by cheque, unless there are special circumstances precluding this course. Reasonable details should be carefully noted on the counterfoil when writing the cheque, since it is this information which constitutes the source for the entries to be made on the right-hand or payments side of the cash book. Each counterfoil cheque should then be entered in date order on the right-hand side of the cash book under as complete a narrative as possible, with the detail money entries for the make-up of the cheque placed in the inset column and the amount for which the cheque was drawn extended into the bank column. It will be seen that the amounts entered in the second or bank column are plainly identifiable with the charges recorded on the bank statement.

Most farmers will find it useful to fasten together the documents supporting each payment, e.g. delivery note, supplier's invoice or bill, and receipt, and to file them away in the cash-book order of payment. It will be helpful both for reference and for subsequent production to the auditors.

At this stage we temporarily interrupt the discussion on the Farm Cash Book to deal with a special point concerning *cash* payments. Although *cash* payments are best reduced to a minimum, nevertheless there may be occasions when they are essential. It is a good practice to have a cash float available, and for this purpose a bearer cheque should be drawn on the farm banking account for a suitable amount and cashed. This will necessitate an entry on the right-hand side of the cash book for the amount of the cheque, and a corresponding entry on the left-hand side of an account to be instituted for *cash*. This subsidiary account may be kept either in a separate book, specially maintained for the purpose, or recorded in a separate part of the main Farm Cash Book. Such *cash* payments as are made must be carefully recorded on the right-hand side of this account with full and clear descriptions to explain their nature. This account will follow the same lines as the Farm Cash Book, except that its balance will be equivalent to the farmer's *cash* in hand, whereas the balance on the Farm Cash Book will constitute either his *bank* credit or overdrawn balance as the case may be. The *cash* float will be kept up by the cashing of cheques drawn on the farm banking account. In point of fact the cash account is nothing more than an extension of the cash book and as such requires much the same account-keeping treatment. We shall not, therefore, deal with it further and will resume the discussion on the Farm Cash Book.

It seems well at this point to make the comment that wages cheques should be drawn for the exact amount of net cash required to be paid to the farm employees. This will mean that the Farm Wages Book will require to be written up before the cheque is drawn. Thus, so far as possible, the amount to be entered on the right-hand side of the cash book in the bank column for wages should agree with the item for net cash paid at column 12 in the Farm Wages Book, a specimen of which is included in the second appendix of this book. The Farm Cash Book should be balanced at periodical intervals, preferably monthly. The balance at the close of this period should then be reconciled with the balance noted on the statement to be obtained from the bank. Invariably it will be found that there are small differences. These arise in respect of un-presented cheques and amounts not yet paid into the bank. A reconciliation statement should be prepared, starting with the balance shown in the Farm Cash Book and adding un-presented cheques, with a subsequent deduction for amounts not paid into the bank; the resulting total should then be equivalent to the balance noted in the bank statement. It is sometimes found that charges for cheque books and bank interest are noted in the pass book without having been entered in the cash book. When the bank statement is received it is desirable to check each item credited and each item charged with the Farm Cash Book. This will then reveal the un-presented cheques, amounts not credited, and items charged by the bank but not recorded in the cash book. These charges for cheque books and bank interest should be immediately entered on the right-hand side of the cash book and not treated as items for reconciliation with the statement to which we have referred. Every cash-book entry on both sides, except the balancing figures and those transferred to the Cash Account, must be posted somewhere into either the Farm Account Book or the Private Ledger. Similarly the payments made out of the Cash Account must also be posted into either one or other of these books, although in this case it is more likely that the main entries will refer to the Farm Account Book.

Under the system we are describing the main sources for the entries to be made in both the Farm Account Book and the Private Ledger are the Farm Cash Book and the Farm Cash Account. In effect the functions of the Farm Account Book and the Private Ledger are to sort out into their most significant classifications all the happenings giving rise to income and expenditure of the farm, either on operational or capital account.

All entries on the left-hand side of the cash book thus find their

place either on the right-hand side of accounts in the Private Ledger or in credit accounts in the Farm Account Book. As a simple illustration wholesale milk sales noted as receipts on the left-hand side of the cash book will be referenced to Account No. 12 in the Farm Account Book; that is, a clear statement of the sales under the same narrative as appears in the cash book has now to be placed under the classification for Wholesale Milk Sold in the Farm Account Book. Other entries will be dealt with in a similar way. For example, Hay Sold will be posted to Account No. 24 in the Farm Account Book, Straw Sold to Account No. 25, Implements Sold to Account No. 37, and so on. In this way like items affecting either farm operations or the proprietorship record will be brought together in either the Farm Account Book or the Private Ledger. Items on the right-hand side of the cash book will be similarly treated; thus an entry for the purchase of seeds on the right-hand side of the cash book will be recorded in Account No. 33 of the Farm Account Book—Seeds Bought. Fertilizers purchased will be referenced to Account No. 34, Implements Bought to Account No. 36, Payments for Ironmongery in Account No. 38, and so on. A specimen page of a Farm Cash Book is set out on pages 10 and 11, from which it will be noticed that care must be taken to see that every item in the Farm Cash Book is referenced somewhere. No item must be missed, and it must be seen that they are all entered under their appropriate headings in either the Farm Account Book or the Private Ledger. The Farm Account Book or Private Ledger reference should be noted in the folio column of the Farm Cash Book, and in the Farm Account Book or Private Ledger the cash-book folio should be recorded.

The posted entries from either the Farm Cash Book or Cash Account to the Farm Account Book or Private Ledger should be recorded in as complete a manner as possible, so that both the Farm Account Book and the Private Ledger may together constitute a permanent and comprehensive monetary record of all the farming transactions. This will prove a great help should any question arise on the annual statement of accounts, for it can then be answered by reference to the detail in those books.

Any tendency to make entries from the Farm Cash Book into the Farm Account Book or Private Ledger under the caption 'Sundries' should be resisted because eventually this only necessitates further reference to the Farm Cash Book, and very possibly the vouchers supporting receipts and payments, to discover what the 'Sundries' are. The necessity for entries which are fully descriptive will be

better appreciated just as soon as it is recognized that both the Farm Account Book and the Private Ledger are a means of classifying *like* entries within significant categories. For one thing it can be quickly seen that the entries do have *like* qualities when there are full narrative explanations to judge them by. In a sense the Farm Cash Book itself is only a means of bringing together like items, viz. those which pass through the farm banking account. Yet again, the advantage of a complete narrative statement of entries in the Farm Account Book will be better understood when later in this chapter we come to discuss such matters as provisions for accrued expenses and unexpired payments.

The Private Ledger

The Private Ledger is the book which gives the farmer some idea of the value of his proprietorship interest in the farm. It brings together those accounts which are not included in the Farm Account Book and it tells the farmer the amount of capital represented by net assets which he has invested and is employing in his farm. It records the increases or decreases in that capital which have taken place by reason of his farming operations, by putting in more funds or by taking them out, and it yields figures which enable him to judge the operational return which he is earning on his capital. It is the Private Ledger which contributes the balancing figures essential to the preparation of a statement of farm assets, liabilities, and proprietorship, at the conclusion of each farming year—a balance-sheet as it is called in the language of accountants.

As we shall see later on, asset values are matters which play a prominent part in the measurement of farming profits and this seems the place at which to say something about those accounting principles on which book values depend. The entries which are made in books of accounts are mainly based on price in terms of cash or its equivalent at the time the transaction is entered into—historical cost as it is sometimes called in the more technical language of accountants. As a result of this, accounting or book values such as those which find their way into the Private Ledger accounts, are generally restricted to the statement of items at cost or at modifications of cost. Accountants feel that if they record items at cost then there is less chance of elements of uncertainty in the form of mere opinion creeping into the statement of accounts. When it comes to attempting a reasonable measurement of profit we shall see that a great deal depends upon the consistency with which opening and closing farm valuations are kept on a 'like' basis, a principle which

Specimen form of Farm Cash Book

FOLIO 1.

FARM CASH

RECEIPTS

Date	Description	Folio	Details			Bank		
			£	s.	d.	£	s.	d.
1945								
Sept. 1.	Bank Balance					579	1	2
2.	Capital Introduced	Private Lr. 1	500	0	0			
5.	Smith & Co.							
	Sale of Potatoes	Farm Account Bk. 21	45	0	0			
	Sale of Cabbages	" " " 27	21	0	0			
			<hr/>			566	0	0
6.	The County Memorial Hospital, Milk Sale	" " " 16				31	2	6
7.	Jones Ltd.							
	Balances payable on							
	Sale of Wheat	" " " 17	40	0	0			
	Sale of Barley	" " " 18	30	0	0			
			<hr/>			70	0	0
8.	T. Brown							
	Sale of 3 pigs	" " " 7				32	0	0
9.	X.Y. Garage Ltd.							
	Sale of 'Austin' Car	" " " 37				143	0	0
10.	A.B.C. Sale of eggs	" " " 11				2	5	0
20.	E. May. 1 year's rent of Kitchener's field due 29.9.45							
	In advance	" " " 57				29	0	0

Bank Reconciliation at 30th September 1945

Farm Cash Book Balance		Cr.	540	0	3	
Add: Unpresented Cheques 1945	£	s.	d.			
Sept. 24. T. Robinson	5	5	0			
27. A.B.	77	0	0			
	<hr/>			82	5	0
Balance recorded on Bank Statement	<hr/>			£622	5	3

 £1,452 8 8

Oct. 1 Balance, Brought forward

£540 0 3

and specimen entries

BOOK

FOLIO 1.

PAYMENTS

<i>Date</i>	<i>Description</i>	<i>Folio</i>	<i>Details</i>	<i>Bank</i>
			<i>£ s. d.</i>	<i>£ s. d.</i>
1945				
Sept. 7.	Net Wages	Farm Account Bk. 48		16 12 6
14.	Net Wages	" " " 48		16 12 6
16.	Wages—Inland Revenue Income Tax (P.A.Y.E.)	" " " 48		6 1 0
17.	A. Brown & Co.—Print- ing and Stationery	" " " 55		14 3 4
18.	Local Motors Ltd. Petrol	" " " 39	10 2 1	
	T.V.O.	" " " 39	19 4 6	
			<hr/>	29 6 7
19.	The Farmers' Co-opera- tive Society Ltd.			
	Seeds	" " " 33	70 0 0	
	Fertilizers	" " " 34	33 0 0	
	Foodstuffs	" " " 28	84 0 0	
			<hr/>	187 0 0
20.	Mutual Insurance Ltd.			
	1 Year's Fire Insur- ance Premium on Farm Buildings due 29.9.45			
	In advance	" " " 50		5 0 0
21.	Net Wages	" " " 48		16 12 6
24.	T. Robinson—Veteri- nary Fees	" " " 42		5 5 0
25.	Cash	Cash Account 1		10 0 0
26.	Farm Contractors Ltd.			
	2 Farm Cottages— 2nd payment per Certificate	Private Lr. 20		500 0 0
27.	A.B. Purchase of 2 Horses			
	'Beauty'	Farm Account Bk. 3	44 0 0	
	'Punch'	" " " 3	33 0 0	
			<hr/>	77 0 0
28.	Net Wages	" " " 48		16 12 6
30.	Bank Loan Interest	" " " 58		12 2 6
				<hr/>
				912 8 5
30.	Balance, forward			540 0 3
				<hr/>
				<u>£1,452 8 8</u>

is the real idea behind the conception of standard livestock values discussed later in this book.

The first entries to be made in the Private Ledger must be related to a statement of the farmer's Net Worth—that is, his proprietorship capital—on the date he starts keeping more complete accounts, and this date should ordinarily coincide with the beginning of a farm accounting year. This means that the farmer must set about making an inventory of all his assets and liabilities at the beginning of his accounting year. It must include *all* his farming assets and *all* the liabilities which are related to his farming operations.

The following is a specimen statement of Net Worth at the beginning of a farming year:

	£
Freehold land, at cost	10,200
Farm buildings, at cost less depreciation	5,095
Implements, at cost less depreciation	3,201
Deadstock, at cost	3,052
Livestock, at standard values	4,005
Farm debts owing to the farmer and Unexpired Payments	106
Bank Balance	1,095
Cash Balance	7
	<hr/>
	26,761
<i>Deduct</i>	
Farm debts owing by the farmer and Accrued Expenses	764
	<hr/>
Farming capital	£25,997

In compiling a statement of this type the first question which presents itself is concerned with the method to be adopted in arriving at the book values of the farm assets, bearing in mind the fact that accounting technique generally adopts 'cost' as the starting-off point. Well, if the farmer is the freehold owner of his land it should not be too difficult to ascertain what he paid for it, treating the conveyancing costs as part of the purchase price. If by any chance the farmer has taken a long-term lease of the farm, the figure to bring in to the statement of Net Worth is the amount paid for the lease, multiplied by a fraction which may be conveniently represented in the form—

$$\frac{\text{unexpired portion of lease}}{\text{original term of lease}} \cdot$$

When we come to farm buildings we enter upon a thorny question of depreciation, but for the sake of simplicity we are ordinarily recommending throughout this work a control of depreciation rates

in line with those allowed by the Inland Revenue authorities. In other words, the Income Tax rates are looked upon as standards to be followed throughout the process of account-keeping. Section 33 of the Income Tax Act, 1945, makes a special reference to agricultural buildings inasmuch as it provides that where the owner or tenant of any agricultural or forestry land incurs any capital expenditure on the construction of farm-houses, farm or forestry buildings, cottages, fences, or other works, he shall be entitled to an allowance of *one-tenth* of the capital cost for the year of assessment following the year in which the expenditure was incurred, and the same fraction for the succeeding nine years.¹

The clear intention is to encourage new capital expenditure and give relief for the full amount of the expenditure over a period of ten years which is tantamount to an accounting write-off on a straight-line basis over a like period.² It is understood that the expression 'other works' include the cost of electricity and water. We think it should also be made clear that expenditure on a farm dwelling-house is ordinarily allowable for the purposes of taxation only to the extent of one-third for the reason that it combines private residence with business premises. Moreover, if the amenity value of the farm-house is considerable, the allowance of one-third expenditure may be reduced.

As a general rule then we may look upon relatively new farm buildings as having a standard life of ten years so far as account keeping is concerned. Accordingly the accounting valuation of such buildings in the opening statement of Net Worth should be based on original cost multiplied by the fraction—

$$\frac{\text{remaining life in relation to a standard life of 10 years}}{\text{standard life of 10 years}}$$

Where a standard life of ten years is clearly inaccurate some attempt must be made to estimate a more reasonable term, based on the assumption that the building will be kept up in a proper state of repair. Thus, with some show of reason, a sturdy brick building might be expected to have an approximate life of fifty years. If such a wide disparity *is the truth* of the matter, then the cost allocation for depreciation should be adjusted to accord with the farmer's own estimate of useful life. Thus farm buildings of

¹ Cf. N.F.U. Information Service Supplement No. 1, January 1946, entitled *The Income Tax Act 1945*—Summary of the main provisions affecting agriculture (p. 4).

² A nice piece of conservative accounting, which tacitly admits the principle that conservative valuations should go hand in hand with consistency in the use of accounting conventions.

durable type which cannot readily be assigned a standard life of ten years without seriously distorting the truth, and which have been kept up in a proper state of repair and are efficient for their purpose, should be dealt with on the basis of a time allocation which is related to a conservative estimate of their useful lives. We should add that in the case of such buildings it may prove desirable to resort to a professional valuer for an opinion on the unexpired going concern valuation of the buildings for inclusion in the opening statement of Net Worth.

Implement valuations to be carried into the statement of Net Worth can present difficult problems, but it seems desirable to keep the basis of ascertainment as simple as possible, and again we turn to the latest taxation principles for our standards. At the beginning of the Farm Account Book¹ will be found a reasonably detailed Implement Valuation Schedule. It will be noticed that following the principles of the Income Tax Act, 1945, columns have been provided for an initial write-off on each new implement purchased at 20 per cent. of its cost, and for a wear-and-tear allowance at the standard rate (increased by an additional quarter) operative for different implement classifications. Thus boilers and engines carry a rate of 5 per cent., binders, reapers, and combine harvesters 15 per cent., tractors 22½ per cent., sprayers 25 per cent., most other types of farm machinery 10 per cent., and so on.

We have now three elements by which to set the implements valuation to be included in the opening statement of Net Worth. First there is the original cost. Secondly there is the allowance of one-fifth which initially reduces the original cost to four-fifths, and thirdly there is the particular standard rate of wear and tear (plus one-quarter)² to be calculated in the first year on the original cost, and in subsequent years on the falling written-down value for each of these years (computed on the original cost less the amount of the initial allowance and wear-and-tear allowances previously granted).³

¹ See Appendix I.

² This is equivalent to five-fourths of the standard rate of wear and tear.

³ It should be emphasized that the principles of the Income Tax Act, 1945, are followed here in the interests of simplicity and conformity. Many accountants would be unwilling to concede any *financial accounting* validity to provisions for initial allowances, particularly in so far as concerns the measurement of operating profit, and would prefer to follow normal depreciation accounting practice.

In the context of this discussion we have not thought it necessary to refer to the safeguarding provisions of the Income Tax Act, 1945, whereby, for the purposes of taxation, a balancing allowance will be made where plant is sold at less than the 'expenditure unallowed' and where the price realized exceeds the 'expenditure

We have now to consider the opening deadstock valuation, and at the beginning of the Farm Account Book¹ there are two schedules detailing representative items under the headings of Produce Valuation and Other Deadstock Valuation. Again it seems reasonable to look at methods of valuation countenanced for taxation purposes. It is unlikely that a farmer who is starting out on a strict system of account-keeping will know the cost figure of home-grown grain, straw, hay, roots, and other produce. The thing to do, therefore, is to act on the Inland Revenue direction and treat the cost valuation figures for home-grown produce as equivalent to market prices less 15 per cent. Purchased foods, seeds, fertilizers, oil, and such-like items should be conveniently valued at the price paid for them, that is, at original cost. The valuation of tillages, unexhausted manures, and growing crops is still something of a problematic affair, and for this reason the Inland Revenue is willing to concede the following arrangement which resulted from discussions between the Inland Revenue, the Ministry of Agriculture, and the Farmers' Union:

'Where the normal value of tillages, unexhausted manures and growing crops does not exceed £700, and a detailed valuation is not available, a certificate that the value at the beginning of the year did not differ materially from that at the end of the year will usually be accepted, and even where the normal value exceeds £700 a valuation will not be pressed for in every case and a similar certificate may be accepted, after any enquiry necessary to establish its reasonable accuracy. The object of this arrangement is to assist farmers by enabling a detailed valuation to be dispensed with in such cases. There is, however, nothing in the arrangement (which is in terms limited to cases where detailed valuations are not available) precluding the farmer, who so desires, from bringing into his accounts a full detailed valuation of tenant right or waygoing rights and liabilities at the beginning and end of the year; any farmer who makes a detailed valuation is at liberty to put in that valuation and should in fact do so. The valuation should be made on precisely the same basis as if valuing an outgoing tenant. In other words, the valuation would in the case of a tenant, be based upon the actual tenancy agreement and, in the case of an owner-occupier, be based on the custom of the country which would, in the absence of a written agreement, be applicable if a tenancy existed.'²

So much for the Inland Revenue considerations to be thought of as standards to be applied in lighting upon an accounting valuation for tillages, unexhausted manures, and growing crops to be carried on to the deadstock valuation entering into the opening statement unallowed' a balancing charge (restricted to the total of allowances for Income Tax purposes) will be made.

¹ See Appendix I.

² Ministry of Agriculture and Fisheries, *Farmer's Income Tax* (H.M. Stationery Office), p. 7.

of farm capital. Perhaps we should add that the general principle to be kept to in the case of assets valued in the farmer's tenant right should be thought of in terms of residual unexpired cost, that is, the farmer's original expenditure less the proportion of that expenditure which may be judged to be used up. Thus expenditure on a quantity of fertilizer spread over a particular area of land is ultimately taken up as one of the costs of the crop grown in that area. Valuations of this order are inevitably marred by some degree of arbitrary allocation, but the farmer must do the best he can and there is no doubt that he will be materially assisted in exercising his judgement if he makes a determined effort to master the principles of farm costs which are put forward in the second chapter of this book.

We have now to put a value on the livestock which are part of the farm capital at the beginning of the farming year. At the commencement of the Farm Account Book¹ there is a detailed Livestock Valuation Schedule brought down to main classifications for cattle, sheep, pigs, poultry, and horses. If we follow the conceptions which we have so far applied to our opening accounting valuations, we shall first look at the taxation rules. Here we find the somewhat broad statement that the basis of valuation of livestock should be cost or market value, whichever is the lower. Lower market values are not likely to have entered into the question during the past few years in face of an upward trend in prices; nevertheless, so far as tax considerations are concerned they may have to be watched in the future.

It is not such an easy matter to find the cost of livestock, more particularly livestock bred on the farm, but there is an Inland Revenue arrangement which allows cost to be estimated at 85 per cent. of the current market value of each animal, at the date of valuation, where the farmer is unable to discover the cost.² To ascertain cost valuations on a proper basis with any degree of accuracy it is essential to attempt some kind of farm costings, and the reader is once again referred to the discussion at Chapter II of this work. We should add that a cost valuation in the case of a purchased animal is not quite such a simple matter as might be commonly supposed at first sight, for although the cost figure must

¹ Appendix I.

² It is understood that an arrangement has just been agreed between the National Farmers' Union and the Inland Revenue that on the first closing valuation after the 30th September 1947 the percentage shall be reduced to 75 per cent. *provided* that the final valuation is not lower than the preceding valuation. This applies to cattle, sheep, and pigs.

take in the original purchase price, there is also an amount to be included which will cover the cost of keeping the purchased animal on the farm before it reaches maturity. Thus it is reasonably clear that some method of cost allocation such as is put forward in Chapter II must be instituted if reliable financial accounts are to be prepared.

At this point we may notice that the question of maturity has crept into the discussion, and it should be made quite clear that if an animal is bought mature, then its proper cost valuation is its purchase price. This question of grading to maturity is at the basis of the conception of standard livestock values, which is developed later in this book. We shall not therefore obscure the account-keeping principles, which are the subject of this first chapter, by going into the question here, except to add the general comment that livestock valuations controlled either at cost or standard values are to be preferred on the score of consistency when it comes to the preparation of a profit-and-loss account for farming operations. As will be seen later, valuations so pegged do enable more reliable margins on particular operations to be discerned, a circumstance of some importance if farm accounts are to throw up those activities which have been profitably pursued. Perhaps we should add that this is not necessarily to ignore the taxation advantage which might accrue by the anticipation of losses implicit in the adoption of lower market values, but in our view this is better regarded as a matter of policy and not of strict accounting measurement. We should also wish to remark that there are many farmers who employ an agricultural valuer to make professional valuations of the order we have been discussing and in these cases such valuations are the ones which will ordinarily fall to be carried into the farm accounts.

The next item we are called upon to consider in our opening statement of farm capital is that described as 'Farm Debts Owing to the Farmer and Unexpired Payments'. The expression 'Unexpired Payments' calls for some explanation. It is intended to apply to those payments in respect of which the benefit is spread over the immediate future period. Thus, if an annual insurance premium has been paid in advance at the end of June 1945, then on the assumption that the farm accounting date is taken at the 1st October 1945, only an allocation representing three months of the premium has expired—the months of July, August, and September—and the remaining nine months of the premium is unexpired. In such circumstances nine-twelfths of the amount of the annual payment

is treated as an unexpired payment. As with insurance premiums, so with other advance payments which yield a benefit over a period of time.

If no accounts of any description have been kept before the date of ascertaining the opening farm capital, then the farmer must make the best estimate he can from such information as is available of the debts owing to him. He should do his best to prepare as accurate and detailed a list as possible, and he may find that notes jotted down in his diary will assist him. It is just possible that he may have kept copies of the bills which he has delivered. His list of unpaid accounts should give in each case the name of the debtor, the kind and quantity of goods which the farmer delivered, or a short description of the nature of the services which he rendered, and the amount of money which is thereby owing to him.

The statement of the farmer's opening assets will be completed normally by the inclusion of the amounts of his bank and cash balances at the date decided upon for the calculation of his capital. Neither of these figures should cause him much difficulty, except that care should be taken to adjust the balance shown in the farm bank statement for unrepresented cheques and any items received but not credited at the bank. This will be done much in the manner we discussed when considering the reconciliation of the Farm Cash Book with the Bank Pass Book or statement.

With the amounts of his several assets ascertained the farmer is now in a position to arrive at a total from which he can then deduct his liabilities, to arrive at his Net Worth as proprietor. In the specimen statement which we set out earlier in this chapter we described this liability deduction in the words 'Farm Debts Owing by the Farmer and Accrued Expenses'. Here again the expression 'Accrued Expenses' may need some explanation. It is clear that every farmer has to incur a number of standing payments for such expenses as rent, lighting, heating, telephone, and such-like items and the payments are normally made after the benefit has been received. Nevertheless part of the benefit will have been used up before the payment is made, and it is this part which we describe as an accrued expense. Thus, if the accounting date is set at the 1st October 1945 and a payment for electricity for the three months ended the 30th September 1945 is not made until the 1st November 1945, then the whole of that three months' bill is an accrued expense at the 1st October 1945. The farmer should prepare a detailed list of the farm debts owing by him for goods delivered or services rendered to him, and in most cases he should be able to get this

information from his unpaid bills, but he should be careful to bring in those claims on him for which he has not yet received a bill for payment. Such claims will arise either when the ownership in goods has passed to him or on the completion of a service which is being rendered to him.

With the figure-work necessary to calculate the opening farm capital done, the next step is to make the starting entries in the books of account. An account should be opened in the Private Ledger under the heading of Capital. The accounts in the Private Ledger are double-sided affairs like the Farm Cash Book, and at this stage it seems desirable to comment on the convention of double-entry account-keeping. Historically it rests on the theory that every business transaction implies the relationship of debtor to creditor, but for our purpose it seems plainer to think of it in terms of parallel records of the incomings and outgoings connected with business enterprise. So far as the Private Ledger is concerned it is a convention to regard balances for liabilities and proprietorship capital as belonging to the right-hand side of ledger accounts, while asset balances are associated with the left-hand side. Similarly additions to proprietorship resources appear on the right-hand side while withdrawals fall on the left-hand side. We propose to leave our comment at this point in order not to obscure the plain business of writing up the accounts.

If we turn to the specimen statement of Net Worth at the beginning of a farming year set out in detail earlier in this chapter and use it as an illustration, we find that there is a calculated balance for farm capital of £25,997 which falls to be entered on the right-hand or credit side (denoted by the letters CR.) of the capital account in the Private Ledger, but since those opening entries constitute the foundation of the account-keeping structure, we think it as well to set out the account in detail as in the illustration on page 21.

We have now to open the reciprocal accounts for assets and liabilities, and to make the proper references in both the folio columns of the capital and reciprocal accounts. Freehold land is the first asset to be dealt with, and it follows that a separate account should be opened in the Private Ledger under that heading. An entry should be made on the *left*-hand or debit side (denoted by the letters DR.) of that account for the starting 'cost' balance of £10,200. A useful note to that entry is one which adds a short farming description of the land with an indication of its acreage.

As with the land so with the buildings. A distinct account is

begun in the Private Ledger under the caption 'Farm Buildings' with an opening entry on the *left*-hand side thus:

DR.

1945

October 1. Capital.

Farm Buildings, at cost less depreciation	P.L. 1	£5,095
---	--------	--------

The reference 'P.L. 1' is to the opening entry in the Private Ledger account for capital. The method of arriving at this written-down cost valuation was described earlier in this chapter and, as we then noticed, it had to be calculated in detail building by building. Most farmers will find it useful to keep a separate register in which to keep a clear record of their farm buildings in terms of those details which in the aggregate constitute the written-down balance carried into the Private Ledger account. One advantage of the register will show itself when we come to discuss the question of deferred repairs.¹ Another advantage will be touched upon a little later in this chapter when we mention the entries which provide for the annual depreciation allocation.

The reciprocal accounts for the next four assets materially affect the assessment of the results from the farming operations of the year which is about to begin, so that their place is to be found not in the Private Ledger but at the beginning of the Farm Account Book.² The details making up the opening Implements Valuation will be inserted in the first column of the page in the Farm Account Book set for that valuation, and totalled to agree with the amount carried into the calculation of farm capital. Similarly the items constituting the valuation of deadstock will be entered in the places where they apply on the pages headed 'Produce Valuation' and 'Other Deadstock Valuation' in the beginning of the Farm Account Book, the total opening deadstock figure agreeing with that included in the farm capital as credited in the Private Ledger account. Similarly the livestock values will be written in the left half of the pages headed 'Livestock Valuation' in the Farm Account Book, the final total agreeing with the opening valuation carried into the Farm Capital account. Perhaps we should add that when writing up these pages care should be taken not to overlook the number column since the intention is to control and reconcile the number of animals—under each classification—on the farm throughout the farming year; a reconciliation which is brought about by bringing

¹ See Chapter IV.

² See Appendix I.

Private Ledger:

I DR.			FARM CAPITAL		CR. I	
1945			£	1945		£
Oct. 1.	Farm Debts owing by the farmer and Accrued Expenses	FAB	764	Oct. 1.	Freehold Land, at cost	P.L. 10 10,200
	Opening Balance of Capital	CD	25,997		Farm Buildings, at cost less depreciation	P.L. 20 5,095
					Implements, at cost less depreciation	FAB 3,201
					Deadstock, at cost	FAB 3,052
					Livestock, at standard values	FAB 4,005
					Farm Debts owing to the farmer and Unexpired Payments	FAB 106
					Bank Balance	FCB 1,095
					Cash Balance	CA 7
			<u>£26,761</u>			<u>£26,761</u>
				1945		
				Oct. 1.	Opening Balance of Farm Capital	BD 25,997

THE FARM ACCOUNTS

Abbreviations in Folio columns

FAB = Farm Account Book
 PL = Private Ledger
 FCB = Farm Cash Book
 CA = Cash Account
 CD = Carried down
 BD = Brought down

together the numbers in the Stock Record¹ with those noted in the opening and closing valuations.

Of the four items we have been considering we are now left with the asset which was described in the words 'Farm Debts Owing to the Farmer and Unexpired Payments'. This too falls to be entered in detail on the left-hand side of the page headed 'Farm Debts Owing' at the beginning of the Farm Account Book. If the reader will turn to this page in the specimen of the Farm Account Book set out in Appendix I, he will see that there is an important footnote which reminds the farmer that in order to calculate the income earned, and expenditure incurred, he must be careful to see that at the *end* of his farming year each item making up the *opening* debtors is *deducted* from the actual receipts in the appropriate receipt (CR.) account, and that each item making up the *opening* total of unexpired payments is *added* to the proper expense (DR.) account. At first sight this may appear confusing, but a little thought will show the reason. An unexpired payment is nothing more than an expense carried over to a following period, therefore it has to be added to the expenses borne in the next period. Ordinarily the money owing to a farmer at the beginning of a year will be received during that year, and since the debt was taken into account as an asset in the previous period, the amount so received is nothing more than a realization of that asset and forms no part of the income of the current year. Hence it has to be taken out of the amounts received in order to get at the real income of the farming year.

If we now turn back to the Farm Capital account in the Private Ledger we see that we have still to find a home for the Bank and Cash balances. This is not a difficult matter. The opening bank balance will be entered on the left-hand side at the start of the Farm Cash Book with an appropriate folio reference to the Private Ledger capital account. The opening cash balance will be similarly dealt with in the Cash Account to which we referred at an early stage in this chapter.

With the assets disposed of we are left with the liability item described as 'Farm Debts Owing by the Farmer and Accrued Expenses' on the left-hand side of the specimen capital account in the Private Ledger. The reciprocal place for this is to be found in the Farm Account Book,² on the page at the beginning for 'Farm Debts Owing'. This time the entry will appear on the right-hand half of the page, since creditors and accrued expenses constitute debts owing by the farmer. Again there is a note of caution to the

¹ At the beginning of the Farm Account Book.

² See Appendix I.

effect that at the end of the farming year these opening creditors and accrued expenses are to be *deducted* in the appropriate expense (DR.) accounts, but here there is no question of confusion between the method of treating creditors and that of accrued expenses, since *both* of these types of farm debts (owing by the farmer) are *deducted* according to their expense classification in the appropriate (DR.) accounts.

This completes the starting entries to be made in the farm books of account, and with the explanations which have been given it should not be difficult to see that the farm books begin in a state of balance, and from now on it is important to see that they are kept in balance; that is to say, every originating entry in whichever book it is made must have a reciprocating entry somewhere. The opening state of balance may be demonstrated quite simply in the following way by listing the individual balances which now appear in each book thus:

Balance Statement at 1 October 1945

	Left-hand or DR. balances	Right-hand or CR. balances
<i>Private Ledger</i>	£	£
Folio 1. Farm Capital		25,997
10. Freehold Land	10,200	
20. Farm Buildings	5,095	
<i>Farm Account Book</i>		
Implements	3,201	
Deadstock	3,052	
Livestock	4,005	
Farm Debts owing to the farmer and Unexpired Payments	106	
Farm Debts owing by the farmer and Accrued Expenses		764
<i>Farm Cash Book</i>		
Folio 1. Bank Balance	1,095	
<i>Cash Account</i>		
Folio 1. Cash Balance	7	
	£26,761	£26,761

As will be seen later, this system of balancing has the advantage of at least establishing the prima-facie arithmetical accuracy of the book entries; it is also a convenient arrangement when it comes to the preparation of the farm balance-sheet, an accounting document

which illustrates how the proprietorship interest in the farm is represented by net assets (farm assets less farm liabilities).

The reader will remember that the source book for the Private Ledger and Farm Account Book entries is the Farm Cash Book, and if we turn back to this book we shall find that there are receipts and payments arising in the farming year which require to be made to the Private Ledger direct. Cash capital introduced will appear among the receipts on the left-hand (DR.) side of the Farm Cash Book. This item will be posted from the Farm Cash Book to the right-hand (CR.) side of the Farm Capital account in the Private Ledger under the description of cash capital introduced. A payment made to a contractor for the building of a new Dutch barn will show among the payments on the right-hand (CR.) side of the Farm Cash Book and will need to be reciprocally entered (that is, posted) to the left-hand (DR.) side of the Farm Buildings account in the Private Ledger. From what has been said it will become apparent that every receipt and every payment written down in either the Farm Cash Book or Cash Account must be reciprocally entered in, or posted to, the account classification to which it relates either in the Private Ledger or in the Farm Account Book. To the reader who has persevered so far it will no doubt be clear that the cash transactions requiring to be posted to the Private Ledger are those which relate to the farmer's proprietorship affairs and those assets and liabilities which are not specifically dealt with in the Farm Account Book.

The Farm Account Book

The Farm Account Book is at the very heart of the farm accounting system put forward in this book. It was originally designed by the Department of Agricultural Economics of the University of Bristol to constitute an annual record of the financial results achieved by the working of a farm. Accordingly it is in the Farm Account Book that we find those account classifications which materially affect the measurement of a farmer's profit or loss. At this stage the reader is recommended to take a glance at the specimen of the Farm Account Book included as Appendix I in order that he may gain a clear impression of the nature of those accounts.

By far the majority of the receipts and payments which appear in the Farm Cash Book will fall to be reciprocally entered (posted) in the Farm Account Book. Thus to take accounts at random, a receipt for the sale of horses entered on the left-hand side of the Farm Cash Book would fall to be posted in detail in (CR.) Account

No. 10—Horses Sold—in the Farm Account Book. Similarly receipts noted in the Farm Cash Book in respect of wholesale milk sales must be reciprocally entered in (CR.) Account No. 12—Wholesale Milk Sold—in the Farm Account Book. Again, a payment made for feeding straw and appearing on the right-hand side of the Farm Cash Book will be reciprocally entered in (DR.) Account No. 30—Feeding Straw Bought—in the Farm Account Book. Yet again, payments for fertilizers will be posted to (DR.) Account No. 34—Fertilizers Bought—in the Farm Account Book. Every Cash Book receipt and payment and every Cash Account item which has not been dealt with by way of reciprocal entry in the Private Ledger must find a place somewhere in the Farm Account Book. At the beginning of this book the farmer will find both an index of accounts and an indication of 'where to enter miscellaneous items'.

When the Farm Account Book was originally designed it was intended that whenever a monetary claim arose, either debtor or creditor, on the delivery of goods or the completion of a service, then an entry should be immediately put through the relevant account in the Farm Account Book to be completed by inserting the date of settlement when the cash was either received or paid. The idea behind this intention was the marking down of the amounts owing either to, or by, the farmer at the end of the farming year. There is merit in this suggestion, and it is one which may still be followed in the more complete account-keeping system now put forward in this work, but care must be taken to insert the cash book reference in the appropriate account in the Farm Account Book after the cash book receipt or payment entry has been made. If this idea is followed the farm diary should prove a fruitful source for the originating entries in the Farm Account Book.

There are one or two features affecting certain of the accounts in the Farm Account Book which deserve special mention. For example, a page is provided for 'Produce and Stores Consumed'. Unlike most of the other accounts, none of the entries to be made on this page will come direct from the Farm Cash Book. The first point to be noticed is the classification as between produce and stores consumed 'In Farmhouse' and 'To Workers'. It is clear that the farm-house consumption of farm produce lessens the private cash needs of the farmer so that it virtually constitutes private drawings in kind. In other words, the household expenses of the farmer and his family are not part of his farming expenses. Accordingly the 'cost' value of supplies to the farm-house during the farm

year must be calculated for each of the items noted on the page for 'Produce and Stores Consumed—In Farm-house'. If it is difficult for the farmer to assess this cost with any reasonable accuracy he must make the best estimate he can of the quantities of produce consumed and then put a value on them by taking market price less 15 per cent., as representing cost. The total of the farm-house consumption of produce and stores at the end of the farming year must be entered on the left-hand (DR.) side of an account to be opened in the Private Ledger under the heading 'Private Drawings'. At the same time a reciprocal entry must be made on the right-hand side of the profit and loss account in the Farm Account Book¹ in the space provided, in order that the total farm costs of production may be reduced by that part which is not specifically related to the business of farming.

The second section of the page in the Farm Account Book we have been discussing deals, among other things, with supplies to farm-workers. Thus the 'cost' value of free milk allowed to farm-workers must be calculated and eventually credited in total to the farm profit and loss account at the end of the farming year. Corresponding entries for the 'cost' value of free milk must be made in one or other of the (DR.) accounts for wages (see accounts numbered 48 and 49 under the column headed 'Wages in Kind').² Similar adjustments, which in principle fall into the same class, will require to be made for the annual value (that is, the net annual value for the purposes of assessment to income tax under Schedule 'A') of cottages occupied by farm-workers rent free, and for any other free perquisites associated with farm employment. An example of the latter type arises where employees are boarded in the farm-house; the cost of boarding them is in effect an addition to their money wages in determining the labour costs of working the farm.

We should also wish to add the comment that those accounts which relate to Corn Sold (Nos. 17, 18, 19, and 20) and that which refers to Potatoes Sold (No. 21) include the amounts received as 'acreage payments'.

Account No. 38 is a comprehensive one dealing with 'Repairs, Tools, Ironmongery, and Blacksmith', and this seems the place to observe that for income-tax purposes there is no question of a wear-and-tear allowance on tools, since the cost of replacing them is

¹ See Appendix I.

² At the end of the farming year these accounts find their way to the debit side of the profit and loss account as labour costs.

allowed as an expense when incurred. The cost of such tools will appear in the Farm Cash Book as a payment to be posted to Account No. 38 in the Farm Account Book.

At the close of the farming year it will be necessary for the farmer to calculate the annual allocation for depreciation of farm buildings, according to the principles which we enunciated when considering the method of arriving at the opening valuation for this asset. The total amount of this provision for depreciation of buildings will fall to be entered as a cost in Account No. 47 and reciprocally entered on the right-hand (CR.) side of the account for farm buildings in the Private Ledger. The balance on this latter account will then represent the unexpired outlay on farm buildings to be carried on to the statement of farm assets and liabilities, or balance-sheet as it is called technically, prepared at the close of the financial year.

Account numbers 53 and 54 deal with such private receipts (CR.) and payments (DR.) of the farmer as may have become intermixed with those of his farm. Thus the payment of a farm account for ironmongery may have included household utensils. At the end of the year both these accounts will be totalled, and the one for private payments (No. 53) will be entered on the left-hand (DR.) side of the 'Drawings' account in the Private Ledger proprietorship record, while the other for private receipts (No. 54) will be entered on the right-hand (CR.) side of the same account.

As a conclusion to this discussion on the Farm Account Book we should like to add the following comments which, although not strictly relevant to the account-keeping system we are now putting forward, may become matters of considerable importance in the case of large farms. Thus where credit transactions are numerous it may be found desirable to institute either Income and Expenditure Journals or Purchases and Sales Day Books, with Personal Ledgers for Debtors and Creditors. This will then obviate any necessity for a careful scrutiny of innumerable bills to assess the debtors and creditors at the end of the accounting period. As a general rule, however, credit transactions are not numerous in the average-size farming venture except possibly in the case of a developed retail milk-round, and even here much will depend upon the selling policy of the farmer. Nevertheless, without needlessly complicating the general discussion at this point or obscuring the general principles of farm accounting, it is well to note that it may be necessary to introduce a subsidiary system for recording milk sales, designed to control deliveries by roundsmen with assessment

of responsibility for payment, to record milk debtors, and to control unpaid accounts.

The Annual Financial Accounts

At the close of the farming year the farmer will balance the Farm Cash Book and reconcile the bank balance with the statement or pass book received from the bank. In a similar way he will balance the account kept for purely cash transactions and will agree it with his cash in hand. This is the first step.

The next move is to make sure that every item written into these books of original entry has been reciprocally entered (posted) somewhere in either the Farm Account Book or the Private Ledger. Thereafter he must again turn his attention to the 'tricky' business of valuation. The closing valuations will be done in the same ways as we recommended for the calculation of opening valuations at an earlier stage in this chapter. When ascertained, the closing valuation for livestock will be entered on the right-hand half of the page in the Farm Account Book headed 'Livestock Valuation', care being taken to see that the numbers and prices appropriate to each animal classification are properly recorded. The numbers of animals taken on to the closing valuation should be reconciled with the numbers recorded in the opening valuation and in the Stock Record.¹ The produce valuation at the close of the year will be similarly entered on the right half of the page provided in the Farm Account Book as will also the other deadstock valuation. The page headed 'Implements Valuation' will be completed for initial allowances on new purchases, and for wear and tear on *all* implements according to the principles we have already enunciated to arrive at the closing valuation.

With the valuations taken and calculated the farmer will determine the amounts of his debtors and creditors and of his accrued expenses and unexpired payments at the date of the close of the year. He will follow the procedure which we outlined for the calculation of the opening debtor-creditor position. In the case of the account-keeping system which we are putting forward in this book, we think it would be as well if the farmer had a filing system working which kept all unpaid creditor accounts together in one place and all unpaid debtor accounts together in another place. Such a course would materially assist the ascertainment of his debtors and creditors at accounting dates.

¹ See Appendix I, at the beginning of the Farm Account Book.

With his debtor-creditor position ascertained at the close of the year, the farmer should turn to the page headed 'Farm Debts Owing' in the Farm Account Book and insert the details in the spaces provided under the caption 'At the end of the year'. The debtors and unexpired payments, separately classified, will be entered on the left-hand half of the page and the creditors and accrued expenses on the right-hand half of the page. Having settled this piece of account-keeping, the farmer must see to it that the closing debtors have been properly taken in to the appropriate receipt (CR.) accounts and that the closing unexpired payments have been correctly deducted in the appropriate expense (DR.) accounts. Similarly the closing creditors and accrued expenses must be properly taken in to the appropriate expense (DR.) accounts. We have already seen that this procedure is necessary if the farmer is to determine his input and output in terms of expense and income attributable to his year of farming operations.

With the entries for the debtors and creditors correctly disposed of, the remaining duty before setting the financial accounts is to complete those transfers, such as depreciation of buildings and private drawings, which have to be made from the Farm Account Book to the Private Ledger, and which we have already touched upon. The farm books are then ready for the assessment of profit or loss and the book value of the farmer's proprietorship interest. All the open accounts in the Farm Account Book will affect the measurement of farm profit. Accordingly each one should be totalled and carried to its proper place as provided in the profit and loss account in the Farm Account Book. The totals of expense (DR.) accounts will be entered against the relevant account number on the left-hand (DR.) side of the Profit and Loss Statement, while the totals of income (CR.) accounts will be similarly entered on the right-hand side. All that remains to determine the operating result is to insert the opening and closing valuations in the places provided, that is, the opening valuations for livestock, deadstock, and implements on the top left-hand side of the profit and loss account with the same closing valuations on the top right-hand side. If the final total of the opening valuations and the expense (DR.) accounts is less than the final total for the closing valuations and the income (CR.) accounts, the result is a profit. If misfortune should prevail and the final total on the left-hand page of the account for profit and loss is greater than the final total on the right-hand page, the result is a loss.

An account for profit and loss should now be opened in the

Private Ledger. If the result of the year's working¹ is a profit it should be carried to the right-hand (CR.) side of the Private Ledger account; if a loss it will fall to be entered on the left-hand (DR.) side. The farmer should now turn to his drawings account in the Private Ledger and strike the balance, so as to determine the amount he has withdrawn from the farm resources during the year. He should then close his drawings account by transferring the balance to the left-hand (DR.) side of the profit-and-loss account in the Private Ledger. After the farmer has made that entry he has then to strike the final balance on the profit and loss account.² If the right-hand (CR.) total exceeds the left-hand (DR.) total, then the (CR.) balance represents the amount of profit which he has retained in the farm. If the opposite is the case, then it means that the farmer has encroached upon the capital contributed to the farm to the extent of the amount of the (DR.) balance.

It should now prove a simple matter to establish the prima-facie arithmetical accuracy of the Farm Account Books by the preparation of a closing Balance Statement put together in precisely the same way as the opening Balance Statement. An example of a closing Balance Statement is set out below:

<i>Balance Statement at the close of the farming year</i>	<i>Left-hand (DR.) balances</i>	<i>Right-hand (CR.) balances</i>
<i>Private Ledger</i>	£	£
Folio 1. Farm Capital		25,997
10. Freehold Land	10,200	
20. Farm Buildings	4,586	
30. Profit and Loss		1,581
	14,786	27,578
 <i>Farm Account Book</i>		
Implements	2,881	
Deadstock	3,512	
Livestock	3,951	
Farm Debts owing to the farmer and Unexpired Payments	204	
Farm Debts owing by the farmer and Accrued Expenses		591
 <i>Farm Cash Book</i>		
Folio 19. Bank Balance	2,825	
 <i>Cash Account</i>		
Folio 3. Cash Balance	10	
	£28,169	£28,169

¹ As assessed in the Profit and Loss Statement in the Farm Account Book.

² In the Private Ledger.

It is now but a simple matter to prepare a farm balance-sheet in the following narrative form:

<i>Balance-sheet at</i>	<i>19</i>	<i>(close of farming year)</i>		
	£	£	£	
I. THE FIXED ASSETS comprised—				
1. Freehold Land, at cost.		10,200		
2. Farm Buildings, at cost less depreciation ¹		4,586		
3. Implements, at cost less depreciation ¹		2,881		
		17,667		
II. THE VALUATIONS were—				
1. Livestock		3,951		
2. Deadstock		3,512		
		7,463		
III. THE CURRENT ASSETS were—				
1. Farm Debts owing to the farmer and Unexpired Payments		204		
2. Bank Balance		2,825		
3. Cash Balance		10		
		3,039		
IV. THE CURRENT LIABILITIES were for Farm Debts owing by the farmer and Accrued Expenses				
		591		
		2,448		
Excess of Current Assets over Current Liabilities				2,448
TOTAL NET ASSETS.				£27,578

The Net Assets were represented by:

I. Proprietor's Contributed Capital	25,997
II. Retained Profits	1,581
	£27,578

In this chapter we have sought to put forward the statement of a complete farm account-keeping system in simple form. That there are refinements and developments, familiar enough to professional accountants, is not to be denied, and so far as we have thought them relevant to our work the reader will find them discussed in Chapter IV.

¹ Professional accounting thought now inclines to the view that there is an advantage in disclosing, as an inset item, the original cost of a fixed asset with a stated deduction for the depreciation allocations accumulated to the date of the balance-sheet.

CHAPTER II

FARM COSTS

THE value of the output of the agricultural industry in England and Wales amounts, at present-day prices, to something over £500 millions per annum. The number of workers regularly employed is approximately 500,000 and the number of farmers, the majority of whom are working farmers, constitutes another 277,000 occupying holdings of not less than 5 acres.¹ In size, therefore, agriculture compares very favourably with the other chief industries such as mining and engineering. While the series of agricultural statistics, issued annually by the Ministry of Agriculture, give a good deal of information about acreages under the various crops, numbers of livestock, yields, and total production, relatively little is known concerning what may be termed the internal finance of farming, such as the main items of expenditure, which are incurred in producing the output referred to above. During recent years, however, the universities and agricultural colleges have been engaged upon a study of this aspect of farming and more is becoming known on this subject. Apart from the work of the universities, the National Farmers' Union is also collecting and tabulating information of this kind.

Financial accounts, of the type prepared for taxation purposes, only enable one to assess the general position over a given period, usually twelve months. They do not necessarily permit of the calculation of the cost of production of any particular farm product; for this purpose cost accounts are required. In industry, including agriculture, cost accounting is a relatively new branch of accountancy and owes its origin to the beginnings of the study of scientific management. In essence it consists of ascertaining by more or less scientific methods the cost of producing a unit of a certain commodity, such as a ton of coal or a hundredweight of wheat or a unit of service, such as a passenger-mile.²

¹ For full discussion on this point see the *Report on the National Farm Survey*, p. 11, para. 21 (Ministry of Agriculture—published by H.M. Stationery Office).

² It should be pointed out, however, that sound costing technique places the same emphasis on cost control as on cost ascertainment. The Report of the Cost Accounting Sub-Committee of the Taxation and Financial Relations Committee of the Institute of Chartered Accountants in England and Wales, entitled *Developments in Cost Accounting*, makes the following significant observations: 'When costing first developed, the efforts of cost accountants were directed to ascertaining the actual amount of expense incurred in the making of a given product or the rendering of a particular

But it must not be assumed that cost accounting is widespread, or that there exists a large amount of cost data in industry generally. There are probably only three major industries for which any considerable quantity of cost data exist to-day and are available, not only to those actually compiling the data but to the public at large; these are coal-mining, railways, and agriculture. The broad distinction between them is that, since coal-mining and railways are composed of large-scale units of enterprise, the cost accounting necessarily relates to these large units and the work of calculating costs is carried out by the large accounting staffs which these concerns employ. In agriculture, however, the unit of production is small; there is no internal accounting staff and cost accounting has been done entirely by the agricultural departments of certain universities and agricultural colleges. It is true that a negligible number of large farmers are now maintaining a small staff for cost-accounting purposes, and there is a tendency for this kind of work to grow, but the considerable volume of farm-cost data now available both to the general body of farmers and to the public are the results of a quarter of a century's pioneering work by the agricultural economists and their staffs. In this connexion must be mentioned the financial support of the Ministry of Agriculture and of the Milk Marketing Board, and last, but by no means least, the collaboration of the farmers who made possible the compilation of the necessary records.

With all this, however, and in spite of the fact that probably more is now known about unit costs in agriculture than in any other industry, there must be no complacency, for there is a continuous and growing need for more and more cost data in farming. Elaborate costing systems are neither possible nor desirable, and it is hoped that this chapter will show farmers how to keep relatively simple cost accounts.

Let it be said at the outset that it is not difficult to keep cost service. The costs so arrived at were merely a record of past performance and therefore historical in their nature. Such costs reflected the facts of the situation accurately enough, but suffered from the drawback of having been prepared after the event and were thus unable to supply vital control information essential to management. Without some reliable measure with which to compare operating costs, management is working in the dark. This fact is not often realized and is undoubtedly a source of weakness in existing costing methods employed in this country. Costs which do not provide a standard of measurement cannot provide a complete view of the facts to be taken into account in judging efficiency of production. The actual cost of a product, regarded in isolation, gives no indication as to whether that cost is or is not an economic cost. It is true that historical costs are often compared with the costs of similar products previously manufactured; but there is here a hidden and serious risk of comparing one uneconomic cost with another, both of which may reflect varying degrees of inefficiency.' (Gee and Co. (Publishers) Ltd., 1947, p. 36.)

accounts and there is nothing mysterious about them. In the days before farmers had to keep account books for income-tax purposes, the subject of account-keeping was very unpopular, largely because it was thought not to form part of the day-to-day work on the farm. In two or three years the position completely changed and farmers have now become used to account-keeping and, in fact, are generally carrying it out reasonably well. The intelligent farmer has been quick to realize that, while his account books have in the first place to be kept for tax purposes, these also form a valuable guide to problems of farm management, and their value increases as the years pass. Except in very few cases, however, farmers have fought shy of cost accounts and have used the argument, either that they do not understand them, or that only a large farmer can keep them. They are, in fact, repeating in regard to cost accounts the argument which was previously used in connexion with their farm account books. It should be clear, however, that if a farm is a small one the task of keeping cost accounts will also be small, so that the second argument breaks down. Taking the first argument, namely, that there is something mysterious about cost accounts which an ordinary farmer cannot be expected to understand, the answer is that if a farmer can do account-keeping he can also do cost accounting.

Consider for a moment what cost accounting means to the individual farmer. In the first place there are the farm account books previously mentioned. In these books are entered, at different dates during the year, details of what he buys and sells, and, in addition, his rent and wages bills and a variety of indirect expenses. At the end of the year his expenditure and income is ascertained under the various classifications referred to in Chapter I and the valuations of stock and crops duly included. Now, since it is proposed to deal with costs, only the expenditure side need be considered. At the end of the accounting year the various items of expenditure are totalled. It is known that these amounts have been incurred in running the farm during the twelve months, but it is not known, for instance, how much of the wages bill went to the growing of the corn crops or to the livestock. Still less is it known how much of the wages bill went to the wheat, as distinct from the oats, or to the cows as distinct from the sheep. Even in the case of the total bill for fertilizers it is difficult, if not impossible, to say offhand how much went to each individual crop. Cost accounting simply means that steps are taken during the year to allocate or divide, in a systematic manner, the bulk costs over those branches of the farm where they were incurred. It will obviously be too late to think of making these

allocations once in twelve months for one will have forgotten what happened. Continuous records must therefore be kept, and, for a working farmer, these must be as simple as possible so as not to involve him in too much clerical work, yet they must be good enough to give him a series of cost statements at the end of the year that will compare favourably with those kept on a large farm. The first and simplest record is the diary.

The Diary

Most farmers keep some kind of diary whether it be a small notebook or something more elaborate. A great deal of useful information is usually contained in the diary and the farmer often spends considerable time in writing it up. Nearly always, however, the information is not given in a systematic manner and the farmer seems to be more concerned with general statements relating to the condition of the weather, the crops, and stock. He fails to look at the farm from an economic aspect, yet this, after all, is ultimately the only aspect which matters. For instance, the farmer often writes in his diary that he drilled a certain variety of seed on a particular field, but rarely does he state the rate per acre at which he seeded. The point is that his diary would give him a great deal more information if he acquired the habit of giving quantities as well as the general statement. The same kind of argument applies to the use of fertilizers and feeding-stuffs. More especially, however, is the most important aspect nearly always omitted from the diary, namely, the way in which the labour on the farm has been used. In the above example of drilling a field, even where a farmer may have stated the rate of seeding per acre, scarcely ever does he give any information as to the time taken and the number of men employed to carry out this operation. Yet if the farmer's diary were properly planned, or ruled, all this information could be given with scarcely any additional effort, and the value of such a diary would well repay the small amount of extra time involved. Moreover, since one is here discussing the way in which a small farmer can keep his cost accounts, a properly designed diary constitutes the foundation of the whole costing system.

The kind of diary which will give the necessary information for cost accounting is shown on the following page. This form is merely intended to show the type of thing that is required. Any particular farmer may wish to amend it here and there to suit himself, but the main essentials must, of course, be borne in mind. For instance, a farmer may choose to write up the diary once a week

DIARY FOR.....

LABOUR AND POWER IN HOURS							OPERATION		MATERIALS USED (Home-produced or Purchased) e.g. Feeding-stuffs, Fertilizers, F.Y.M., Seed, T.V.O., &c.	
<i>Farmer's Own (Manual)Time</i>	<i>Men</i>	<i>Women and Boys</i>	<i>Horse</i>	<i>Tractor</i>	<i>Car or Lorry</i>	<i>Field or Livestock</i>	<i>Particulars (e.g. Ploughing, Feeding, &c.)</i>	<i>Description of Implement used</i>	<i>Description</i>	<i>Quantity</i>

FARM ACCOUNTS

DISPOSITION OF LIVESTOCK

	No. on field.....	<i>Births</i>	<i>Deaths</i>		No. on field.....	<i>Births</i>	<i>Deaths</i>	Milk Produced	Gallons
HORSES	Ditto			SHEEP	Ditto			Eggs Collected	No.
COWS	Ditto			PIGS	Ditto				
CATTLE	Ditto			POULTRY	Ditto				

GENERAL NOTES

instead of daily; the example given here is intended to be a daily record. It is an attempt to meet the farmer's need for a general diary and at the same time to meet the requirements of a costing system. Even if a farmer decided not to embark upon cost accounting, a systematic diary of this type will give him much more information than the usual one. Too often farmers have been afraid to tackle cost accounting because they have envisaged having to fill up, either daily or weekly, a number of more or less complex forms in an arbitrary kind of way. With the number of official forms which already have to be completed, the prospect of adding still more forms has appeared overwhelming. There is, however, no need to view a cost-accounting system with dismay. Far from this being the case, a farmer should look upon it as a necessary part of his daily work, in the sense that it will give him greater control over his business. At the same time a working farmer must see that he does not become involved in any unnecessary clerical work.

With this object in mind the diary may now be examined. It is designed in the first place so that a farmer can write down a brief statement of the work done during the day on any particular field or class of livestock. Thus, for instance, if he had been ploughing or drilling a certain field he would merely state this fact in the same way as he had been used to entering it in his old-type diary. A moment's thought will enable him to expand this entry so that the information necessary for cost accounting can be given. He requires to know not merely that he ploughed a certain field but the amount of labour and power used in doing this ploughing. Now it may be stated at the outset that neither in the factory, nor on a farm, is a cost-accounting scheme absolutely accurate. There are always certain factors in regard to which a policy of give-and-take has to be used, and all that can be done is to make the costing system as accurate as is reasonably possible without worrying too much about the fine theoretical points, which can be left to be debated in the academic sphere. Further, when considering ploughing, the amount of work can be stated in hours; certainly nothing less than one-quarter of an hour need be entered. If a tractor is used for ploughing, the tractor time will exactly correspond with the man's time. If, however, a pair of horses is used, one must be careful in stating the horse-hours to multiply the man's time by two so as to give the number of horse-hours in the diary as though one horse only were employed. This is necessary because later the hourly cost of working a horse will have to be calculated. There is one other note

which must be made in the diary, namely, the quantity of fuel used by the tractor. Most farmers can usually make a close estimate of the quantity of fuel used when ploughing a certain acreage, and again this estimate is quite satisfactory for costing purposes.

If one were drilling seed, the entry in the diary would be similar to that for ploughing, but in this case one must enter the variety and quantity of seed used. Hedging and ditching too can be entered just as easily.

In the old-type diary a farmer has usually not said much about work in connexion with livestock, but this is obviously a very important part of the farm and, if one proposes to prepare cost accounts, it is necessary to know, again as accurately as possible, what has happened. In the case of the dairy herd, for example, one must be able to say how many hours of labour are expended on it in milking, feeding, and general attention. One must also know how much food the herd is having. If the day-to-day time spent on the cows is approximately the same, then there is no need to calculate the hours afresh each day. The amount by which one day's time will vary from the next will probably be of little importance. Similar remarks apply to the feeding. A farmer knows, within close limits, what quantities and kinds of feeding-stuffs he is giving his cows, and the ration, having been once worked out, runs for several weeks without much change. As long as this is the position it is not necessary to enter the details in the diary day after day. When the ration is changed, another entry should be made in the diary giving full particulars of the new ration. It is important that the home-produced feeding-stuffs, such as hay and roots, should be entered as well as the purchased concentrates.

Continuing along these lines, all the work done on a farm in a given day, together with all materials used, can be booked to the field or type of livestock concerned with very little clerical effort. From time to time a check can be made on the quantities of materials used and the balance which remains in store. On the labour side a daily or weekly check can be made by adding up, for instance, the column for man-hours to ascertain whether there is any time which has been unaccounted for. On a small farm where a farmer in effect replaces a paid employee it is desirable to insert in the diary the hours spent in manual work by the farmer himself in the special column provided. It will be observed that the term 'time-sheets' has not been used although, in fact, the labour and power section of the diary may be regarded as a summarized time-sheet. It usually depends upon the size of the farm and therefore upon the

number of workers employed whether or not time-sheets are used.¹ If they are, and each worker fills in his own time-sheet, then these can be summarized by the farmer, possibly weekly, and either passed through the diary or kept in some convenient form for charging direct to the crop or livestock concerned. Time-sheets are in use on some farms, usually of the large type, but unfortunately scarcely anything is done with such records except to help the farmer calculate the wages to be paid to each man, yet it will be clear from what has just been said that they can be used as an important step in building up a cost-accounting system. Some farmers are under the impression that their workers would object to keeping time-sheets, but in the great majority of cases where time-sheets are used the workers, far from raising any objection, have been quite willing to book down how, where, and when they have been employed. Time-sheets, however, are not necessary on any farm where the farmer can satisfy himself that he knows fairly accurately what work his men have been doing during the day or week.

We have now dealt with the method of booking the work to crops and livestock, and, in the case of livestock, the quantities of feeding-stuffs used. So far, however, no reference has been made to the most important feeding-stuff, namely, grass, or to any other crops which are 'folded off'. It is of no use finding the cost of a grazing-field if one does not know how to charge it to the livestock. At the foot of the diary, therefore, must be entered the numbers of the different types of livestock and the fields in which they have been grazing or folded. This, of course, need not be entered every day as long as any movement of the stock from one field to another is entered as it occurs. One also requires to know what head of stock any particular grazing-field has carried during the year, so that a record of the disposition of livestock is doubly important. Any births or deaths can be entered at the same time. Space is also allotted in the diary for the number of gallons of milk produced and the number of eggs collected, for if one wishes to calculate the cost of production of a gallon of milk or of a dozen eggs, one must know the quantities produced, and not merely the quantities sold. At the foot of the diary there is room for the farmer to make any other notes such as the state of the weather, or goods leaving or coming on to the farm. The movement of goods, of course, is shown in the farm account books as purchases and sales, but it helps to form a check if a note is made at the time.

¹ A specimen time-sheet is given in Appendix II.

Intermediate Cost Records

With the diary running properly and the farm account books carefully kept, one is well on the way to a full costings scheme. The information in both the diary and the account books naturally cannot be left as it is, but must be analysed on other forms which may be called intermediate records. Now although the word 'record' is used it must not be imagined that something elaborate is required. Sheets of foolscap paper ruled like the examples on pages 42 and 43 are all that is necessary. One of these will be required for each field on the farm, and one for each class of livestock.

Field Records

Some farmers who compile cost accounts do not keep a separate sheet for each field but only for each crop. Thus if wheat is grown on three fields only one record would be kept, and all the work on the wheat would be shown in bulk and not separated according to the fields. If all that the farmer requires is to ascertain the average cost of a hundredweight of wheat, regardless of field or variety, then there is little or no point in treating each field separately, but a great deal of useful information from the farm-management aspect is lost entirely. This method may indeed save some time in the first year of costing, but soon becomes complicated and often breaks down entirely as the rotation is proceeded with. Moreover, the great advantage of keeping the cost records field by field is that, in due course, one has a clear record of each field, so that not only is it a cost record, but it is also the history of that field and forms a valuable reference in later years when making decisions on management. It enables a close appraisal to be made of certain rotations or combinations of crops, manurings, and cultivations on a given field.

The first thing to do, therefore, is to draw up a correct list of all the fields on the farm and to enter the name, or Ordnance Survey number, of each field. The crop, and its variety, which is growing in the year being costed, must also be stated on each field sheet, and the yield should be entered as soon as it is known. One way of finding the total costs involved on a given field would be to leave the field sheet blank until the end of the year, then go through the diary entries which refer to this particular field, and do the same for the other fields in turn, but this would be tedious. The better method is to enter up each field sheet at certain times during the year, as for instance, by making weekly or monthly

summaries from the diary. This second method has the advantage of spreading the recording over the year so that one is ready to make the final cost calculations as soon as the accounting year has ended. It will be appreciated that both methods give a kind of diary-record for each field, which, in time, becomes the field history already mentioned. Whichever method is adopted one must not only enter on the record details of the work done on the field but also the numbers of livestock grazed or folded. The sales of the crop can be left until the end of the year as these are being entered in the farm account book as they occur.

Livestock Records

In the same way as one requires a separate record for each field, so is one required for each class of livestock, namely, horses, cows, cattle, sheep, pigs, and poultry. If a farmer is interested in still further subdividing the livestock, he can, of course, use additional record sheets. For instance, he may wish to find the cost of rearing store cattle as distinct from fattening cattle, or fat lambs as distinct from ewes. There are a number of such refinements which can fairly easily be made, always provided that the farmer is careful and methodical enough to keep the additional information. For the present purpose, however, it will suffice merely to refer to the types of livestock mentioned above. The livestock records can be entered up in either of the two ways used for the field records. A specimen record is given.¹

Final Cost Records

So far one has been considering the kind of record which must be kept as the year's farming progresses. These are (a) the diary, and (b) the intermediate cost records, and (c) the farm account books. At the end of the accounting year these three sources of information have to be brought together in order that the final cost statements can be made.

The first step is to make sure that the farm account books are completed; there are usually a number of debts owing to, and owed by, the farmer. As a matter of policy these should be settled as soon as possible and the amounts cleared. Care must be taken to see that amounts outstanding from debtors are appropriately included in the books of account within the proper income classifications and carried over as farm assets in the balance-sheet. Similarly, amounts owing to creditors must be included under the proper expenditure

¹ pp. 42 and 43.

FIELD RECORD

Year.....

Crop.....Variety..... Date sown.....

Week or Month ending	Total Hours on Job					Casual or Contract Labour £ s. d.
	Labour			Power		
	Farmer	Men	Women and Boys	Horses	Tractor	
TOTAL						

LIVESTOCK RECORD

Class of Stock

Date	Total Hours on Job					Casual or Contract Labour £ s. d.
	Labour			Power		
	Farmer	Men	Women and Boys	Horses	Tractor	
TOTAL						

headings and carried over as liabilities in the farm balance-sheet. Complete valuations for both the opening and the close of the accounting year must also be available. Not only must these valuations be completed in total, but they must give a considerable amount of detail. For instance, it often occurs that there is merely a block figure given for the value of livestock as a whole. This is, of course, useless if one wishes to cost the dairy herd distinct from the ewe flock. It is necessary to go even farther, for it is of no use

Name of Field

Ordinance No.

Rate seeded Acreage

SUMMARY OF OPERATIONS and Details of Livestock Grazing	Fertilizer (or F.Y.M.)		Grazing or Folded		
	Description	Quantity used	No.	Class of Stock	Days

(e.g. Cows, Sheep, &c.)

Operation	Feeding-stuffs used		Purchases and Trans- fers In (including Births)	Sales and Transfers Out (in- cluding Deaths)	Grazing or Folded	
	Name	Quantity			No. of Head	Field Name or Number

grouping the valuations of cows and other cattle together if one wishes to cost the dairy herd separately from the rest of the cattle. When making the valuation, the numbers and quantities of everything on the farm are just as important as their money values. There is no need to value each implement separately, except that the tractor is always kept apart, and it is advisable to do the same with any specially large or valuable machines, such as a milking machine, a milking bail, or a combine harvester.

Assume all this has been done and that one is now ready to compile the final costs. The next task is to summarize in a convenient form the details given on the intermediate record sheets which have been kept during the year. It is usual to summarize the data under the following headings: seed; fertilizers; farm-yard manure; labour; tractor work; horse labour. Two further items are required, namely, the rent of the fields and the general overhead costs; these will appear in the farm account books.

Costs brought forward from a previous crop or carried forward to a succeeding crop will be dealt with later. The items referred to above will now be dealt with in turn.

Seed

The seed used on each field, whether home-grown or purchased, can be obtained from the appropriate field record which has been built up during the year. It is, however, desirable to make a check by finding out from the farm account books how much seed was purchased altogether during the year. To this must be added the amount of home-grown seed used. As there may have been some seed on hand in the opening valuation and some left on hand in the closing valuation, this must be brought into the reckoning when making the check. The following form shows the method.

Purchased Seed Account

<i>Description</i>	<i>Quantity</i>	<i>£ s. d.</i>	<i>Seed used during Year¹</i>			
			<i>Field No.</i>	<i>Description of Seed</i>	<i>Quantity</i>	<i>£ s. d.</i>
Purchased seed in stock at beginning of year (give details) ²						
Seed bought during year (give details) ³						
			In stock at end of year ²			
TOTAL						

¹ See Field Records.

² See valuations in farm account books.

³ See purchases in farm account books.

Home-grown Seed Account

Description	Quantity	£ s. d.	Home-grown Seed used during Year ¹			
			Field No.	Description of Seed	Quantity	£ s. d.
Home-grown seed in stock at beginning of year (give details) ²			In stock at end of year ²			
Seed produced during year (give details)						
TOTAL						

¹ See Field Records.

² See valuations in farm account books.

Fertilizers

These are dealt with in the same way as seeds.

Fertilizer Account

	Quantity	£ s. d.	Fertilizers used during Year ¹			
			Field No.	Name of Fertilizer	Quantity	£ s. d.
Fertilizers in stock at beginning of year (give details) ²			In stock at end of year ²			
Fertilizers bought during year (give details) ³						
TOTAL						

¹ See Field Records.

² See valuations in farm account books.

³ See purchases in farm account books.

Farm-yard Manure

This item is somewhat difficult to arrive at, but as it has been previously agreed that an estimate is better than nothing, it may be discussed on this basis. From the intermediate records is known how many loads, or tons for preference, of manure have been spread on each field. What is not known, however, is the weight of manure deposited directly by the livestock on the fields folded or grazed, and there is no satisfactory method of arriving at the amount or even of the value of the manure so deposited. The most that can be done is to make an estimate, having regard to the types of foods consumed by the stock during the time they were on a particular field.

For the manure which is carried from the yard to the fields the usual method is to calculate as accurately as possible the weight of manure in the yards over the year as a whole, and to arrive at its value by making use of the customary tables, such as Voelcker and Hall's, of manurial residues of the different types of foods fed. To this, of course, must be added the value of straw used as litter, and, since straw is rarely weighed, the only thing to do is to estimate the total quantity so used. In passing, it should be mentioned that due credit must be given to the livestock for the manure they produce. Before leaving this discussion it should be pointed out that the true value of a ton of manure is very difficult to determine, and a local customary price per ton can be used if desired. As the farmer will realize, the value depends not only on the types and quantities of feeding-stuffs and straw used, but upon the conditions of storage, which is nearly always in the open air so that considerable wastage occurs. Manure which has been newly deposited in the yard possesses more chemical constituents than that which has been there for some months, but, on the other hand, has not had long enough to 'rot down' sufficiently, and from the point of view of action in the soil is not so valuable. To what extent the one cancels the other is a problem which would require a great deal of research.

The whole problem of manures and manurial residues is, therefore, extremely complex and its solution so arbitrary that in certain circumstances it may be avoided altogether. Thus on farms, probably the great majority, where a fairly fixed rotation is followed, it makes little difference to the cost of a unit of produce whether or not these involved calculations are made. In other words, it is unnecessary or at least superfluous to construct a farm-yard manure account, by debiting it with the cost of straw and manure, already

credited to their respective crop and livestock accounts, and then in turn to credit the farm-yard manure account and debit the accounts of subsequent crops with the manures applied to them.¹

Farmyard Manure Account

	Quantity	£ s. d.	Disposal of Farmyard Manure		
			Field No.	Quantity	£ s. d.
F.Y.M. in stock at beginning of year ¹					
Manure made by livestock during year ²			In stock at end of year ¹		
TOTAL			TOTAL		

¹ See valuations in farm account books.

² See livestock records.

Labour

From the intermediate cost records it is known that so much work on a particular crop has been done by the farmer himself, so much by the men, and so much by women and boys. This work has been performed at various times during the year, and the task now is to collect the hours together and total them for the whole year, still making the distinction between the time spent by the farmer in manual work, which is unpaid, and that of his workers. The usual method is to price the farmer's own time at the rate per hour which would correspond to the highest paid worker which he employs. The assumption here is that he is merely replacing a paid worker, who could, in fact, carry out quite satisfactorily the work the farmer himself had done. It will be clear that the money value of the farmer's own work does not necessarily appear in the farm account record of financial transactions. This difference must be borne in mind when making the final check between the various cost accounts and the aggregate financial figures.

¹ For further discussion on manurial residues see p. 57 et seq.

The object of making a charge for the manual work of the farmer is to ascertain the total cost, not in actual money, but in monetary terms, of producing a unit of commodity. This is especially important for instance on those small farms where no paid labour is employed. Obviously some manual labour has been used in producing a hundredweight of wheat, even though no wages were paid, and it is necessary in compiling and comparing costs on different sizes and types of farms to price, within close limits, this labour. On the other hand, the general financial accounts and the cash or bank-book will not show the money value of the farmer's own manual labour because no money has actually passed.¹

Yet another class of labour comes under the heading of 'casual' or 'contract'. Casual labour may or may not have been booked in hours. A lump sum may have been paid and this will have already been shown in the appropriate intermediate cost record so that it is a simple matter to write in this value. The amount will also appear in the farm account-books.

Contract labour became important during the 1939-45 war through the County War Agricultural Executive Committees undertaking various operations for farmers. In peace-time, threshing was the most usual item of contract work. In all these cases the farmer pays the contractor, so that the amount relating to a particular department of the farm can be entered in the appropriate cost record. Naturally, whenever such bills are paid, the amounts are at once written in the farm account books long before they are transferred to the particular crop concerned. Contract work for ditching or draining cannot be charged to a particular crop and must, therefore, be included in the general overhead account.

The method of pricing the farmer's unpaid labour has already been mentioned, so that in this paragraph only the paid regular workers will be considered. The first step is to take the total wages bill for the year as shown in the farm account books. This should include the total value of National Insurance stamps, the insurance premium for employers' liability, and the value of any free cottages, free milk, &c. There may be a deduction to be made from this total for some credit amount such as compensation which has been received during the year, but this, of course, would again be shown in the account books. Having collected together all the hours worked by the employees during the year, the simplest plan is to divide the net labour bill by the total hours, so arriving at the average cost per hour. Clearly, this method has grouped all

¹ But see the reference to this item at the conclusion of Chapter IV.

grades of workers together. If, however, a considerable proportion of the work is performed by women and boys, their hours and wages must be allocated separately, on a similar form as for the men. It is already known from the intermediate records how many hours have been used on each crop and each class of livestock, so that it is a simple matter to calculate the labour cost for any department of the farm and to enter it in its appropriate final cost record. A specimen is given below.

Labour Account
(All grades of workers)

	£ s. d.		Hours ¹ or Days	£ s. d.
Wages paid during year ²				
plus		Field No. ¹		
Value of free cottages, free milk, &c.				
plus		Class of Livestock ¹		
Employer's share of National Insurance ²				
plus				
Premium for Employer's Liability Insurance ²				
plus				
Value of unpaid work of farmer and family				
Total Labour Cost for the year				

¹ See Intermediate Records.

² See farm account books.

Tractor Work

So far, the farmer does not yet know what his own costs of running a tractor amount to, so that all he can do at present is to collect the hours together for a particular crop and insert them on the appropriate cost sheet. Some farmers attempt to cost a crop by multiplying the number of tractor hours by some kind of customary or average price per hour, but this is not correct. The figure to be used is the cost per hour of running one's own tractor or tractors, and the method of arriving at this figure is shown on page 50.

The cost of running the tractor is built up from the depreciation, the cost of repairs and replacements of parts, and the cost of fuel used during the year. All this is easily ascertainable from the account books. The method of arriving at the depreciation is to take the value of the tractor at the beginning of the year and calculate what the appropriate rate of depreciation represents in money.

Tractor Record

Name and Type of Tractor..... *Horse-power*

Date purchased..... *Price £*..... *Initial Allowance*
of 20%.....

Annual Rate of Depreciation%

Date

<i>Week or Month ending</i>	<i>Total of Hours worked</i>	<i>Gallons of Fuel Used</i>	<i>Labour in Care and Maintenance</i>	<i>Details of Repairs¹</i>	<i>£ s. d.</i>
	Hours ²	Gallons ²	Hours ²	Description	
TOTAL					

¹ See farm account books.

² See Diary.

A farmer can use any rate of depreciation he chooses, but since there are agreed rates between the National Farmers' Union and the Inland Revenue authorities it will avoid complications if the recognized rate is adhered to. All one has to do now is to collect together, as in the case of man labour, the total number of hours worked by the tractor on all departments of the farm and to divide this number of hours into the total cost, thus arriving at the cost per hour. It should be pointed out that care should be taken to see if there has been any tractor work in connexion with the livestock,

since tractors are often used, for instance, to haul fodder and roots to stock. Some tractor work may even be carried out on general or overhead work, such as cleaning rubbish from ditches or hedges. It will be clear that the resultant cost per hour is an average one, which means that the same rate per hour is being charged for the various types of work upon which the tractor has been engaged. Thus, for instance, just as much is charged per hour when the tractor is running light as when it is running up a steep incline in bottom gear. It would, no doubt, be possible by keeping very precise records to ascertain how much fuel was used per hour on

Total Yearly Cost of Tractor Work

	£ s. d.	Allocation of Total Cost		
		Fields ²	Hours	£ s. d.
Depreciation ¹				
Repairs				
Fuel..... Gallons				
Lubricating Oil..... Gallons				
TOTAL COST				

Total No. of Hours worked

Cost per Hour

¹ Provision should be made for the Initial Allowance in the computation of this cost.
² See Intermediate Cost Records.

the various operations, but one would still be left with the difficult, if not impossible, task of stating what proportion of the depreciation costs and what proportion of the repairs and renewals should be charged to each of these operations. For all practical purposes, therefore, the average rate per hour is quite suitable. Where there is more than one tractor, the farmer can decide for himself whether he wishes to cost each tractor separately or whether he will strike an average over the tractors.

In the case of other valuable machines such as a combine harvester the cost per hour can be calculated similarly to that of the tractor. In the case of large milking machines, as for example a milking parlour or open-air bail, the depreciation and the cost of running them can be calculated fairly easily, and since the whole of this cost only applies to milk production it can be carried straight to the final cost record for the dairy herd.

Horse Labour

A dilemma arises when considering the cost of horse labour. Briefly the position is this. One cannot calculate the cost of horse labour per hour until one knows the cost of the home-grown foods which have been fed to the horses, but one does not know the cost of the home-grown foods until one knows the cost of the horse labour used in growing them. To overcome this difficulty the following method is adopted. If cost accounts have been kept for the previous year one should know, for instance, the cost of production of oats, and, knowing the quantity consumed by the horses in the year now being costed, one can charge the horse account with their value. Where no previous cost accounts exist, one can, for the first year, charge home-grown foods to horses at either market prices or at some estimated value, or at feeding values as quoted from time to time in the agricultural press.

In addition to oats and fodder crops consumed, which have been grown in the previous year, horses obtain part of their food by grazing, and obviously they are eating grass which has not been produced in the previous year but which is growing in the year being costed. It is not possible, therefore, to use figures for a previous year. The farmer could, however, charge to his horse account a price for grazing which he would have to pay a neighbouring farmer if he put stock out to graze, or he himself may take in stock to graze and charge a customary local price. Another method is to charge to each grazing account some average hourly cost of horse labour such as is sometimes quoted in certain agricultural text-books, or bulletins issued from time to time by the universities and agricultural colleges. If the year now considered is the first year of costing, one of these methods must be used, but if costs exist for the previous year the best plan is to use the rate per hour of horse labour found in that year. It should be made clear that whatever figure is used is an arbitrary one and will only be entered in the grazing account, so that one may close this account and proceed to calculate this year's cost of horse labour. It is this

current cost which will be charged to all the other departments of the farm.

It must be admitted that there are two sources of error here, but except for abnormal grazing seasons the error is of little significance. In the first place, the figure charged to horses for grazing is in turn credited to the grazing account and may have the effect of leaving the balance of grazing costs, which have to be debited to the live-stock, either greater or less than the true figure, if this can indeed be accurately calculated at all. Secondly, the figure for grazing charged to the horses will have the effect of tending to raise or lower the true cost of horse labour, which has in due course to be charged to those crop and other accounts where horse labour is used, but once again the true cost of horse labour cannot be ascertained.

Before completing this section on horse labour, one has to bear in mind that part of the cost is represented by the difference between

Working Horses Account

		£	s.	d.			£	s.	d.
Valuation of Horses at beginning of year ¹					Valuation of Horses at end of year ¹				
Purchase of Horses during year ¹					Sales of Horses during year ¹				
Labour in connexion with grooming and feeding ²					Allocation of Horse Labour during year:				
<i>Feeding-stuffs</i>					Field No. ²	No. of Hours ²			
Grazing acres ²									
Oats:									
Purchased cwts. ¹									
Home-grown cwts. ²									
Hay tons ²									
<i>Straw</i> ²									
<i>Sundries</i>									
e.g. Shoeing ¹									
Repairs to harness ¹									
Vet. Bill, &c. ¹									
TOTAL					TOTAL				

Average Cost per Hour of Horse Labour pence

¹ See farm account books.

² See Cost Records.

the opening and closing valuations of the horses. Usually these show a fall during the year, and this may be regarded in the same way as the depreciation of the tractor. Where horses are also kept mainly for breeding, some attempt should be made to separate their account from that of the working horses. If only one or two young horses are sold during the year, as a kind of by-product to the working horses, the value of such sales can be regarded as lessening the cost of depreciation and so lowering the cost per hour of the horse labour. This in turn will help to lower the cost of production of crops, or even of milk, which surely is what every producer is endeavouring to do.

Rent (and Rates)

Since the Derating Act of 1928, agriculture, in common with other productive industries, bears no rates except those for drainage in certain districts, but if there are any special rates it is usually convenient to block them with the farm rent. The rent can now be divided over all the fields on the farm. This is a simple operation, but a check should be made by setting it out on paper as in the following example. Unless a farm has some land which is much poorer than the rest, it usually suffices to allocate the rent evenly,

Rent Account

Gross Rental of Farm ¹	£ s. d.	Allocation to Fields:		£ s. d.
		Field Name or No. ²	Acres ²	
deduct				
Two-thirds Rental Value of Farm-house				
deduct				
Rental Value of cottages free to workers				
deduct				
Cottage rents paid by workers ¹				
		Total Acreage		
Total Net Rental	£	Total Net Rental		£

Average Net Rent per acre shillings

¹ See farm account books.

² See Intermediate Cost Records.

but there is nothing to prevent a farmer giving his better fields a higher rent if he wishes, always provided that the sum of the rent of the individual fields agrees exactly with the total net rent of the farm, as shown on page 54.

This net rental is the gross rental after certain deductions have been made. In the first place the rent (and rates) of the farm-house have to be deducted from the full gross rent of the farm since this is regarded as a private matter, forming no part of the farm itself.¹ Secondly, there must be deducted the rental value of farm cottages allowed free to workers. The rental of such cottages is an addition to the labour cost, and is shown in the labour account. Rents for cottages paid by the workers are simply a cash receipt and diminish the gross farm rent accordingly.

Cost of Implements

Apart from the cost of the tractor, there remain the costs of the general implements and machinery to be considered. It is possible, although extremely difficult, to calculate the depreciation and repairs for each separate implement during the year and to charge this cost to the particular department or field concerned, in accordance with the number of hours worked. Besides being difficult, the calculations when made would give what is sometimes known as false accuracy. Therefore, the usual method is the much more simple one of keeping a general implements account, apart from the special machines mentioned above, and to allocate this cost over the fields in proportion to the hours worked. These costs consist of the depreciation plus repairs. The annual rate of wear and tear agreed between the National Farmers' Union and the Inland Revenue authorities is 10 per cent. plus the additional quarter, which for present purposes amounts to a flat rate of $12\frac{1}{2}$ per cent. There is also the Initial Allowance of 20 per cent. on cost. The cost of repairs can easily be found from the farm account books. On some farms there is, in addition to general implements and machinery, an open-air bail, a combine harvester, or special pig or poultry equipment, such as movable huts or pens. If this equipment is of considerable value it is best to arrive at a special annual rate of depreciation for such equipment and to charge this, plus the appropriate repairs, directly to the department concerned and to keep them out of the general implements account.

¹ But one-third of the rent of the farm-house can be charged, as the Inland Revenue authorities recognize that part of the house is used for business purposes as an office. Hence strictly only two-thirds of the house rental should be deducted.

General Implements and Machinery Account

	<i>£</i>	<i>s.</i>	<i>d.</i>
Valuation at beginning of Year ¹			
Add			
Purchases during Year ¹			
Deduct			
Sales during Year ¹			
Adjustments for profits or losses on sales _____			
Balance being			
value at end of year before calculating depreciation	<i>£</i>		

Depreciation on this figure at 10% + 1/4th, i.e. 12½% per annum to be carried to the account below (plus initial allowances on purchases).

¹ See Farm Account Book—a detailed list is not required here.

Cost of Implements

	<i>£</i>	<i>s.</i>	<i>d.</i>			<i>£</i>	<i>s.</i>	<i>d.</i>
Depreciation (as above)				Field No. ²	Tractor			
plus					or Horse			
Repairs ¹				Class of	Hours ²			
				livestock ²				
TOTAL					TOTAL			

¹ See farm account books—a detailed list is not required here.

² See Intermediate Cost Record Sheets.

Overhead Costs

A further item in compiling the cost of production of a crop or of a class of livestock is that of overhead costs. This item should be kept as small as possible since the method of allocation is arbitrary. The usual method is simply to allocate to the fields and livestock in the same way and in the same proportions as the wages bill. Alternatively the overhead cost may simply be allocated to the crops in proportion to the acreage of each field.

It greatly facilitates matters if a page or a column is set aside in the farm account book in which to enter all miscellaneous items

of expenditure and income that cannot be allocated to any other department. Such items are the telephone bill, market expenses, general repairs, and maintenance.

An example of miscellaneous items of income are sales of rabbits.

Below is given an outline of the method of dealing with overhead costs:

		<i>Overhead Costs</i>					
		£	s.	d.	£	s.	d.
Total of Miscellaneous Ex-							
penses ¹							
Deduct total of Miscellaneous							
Income ¹							
Net Overhead Costs		£			£		

Allocation to fields and live-
stock:

Field No.² | Man Hours²

Class of
livestock²

¹ See farm account books.

² See Wages Cost Account.

Tillages and Unexhausted Manurial Residues

One final item remains to be considered in arriving at the cost of production of a particular crop, namely, that known generally as the value of unexhausted manurial residues. It is well known that work and manures applied to a given crop benefit, to some extent, the succeeding crop. Sometimes this benefit is considerable, as in the case of a crop following roots. At other times it is almost negligible, as in the reverse case where roots follow corn. In the first year of costing one does not know what costs to bring forward to a particular crop from the previous one. These can be ignored or one can make an estimate, and an estimate is better than ignorance. One should, therefore, endeavour to arrive at a fairly true figure for the value of unexhausted costs to be carried to the following year's crops on the accepted basis. Sometimes it is argued that, taking a farm which is running on a steady rotation, the whole question of unexhausted values can be omitted in calculating costs of production, and it must be confessed that, although some time may be spent in allocating such costs between one crop and the next, the subject-matter of unexhausteds and tillages is extremely problematical. Professional valuers when making farm valuations almost always use customary figures, which may vary from locality to locality, and it must be admitted that, for practical purposes, this is all that can be done.¹ Even though values had been arrived at from a complete cost-accounting scheme, there is no guarantee that

¹ The Central Association of Agricultural Valuers is, however, endeavouring to bring greater uniformity by issuing a schedule of standard costs.

this value in fact remains in the ground to the benefit of the succeeding crop.

With this proviso, however, we may proceed to examine the position.

The problem falls under two heads: (1) the value of work performed in one year whether by men, horses, or tractors (including the use of other implements), and (2) the value of the residues of (a) artificial fertilizers, and (b) feeding-stuffs given to livestock and ultimately applied to the land as farmyard manure.

In the case of labour the problem is fairly simple. The Diary and the Field Records will show what operations are performed solely for the benefit of the succeeding crop, as, for instance, autumn ploughing, which while actually carried out in one financial year is wholly chargeable to the crop to be harvested in the following financial year. But there are other operations, such as cleaning and hoeing a root crop, which, although primarily, and of necessity, performed to obtain as great a yield of roots as possible, nevertheless helps to improve the yield of the grain crop that follows. In these cases of 'cleaning costs' it is customary to debit the root crop with two-thirds and the following crop with one-third of the total expenditure.

There still remain, however, the twin problems of the evaluation and apportionment of residual values of fertilizers and feeding-stuffs. Until recently it had been, for many years, the general practice to refer to Voelcker and Hall's *Tables* or similar data which gave a list of values per ton of the manurial value of all known feeding-stuffs and fertilizers. This price bore a constant relationship to the respective fertilizer prices. A conference of agricultural chemists¹ recently published a memorandum on this question. The following extract from the section relating to fertilizers will show how it is proposed to change the basis of assessment.

'In Voelcker and Hall's *Tables* the residual values of fertilisers were expressed as simple fractions of the cost price of the fertilisers. Owing to the wide range of materials now available and the unequal residual values of the various kinds of plant food, the Conference believes that this method of valuation is no longer satisfactory. It recommends that the residual values of fertilisers should be determined from their actual contents of plant foods, as shown in the warranties under the Fertilisers and Feeding Stuffs Act, and

¹ Convened by the Ministry of Agriculture and under the chairmanship of J. A. Scott Watson, C.B.E., M.A., to examine the *Tables for Residual Manurial Values of Fertilisers, and for Manurial Values of Feeding-stuffs* with the view to suggesting any necessary revision of such *Tables*. (Published in *Agriculture*, the journal of the Ministry of Agriculture, July 1946, vol. liii, No. 4, pp. 163-70.)

should be related to the cost of these plant foods in the three principal fertilisers, sulphate of ammonia, superphosphate and muriate of potash. Allowance should also be made for important differences between the various forms of nitrogen and phosphate fertilisers in their availabilities and residual effects. . . .

'The Conference recommends that the values for fertiliser residues should be calculated by multiplying the percentages of nitrogen, phosphoric acid, and/or potash in the original fertiliser by appropriate prices per unit (or one per cent of a ton) of N, P_2O_5 , or K_2O No residual value should be allowed for inorganic nitrogen or for nitrogen in dried blood. For organic nitrogen and potash, allowances should be made after one or two growing seasons only, and for phosphoric acid after one, two or three growing seasons, suitable adjustments being made for the relative values of the different forms of phosphoric acid in fertilisers. The allowance after two growing seasons should be one-half and after three growing seasons one-quarter of those after one growing season. It is recommended that the allowances should be the same on grassland, including all permanent and temporary pasture, as on arable land, and that no differentiation be made according to the number and kinds of crops grown.'

In the section dealing with residual values of feeding-stuffs the conference stated:

'The Voelcker and Hall Tables were calculated by first estimating the amounts of nitrogen, phosphoric acid and potash from feedingstuffs consumed by fattening bullocks likely to reach the manure heap or the land under good conditions and then valuing these amounts at unit prices somewhat loosely related to the current prices of fertilisers. It was suggested that appropriate reductions should be made for various farming conditions likely to lead to greater loss of plant foods. There were considerable variations in the unit prices ascribed to the plant foods in the several revisions of Voelcker and Hall's Tables made at different times by various authorities. There was also little consistency among valuers in the methods for making the reductions.

'These residual unit prices must be related to the current rounded unit prices for fertilisers and should be chosen to represent the estimated values of the manurial residues under average conditions of farm management.

'The conditions may be regarded as average where the foodstuffs are fed to dairy cattle in cow-houses or to other stock in open yards, provided that in either case the urine is conserved, the dung well made and both urine and dung are used effectively. This requires also that there should be sufficient land to allow adequate returns in extra crops from the dung made.

'It must be remembered that by far the greater part of the plant foods in feedingstuffs passes into the urine and that the manurial value therefore depends very closely on the way the urine is conserved and used. Large amounts of plant foods, especially nitrogen and potash, may be irretrievably lost to the farm in the drainage from cowhouses. In addition appreciable amounts of plant food are removed in the milk sold off the farm.'

The report from which these extracts have been made is concerned with the calculation of compensation values at the time of a change of farm tenancy, and sets forth examples of methods and prices which shall be regarded as guides to valuers in such circumstances. It admits that a considerable amount of latitude and discretion must be given to valuers in making their decisions.

Where there is no change of tenancy and the farmer is maintaining cost accounts over a period of years, he may either ignore all these problems of manurial residues and labour residues carried from crop to crop or he may decide to follow the principles laid down in the above report, and make the best assessments possible, knowing that he is grappling with an elusive problem but that he is, at any rate, not avoiding it completely.

Final Cost Accounts for Crops

With the allocations and analyses that have been discussed in the previous pages one is now able to construct the final cost account of any crop. The following is an outline of the cost account of an oat crop.

This *pro forma* crop cost is compiled on the basis of 'factor costs' and is the usual type of final cost record. Thus it brings together in one sum all the manual labour performed on this crop on one particular field, then all the tractor work, and then all the horse labour, together with a total figure for the share of wear and tear and depreciation of implements.

It is possible, however, and may in some circumstances be desirable to subdivide the costs into 'process costs' so that instead of having the totals of man, horse, or tractor labour, the various processes that have occurred on this field during the year may be shown.¹ Thus the cost of ploughing the field could be easily extracted from the diary and either the horse labour or tractor records. Similarly, the cost of harrowing, discing, cutting, stooking, and carting to rick could all be shown as separate process costs. These alternative arrangements of the final crop cost record are a matter for the farmer himself to decide.

Although the cost only need be considered, it is useful to give particulars of the production on the right-hand half of the cost sheet, as in the example. This method enables one to insert the quantities of grain and straw fed to the various classes of livestock and so enable a check to be made with the similar quantities shown on the livestock cost sheets. The picture is then completed if the

¹ As an illustration see Cereals Record form in Appendix.

quantities left on hand at the end of the year, and those sold during the year, are also included, since the grand total should then agree with the total production of the crop. The value of quantities sold must, of course, be entered at their actual selling price. Quantities fed are fed at the cost of production, which is found by dividing the total cost of the crop by the total weight produced, so arriving at an average cost per cwt. Quantities on hand should also be valued at cost.

Oats

Acresage

Field

Total Yield

Yield per Acre { Grain cwt.
Strawcwt.

Average Cost per Acre

Average Cost per cwt. of { Grain
Straw

COSTS	PRODUCTION						
	£	s.	d.	Quantity	£	s.	d.
Rent, see allocation p. 54				Grain—			
Seed, see allocation p. 44				—Sold ¹			
Fertilizers, see allocation p. 45				—on hand at			
Farmyard Manure, see allocation p. 47				end of year ¹			
Labour, including Casual, ²				—Fed to stock			
Contract, ² see allocation p. 49				as follows ³			
Tractor work, see allocation p. 51				Horses			
Horse Labour, see allocation p. 53				Cows			
Implements, see allocation p. 56				Cattle, &c.			
Overheads, see allocation p. 57				—used for seed			
				Total Grain			
Plus Costs brought forward from previous crop ²				Straw—			
				—Sold ¹			
				—on hand at end of year ¹			
Less Costs carried forward to succeeding crop ²				—fed to stock as follows ³			
				Horses			
				Cows			
				Cattle, &c.			
TOTAL COSTS				Total Straw			

¹ See farm account books—Sales and Valuations.
² See Intermediate Field Records.
³ See corresponding Livestock Records.

In the above discussion it has been assumed that the whole of the costs are charged against the grain, so that the straw has been produced entirely free of cost. This, obviously, is not true and some part of the total cost should be borne by the straw, thus lowering the cost per cwt. of grain. If, on the contrary, it is decided to charge no cost to the straw, then when giving livestock straw either for feeding or as litter, such straw must be supplied free, thereby reducing the costs in the livestock accounts and to that extent, the cost of the farm-yard manure, which, in turn, lowers the cost of manuring the following year's crops.

From a strict cost-accounting point of view one has no option but to divide the total costs between the grain and the straw, and this is usually done by the arbitrary method of dividing the costs in proportion to their respective feeding values as given by, for instance, the journal of the Ministry of Agriculture. If the straw is used only for litter some customary value may be used. On the other hand, the beginner in farm cost-accounting may consider this to be a refinement with which he will not at present concern himself. He may decide that since he grew corn solely for the value of the grain, no costs need be charged to the straw, and provided he makes this clear, no harm is done.

Catch crops and undersown crops give rise to similar problems. There is no hard-and-fast rule of allocating the costs, the use of common sense is generally sufficient.

The allocation of total costs between sugar-beet roots and tops is another problem of the same nature. If it should be decided to charge no costs to the tops, but all to the roots, then when the tops are fed to stock they must be fed free, and not at so much per acre or per ton.

One final point before leaving crop accounts. Where a crop is entirely utilized on the farm and no part of it is sold, the question of profit or loss does not arise. Where, however, part or all of the crop is sold, a profit or loss will arise according to whether or not the selling price was higher or lower per ton or cwt. than the cost of production.

Final Cost Accounts for Livestock

The next task in farm costing is to ascertain the costs incurred in connexion with the livestock. It was mentioned earlier that the main livestock branches or departments can be subdivided if desired. For instance, one can divide the dairy section into the costs of cows, of heifers, and of calves, and similarly in regard to

sheep, pigs, and even poultry. If the general principles are understood, such refinements are easily adopted later. As a first step, however, it will suffice to find the costs incurred for each of the main classes of livestock. In the case of all livestock the main items of cost are those under the heads of feeding-stuffs, labour, veterinary services, and overheads. The following outline account for the dairy herd will serve as an illustration.

The first difficulty in costing the dairy herd, or any class of livestock, arises in connexion with the valuation of the stock. Where a dairy herd is entirely bred on the farm, and no purchases are made, the best plan from the point of view of cost-accounting is to maintain a steady level of values. It will be realized that to write down values in an arbitrary manner causes a fictitious depreciation to be shown, and this has to be included in the costs. On the other hand, a writing up of values, merely because market prices have risen, introduces an appreciation which has the effect of lowering the costs. There is no guarantee that when particular animals are sold they will fetch the price at which they are valued. It is best in cost-accounting not to anticipate either profits or losses, but to wait until an actual sale takes place when the realized profit or loss can be shown in the accounts at the proper time. It is possible to use this method of steady, or standard, values as they are sometimes called, for various classes of livestock, according to age, and not only for the dairy herd, but for other stock as well. A better method still, but one that can only be used when the cost accounts are sufficiently detailed, or refined, is to value the various classes of stock at their cost of production figure. This method, however, is rarely possible on the ordinary commercial farm because of the elaboration of records that is required, and it becomes still further complicated when stock of different ages are purchased from time to time.

Where purchases are made, and the livestock is approximately of the same value and quality as stock already on the farm, the standard-value method may be employed. Where a farmer is grading up his livestock, however, there is little alternative but to let the higher purchase prices influence the valuations. One way is to value the stock on hand at the end of the year at the average of the opening valuations plus the purchase prices during the year.

The sales and deaths of livestock are brought into the question of depreciation (or appreciation) only when they relate to the breeding herd or flock. Thus in a milking herd the sales or deaths of anything

Dairy Herd

COSTS			PRODUCTION		
	Quantity	£ s. d.		Quantity	£ s. d.
<i>Opening Valuation</i> ¹			<i>Closing Valuation</i> ¹		
<i>Livestock Purchases</i> ¹			<i>Livestock Sales</i> ¹		
<i>Labour</i> —see p. 49. Including Casual ² and Contract ²			<i>Other Sales</i> ¹		
<i>Tractor Work</i> See p. 51			Cheese		
<i>Horse Labour</i> See p. 53			Milk:		
<i>Foods</i>			1. Wholesale		
Purchased			2. Retail		
See p. 67			3. Consumed in Farmhouse ³		
Home-grown, see various crop ac- counts			4. Perquisite to Workers ³		
Grazing, see graz- ing account			5. Fed to Live- stock ³		
<i>Veterinary Bill</i> See p. 70			<i>F.Y.M. to Crops</i>		
<i>Implement Cost</i> See p. 56			See crop accounts and F.Y.M. ac- count		
<i>Overheads</i> See p. 57					
TOTAL			TOTAL		

Total Yield of Milk Gallons

Average Yield per Cow Gallons

Cost per gallon

Cost per Cow per annum

¹ See farm account books. ² See Intermediate Cost Records.

³ These quantities are available monthly on the M.M.B. return.

apart from the cows and heifers would not affect this depreciation figure. The bull is the only exception, for the difference between its opening and closing valuation would enter as a depreciation cost, and so would the difference between the actual sale price of the old bull and the purchase price of a new bull.

Sales of other stock, as for example, calves, are regarded not as affecting the depreciation or appreciation of the dairy herd, but merely as a necessary by-product in the production of milk. Such sales are therefore shown as a deduction, or credit, from total costs. The value of the farm-yard manure from the herd is treated similarly.

Reverting now to the final cost form for the dairy herd, there is nothing to be said on the items of cost such as labour, tractor work and horse labour, implement cost, and overheads beyond what has already been said in dealing with crop costs. The food bill, however, is an important cost special to livestock.

Feeding-stuffs

Feeding-stuffs may be produced on the farm or purchased. In either case the quantities consumed by the dairy herd should be able to be totalled from the intermediate cost sheet which, in turn, has been compiled from the diary. Purchased foods are charged at purchase price. Home-grown foods are charged at the cost of production on the farm. The cost of grazing must also be included, but this is discussed later.

There appears to be a certain amount of confusion among farmers concerning home-grown foods. Some argue that these should be fed to livestock, either at market price, or at their feeding value as quoted in the agricultural press. In other words, if the market price or feeding value of hay is £8 per ton it should be fed to livestock at that price regardless of the fact that the cost of production on the farm may have amounted to only £4 per ton. They then proceed to show a profit on the hay crop when in fact none of it has been sold. It should be emphasized that the livestock are not being costed to ascertain what the food bill would amount to if one charged home-grown foods at market prices, but what it does in fact amount to when the foods are charged at their actual cost of production on the farm. In other words, all home-grown foods are in the nature of intermediate products which are only used to produce the final sale product, such, for example, as milk in the case of the dairy herd. One cannot logically show a profit on hay or

fodder crops if no part of it has been sold. There is nothing, however, to prevent a note being made, either mental or otherwise, that the cost of producing hay was in fact less or possibly more than market price. After all, the whole object of cost-accounting is to find out what is happening on the farm in its various branches, and at the same time to find out where, under its present system of management, one can produce sale products such as milk, beef, wheat, sugar-beet, and potatoes at a cost which will leave a profit when they are sold. If one or two of the departments show a loss on sale, steps should be taken to remedy the position in future.

The correct method of charging the cost of production of hay to any particular class of livestock, as for instance the milking cows, is to know from what fields the cows' hay was obtained and, having kept the hay costs field by field, to charge the actual cost of such hay to them according to the tonnage concerned. If separate field records have not been kept and the costs on all the different hay fields have been aggregated, then it is only possible to calculate the average cost of hay over the farm as a whole and this average cost must be charged to the cows although it may be higher or lower than the specific hay cost.

One method of allocating purchased feeding-stuffs to livestock is to take each food in turn, find out how much was on hand at the beginning of the year, how much was purchased during the year and, from the Diary and Intermediate Cost Record, how much went to each class of livestock, paying due regard to whatever quantity remains in stock at the end of the year. The quantities so fed must be priced out to each class of stock so that both quantities and money balance with the farm account books. On some farms, where a definite food is purchased for a certain type of stock only, it can be said at once that the whole of this particular food is chargeable to that particular stock. Where, however, a feeding-stuff is purchased for various classes of stock, an allocation has to be made.

Since it is desirable to satisfy oneself that the total of the allocations match the total of purchases, including stocks on hand, as shown in the farm account books, it is advisable to make a final check on the following lines.

Purchased Feeding-stuffs

	Quantity	£	s.	d.		Quantity	£	s.	d.
Stocks on hand ¹ at beginning of year (give details)					Stocks on hand ¹ at end of year (give details)				
Purchases ¹ during year (give details)					Allocation to Live-stock ² during year:				
					Horses				
					Cows				
					Cattle				
					Sheep				
					Pigs				
					Poultry				
TOTAL					TOTAL				

¹ See farm account books.

² See respective Livestock Intermediate Cost Records.

Cost of Grazing

Allocations of home-grown foods are obtained from the field records and are usually simple except in the case of grazing. The difficulty here is not in the ascertainment of the cost of grazing a field but in the allocation of the cost. During the year several types of livestock move over the same fields, so that some plan must be evolved to spread the grazing costs over these different classes of livestock. The method is to work in terms of livestock units, and these are usually calculated in the following manner. One grazing unit is regarded as being the equivalent of one cow, horse, or head of dairy cattle; six sheep or lambs; six pigs (strong stores or older); and 100 head of poultry. These factors are, of course, arbitrary and do not pretend to be based on accurate data but have been built up from general impressions. Obviously, this is again a question for research, but even when a solution is found it will probably be of very limited application. If a farmer feels that the above units need modification to suit his own farm there is nothing to prevent him making the necessary adjustments. On some farms it is possible to say with a fair degree of precision how many acres of grazing can be charged direct to the cows, sheep, and even to poultry, so that the problem of working out livestock units is entirely avoided.

Where, however, livestock units are employed, the number of units must be multiplied in each case by the number of days a particular class of stock was grazing. Thus 20 cows grazing for 180 days will give a total of 3,600 grazing units. On the other hand, 60 sheep grazing for the same length of time will give $60/6 = 10$ livestock units, which multiplied by 180 days gives 1,800 grazing units. The numbers of livestock and the length of time they have been grazing is easily obtained from the field records, if they have been kept properly.

Where a field has been grazed, and not cut for hay, all the costs can be charged to the livestock in the manner just described, but one knows that some fields are either laid up entirely for the hay crop, so that no grazing occurs except on the aftermath, or are lightly grazed in the spring and then shut up for hay. This is more true of rotation grass than permanent grass. If a hay crop is taken, one has to consider not merely the cost of growing hay but the value of the aftermath which is grazed by livestock in the autumn. In this case one proceeds to ascertain the total costs which have been incurred during the year on this hay field, noting in the diary the work done solely in connexion with haymaking. The special hay-making costs are naturally a direct charge to the weight of hay lifted. The remaining items of cost such as rent and general cultivations are usually divided as to two-thirds to the hay and one-third to the aftermath. One should be able to say from the intermediate field records what stock grazed the aftermath and can therefore charge its value to that stock. If several classes of livestock have been over the aftermath, the value can be carried to the grazing account and allocated among all the livestock units. An acre of aftermath is usually regarded as being equivalent to one-third of an acre of full grazing, but here again a farmer can use his own judgement. •

Where a field has been lightly grazed before the hay crop is taken, some calculation must be made of the value of this grazing; the hay and the aftermath will, of course, be dealt with as discussed above. Once more the best estimate possible has to be made, and one method is to compare this early grazing with the full grazing or with the aftermath grazing. One is still faced with the problem that the value of grazing in certain months on any field varies from that of other months. This, however, is a refinement which is usually ignored in cost-accounting. In the first place, little is known of the feeding value of grass at different stages of growth. Secondly, grass has what may be termed a time value as well as a feeding value. For

instance, a bite of grass in a dry August or September, although not possessing the same feeding value as in the spring, may be worth far more from the point of view of milk production. One can, however, bear these points in mind since they will help to interpret the costs when they have been calculated.

Having ascertained the total cost of the grass field, all one has to do is to divide that cost by the total number of livestock units already referred to. Since it is known how many livestock units belong to the cows and how many to the sheep, &c., one can, by a simple multiplication, ascertain what the cost of grazing amounts to for each class of livestock. This task can further be simplified, if desired, by putting all the permanent grass fields together, adding up all their costs and dividing by the total number of livestock units. This method of grouping fields together should not, however, be followed for any other crops except permanent grass.

If some permanent grass fields are cut for hay and the aftermath grazed, one can proceed along similar lines, except that care must be taken to divide the costs between the hay and the aftermath.

In the case of rotation grass the problem is similar although somewhat more complicated, but as long as a diary has been carefully kept during the year, and as long as common sense is used, there is nothing to fear. It is safer here to cost each field separately. A rotation grass or ley field, as the name implies, will remain under grass for a certain number of years and will then be ploughed up to receive an entirely different crop. Obviously, if the field is intended to be a one-year ley all the costs will be chargeable to that year, although it may be advisable to bring forward certain unexhausted costs from the previous year and to carry forward some to the succeeding crop. Thus, if the one-year ley is grazed, the procedure is to divide the total costs by the number of livestock units. If the ley is intended to last for more than one year, say for example three years, one proceeds by calculating the total costs of seeds, cultivations, and fertilizers incurred in laying down this ley and then to divide this total cost by three. The rent of the field is, of course, charged in full each year. Any additional cultivations in the second or third year would be added to the costs carried forward from the first year. It will be clear that to charge livestock, which are grazing the first year of the three-year ley, with the total cost of laying down the field would unduly burden the livestock and would, in fact, mean that any grazing or hay obtained from the second and third years would have cost practically nothing at all.

Veterinary Bill

The only remaining item of livestock cost is the veterinary bill.

Veterinary Bill

Cost during year ¹	£	s.	d.	Allocated to Live- stock Accounts as follows:	£	s.	d.
				Horses			
				Cows			
				Cattle			
				Sheep			
				Pigs			
				Poultry			
	£ _____				£ _____		

¹ See farm account books.

This has already been referred to in the introduction. Not much difficulty is involved in allocating it to the various livestock accounts, but it is as well to make the simple check with the farm account books indicated above. Under this head would also come the expenditure on medicines, drenches, and such-like items.

*Final Calculations**Dairy Herd*

On the sales side of the dairy herd account there are four items to be mentioned. Under 'Other Sales' will appear the sales of milk, both wholesale and retail. Next must appear the quantity of milk consumed in the farm-house. This is not a cash sale, but it may be considered to be sold at cost of production or at the usual wholesale price. Milk fed to livestock should be priced at the cost of production. Finally milk given free to workers must be shown, and this can be treated as though sold, and the customary price shown. Milk actually sold to workers will appear among the 'Other Sales' and form part of the total retail sales.

The object of keeping a dairy herd is the production of milk. From what has just been said it is clear that the total production of milk is now shown on the sales side of the accounts. This production figure is greater than the sales figure by the gallonage utilized on the farm. In order to find the cost of production of the milk it is assumed that the cost is made up as follows. The costs as shown on the left side of the form are added, together with the herd depreciation figure as already explained. The sales of calves and other very young stock are deducted from this total, as, in the same

way, is the value of the farm-yard manure produced. Any small sundry sales should also be deducted.

Sales of milk whether real or not are, of course, not deducted since it is the cost of the milk that is being calculated.

The net result is a sum of money which represents the cost of producing so many gallons of milk during the year, and obviously the cost of one gallon is merely the result of a simple division.

Cattle

Where a herd is kept mainly to produce stock for sale, so that little milk is sold, the position is similar to that of a herd of cattle kept for beef production. In both cases one is now concerned with the cost of producing so many animals for sale per year. The items of cost are similar to those for the milking herd, with the exception that a more careful analysis must be made of the valuations, purchases, and sales of stock. If, for example, a farmer is keeping a beef herd, and out of this sells, say, twenty fat beasts a year, the cost of production of one fat animal will be one-twentieth of all the costs involved in keeping the whole herd. In such cases one adds to the usual costs, labour and feeding-stuffs, the difference between the opening and closing valuation, plus the purchase of livestock during the year. The value of the animals sold cannot, of course, be included in this calculation, since it is the cost of these animals that one is endeavouring to obtain. In the milking herd the sales of livestock were included because one was not then calculating the cost of producing an animal but the cost of producing milk.

Sheep

A flock of breeding ewes kept for the production of fat lambs would be dealt with similarly to the above cattle herd, although in this case two answers may be required. On the one hand, one may wish to obtain the cost of keeping a breeding ewe, or, on the other hand, the cost of producing a fat lamb. In either case the total cost of labour, feeding, &c., will be the same, but in the former case all the costs must be placed against the ewes and in the latter case against the number of fat lambs sold. Whichever alternative is chosen, one must be careful in dealing with the valuations, purchases, and sales of the livestock. In English farming wool production is usually regarded as of secondary importance, so that, in general, sales of wool can be regarded as offsetting some of the costs of producing the livestock.

Pigs

The pig section can be dealt with similarly to the sheep. One can either calculate the cost of keeping a breeding sow or the cost of producing a baconer or pork pig. If pigs are kept 'on range' so that movable pig pens are used, one must include in the cost the depreciation and repairs on these pens during the year.

Poultry

If poultry, too, are kept in movable arks, the depreciation and repairs to the arks must also be included in their costs. If egg production is the main object of the poultry department all the costs can be regarded as being incurred for egg production in spite of the fact that a certain number of birds may be sold during the year. Thus it is a simple matter to find the cost of production of a dozen eggs. Another useful fact to calculate is the cost of maintaining a laying hen.

General

Some farmers engaged in the production of fat beef do not breed their own animals but purchase stores and fatten them for sale. Likewise some farmers do not keep a breeding herd of pigs nor a breeding flock of sheep. In such cases there may or may not be opening or closing valuations. Where there are valuations one proceeds as already indicated, and where there are no valuations the purchases of stores are merely added to the other costs involved during the year, thus arriving at the total cost of producing so many fat animals.

Reconciliation with the Farm Account Book

With the completion of the accounts for the livestock the work of cost accounting is finished for the year.

Upon reflection it will be clear that the costs allocated to the various fields and classes of livestock should, when added together, equal the total costs or expenses incurred during the year for the farm as a whole, with certain reservations. For instance, the costs of labour on the fields and stock will add up to the total wages bill for the year except that the farmer's own time will not appear there, neither will the value of free cottages and free milk allowed to the workers. This, however, is a simple adjustment and one can easily satisfy oneself that the total labour bill has, in fact, been allocated to the various departments of the farm. Similarly all

other costs should agree in total with those shown in the farm account books. In the case of valuations, adjustments will have to be made where crops or stock remaining on hand are valued on a different basis in the cost accounts compared with that employed in the financial accounts.

If, for example, hay on hand is valued in the financial accounts at market prices, and in the cost accounts at cost of production, then it is extremely unlikely that the two sets of figures will balance, but this does not matter as long as one knows the reason for the difference. The customary valuation of tillages and unexhausted manurial residues often differs considerably from the valuation at cost.

Since too, for the sake of completeness, the sales of the various crops and stock have been included in the cost accounts, these should also be checked with the sales shown in the farm account books.

The final task, although it is, strictly speaking, no part of cost accounting, is to draw up a profit and loss account. The farm accounts will show a profit or loss for the farm as a whole. The various crop and stock cost-accounts will show a profit or loss in all those cases where actual sales have occurred. The sum total of these departmental profits or losses should agree with the total profit or loss after making the reservations referred to above.

This chapter has been written with the object of assisting those farmers who wish to embark upon a simple system of cost accounting. The principles enunciated are those that have been accepted for many years in certain universities and colleges. There are, however, minor differences in method, consequently no attempt has been made to dogmatize, and a farmer can make his own variations in the scheme as he considers necessary.

CHAPTER III

THE AGRICULTURAL ECONOMIST AND THE FARMER

THE first chapter has been concerned with methods of keeping accounts, often known as financial accounts, and the second chapter with the method of extending and analysing these into cost accounts. It has already been shown, and needs no further elaboration, that financial accounts have to be kept for certain statutory purposes, chiefly, of course, for the assessment of Income Tax. The present chapter, however, is a discussion of the purposes to which financial and cost account data can be put for economic purposes. The first point to remember is that agriculture is an industry, an economic organism, and is subject to the influences and forces to which any important industry is subject in an advanced state of civilization. Thus we find that the study of agricultural economics has been developed only in the more advanced countries of the world and is almost unknown in those countries where agriculture is still in a primitive state.

For several centuries farming in this country has been on a commercial basis; the days of subsistence farming were disappearing in the Middle Ages. It would, however, take too long to enter upon the history of the development of agriculture in England. This has already been done in many text-books, and, in fact, the early economic history of this country is in many ways merely the story of the growth and development of English farming. It may be well, however, to remind ourselves that the farm as we know it to-day, that is as a more or less compact area of land, dates in this country only from the fifteenth century. Before then, most of the available farm-land was held directly from the king, chiefly by nobles, who, in return for their large estates, held themselves bound to furnish the king with men and arms in the event of war. This system of land holding is comprised in the term feudal or manorial system. In fact the word 'farm' itself is derived from the alternatives 'feu', 'fee', 'fief', and 'ferm', all of which simply indicate that the early method of holding land was through an obligation on the part of the holder to some other holder higher up in the social scale eventually terminating in the king. These estates were generally called manors, but side by side with these manors were a relatively few areas of land held by still surviving free village communities. In passing it

may be mentioned that this system of holding land was not confined to England but had been in existence for a long period on the Continent. For hundreds, if not thousands, of years subsistence and not commercial farming was the normal system. Trade in agricultural products was unknown except for a minute quantity of spices and indirect produce such as silk. As long as people could feed and indeed clothe themselves, although in a very poor way, they were content. Problems of estate or farm management were naturally ever-present although they did not assume the complexities which are found in modern agriculture. In this sense there were, therefore, certain economic problems to be considered, although probably no one concerned with agriculture realized that he was an economist, and we do not in fact generally use the term 'economics' unless the monetary factor enters largely into our calculations.

There were considerable differences between the size and type of manors in this country in those early days, but for the sake of simplicity it is generally assumed that a typical manor farmed its arable land under the three-field system, allotting scattered strips annually to those villagers who, according to their obligations and social status, were entitled to hold such strips. Under this system crop yields were poor, weeds were rife, and famine was not unknown. No villager could be expected to take much interest in his strips of land, scattered and intermingled with those of his neighbours, when he would in all probability receive completely different strips in the following year. His chief, if not sole, object was to harvest sufficient to feed himself and his family according to the local standard then prevailing.

This deadening of initiative and enterprise was extended to the management of livestock, for although each villager possessed a certain number of cattle, sheep, and pigs, they ran with the others of the village or manor, and disease was very prevalent. Moreover, until the introduction of roots in the eighteenth century, few livestock could be carried through the winter, and it was usual each autumn to slaughter a large proportion of the herds. This depressing and unimaginative, albeit customary, farming routine had lasted for centuries and would have continued for many more centuries but for two major economic factors. The first of these was the Black Death of 1348-9, which was more or less a culmination of a series of such plagues, and by reducing the population by one-half had the effect of emphasizing the importance of the manual workers of those days, or, more correctly, the serfs and villeins.

The second factor was the beginning of that secular development

generally known as the growth of towns, which, taken the world over, has not yet finished. Recourse must be had to history books to tell the full story of this movement and the expansion and intensification of agriculture that was a necessary concomitant of it. All that can be attempted here is a very brief outline of the interaction between agriculture seeking markets for a gradually expanding production, surplus to the subsistence of the growers, and, on the other hand, the gradually expanding demand for food supplies in order to carry larger urban populations to engage in industry, trade, and commerce.

Thus we can say that the beginning of agricultural economics occurred with the dawn of trading between local villages or towns and the surrounding country-side. This trading slowly increased in tempo with the progress of trade and commerce between neighbouring countries, such as between England and Flanders, and later with the growth of international trade between countries farther apart such as England and India, America and Australia.

During the whole period, one which has by no means ended, there were three other developments of the greatest significance. The first was the replacement of a barter economy by a money economy, a term which embraces also the development and growth of banking and foreign exchanges. The second was the growth and improvement of roads, canals, railways, shipping, and other means of transport and communication. And the third was the growth and strengthening of local and central government.

The present pattern of farming in this country is therefore the outcome of innumerable factors, some operating in one direction and some in others. The two great landmarks in this long period of evolution are the two enclosure movements. The first was for the purpose of sheep farming, and took place in the fifteenth and sixteenth centuries, when England greatly expanded its sheep flock in order to supply the Continent with large quantities of raw wool for manufacture into cloth, and concurrently began to develop her own cloth-making industry. The Wool Sack in the House of Lords at the present day is a constant reminder of England's greatness in those early days of international trade.

Lords of the manor saw the possibilities of enlarging their standard of living by converting their lands from the age-long subsistence farming to wool production for export, and by purchasing hitherto unknown products or products of a higher type of manufacture, such as silk and woollen cloths. Town merchants who were actively engaged in this commerce also saw the potentialities in this type of

farming, and bought manorial and other estates from the less enterprising landowners.

In this movement large areas were enclosed from the open fields of the manorial system and converted into sheep ranches in the sole occupation of large landholders. History tells of the widespread suffering caused to the ordinary people in agriculture who were by various means dispossessed of their holdings, and forced to wander through the country-side as half-starved beggars. A perusal of the contemporary Acts of Parliament shows clearly that the authorities were puzzled with the position thus created, and the legislation framed to cope with this large-scale unemployment can only be regarded as severely repressive. The second enclosure movement was the opposite to the first in that, far from depopulating the country-side, it called for more and more workers to plough up the grassland, and greatly extended the area of arable land for the production of wheat and meat for the manufacturing towns then developing rapidly. It is during this second period of enclosures that we find those great pioneers of agricultural science and farm management, who, through their enlightened interest in the application of scientific methods to both crops and livestock, did much to enable farmers to supply the ever increasing demand for food, and at the same time placed English agriculture on a plane higher than ever before.

By this time England had become firmly placed on the road towards an urban, as distinct from a rural, economy. The total population which at the time of the Domesday Survey was a little over 2 millions, and was comprised almost entirely of people either on the land or in small neighbouring towns and villages closely connected with their rural surroundings, had risen to something around 7 millions, but the proportion of rural to urban population had undergone a considerable change and was becoming weighted in favour of the town-dwellers. At the time of the first official population census of 1801 the total population of England and Wales was about 9 millions, of whom $1\frac{3}{4}$ million were engaged in agriculture.

When we look back we find that of these many centuries all except one saw a good deal of protective legislation for industry including agriculture. Possibly to-day a large amount of this would fall under the head of planning. Unrestricted free trade in agricultural products was unknown until the middle of the last century, and ceased again a little over a decade ago. It is not often realized, for instance, that the Corn Laws repealed in 1846 were typical of

the regulations affecting agriculture since the Middle Ages. Indeed, this country encouraged corn-growing to such an extent that it was once known as 'The Granary of Europe'.

From the sixteenth century, industry, commerce, and agriculture entered upon an era of rapid expansion which extended to the beginning of the twentieth century. Owing to the exploitation of the uses of coal and iron, England became more and more an exporting country for manufactured products, both engineering and textile. The foundation of the Bank of England in 1694 led to the growth of a national and, later, an international banking and financial system. The net result was that this country obtained a favourable trade balance which rapidly increased during the nineteenth and early twentieth centuries, and the policy of long-term foreign investment greatly assisted in maintaining this advantage over countries near and far, which, for various political and economic reasons, were unable to keep pace with England.

As far as agriculture itself was concerned it was, until the latter part of the nineteenth century, a sheltered industry, not only because of the production afforded by the Corn Laws, but because the nearby European countries had little or no surplus agricultural produce to send us, and more especially because the transport of such produce from distant countries like America, New Zealand, and Australia was impossible, partly because these countries were themselves only just developing, and partly because the method of transporting agricultural produce over such long distances was unknown. But to-day English agriculture is an unsheltered industry, except for the moderate amount of protection afforded it since the 1930's, when the short period of free trade in food supplies was abandoned, and except for special legislation in war. It will probably never be possible, however, nor desirable, to give English agriculture the protection which it had throughout the centuries, when England was not only able to feed herself but able to export even wheat to other countries. This simply means that if the English farmer continues to produce commodities which can be produced abroad under better natural and climatic conditions, he must be prepared to overcome this natural handicap by a more efficient system of production on his farm. If, on the other hand, he concentrates upon production of commodities of a quickly perishable nature of high quality, and especially those in which he has natural and climatic advantages, he will not then be faced with direct competition from his fellow farmers in other parts of the world, but he will need to have regard to the competition of his fellow farmers

inside his own country. He will also have to become more and more efficient from the very fact that the position of the exporting industries of this country in world markets depends upon the unit cost of production in our factories compared with that obtaining in the factories of other countries. Clearly, our manufacturers will also have to become more and more efficient and make large use of the latest mechanical and scientific equipment.

Wages form an important item of cost in almost all industries, but the level of wages is also affected by the cost of food consumed by the worker. This is especially clear when it is remembered that in many industries to-day wages are calculated in part according to the cost-of-living index, and while it is true that this index is comprised of other items besides that of food, they are all being derived from costs in some other industries, which also indirectly link to the cost of food. It may be argued that the cost of food can and should be kept down, or prevented from rising, by a continuation of subsidies. This is a matter of social and economic policy decided by the Government of the day. These subsidies may be paid either by direct payment to producers, as in the case of acreage payments on potatoes, or by giving the producer a selling price higher than that paid by the final consumer, as in the case of eggs, or by rebates off certain items of cost, as in the case of drainage grants. However they are paid they have to be budgeted for in our taxation system so that their cost is rightly to be regarded as a social cost in the policy of keeping the cost of food to the final consumer at a lower level than would otherwise be the case.¹

At the present day the subsidies on food total something approaching £400 millions per annum, and, on account of their magnitude, they are not likely to become a permanent feature of our national economy. This does not mean that no regard will be had to the problem of what are generally, but somewhat loosely, termed adequate prices for agricultural products. We are now moving rapidly towards the medieval idea of just or fair prices and shall probably no longer tolerate what, for lack of a better term, may be called world chaos in agricultural production and prices. Whether it be called planning or regulation, there will in future be some definite control over marketing and prices. There will, of course, be changes in prices from time to time, but these will be foreseeable for a sufficiently long period ahead so that farmers will be able to modify their cropping accordingly. In February 1944 there was

¹ This argument applies equally to any similar arrangement in non-agricultural goods and services.

held at the Ministry of Agriculture the first of what will probably be a long series of conferences to fix prices of agricultural produce with some regard to cost of production on farms in this country. Prices thus fixed are guaranteed to the farmers for twelve or eighteen months ahead, with the possibility of modification if unavoidable circumstances, such as a general crop failure, or partial failure, should materialize.

Economic progress consists, in essence, of a rise in real wages. That is to say, with a long-period stable monetary unit, cost of living must fall in terms of money. This is brought about by a smaller unit of time and of physical energy which is employed to produce a unit of product. This is the general tendency in all the highly industrialized countries of the world, but it is often hidden, or becomes at least partly obscured, by the fact that the monetary unit is not stable over a long period, at any rate since 1914.

Briefly, however, it means that mankind is constantly striving to lower its real cost of living, that is, in terms of physical labour, and the term 'cost of living' naturally includes not merely the cost of food but the cost of all other goods and services which are regarded as more or less essential to a civilized and comfortable life.

As far as agriculture is concerned, this does not mean that the non-farming community shall be permitted to raise its standard of living at the expense of the agricultural community. For clearly it is possible to do both, that is to say, to reduce steadily the cost of production per unit of agricultural produce and yet at the same time to maintain, or even raise, the income or standard of living of the farmer and the agricultural worker. This is possible, firstly by the continuous application of science to agricultural processes, secondly by the spread of mechanization, and thirdly by the attraction to agriculture, through an enlightened wages policy, of workers who, appreciating their increased social status, will, through the exercise of energy and initiative, and with the aid of power-equipment, produce a greater output per man.

Although one of the most recent and important problems in agriculture concerns the level of wages, it is also one of the oldest. An Act was passed in 1338, in Richard II's reign, which to-day would be called an Essential Work Order. It attempted to prevent agricultural workers from leaving the land, or indeed from seeking employment on a neighbouring farm without a licence. It also attempted to check an inflationary movement in wages by laying down for the first time in our history the maximum rates of wages

payable to various classes of workers. Possibly it will not be irrelevant to quote this Act at some length.

‘. . . that no servant or labourer, be it man or woman, depart at the end of his term out of the hundred, rape or wapentake where he is dwelling, to serve or dwell elsewhere . . . unless he carry a letter patent . . . under the King’s seal.

‘And furthermore, because servants and labourers will not and for a long time have not been willing to serve and labour without outrageous and excessive hire and much greater than has been given to such servants and labourers in any time past, so that for dearth of the said labourers and servants, husbandmen and tenants of land cannot pay their rents or hardly live on their lands to the exceeding great damage and loss as well of the lords as of the whole commons; and also because the wages of the said labourers and servants have not been put in certainty before these times; it is agreed and assented that the bailiff for husbandry take $13/4$ a year and his clothing and once a year at most; the master hind 10/-; the carter 10/-; the oxherd $6/8d$; the swineherd 6/-; the woman labourer 6/-; the dairymaid 6/-; the ploughman 7/- at most, and every other labourer and servant according to his degree, and less in the country where less is wont to be given. . . .

‘Further it is ordained and assented that he or she who is employed in labouring at the plough and cart or other service of husbandry until they be of the age of 12 years shall remain thenceforward at that labour without being put to a mystery or craft; and if any covenant or bond of apprentice be made henceforth to that contrary it shall be holden for nought.’

It is interesting to note that sixty years later a further Act was passed raising these rates by approximately 100 per cent. This increase was not due to the shortage of labour nor to the demand for agricultural produce, but chiefly because trade had so expanded, and with it the greater use of money, that the general level of prices and wages was rising all round. It is, of course, very necessary to bear in mind the periodic changes in the value of money that have occurred throughout history, and in quite recent times, as, for example, during the first and second world wars. Some of these changes have been due to expansion in trade and industry, others to discoveries of new supplies of gold and silver, and in recent years to the change from a metallic to a paper currency, and especially to the need for financing wars on an international scale. Even a comparison of agricultural wages in 1914 with present-day wages is difficult because of this monetary factor. In 1914 the weekly wage for an agricultural worker, including the value of payments in kind, was not more than 18s. per week and the hours were often as many as 70. To-day the wage rate is 90s. and the hours 48 per week. The effect of changes in price levels, due mainly or solely to the changes in the value of money, upon all agricultural economic problems,

including wages, is important and disturbing, but the subject is so vast and complex that there is no space to discuss it here. Monetary influences are of much greater importance in the long run than in a short period, but they must always be borne in mind, otherwise it is possible to draw erroneous conclusions.

With this proviso we can now turn to a consideration, although extremely brief, of the present-day work in agricultural economics. In the first place it should be remembered that this work is becoming of increasing importance in all the major countries of the world. There are many aspects, the chief of which are the study of markets and marketing processes, including methods of agricultural co-operation. Problems in land economics and utilization, and of taxation, form other aspects. In addition there is the growing social and economic problem associated with agricultural labour and wages. Above all, there is the general study of prices and price variations.

Running through the whole is the question known as farm management, for clearly the production of agricultural commodities necessarily affects and is affected by the above problems.

It is with this aspect that the present book is chiefly concerned; the others, as will be readily appreciated, cover such wide and varied fields of investigation and research that no more can be usefully said here. Even the many problems arising from the study of farm management cannot be adequately dealt with, but the basis of this side of agricultural economics is concerned with data ascertainable from farm accounts. The collection, tabulation, and interpretation of such data enable the economist to advise farmers both individually and in the mass upon farm management problems, and also enable him to construct series of economic and financial statistics of value to the government when questions of national policy are under consideration. Individual farmers are assisted in the appraising and solving of their problems directly by the economist visiting their farms and discussing and analysing the particular problem with them, and indirectly by means of published reports and bulletins, by lectures to local groups of farmers, and by talks and discussions through the medium of the radio.

Finally, farmers-to-be who are attending universities, agricultural colleges, and farm institutes are given courses of lectures, not merely in farm management, but in the wider aspects of agricultural economics.

However, to revert to the uses of farm accounts. It is true to say that, under the guidance of the economist, more and more

farmers, from the smallest to the largest, are appreciating the value of their accounts in their day-to-day problems of farm management. For instance, the financial account, as compiled for tax purposes, will, without further analysis, show many points of interest, such as the total monetary output per acre, the wage bill per acre, the feeding-stuffs bill in relation to the output of livestock and milk, and the rate of turnover on the farm capital invested. In isolation such figures possibly mean little to the individual farmer concerned, but if he compares his figures with those of a group of farms, for preference in his own area, he will quickly be in a position to judge whether or not his standard of management is satisfactory.

If the farmer is sufficiently interested to embark upon a system of cost accounting so that he knows the unit cost of production of each one of his different crops and of each class of livestock, he will similarly be able to compare his unit costs with those of other farmers who are also keeping cost accounts. It is true that many things affect the final unit cost. The cost of producing a gallon of milk, for example, depends firstly upon the managerial ability of the farmer, then on the quality of his cows, which in turn affects the yield of milk per cow. Finally, the incidence of disease or weather conditions will also affect the cost per gallon. The cost of a unit of crop output depends upon similar factors.

Natural factors such as climatic conditions, soil fertility, topography, and the absence or prevalence of pests and diseases, have much greater influence in farm accounting than in industrial accounting. For this reason comparison and interpretation of farm data require great care. At first sight it would seem that, because of the influence of these natural factors, any scheme of detailed economic inquiry in agriculture is doomed to failure at the outset. These difficulties, however, exist to be overcome, and it is known from experience that it is possible to calculate and set up standards of economic efficiency in farming which are accurate within fairly narrow limits. The economist is being, and has been helped indirectly over a long period of years by the work of agricultural scientists, in the sense that some at least of the natural influences are now under control. While the scientists cannot control the weather, nor indeed soil fertility, they can and do advise the farmer on the best varieties of seed to use in given climatic conditions, and the best way, by correct manuring and cultivation, to raise the fertility of large areas of land. The economist often knows more of the latest developments of this scientific work than the individual farmer because he is in closer contact with them. If, therefore,

when analysing the economic problems of a farm he finds a factor which is inefficient, it is then often possible to improve this factor by calling the particular farmer's attention to the latest scientific work relating to his area. This connexion between science and economics in farming has been strengthened by the recent establishment of the National Agricultural Advisory Service by the Ministry of Agriculture and by the proposals of the Loveday Committee on Higher Agricultural Education.

It may be interesting to follow through the work of an agricultural economist in connexion with a particular farm, bearing in mind that the economist is trying to do two things: firstly, to help and advise the farmer to obtain the maximum production from his farm with a minimum of cost, and, secondly, to obtain from this and other farms, economic data which, combined with similar data obtained by other agricultural economists, may enable a true picture to be drawn of the economic position of agriculture in the country as a whole. The economist and the farmer may contact each other either by the farmer wishing to ascertain whether any improvement can be made upon his farm or because the farmer is interested in general inquiries. In any case, however, the first thing required is the production of the farm accounts and, on the basis of the figures there shown, the necessary deductions can be made. Generally the analysis proceeds along the lines of comparing the individual farm figures with those of a local group of more or less similar farms. In all this analysis and discussion between the farmer and the economist there must, of necessity, be a good deal of give and take, for there are so many influences to be reckoned with that too close an analysis, or too precise a remedy, cannot often be made. The purpose of the group figures is to provide a series of standards with which the data from a particular farm may be compared. These groups can also be compared with each other, so that, commencing with a number of individual farms, it is possible to build up a fairly reliable picture of farming conditions over large areas. Just as it can be shown how one farm rises above or falls below the average of its own group in certain factors, so it can be shown that a group of farms drawn from a particular farming-type area rises or falls in these factors above or below the average of all groups. If we know, for instance, that a farm in south Somerset had a production in 1947 of £16 per acre whereas the average for the south Somerset group is £24, then there is obviously something wrong on the farm in question. Even though a farm had a production of more than £24 per acre, such a farm may fall below the average in a certain factor,

and by paying attention to this factor it may be possible to raise the production still more.

It should perhaps be pointed out that the comparison of outputs and inputs per acre of land is only one of the methods of analysing a farm management problem. There is, to take another instance, the test of return on capital, and this may be either an increasing or a diminishing return, since capital itself is only one of the prime factors in production. There are wide ranges of productivity between farms even of a similar type and size, and there is nearly always scope for improvement. To-day, with the increase in the rates of agricultural wages, more and more attention has to be paid to the cost of labour in relation to output. In industrial parlance one speaks of output per man-hour, but in farming it is usual to speak of production per £100 of wages which, of course, amounts to the same thing. Thus once again, if it is given that, for a group of farms in south Somerset, the average production for every £100 of wages amounted to £330 in 1947 and this proportion is not attained on a particular farm, then three things are possible: either the production must be raised for the same expenditure on labour, or the latter must be reduced for the same production, or, of course, there may be the combination of both. On a group of large downland farms in Wiltshire one knows at once from the general type of farming that the average production per acre on a group of these farms will not be as high as on a group of smaller and more intensively worked farms in south Somerset. The figure, for example, is only £275 of output for every £100 spent in wages, and a Wiltshire farm would, of course, be compared with its group and not with the south Somerset group. But even without investigating the question of labour it is possible, merely by knowing the profit per acre on a particular farm, to say whether or not the farm is at least up to average. In the south Somerset group, for instance, the average profit was £5 per acre; on the large Wiltshire Down farms it averaged 30s. per acre in 1947, but the relationship between total expenditure and total income is approximately the same, the latter representing roughly $1\frac{1}{4}$ times the former.

The farmer's total profit may be regarded as synonymous with his net farm income, and to that extent represents his standard of living. This profit or income may be calculated as a margin between money costs and money output per unit of physical produce, multiplied by the total number of units so produced. But the output of nearly all farms consists of a combination or a mixture of physical units, such as, hundredweights of grain, gallons of milk, dozens of

eggs. Moreover, except on those extremely few farms where the monetary cost of production is known separately for each of these classes of products, so that the difference between unit cost and unit output is known more or less accurately, it is impossible to compare farms on the basis of unit sale price minus unit cost price, multiplied by the total number of units produced.

Even the capitalization of a farm may be at fault. In the depression years especially, it was known that a large number of farms were so much under-capitalized that they could not possibly be worked at full efficiency. Again, the capitalization per acre varies according to the size and type of farm, but if we see from the farm accounts for any particular farm that the amount of invested capital is less than its appropriate group average, we can say almost at once that it is not likely to show a satisfactory position. On the other hand, of course, it is sometimes possible to find a farm which is highly capitalized and at first sight it may seem that such a farm is handicapped on this account. Usually, however, a farm which is over-capitalized in relation to its group average is found to be, upon further analysis, one which is being managed by a very enterprising farmer, who is producing crops, livestock, and livestock products in a combination and with a greater intensity than is found on other farms in the neighbourhood. In such cases it is sometimes possible to show other farmers what might be done under similar circumstances. Thus, generally speaking, although the economist firstly tries to raise the under-average farm to the level of the average, he is constantly endeavouring to show farmers how it may be possible to raise the average by copying, to some extent, these pioneering and possibly unorthodox farmers.

It should perhaps be made clear that although, in the foregoing discussion, the term 'financial accounts' has been used, the economist attaches almost as much importance to the physical as to the purely financial data, for clearly any proposals for improving the management of a farm must be considered largely in the light of such physical data. It may be of no use, for instance, to recommend a curtailment of the bill paid for feeding-stuffs if one finds that the consequent greater dependence of the dairy herd upon farm-produced feeding-stuffs is not practicable, on account of the relative shortage of crop acreages devoted to such purpose. Similarly it may also be of no use recommending a greater output of sale crops, such as wheat, sugar-beet, and potatoes, if all the suitable land for these crops is already utilized for milk production. It is true that some adjustment, great or small, may be possible between

milk and sale crops. Indeed it has occurred to a considerable extent during recent years, but clearly such recommendations cannot be made on the basis of finance only and to the exclusion of physical requirements.¹

So far we have only been examining data which are obtainable from the ordinary farm accounts more or less as submitted for income-tax purposes, and have not required the farmer to furnish any additional information. These financial accounts can, with the aid of further records, be expanded into a complete system of cost accounts, the general principles of which were shown in Chapter II.

There is no need to repeat any portion of that chapter, but since we have been discussing the value of farm accounts in connexion with problems of farm management and the wider aspects of agricultural economics generally, it will perhaps not be amiss to consider the uses of cost-account data for such purposes.

The first point to bear in mind is that cost accounting in agriculture, unlike in other industries, has to deal with living factors, namely, crops and livestock. The calculations are also subject considerably to the influences of natural conditions. Whereas, for example, it is possible in the factory to say that, within fine limits, the cost of production of an article in one year will be practically identical with the cost in the following year, or will follow a definite trend, this cannot be said of any agricultural product for the reasons just given. That is to say, if a farmer calculates the cost of production of milk this year he will not be very surprised if his cost next year is widely different, due to a variety of causes, some only temporary. Thus farmers embarking upon a system of costing must, if they wish to obtain reliable data, be prepared to continue doing so for a long period of years, the shortest of which would be one which covers the complete rotational cycle of the farm in question. It must not be supposed, however, that on account of these difficulties and reservations cost accounting in agriculture must be abandoned—far from it. The first point is that the mere fact of keeping cost accounts makes the farmer tighten up his management and consider more carefully his problems of cost, not merely for the farm as a whole but for each crop or class of livestock. In fact, in the case of crops it causes him to investigate the possible cost involved in growing, say, wheat on one field compared with wheat on another field. Even if a farmer is growing

¹ The form in Appendix II entitled 'Farm Management Primary Return' shows that in nearly every item the physical as well as the monetary data are required. This form is in use by the agricultural economists of England and Wales.

the same crop on three different fields, he will almost certainly find that the cost per unit varies considerably from field to field. Some cases are known where farmers having two herds of cows are interested to find to what extent the cost of production of a gallon of milk varies between the two herds.

There is, again, as in financial accounts, the comparative aspect. For instance, if we know the cost of producing a ton of mangolds, or even the cost of running the tractor on one farm, we can compare these costs with those on other farms and can proceed to show where an individual farmer's costs are above or below the average. On the basis of these findings, a farmer can make whatever modifications in his management he considers necessary. This method of comparison with a group of farms in the same locality, and at the same time, cancels out, to a large extent, the factor of weather conditions. In making such comparisons one is not perturbed if the differences in unit costs are relatively small, since these are generally attributable to the fact that close accuracy is not possible, but it is a matter of concern if the difference between a particular farm cost and the average is large, since it is clear that such a difference is the result, not of natural conditions, but of some real fact which is within the farmer's control and which consequently can be rectified in future, or at least modified. The agricultural economist not merely attempts to assist an individual farmer to reduce his cost per unit of any product to the average of its group, but is constantly trying to improve the average and to show how certain of the best farmers are producing a commodity at a very much lower cost than himself. Thus, for example, the cost of production of milk per gallon can vary from 1s. 6d. per gallon on one farm to 2s. 6d. on another. For many reasons, too numerous to mention here, it may not be possible for the high-cost producer to reduce his costs to those of the low-cost producer, but certain steps can be taken to modify the high costs, by, for example, improving methods of feeding and general management.

It will, of course, be understood that when speaking of 'high' or 'low' costs one is making comparisons on a similar basis. Thus 'high' or 'low' cost of milk production must not only be related to the unit product, namely, a gallon of milk, but the milk must be of the same grade or quality. Clearly it may be more profitable for a farmer to incur higher costs of production, indeed he may be forced to incur higher costs, if he decides to produce tuberculin tested milk instead of ordinary ungraded milk. This does not necessarily hold good over a long period, for a particular farmer may so

improve his management and general standards of working that he may sooner or later be able to produce the highest quality milk at no greater cost than ungraded milk. Similarly, one farmer may have higher costs per acre for a given crop than another, but these higher costs may be more than justified if the crop yield is so much greater so that the unit, namely, the hundredweight or ton of crop is produced at a low cost.

The same kind of reasoning may be applied to almost any specific product or to the farm output as a whole. On the basis of previously ascertained costs it is often possible for a farmer to estimate that by increasing his aggregate costs his unit cost will be lowered because he also estimates that his total number of units of production may be increased. Even though the difference between selling and cost price per unit becomes smaller, his total monetary receipts may become greater.

Finally, cost-account data collected on a fairly uniform basis from several hundred farms up and down the country, and for many farm products, enable those responsible for national and agricultural policy to envisage what effect a particular kind of policy will have, not merely upon agriculture as a whole, but upon the balance between the various crops and classes of livestock in different parts of the country. This question of balance cannot be discussed here on account of its complexity, but if agriculture is to maximize its output, not merely for one year but over a long period of years, this question of proper balance is of paramount importance.

CHAPTER IV

THE PROFESSIONAL ACCOUNTANT AND THE FARMER

THE professional accountant may be brought into relationship with the farmer in a number of different ways. He may be asked to institute the accounting system, to superintend the book-keeping and prepare the annual accounts, or he may be asked to audit the accounts so as to confirm that they do portray a reliable view of the results of the year's working, that they correctly state the farm assets within the limits of accounting conventions, and the proprietorship proportion of those assets, that they properly disclose the nature of the farm liabilities, and so on. If the farming venture is carried on within the framework of a limited company, then the annual accounts *must* comply with both the accounting and auditing provisions of the Companies Act. That is to say, there are directions concerning the statement of accounts presented to shareholders, the audit of those accounts is compulsory, and the auditor is required to report to the members of the company in the terms laid down by the Statute.

More commonly, perhaps, the farmer will consult a professional accountant on the subject of his taxation liabilities, for, as we have noted elsewhere, he will be assessed to income tax on the basis of his profits, a situation which requires the production of accounts. Moreover, a farmer who is making substantial profits may find himself liable to pay profits tax. The calculation of this liability is not necessarily an easy matter and ordinarily the farmer would require the assistance of a professional accountant. In fact both forms of taxation are beset by a number of rules and formalities with which it is the business of the accountant to be familiar. And again it has to be remembered that changes are always going on within the structure of the taxation system as each year sees the appearance of a new Finance Act. It is the duty of the professional accountant to keep abreast with these changes and to advise the farmer of the implications which concern his own farming profits.

It cannot be doubted that taxation has been a major influence to prompt the farmer to confer with his accountant, but this is not necessarily the only end of that relationship. The professional accountant can advise the farmer in more ways than one on the

general financial stability of the farming unit, and this advice need not be limited to the implications arising from the portrayal of total annual profits or losses and the statement of net assets, important though these are. Thus he may be called upon to institute a costing system much on the lines we have recommended in Chapter II, and to watch the results while the system is being kept up. The intention is to keep a close eye on the efficiency—as expressed in money terms—of primary farming operations, and to ensure, so far as the accountant reasonably can, that those expenses which do not vary with changes in output—commonly called overhead standing charges—are at least covered by the profit margins realized on sales. If such estimates of operational efficiencies are to be in any way reliable, and clearly they are of little consequence otherwise, then it is essential to turn to the accounting technique which reconciles the farm costs with the annual financial accounts. In the last resort it is the accounting mind which will take care to see that *all* expenditure is taken into the farm costings somewhere, and that inaccurate assessments of operational efficiencies through a failure to cover *all* attachable expenses are avoided.

In case there are some of our readers who would think that we seek to overemphasize an accounting insistence on money costs, we take the liberty of quoting some recent observations of an acknowledged authority on agricultural economics. 'Efficiency, whether of motor-cars, of cows, or of crop-acres, is always measured by the ratio output to inputs.' And again:

'As in the case of Outputs, there is no common measure of the value of inputs except their money costs. Prices of different requirements change from time to time, and changes in relative values and costs influence the quantities used. Outputs are the results of inputs with some factors such as weather which may be beyond the producer's control or even influence. Inputs are determined by the technical knowledge and the capital resources of the farmer, and according to his judgement of the money costs and the money values of the expected result in outputs. Every single input may be applied with different degrees of economy and efficiency.'¹

Perhaps we may add the remark that the highly personal relationship which can exist between the farmer and the professional accountant should assist the individual farming unit to achieve those standards of economy, efficiency, and output which may be regarded as both normal and reasonable. This brings us to the

¹ *Agriculture: Today and Tomorrow*, edited by Sir E. John Russell, chapter 5, 'Efficiency and Output in Agricultural Systems', by Professor A. W. Ashby (Michael Joseph, 1945), pp. 83-4.

professional accounting province of financial advice, which if the farming enterprise is conducted within the form of a limited liability company is commonly evidenced by the inclusion of an accountant on the directorate, though this requires, as a matter of principle, the independent audit of the annual financial accounts.

Economists are accustomed to distinguishing four factors of production, designated by the terms 'land', 'labour', 'capital', and 'organization', though nowadays there is a tendency to bring organizing or managerial ability under the labour classification. We have already noted the importance to be attached to an adequate arrangement or balance of costs—equilibrium is the technical term—to secure the most economic outputs, and economic accounting seeks to apply its tests of efficiency in terms of output per unit of land, per unit of labour, and per unit of capital. Ashby has also been careful to point out that 'we must also test by the best combination of measures of these inputs that we can find',¹ that is to say we must find so far as is reasonably possible the equilibrium position for inputs. 'For this purpose each has to be valued and measured in money.'¹ It is therefore not difficult to see the influence which accounting technique can have on farm management. In the past agricultural economists have tended to lay the emphasis on output per unit of land while accountants have looked at results in terms of units of capital. Now both are seriously regarding results in terms of units of labour and the equilibrium of all three factors of production.

The calculation of actual outputs in terms of units of factors of production is not necessarily such a difficult matter. What is difficult is the setting up of standard outputs for comparison with actual outputs as tests of efficiency. This is no light task since it will take much research to build up reliable standards for classified farm groupings. Standard costs, so familiar to accountants in their application to industries other than farming, are not so easily built up, particularly in the case of small farms. The better course seems to be that which places reliance upon the statistical averages and arrays published by central organizations, such as the agricultural economics departments of the universities and the National Farmers' Union, from figures gathered together from the largest possible number of farmers. It is the professional accountant who, with the assent of the farmer, can supply reliable figures to such central organizations. We might add the comment that it is in farming that economic accounting concepts show up the most clearly. Thus the farmer must keep his land in good heart by restoring the

¹ *Op. cit.*, p. 84.

fertility which he takes out in production, he should keep his output in terms of labour at an efficient level, and he should keep up his fixed capital assets, but of this, more later on.

To return to matters of accounting technique, the first duty of the accountant is to set the farm accounts to the farming year. The intention is to select that year and date which will make for greater accuracy in the statement of profit. The straightforward principle which the accountant is tempted to apply is that which determines the farm accounting year in relation to the date on which the business was started. Nevertheless, there is much more to be said for taking the close of a farming year at the point when physical assets are at their lowest, for then there are fewer uncertainties to be taken account of in profit measurement. At this point 'maximum sales and cash realizations have passed and the risks of valuation¹ are at their lowest'.

It is common for accountants to distinguish in a general kind of way three constitutional forms which depend upon the principle of ownership for their classification. These forms are usually classified as—sole traders, partnerships, and limited liability companies. The expression 'sole trader' merely implies that there is one owner, a situation tacitly assumed in the annual financial accounting statements portrayed in Chapter I. We should add that there is nothing so very different about the statement of annual accounts in the case of partnerships, except to observe that each partner's share of proprietorship capital and of retained funds is separately identified.² In both forms accounting technique regards liability for income tax as the personal responsibility of the owner and includes it with the amounts withdrawn from profits, before arriving at the retainable surplus.

As we might expect, the statement of the financial accounts of limited liability companies does present one or two differing features. We have already observed that it necessitates compliance with the statutory accounting requirements of the Companies Act, although

¹ As a mere matter of valuation it is easier to deal with a harvested crop than with a standing crop. In the case of a continuing business the value of *cultivations* is always an *internal* affair. So, too, are the values of *consumption* and *intermediate* products, but the value of sale crops is external.

² If the accountant is to deal properly with the accounts of a sole trader, the principles which relate to strict accounting for receipts and payments, enunciated in Chapter I, are absolutely necessary. In the case of other constitutional forms the personal and unrecorded handling of receipts and payments of money is excluded to avoid suspicion between the parties concerned. The same principles must be applied to the accounts of sole traders for the same reason, if such accounts are to be validly used for the general purposes of the farming industry.

this would hardly seem the place in which to dwell on these matters in any great detail. Nevertheless we should observe that the balance-sheet of a farming company must contain a summary of the authorized share capital as well as a summary of the issued capital. Where any liability of the company is secured on any of the farm assets, the balance-sheet must include a statement that that liability is so secured. Besides a statement of the basis of valuation of so-called fixed assets, that is assets which are only used up productively over a relatively long period, it is necessary to show separately any loans made to directors or officers of the company—ordinarily the people responsible for its management—with a statement of the movements in those loans (that is either advances or repayments) which have taken place during the financial year. Any expenses incurred in forming the company must also be stated separately on the balance-sheet in so far as they have not been written off as a charge in the profit and loss account. The balance-sheet must be signed by two directors, and the auditor's report to the members of the company must be attached to the balance-sheet and read before the company in general meeting. There are other matters, but this should suffice for the more usual form of company farm balance-sheet.¹

¹ This paragraph was written in terms of the Companies Act, 1929. The Companies Act of 1948 has considerably extended the accounting provisions of the 1929 Act. Thus the aggregated amounts respectively of capital reserves, revenue reserves, and provisions (other than provisions for depreciation, renewals, or diminution in value of assets) are required to be stated under separate headings. The aggregate amount of bank loans and overdrafts must also be shown separately, together with the net aggregate amount which is recommended for distribution by way of dividend. It is required that fixed assets should be distinguished from current assets and that the method or methods used to arrive at the amount of the fixed assets under each heading shall be stated. In general terms the method of arriving at the amount of any fixed asset shall be to take the difference between its cost and the aggregate amount provided or written off since the date of acquisition for depreciation and both constituents shall be shown as aggregates in respect of the assets under each heading. Assets in security investments are to be classified in terms of subsidiary companies; the aggregate amount of the company's trade investments; the aggregate amount of the company's quoted investments other than trade investments; the aggregate amount of the company's unquoted investments other than trade investments. In the 1947 Act it is not lawful for a company to make a loan to any person who is a director, but there are certain exceptions to this. There are a number of essential notes required to be stated on the balance-sheet and the auditors' report has been extended. It is required that every profit and loss account of a company shall give a true and fair view of the profit or loss of the company for the financial year; in such a profit and loss account the amount charged to revenue by way of provision for depreciation must be stated separately, as must also the following items:

Interest on debentures and other fixed loans.

The charge for United Kingdom income tax and other United Kingdom taxation on profits, together with a note of the basis on which the charge for income tax is computed.

We come to the question of farm profits retained within a company formation. In this case the profit and loss statement is treated as a continuing account, the balance on which is not merged in with the issued proprietorship capital, but is shown separately as one of the items making up the shareholder's equity in the general fund of farm assets. This is a principle which might well be followed in the case of a 'sole trader' farmer, since it does keep ever before him the amount of his profits not withdrawn, but put back into his farming venture. In the more technical language of accountants it reveals a surplus account carried along as a separate matter from the proprietorship capital *introduced* to run the farming enterprise.

It is becoming customary for limited companies to draw their profit and loss accounts in three sections, and there are many points about this method which all farmers would do well to consider for reasons which will become apparent when we come to deal with the question of institutional savings as related to individual farms. The first section of the profit and loss account is so drafted as to show the amount of *operational* profit, that is the amount earned from the productive working of the farm. The second section shows the manner in which this profit is added to or reduced by such items as non-operational incomes, extraneous or exceptional credits, and incomes of a non-current nature, the charge for taxation on operational profits, reserves (that is earmarked savings) created as a matter of economic policy, together with expenditure of a non-operational, extraneous, exceptional, or non-current nature. The balance of this section marks the point of retainable surplus to be carried to a third section which portrays the proportion of that surplus which is distributed to shareholders, and the proportion which is finally saved by investment back into the farming venture.

There are one or two considerations which concern the charge for taxation on operational profits which we think it well to mention. The assessment of liability to profits tax is based on the profits of

Amounts provided for redemption of share capital and loans.

Amount set aside or proposed to be set aside to reserves.

Amount set aside to provisions, other than provisions for depreciation, renewals, or diminution in value of assets.

The aggregate amount of dividends paid and proposed.

The aggregate amount of directors' emoluments and pensions or any compensation in respect of loss of office.

The auditors' remuneration where this is not fixed by the company in general meeting.

The amount of income from trade investments.

The amount of income from other investments.

The amount withdrawn from reserves and the amount withdrawn from provisions.

the current accounting period which is coincident with the financial and farming year, while the assessment of liability to income tax is related to the fiscal or taxation year ending on the 5th April and is normally based on the profits of the preceding accounting period. It is clear that this raises questions concerning the amount to be provided for income tax on profits in the accounts of farming companies. The minimum or legal amount of income tax to be so provided is not only based on the results of a preceding financial year, but is subject to arithmetical apportionment where the fiscal year ending on the 5th April does not coincide with the farming financial year. It is not difficult to see that income tax so apportioned does not take account of the balance of the liability assessable for the current taxation year. Moreover, it takes no account of the liability which ordinarily will arise on the profits included in the accounts of the farming year, but which is not assessable until the following taxation year. If income tax is not provided on the basis of each year's results it has the effect of distorting the trend of net available profits. It is for reasons such as these that the Council of the Institute of Chartered Accountants has recommended to its members that so far as concerns the accounts of companies 'the charge for income tax should be based on the profits earned during the period covered by the accounts', and that 'where it has been the practice to charge only the minimum or legal liability, then, until full provision has been made for income tax on all profits up to the date of the balance-sheet, it is desirable where possible to make provision, in addition, for (or towards the balance of) the liability for the current and following fiscal years', a provision which should be shown separately in the profit and loss account. It may be of interest to add that this recommendation goes on to say that 'any provision for (or in excess of) the estimated future liability to income tax in respect of the fiscal year commencing after the date of the balance-sheet should not be included with current liabilities but should be grouped with reserves or separately stated as a deferred liability, and suitably described'.¹ We can see from these recommendations that there is merit in providing for income tax on farming profits as they are earned, despite the fact that the payment of the tax is deferred to a

¹ *Recommendations on Accounting Principles*, The Institute of Chartered Accountants in England & Wales, p. 10 (Gee & Co. (Publishers) Ltd. 1944-5). For reasons which concern the technical implications of the Companies Act 1948, the Council of the Institute of Chartered Accountants has now modified its recommendation in regard to amounts set aside to meet future income tax. Thus, 'such amounts should in all cases be grouped with reserves; the alternative of starting them separately as deferred liabilities ceases to be available.

date well beyond that at which the farm balance-sheet is drawn, and we suggest this as a desirable course whatever constitutional form the farm proprietorship may take.¹

While we are on these questions which concern the statement of profit we should like to bring attention to the particular case of the owner-occupier. Ordinarily the farmer who owns his farm does not show a charge in the operational section of his profit and loss account for rent, although when his accountant comes to settle the amount of his farm profits assessable to income tax he will make an adjusting deduction equivalent to the *net annual value*.² We therefore suggest that in order to bring the profit statement of the farmer who owns his farm into line with that of the tenant farmer, a charge should be made for rent equivalent to the net annual value in the first or operational section, with a corresponding credit for property-ownership income in the second or non-operational section of the profit and loss account. This will enable the owner farmer to better judge his *operational* results in relation to the tenant farmer.

Earlier in this chapter we just noticed a recommended third section to the profit statement, the intention of which was to show the disposition of withdrawable profits. We ask the reader to note the use of the word 'withdrawable'. If we think about farming as an industry we cannot fail to be struck by the wide range in the size of individual ventures, and in their methods of organization, a situation which does not make for ease in putting forward general economic policies. Thus it is very largely the individual farmer who has to learn to stand on his own feet so far as economic considerations are concerned, and it is here that the professional accountant can most help him. There is another important consideration which will influence the subject of institutional saving which we are about to discuss. As most farmers will have been sharply reminded there is such a happening as a change in price levels, a happening which has material consequences on the statement of accounts. We think it will be apparent that every farmer needs to consider some form of saving when he comes to look at

¹ We should mention that so far as income tax is concerned the individual farmer is in a somewhat different position from that of a company inasmuch as his liability is affected by various personal considerations. For this reason it is common for accountants, as we have mentioned, to treat the charge in respect of a farmer's income tax liability as part of his drawings. If a farmer's accounts are to be used for the general purposes of the farming industry, there must be a clear indication of the operational profit before taxation, and of the withdrawable income after charging taxation.

² Net annual value as assessed to income tax under Schedule 'A', commonly called 'property tax' in everyday parlance.

the more arithmetical profits disclosed by his accounts. We suggest that saving should not be made a matter of the private habit of a farmer, but should be regarded as a farm necessity for the reasons which we are now going to advance. It is a process which involves the retention in the farm of otherwise withdrawable funds. In the past many farmers have found it difficult to repair their buildings and maintain their implements; nevertheless each year should have carried a charge for work of this nature which should have been done; if it has not been done, then the proper course is for the farmer to make an estimate of the cost of this work and to raise a reserve in his accounts for deferred repairs.¹ He will do this by charging his estimate for deferred repairs in the second section of his profit statement and raising a reserve account among the liabilities on his balance-sheet under the classification for liabilities deferred. In this classification, as we have seen, he will also show the amount of his income-tax liability based on the profits of the farming year which is under his consideration.²

We have already touched upon the difficulties which arise by reason of changing price-levels. It is clear that if the economic structure of society was not beset by the 'devil' of price change, then there would not be much need to quibble with accounting statements. Only quite recently it has been said, somewhat graphically perhaps, 'that an unstable unit of money plagues the accountant with a confusion of tongues. This year's statement is written in a tongue different from last year's and even perhaps last month's.'³ The reader will have noticed from the discussions in Chapter I that accountants tend to write off fixed assets, for example, implements, on the basis of a *pro rata* allocation year by year of original cost. This would be all very well if the replacement cost of the asset remained steady, but in a period of rising prices such as we have latterly experienced it becomes necessary to make sure that sufficient funds are retained in a particular enterprise to enable it to replace its assets when necessary. It is very probable that many farmers will find that their replacement costs may be wellnigh up to double what they were in 1938. The amount, therefore, provided for depreciation in their accounts is not sufficient to cover replacement,

¹ In the case of farmers it is probably desirable that such reserves should be separately invested in some relatively stable forms of investment (e.g. a bank deposit) outside the business in order that they are not confused with additions to current capital in use. The detailed accounts for such reserve funds will be maintained in the Private Ledger.

² See footnote 1, p. 96, for the special treatment to be followed in the case of companies.

³ 'Money is the language of accountancy', E. C. Reigal, *The Journal of Accountancy*, November 1945, p. 358.

and it is suggested that this deficiency should be covered by retaining in the farm sufficient withdrawable profits. Such a reserve in the nature of things can only be estimated; nevertheless, such an estimate should be taken into the second section of the profit and loss account and treated as a replacement reserve fund in the balance-sheet statement. In this way the farmer will not take out of his farm profit funds which later on he will require to enable him to keep up his real capital structure. This may apply to some of the items in his valuations, and at the end of each year he should always consider whether or not he should provide further amounts for replacement policy reserves and so allow for these reserves in the second section of his accounting statement of profit. Moreover, the farmer may wish to expand, and even if he does not wish to expand there is ordinarily the fundamental necessity to retain profits sufficient to carry him over at least a four-yearly cycle, since both weather conditions and disease can impose inevitable impediments to his profit-earning capacity. He should, therefore, take care to retain in his farm sufficient funds to see him over at least this distance of time.¹ These are all matters in regard to which his professional accountant can materially assist him, and we will close this discussion with a quoted comment from the Cambridge Report issued in April 1945: 'It must be remembered, however, that as a result of the war farmers' costs are rising rapidly, and that unless they are allowed to make fairly substantial profits they will be unable to *finance* the additional burdens in regard to food production which have been forced upon them by the war.'² Although the direct impetus is here ascribed to war, it is not difficult to see an equal relevance in times of peace.

The professional accountant, as we have seen, is intimately associated with the farmer in the settlement of his liability to income tax, and although this is largely a technical matter we feel that we should draw attention to the rather special treatment in regard to dairy herds, ewe flocks, and such like items which the Inland Revenue is prepared to concede. Thus although the Finance Act, 1947, provides that as from the beginning of the income-tax year 1947-8 livestock kept by farmers will ordinarily fall to be dealt with in the category of trading stock, this rule will not apply to production herds if the farmer elects *once and for all* that his herds or flocks shall be treated as capital assets. This elec-

¹ It should be clearly understood that these are largely questions of *ability to finance* out of retained resources to meet the necessities imposed by changing circumstances.

² Cambridge Report No. 29, issued April 1945, pp. 14-15.

tion will apply to all production herds of the same class kept by the farmer; separate elections must be made for herds of different classes. A farmer who is assessable to income tax under Schedule D for the year 1947-8 and who maintained a herd at any time during the year ended the 5th April 1947 must choose whether or not to adopt the 'herd basis' before the 6th April 1948. If he does not state in writing on or before the 6th April 1948 that he wishes to follow the 'herd basis', then his livestock will be treated as trading stock for the purposes of taxation for the year 1947-8 and *all* subsequent years.

In any other case the time limit is twelve months after the end of the first year of assessment (after 1946-47) for which the farmer's liability to tax is computed on the basis of the profits (or losses) of a period during which he keeps such a production herd. A farmer who is assessed on the conventional Schedule B basis only and not on his actual profits under Schedule D will therefore not have to make election until it first becomes necessary to compute the actual amount of his profits—either for the purpose of the claim for relief under Rule 6 of Schedule B (because the actual amount of his profits has fallen short of the Schedule B assessment) or for the purpose of a claim for relief in respect of a loss under Section 34 of the Income Tax Act 1918.¹

It seems well to point out that if a farmer does elect to the 'herd basis' his choice will be irrevocable so long as he maintains herds of the same class. On the other hand, 'if he ceases to keep any production herd of that class for a period of at least five years he will have a new right to make an election for the herd basis if he subsequently acquires a new production herd of the same class'.²

It should be explained that under the 'herd basis' the livestock valuations are not taken into account in arriving at trading profits, so that the cost of the original herd or flock, or any additions to the existing herd or flock, is not deductible as an expense in the profit and loss account. It follows that any profit on the sale of a whole herd or flock, or of any *substantial* part of a herd or flock, without replacement, will not fall to be included in the profits of the farm for taxation purposes. At the same time it should be remembered

¹ *Income Tax and Profits Tax. Notes on Treatment of Livestock kept by Farmers and Other Traders.* Issued by the Board of Inland Revenue, No. 271, p. 7. 'As respects income tax for the year 1949-50 and all subsequent years of assessment, all farming in the United Kingdom shall be treated as the carrying on of a trade, or, as the case may be, of a part of a trade, and the profits or gains thereof charged to tax under Case I of Schedule D accordingly, and section eleven of the Finance Act, 1941 (which, as amended by section twenty-eight of the Finance Act, 1942, exempts from assessment under Schedule D certain farming carried on by individuals or partnerships on land of an annual value not exceeding one hundred pounds) shall not have effect.' (Finance Act, 1948, section 30 (1) (a).)

² *Ibid.*, p. 8, and Finance Act, 1947, paragraph 4 of the Tenth Schedule.

that no relief from tax will be given in respect of losses arising from such sales, and moreover it should not be overlooked that any profit or loss which arises on the sale of individual animals, or on the sale of a part of a herd or flock which cannot be regarded as *substantial*, without due replacement of the animals included in such a sale, will require to be brought into the profit and loss account. If animals originally in the herd are replaced, then the sale moneys of the old animals are credited as trading receipts, and the cost of the animals brought in as replacements to the herd or flock are debited as an expense. It should be made clear that neither the original cost of the herd, nor the cost of any animals which are added to the herd by way of an increase in its numbers, will be dealt with as an expense in arriving at the profits or losses of the farm. At the same time if an animal which has not reached maturity has been dealt with as a part of the farmers trading livestock and is subsequently added to the herd, then the cost of breeding or buying it, together with the cost of rearing it to maturity, must be included as a trading credit in the profit and loss account when such an animal is added to the herd. If an animal is replaced when it either dies or is sold, then the cost of the new animal brought in by way of replacement will be charged as an expense in the profit and loss account and the sale price of the old animal or its carcass will be credited. If it should transpire that the new animal has been bred on the farm, then it is clear that the cost of rearing will have been already included as a debit in respect of labour, feeding-stuffs, and such-like items, and no further charge will be necessary. If it should so happen that the new animal is of better grade than the original one, then the extra cost of the new animal assignable to this element of up-grading will not be treated as an expense in the profit and loss account, but will be transferred to the cost of the capital asset.

If a farmer disposes of his herd and then purchases another herd of the same class, the sale price of the number of animals in the smaller of the two herds will be brought in as a credit to profit and loss account and the cost of that number of animals will be debited. Where the new herd is smaller than the old herd, the profit or loss arising from the unreplaced animals must be duly credited in the profit and loss account except where the new herd may be regarded as *substantially* smaller than the old herd. It should be remarked that where a complete herd or a *substantial* part of it is realized within a period of twelve months without replacement, then any profit or loss on such realization will not be required to be credited

to profit and loss account for the purposes of taxation. It is understood that in normal cases the Inland Revenue would be willing to regard a reduction of 20 per cent. or more as *substantial*. If within five years of the sale the farmer starts to acquire a new herd, the new animals will be regarded as replacing the old ones, and the sale proceeds of the old ones will be credited at the time of acquisition of the new animals. Where a farmer has been compelled to sell the old herd or a *substantial* part of it for reasons wholly beyond his control, and the new animals are of poorer quality, the sale proceeds to be credited for the old animals will be limited by the deduction for the cost of the new animals. Where individual animals are sold out of a herd and are not replaced, the profit or loss on the sale must be brought to account for taxation purposes.¹ The Tenth Schedule of the Finance Act, 1947, which deals with the provisions we have been discussing, is reproduced as an appendix to this book. It will be largely a matter of consultation between the farmer and his professional accountant to determine whether or not the farmer is to take advantage of these rather special provisions.

We have seen something of the influence of shifts in unit prices and costs on the financial results of farmers. There are also questions which concern alterations in both the quality and quantity of goods sold and bought and the influence of weather conditions. It is factors such as these which tend to prevent any reliable forecasting or standardization of costs as obtain for other industries. Nevertheless the accountant can assist the farmer to readjust his organization by sorting out, through a system of costing (on the lines suggested in Chapter II), the remunerative and unremunerative operations.

It is probable that in judging his results a farmer should add some costs for the wages of his own labour. Various scales have been suggested for this in the Cambridge Report; for example, in the years 1942 and 1943 it was suggested that a farmer should charge a sum of £3 per week for manual work and £6 per week for managerial duties *pro rata* to the estimated number of weeks spent on each type of duty. It is difficult to determine this kind of thing with any real accuracy, although we are inclined to suggest that at least the charge for manual work should be on the basis of the highest paid worker on the farm. A farmer is also entitled to

¹ Cf. *op. cit.*, *Income Tax and Profits Tax. Notes on Treatment of Livestock kept by Farmers and Other Traders*. Issued by the Board of Inland Revenue, No. 271.

expect a reasonable return on the amount of capital which he is employing in his farming venture. We therefore conclude with the accounting suggestion that a farming enterprise should yield a fair return at the point where the annual accounts show a profit margin, after the recovery of *all* costs—both actual or deferred—sufficient at least to cover a reasonable reward for the manual effort and administrative ability of the working farmer together with a normal rate of interest on his proprietorship statement of net worth, adjusted on a replacement valuation basis.

APPENDIX I

UNIVERSITY OF BRISTOL
DEPARTMENT OF AGRICULTURAL ECONOMICS

FARM ACCOUNT BOOK

(All Rights Reserved)

Name.....

Address.....

.....

.....

Accounts for Year Ending.....

CONTENTS

AT THE BEGINNING OF THE BOOK

Contents	Valuation of Livestock	Profit and Loss Account
Where to Enter Miscellaneous Items	Valuation of Produce	Adjustments for Comparative Purposes
Cropping Record	Valuation of Stores	Produce and Stores Consumed
Stock Record	Valuation of Implements	
	Farm Debts Owing	

ACCOUNTS	<i>Account No.</i>	ACCOUNTS	<i>Account No.</i>
Cattle Bought	1	Rebates and Re-sales of Purchased Foods, Seeds, Fertilizers, &c.	32
Sheep Bought	2	Seeds Bought	33
Horses Bought	3	Fertilizers Bought	34
Pigs Bought	4	Haulage	35
Poultry and Hatching Eggs Bought	5	Implements Bought	36
Cattle Sold	6	Implements Sold	37
Pigs Sold	7	Repairs, Tools, Ironmongery, Blacksmith	38
Sheep and Wool Sold	8	Petrol, T.V.O., Oil, &c.	39
Poultry Sold	9	Coal and Coke	40
Horses Sold	10	Electricity	41
Eggs Sold	11	Vet. and Medicines	42
Wholesale Milk Sold	12	Contract Work and Hire of Tackle: Paid	43
Cheese Sold	13	Contract Work and Hire of Tackle: Received	44
Milk Bought and Levies Paid	14	Rent or Net Schedule 'A'	45
Retail Milk Sold	15	Rates	46
Other Milk Sold (Semi-wholesale, Schools, Workers)	16	Depreciation of Farm Buildings, Building Repairs, Tithe, Land Tax	47
Wheat Sold	17	Wages and National Insurances for Regular Labour	48
Barley Sold	18	Wages of Casual Labour	49
Oats Sold	19	Insurances	50
Other Corn Sold	20	Insurances, Taxes, Licences for: Car, Tractor, Lorry	51
Potatoes Sold	21	Sundry Dairy Requisites	52
Sugar-beet Sold	22	Private Payments	53
Keep Sold	23	Private Receipts	54
Hay Sold	24	Farm Administration Expenses and Sundries Paid	55
Straw Sold	25	Farm Sundries Received	56
Fruit and Cider Sold	26	Rents Received	57
Roots and other Crops Sold	27	Bank Charges, Interest, &c.	58
Purchased Foodstuffs	28		
Hay Bought	29		
Feeding Straw Bought	30		
Keep Bought	31		

WHERE TO ENTER MISCELLANEOUS ITEMS

	<i>Account No.</i>		<i>Account No.</i>
Account Book	55	Plants Bought	33
Accountants' Fees	55	Ploughing-up Grant	56
Acreage Payments	Crop Concerned	Postage	55
Artificial Insemination	55	Rabbit Catching	49
Beans Sold	20	Rabbits Sold	56
Binder Twine	55	Reed Sold	25
Cartridges	38	Sack Hire	55
Castration	42	Sacks Returned	56
Cattle Carcasses	6	Service Fees Paid	55
Cheese Grey	52	" " Received	56
Cheese Subsidy	52	Sheep Dip	42
Cheque Books	55	" Dipping	49
Cider Bought	55	" Shearing	49
Cider Sold	26	" Skins	8
Compensation Received	56	Show Prizes	56
Corn Grinding	43	Sprays	34
Disinfectant	42	Starter Cheese	52
Drainage Grant	56	Stationery	55
Drover's Fees	49	Straw Bought for: Feeding	30
Farmyard Manure Sold	56	" " " Litter	55
Garden Seeds	53	" " " Thatching Buildings	47
Grader's Fees Received	54	" " " Thatching Ricks	55
Hurdles	38	Straw Sold	25
Income Tax (Farmer's)	53	Subscriptions (Agricultural)	55
Licences: Gun	55	Swill	28
" Vehicles	51	Teasels	27
" Other Farm.	55	Telephone	55
" Dog	53	Thatching Buildings	47
" Wireless	53	" Ricks	49
Life Insurance	53	Timber Sold	56
Lime Rebate	32	Tools	38
Lubricating Oil	39	Trees Bought	33
Market Expenses	55	" Sold	56
Mole Catching	49	Valuer's Fees	55
Papers (Agricultural)	55	War Damage Contribution	53
Paraffin	39	Wayleaves	56
Pig Ringing	49	Wool Sold	8

CROPPING RECORD

	ACRES	Yield Per Acre	TOTAL YIELD
CROP			
1 Wheat			
2 Barley			
3 Oats			
4 Mixed Corn (State Mixture)			
5			
6			
7			
8 Beans			
9 Peas (Green)			
10 Peas (Threshed)			
11			
12			
13			
14 Arable Silage Crops			
15			
16			
17			
18 Sugar-beet			
19 Potatoes			
20			
21			
22			
23 Mangolds			
24 Turnips			
25 Swedes			
26 Kale			
27			
28			
29			
30 Cultivated Orchards			
31 Small Fruit			
32			
33			
34			
35 Bare Fallow			
TEMPORARY GRASS			
36 For Hay			
37 For Grazing			
38 For Silage			
39 For Seed			
TOTAL ARABLE ACREAGE			
PERMANENT GRASS			
40 For Hay			
41 For Grazing			
42 For Silage			
43 Grass Orchards			
44 Rough Grazings			
45 Woodlands			
46 Buildings, Roads, &c.			
TOTAL FARM ACREAGE			

N.B. In cases of Inter-cropping please state clearly which crops occupy the same fields.

OTHER DEADSTOCK VALUATION

Opening Date.....

Closing Date.....

	QUANTITY	PRICE	£	s.	d.	QUANTITY	PRICE	£	s.	d.
PURCHASED CONCENTRATES . . .										
PURCHASED HAY . . .										
PURCHASED STRAW . . .										
PURCHASED SEEDS . . .										
PURCHASED FERTILIZERS . . .										
CHEESE . . .										
TILLAGES AND UNEXHAUSTEDS . . .										
TOTAL										
TOTAL DEADSTOCK										

IMPLEMENTS

	OPENING VALUATION		PURCHASES		INITIAL ALLOWANCE OF 1/5TH	BALANCE
	No.	£	No.	£	£	£
TRACTORS						
ELECTRIC PLANT						
WATER PUMPING PLANT						
STATIONARY ENGINES						
HAYMAKING EQUIPMENT						
CULTIVATING EQUIPMENT						
BINDERS						
COMBINE HARVESTERS						
SPRAYERS AND DUSTERS						
THRESHER						
ELEVATOR						
MILKING MACHINE						
OTHER DAIRY EQUIPMENT						
CAR						
VAN OR LORRY						
WAGONS AND CARTS						
SHEEP EQUIPMENT						
PIG EQUIPMENT						
POULTRY EQUIPMENT						
BARN EQUIPMENT						
TOTAL						

FARM DEBTS

				ACCOUNT No.	£	s.	d.					ACCOUNT No.	£	s.	d.
--	--	--	--	----------------	---	----	----	--	--	--	--	----------------	---	----	----

AT THE BEGINNING OF THE YEAR

To Farmer (Debtors
and unexpired pay-
ments).¹

By Farmer (Credi-
tors and accrued
expenses).

Note: Care must be taken to see that these opening debtors are deducted in the appropriate receipt (Cr.) accounts and that the opening unexpired payments are added into the appropriate expense (Dr.) accounts.

Note: Care must be taken to see that these opening creditors and accrued expenses are deducted in the appropriate expense (Dr.) accounts.

¹ Separate totals for Debtors and unexpired payments.

OWING

ACCOUNT No.	£	s.	d.	ACCOUNT No.	£	s.	d.
----------------	---	----	----	----------------	---	----	----

AT THE END OF THE YEAR

To Farmer (Debtors
and unexpired pay-
ments).¹

By Farmer (Credi-
tors and accrued
expenses).

Note: Care must be taken to see that these closing debtors are added in the appropriate receipt (Cr.) accounts and that the closing unexpired payments are deducted in the appropriate expense (Dr.) accounts.

Note: Care must be taken to see that these closing creditors and accrued expenses are added in the appropriate expense (Dr.) accounts.

¹ Separate totals for Debtors and unexpired payments.

PROFIT AND

		£	s.	d.
I. OPENING VALUATIONS				
1. Livestock	.			
2. Deadstock	.			
3. Implements	.			
TOTAL OPENING VALUATION				
EXPENDITURE:				
II. IMPLEMENTS BOUGHT	DR. Account No. 36			
III. LIVESTOCK BOUGHT				
1. Cows and Cattle	" "	1		
2. Sheep	" "	2		
3. Horses	" "	3		
4. Pigs	" "	4		
5. Poultry and Hatching Eggs	" "	5		
IV. DAIRY				
1. Milk and Levies	" "	14		
2. Sundry Dairy Requisites	" "	52		
V. DEADSTOCK BOUGHT				
1. Foodstuffs	" "	28		
2. Hay	" "	29		
3. Feeding Straw	" "	30		
4. Keep	" "	31		
5. Seeds	" "	33		
6. Fertilizers	" "	34		
VI. WAGES				
1. Wages for Regular Labour	" "	48		
2. Wages for Casual Labour	" "	49		
VII. HAULAGE AND HIRE				
1. Haulage	" "	35		
2. Contract and Hire	" "	43		
VIII. REPAIRS, TOOLS, IRONMONGERY, BLACKSMITH				
" "	" "	38		
IX. FUEL, HEATING, AND LIGHTING				
1. Petrol, &c.	" "	39		
2. Coal and Coke	" "	40		
3. Electricity	" "	41		
X. VET. AND MEDICINES				
" "	" "	42		
XI. PROPERTY				
1. Rent	" "	45		
2. Rates	" "	46		
3. Depreciation of Farm Buildings, Building Repairs, Tithe, Land Tax	" "	47		
XII. INSURANCES AND LICENCES				
1. General Insurances	" "	50		
2. Insurances, Taxes, Licences for Car, Tractor, Lorry	" "	51		
XIII. FARM ADMINISTRATION AND SUNDRIES				
" "	" "	55		
XIV. FINANCE				
Bank Charges, Interest, &c.	" "	58		
TOTAL EXPENDITURE				
TOTAL				
PROFIT				

LOSS ACCOUNT

		£	s.	d.
I. CLOSING VALUATIONS				
1. Livestock				
2. Deadstock				
3. Implements				
TOTAL CLOSING VALUATION				
INCOME:				
II. IMPLEMENTS SOLD		CR. Account No. 37		
III. LIVESTOCK SOLD				
1. Cows and Cattle	”	”	6	
2. Sheep and Wool	”	”	8	
3. Horses	”	”	10	
4. Pigs	”	”	7	
5. Poultry and Eggs	”	”	9	
IV. DAIRY SALES				
1. Wholesale Milk	”	”	12	
2. Retail Milk	”	”	15	
3. Other Milk	”	”	16	
4. Cheese	”	”	13	
5. Cream	”	”	15	
V. CROP SALES				
1. Wheat	”	”	17	
2. Barley	”	”	18	
3. Oats	”	”	19	
4. Other Corn	”	”	20	
5. Potatoes	”	”	21	
6. Sugar-beet	”	”	22	
7. Keep	”	”	23	
8. Hay	”	”	24	
9. Straw	”	”	25	
10. Fruit and Cider	”	”	26	
11. Roots and Other Crops	”	”	27	
VI. MISCELLANEOUS INCOME				
1. Contract and Hire	”	”	44	
2. Rents	”	”	57	
3. Farm Sundries	”	”	56	
2/3rds Farmhouse Rental				
Produce Consumed				
Stores Consumed				
1/6th Tithe				
TOTAL INCOME				
TOTAL				
LOSS				

PRODUCE AND STORES CONSUMED

IN FARMHOUSE	QUANTITY	£	s.	d.
MILK				
BUTTER				
CHEESE				
SHEEP				
PIGS				
POULTRY				
EGGS				
POTATOES				
OTHER PRODUCE				
.....				
.....				
.....				
.....				
WOOD				
COAL				
ELECTRICITY				
PARAFFIN				
PETROL				
TELEPHONE				
PRIVATE USE CAR				
FARM LABOUR USED				
.....				
.....				
.....				
TOTAL				
TO WORKERS				
FREE MILK				
ANNUAL VALUE OF RENT-FREE COTTAGES				
OTHER PERQUISITES (FREE)				

(123)

POULTRY SOLD

Cr. Account No. 9

DATE	NAME	PARTICULARS	QUANTITY	£	s.	d.	CASH BOOK REFERENCE

HORSES SOLD

Cr. Account No. 10

DATE	NAME	PARTICULARS	QUANTITY	£	s.	d.	CASH BOOK REFERENCE

EGGS SOLD

Cr. Account No. 11

DATE	NAME	PARTICULARS	QUANTITY	£	s.	d.	CASH BOOK REFERENCE

WHOLESALE MILK SOLD

Cr. Account No. 12

DATE	NAME	PARTICULARS	QUANTITY	£	s.	d.	CASH BOOK REFERENCE

HAY BOUGHT*Dr. Account No. 29*

DATE	NAME	PARTICULARS	QUANTITY	£	s.	d.	CASH BOOK REFERENCE

FEEDING STRAW BOUGHT*Dr. Account No. 30*

DATE	NAME	PARTICULARS	QUANTITY	£	s.	d.	CASH BOOK REFERENCE

KEEP BOUGHT (GRAZING OR AGISTMENT)*Dr. Account No. 31*

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

**REBATES & RESALES OF PURCHASED
FOODS, SEEDS, FERTILIZERS, ETC.***Cr. Account No. 32*

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

SEEDS BOUGHT

Dr. Account No. 33

DATE	NAME	PARTICULARS	QUANTITY	£	s.	d.	CASH BOOK REFERENCE

FERTILIZERS BOUGHT

Dr. Account No. 34

DATE	NAME	PARTICULARS	QUANTITY	£	s.	d.	CASH BOOK REFERENCE

HAULAGE

Dr. Account No. 35

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

IMPLEMENTS BOUGHT

Dr. Account No. 36

(Carried to Implements Valuation)

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

IMPLEMENTS SOLD

Cr. Account No. 37

(Carried to Implements Valuation)

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

REPAIRS, TOOLS, IRONMONGERY,
BLACKSMITH

Dr. Account No. 38

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

PETROL, T.V.O., OIL, ETC.

Dr. Account No. 39

DATE	NAME	PARTICULARS	QUANTITY	£	s.	d.	CASH BOOK REFERENCE

COAL AND COKE

Dr. Account No. 40

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

ELECTRICITY

Dr. Account No. 41

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

VET. AND MEDICINES

Dr. Account No. 42

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

CONTRACT WORK AND HIRE OF
TACKLE. PAID

Dr. Account No. 43

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

CONTRACT WORK AND HIRE OF
TACKLE. RECEIVED

Cr. Account No. 44

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

WAGES OF CASUAL LABOUR *Dr. Account No. 49*

WEEK ENDING	NO. OF WORKERS	PARTICULARS	IN KIND			IN CASH			CASH BOOK REFERENCE
			£	s.	d.	£	s.	d.	

INSURANCES

Dr. Account No. 50

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

INSURANCES, TAXES, LICENCES, FOR
CAR, TRACTOR, LORRY

Dr. Account No. 51

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

SUNDRY DAIRY REQUISITES

Dr. Account No. 52

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

PRIVATE PAYMENTS

Dr. Account No. 53

(Farmer's Drawings carried to Private Ledger record)

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

PRIVATE RECEIPTS

Cr. Account No. 54

(Carried to Private Ledger record)

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

FARM ADMINISTRATION EXPENSES AND
SUNDRIES PAID*Dr.* Account No. 55

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

FARM SUNDRIES RECEIVED

Cr. Account No. 56

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

RENTS RECEIVED

Cr. Account No. 57

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

BANK CHARGES, INTEREST, ETC.

Dr. Account No. 58

DATE	NAME	PARTICULARS	£	s.	d.	CASH BOOK REFERENCE

APPENDIX II
SPECIMEN FORMS

APPENDIX II
SPECIMEN FORMS

UNIVERSITY OF BRISTOL

DEPARTMENT OF AGRICULTURAL ECONOMICS

Farm No.....

Name.....

I. FARM TIME SHEET

Week ending Friday.....

Day of Week	These Columns must be filled in by every man		Time Work Men only			If on Piecework, Amount of Work done	Piecework Men only			Remarks
			No. of Horses Worked	Total Hours Time Work	Total Hours Overtime		Total Hours worked Piecework	Rate of Piece-work	Total Wages Piecework	
	£	s.							d.	
SATURDAY										
SUNDAY										
MONDAY										
TUESDAY										
WEDNESDAY										
THURSDAY										
FRIDAY										

Deductions: £ s. d.	Total Hours Time worked			
Insurance .	Total Hours Overtime			
Rent .	Piecework Wages			
	TOTAL WAGES .			
	TOTAL DEDUCTIONS			
TOTAL DEDUCTIONS	BALANCE PAID £			

Total Wages Piecework £

III. SPECIMEN CROP COST FORM

NATIONAL INVESTIGATION INTO THE ECONOMICS OF MILK PRODUCTION

COST OF HOME-GROWN FOOD

CEREALS RECORD

Farm Code No.

Province

County

Total Yield (a) C

Crop Variety Acres Rent per Acre (b) S

OPERATION	No. of Times	HOURS WORKED						COST						
		Men	Boys	Females	Horses	Tractors		Men	Boys	Females	Gang Labour and Piece Work	Horse	Tractor	
						Type	Hours							£ s. d.
1. Carting and Spreading Lime														
2. Carting and Spreading F.Y.M.														
3. Ploughing														
4. Discing														
5. Harrowing														
6. Cultivating														
7. Rolling														
8.														
9.														
10.														
11. Seed Dressing														
12. Carting and Drilling Seed														
13. Carting and Spreading Artificial														
14. Harrowing														
15. Rolling														
16. Weeding														
17. Spraying														
18.														
19.														
20. Total														
21. Opening Field														
22. Cutting and Tying														
23. Self-binding														
24. Stooking														
25. Carting and Stacking														
26. Raking														
27. Thatching														
28. Threshing														
29. Combining														
30. Total Harvesting and Threshing														
31. Hedging and Fencing														
32. Upkeep of Ditches and Drains														
33. Total														

MANURES AND MANURIAL RESIDUES				MISCELLANEOUS EXPENSES		SUMMARY OF COSTS	
A. Purchased Manures (specify)	T. C.	Gross Cost £ s. d.	Manurial Residues £ s. d.	Seeds Dressing Twine Thatching Straw and Pegs Other items: Please specify:	£ s. d.	Manual Labour: (a) Men (b) Youths (c) Women and Girls (d) Gang Labour and Piece Work	Horse Labour Tractors (a) (b)
B. F.Y.M.							
Total							

C. Manurial Residues	Year	B/Fd. from Previous Crops	Amount to be charged to Current Crop	C/Fd. to Subsequent Crops
Total				

Deduct from Col. 3 and add to Col. 4 Manurial Residues shown in (A) above.	
Balance taken to Summary of Crop Costs +	-

Total Net Cost	
Cost to Grain	
Cost to Straw	
Total Yield in cwts.	
Grain	
Straw	
Cost per cwt.:	
Grain	
Straw	

* Piece-workers and gang labour employed on contract Summary under manual labour.
† The rate per hour for manual workers will apply to farmer on a time basis.

III. SPECIMEN CROP COST FORM

NATIONAL INVESTIGATION INTO THE ECONOMICS OF MILK PRODUCTION

COST OF HOME-GROWN FOOD

CEREALS RECORD

Farm Code No.

Province

County

(a) Grain

Crop

Variety

Acres

Rent per Acre

Total Yield

(b) Straw

OPERATION	No. of Times	HOURS WORKED						COST					
		Men	Boys	Females	Horses	Tractors		Men	Boys	Females	Gang Labour and Piece Work	Horse	Tractor
						Type	Hours						
1. Carting and Spreading Lime								£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
2. Carting and Spreading F.Y.M.													
3. Ploughing													
4. Discing													
5. Harrowing													
6. Cultivating													
7. Rolling													
8.													
9.													
10.													
11. Seed Dressing													
12. Carting and Drilling Seed													
13. Carting and Spreading Artificials													
14. Harrowing													
15. Rolling													
16. Weeding													
17. Spraying													
18.													
19.													
20. Total													
21. Opening Field													
22. Cutting and Tying													
23. Self-binding													
24. Stooking													
25. Carting and Stacking													
26. Raking													
27. Thatching													
28. Threshing													
29. Combining													
30. Total Harvesting and Threshing													
31. Hedging and Fencing													
32. Upkeep of Ditches and Drains													
33. Total													

MANURES AND MANURIAL RESIDUES

MISCELLANEOUS EXPENSES

SUMMARY OF COST

A. Purchased Manures (specify)	T. C.	Gross Cost £ s. d.	Manurial Residues £ s. d.	Seeds Dressing Twine Thatching Straw and Pegs Other items: Please specify:	£ s. d.	Manual Labour: (a) Men (b) Youths (c) Women and Girls (d) Gang Labour and Piece Work	Horse Labour	Tractors (a) (b)	Contract Work*	Seeds	Purchased Manures	F.Y.M.	Rent	Miscellaneous Expenses	Overheads: (a) Dep. Mach. and Imps. (b) Share of Cap. Impr. (c) Other	Total	Hours	
B. F.Y.M.																		
Total																		
C. Manurial Residues	Year	B/Fd. from Previous Crops	Amount to be charged to Current Crop	C/Fd. to Subsequent Crops														
					1	2	3	4										
Total																		
Deduct from Col. 3 and add to Col. 4 Manurial Residues shown in (A) above.																		
Balance taken to Summary of Crop Costs +																		

* Piece-workers and gang labour employed on contra Summary under manual labour.
† The rate per hour for manual workers will apply only farmer on a time basis.

APPENDIX III

NOTE ON THE POSSIBLE EXPANSION OF THE PRIMARY RETURN

1. THE form as now printed is evidently designed to measure Operating Surplus. It should be made plain that it is to be completed on a Receivable-Payable basis. Although the Summary (G) is headed in terms of 'Expenses' and 'Income', section (C) refers to 'Other Purchases and *Payments*', while Section (D) carries the caption 'Other Sales and *Receipts*'. To avoid ambiguity the words payables and receivables should be substituted for payments and receipts.

2. Section (C), at present headed 'Other Purchases and Payments', might with advantage include the following payables:

- (a) Professional charges (e.g. audit fees).
- (b) Farming subscriptions.

3. A further 'Outgoings' section should be added to include the following items:

- (a) Indirect taxes.
- (b) Interest on borrowed money (before deduction of income tax).
- (c) Bank interest.
- (d) Bank charges.
- (e) Bad debts.

4. *Inventories*. The basis of valuation should be indicated. It should be made clear that opening and closing inventories are to be valued on a consistent basis. In the case of livestock, which is virtually regarded as a fixed asset, e.g. a herd of dairy cows, if the number of classified animals has fallen, some indication should be given of the provision required to cover the amount of any rise in the replacement cost over and above the amount of the opening valuation of such temporarily unreplaced animals. This provision might very well be treated as a specific debit before the ascertainment of operating surplus.

Machinery depreciation as here based on the difference between opening and closing machinery valuations, adjusted for purchases and sales, should include a separate provision to cover any rising replacement costs as related to the annual user.

Note. In a period of falling prices credit or negative provisions may logically result. It should not be overlooked that the observance of a conventional necessity to safeguard contributed money capital will set a limit to the accumulating amount of any such credits equivalent to the accumulated amount of the prior debit provisions.

5. The return should be extended to include a Non-operating Account, designed to measure income available for appropriation. This account will

receive the operating surplus and will be credited with any non-operating income (e.g. Interest receivable, before deduction of income tax). Items of the following order should also be credited to this account:

- (a) Net realized capital gains, not treated elsewhere in the return, applicable as income.
- (b) Insurance claims received or receivable in respect of consequential loss and contingency claims to employees and third parties.

The following items should appear as debits in the Non-operating Account before the ascertainment of the disposable income of the farming enterprise:

- (a) Charitable subscriptions and donations.
- (b) Contingency claims paid or payable to employees and third parties.
- (c) Direct taxation, suitably itemized in the following manner:

Direct taxes assessable for the current accounting period.

Income tax paid or payable on profits	×	
Income tax paid or payable on the ownership of property	×	
Income tax on interest, &c.	<u>×</u>	
<i>Less:</i> Income tax recovered from interest and dividends, paid or payable		×
Profits tax for the current chargeable accounting period		<u>×</u>
		×

Deduct

Income tax on profits assessable in the current accounting period—as provided in the previous period	×	
Profits tax over provided in the previous period	<u>×</u>	
		<u>×</u>

Add

Income tax on the profits of the current accounting period assessable in the future period	×	
		<u>×</u>
		<u>×</u>

6. The return should be extended to include an Appropriation Account. This account will be credited with the amount of disposable income ascertained in the Non-operating Account. Thereafter it will be debited with proprietorship withdrawals, or dividends in the case of corporate enterprises. The resulting balance on this account will constitute the measure of income saved and retained in the farming enterprise.

7. The return might be developed to provide for a Resting Account. The Resting Account for the given period of account should make due provision for the following credit items:

- (a) Depreciation.
- (b) Provisions covering rising replacement costs.
- (c) Property insurance claims (capital) received or receivable.
- (d) Appropriation account balance—Retained income.
- (e) Additional contributed money capital.
- (f) New borrowing.
- (g) Amounts received by way of redemptions and repayments.

- (h) Movements in Deferred Liabilities : closing deferred liability for income tax on the profits of the current accounting period assessable in the future period, less opening deferred liability.

The following are the *items* which should be debited to the period Resting Account:

- (a) Gross Fixed Asset Formation, analysed, where possible, to cover:
- (i) payables for wages and salaries,
 - (ii) contributions to Social Security funds, as related to such wages and salaries,
 - (iii) purchases of goods and services,
 - (iv) indirect taxes associated with asset formation, e.g. stamp duties on land,
 - (v) net purchases of existing equipment and other assets on capital account.
- (b) Payments or payables for money investments.
- (c) Payments or payables in respect of deferred charges carried over, other than unexpired payments entering into the assessment of circulating capital.
- (d) Redemption and repayment of obligations.
- (e) Increase (+) or Decrease (–) in circulating capital funds, stated in terms of:
- (i) Inventories,
 - (ii) Net debtors or net creditors,
 - (iii) Money resources.

8. The return should be completed by the addition of a closing section designed in balance-sheet form. On the one side it should record details of:

- (a) Fixed asset formation.
- (b) Money investments.
- (c) Current assets, suitably analysed for inventories, debtors, and money resources.
- (d) Deferred charges carried over, other than unexpired payments entering into the assessment of circulating capital.

On the other side the following items should be recorded, in detail:

- (a) Contributed money capital and surplus.
- (b) Long-term borrowing.
- (c) Depreciation and replacement fund.
- (d) Current liabilities.
- (e) Deferred liabilities.

9. Some indication might be given of the manner in which returns for sample investigations are converted to portray estimated figures appropriate to the National Farm.

NOTE

This memorandum was originally prepared by Mr. F. Sewell Bray at the request of the Director of the Department of Applied Economics at Cambridge. It was designed with the object of suggesting such an expansion of the return as would facilitate the measurement of the contribution of the farming community to the business enterprise sector of the national accounts. A summary inspection of the points advanced should serve to show their particular relevance to the general form of farm accounts put forward in this book.

APPENDIX IV

FINANCE ACT, 1947

TENTH SCHEDULE

TREATMENT OF FARM ANIMALS, ETC., FOR INCOME TAX
AND PROFITS TAX PURPOSES

The general rule

1. (1) Subject to the provisions of this Schedule, animals kept by a farmer for the purposes of his farming shall be treated for the relevant tax purposes as trading stock:

Provided that animals forming part of production herds with respect to which an election made under paragraph 2 of this Schedule has effect shall not be treated for the said purposes as trading stock but shall be treated for the said purposes in accordance with the rules set out in paragraph 3 of this Schedule.

(2) An election under the said paragraph 2 is hereafter in this Schedule referred to as 'an election for the herd basis'.

Elections for the herd basis

2. (1) An election for the herd basis shall apply to all production herds of a particular class kept by the farmer making the election, including herds which he has ceased to keep before the making of the election or first begins to keep after the making thereof.

(2) An election for the herd basis must be made in writing to the surveyor and must specify the class of herds to which it relates.

(3) An election for the herd basis must be made not later than twelve months after the end of the first year of assessment after the year 1946-7 for which the farmer making the election is chargeable under Case I of Schedule D to tax in respect of the profits or gains of his farming, or is charged to tax under Rule 4 of the Rules applicable to Case III of Schedule D in respect of the profits of his farming, or is given relief under Rule 6 of the Rules applicable to Schedule B or section thirty-four of the Income Tax Act, 1918, in respect of his farming, being profits or gains, profits, or, as the case may be, relief, the amount of which is computed by reference to the facts of a period during the whole or some part of which the farmer kept a production herd of the class in question:

Provided that where that farmer kept a production herd of the class in question at any time during the year ending with the fifth day of April, nineteen hundred and forty-seven, for the purpose of any farming the profits or gains of which are chargeable to income tax under Case I of Schedule D for

the year 1947-8, or the profits of which are charged to tax for that year under Rule 4 of Case III of Schedule D, the election must be made not later than the fifth day of April, nineteen hundred and forty-eight.

(4) An election for the herd basis shall be irrevocable and shall have effect for the purposes of income tax for the said first year of assessment and all subsequent years of assessment, and for the purposes of the profits tax for all chargeable accounting periods not falling wholly before the period by reference to the facts of which the profits or gains are computed for the purposes of income tax for the said first year of assessment.

3. (1) Where an election for the herd basis has effect, the consequences for the relevant tax purposes shall be as provided by the subsequent provisions of this paragraph.

(2) The initial cost of the herd and, subject to the provisions of this paragraph as to replacements, the cost of any animal added to the herd, shall not be deducted as an expense, and the value of the herd shall not be brought into account.

(3) Where an animal which has theretofore been treated as part of the trading stock of the farmer is added to the herd otherwise than by way of replacement, there shall be included as a trading receipt—

- (a) in the case of an animal bred by the farmer, a sum equal to the cost of breeding it and rearing it to maturity; and
- (b) in any other case, a sum equal to the initial cost to the farmer of acquiring the animal, together with any cost incurred by him in rearing it to maturity.

(4) Where an animal forming part of the herd dies or ceases to form part thereof and is replaced therein by another animal, any proceeds of sale of the animal which dies or ceases to form part of the herd shall be included as a trading receipt, and the cost of the animal which replaces it, except in so far as that cost consists of such costs as are allowable apart from the provisions of this Schedule as deductions in computing profits or gains of farming for the purposes of assessments under Case I of Schedule D, shall be deducted as an expense:

Provided that—

- (a) where the second-mentioned animal is of better quality than the animal which it replaces, the amount deducted shall not exceed the amount which it would have been necessary to expend in order to acquire an animal of the same quality as the animal which is replaced; and
 - (b) where the animal which is replaced was slaughtered by the order of any Ministry, Government department or local or public authority under the law relating to diseases of animals, and the animal which replaces it is of worse quality, the amount included as a trading receipt shall not exceed the amount allowable as a deduction.
- (5) Where the herd is sold as a whole and another production herd of the

same class is acquired, the preceding provisions of this paragraph shall apply as though there had been sold from the original herd, and replaced therein, a number of animals equal to the number in the original herd or in the newly acquired herd, whichever is the less.

(6) If (either all at once or over a period not exceeding twelve months) either—

(a) the whole of a herd is sold in circumstances in which the last preceding sub-paragraph does not apply; or

(b) a part of a herd is sold on a substantial reduction being made in the number of animals in the herd,

any profit or loss arising from the transaction shall not be taken into account:

Provided that where, within five years of the sale, the seller acquires or begins to acquire another production herd of the class in question or, as the case may be, he acquires or begins to acquire animals to replace the part of the herd in question—

(i) the provisions of the two last preceding sub-paragraphs shall apply to the acquisition or replacement, except that if the sale was one which the seller was compelled to effect by causes wholly beyond his control the amount included as a trading receipt in respect of any animal sold which is replaced by an animal of worse quality shall not exceed the amount allowable as a deduction in respect of the said animal of worse quality; and

(ii) for the purposes of the application of those sub-paragraphs, the proceeds of sale of the animals comprised in the original herd or part of a herd shall be brought into account as if they had been respectively received at the times of the corresponding acquisitions.

(7) If an animal forming part of the herd is sold and none of the three last preceding sub-paragraphs applies, any profit or loss arising from the transaction shall be included or deducted, as the case may be; and for the purposes of this sub-paragraph the said profit or loss shall be computed by comparing—

(a) in the case of an animal bred by the farmer, the cost of breeding it and rearing it to maturity; and

(b) in any other case, a sum equal to the initial cost to the farmer of acquiring the animal (or, in the case of an animal acquired otherwise than for valuable consideration, its market value when it was acquired by the farmer) together, in both cases, with any cost incurred by him in rearing it to maturity,

with the proceeds of the sale.

(8) Where the herd is sold as a whole, and another production herd of the same class is acquired, and the number of animals in the newly acquired herd is less than the number in the original herd, and the difference is not substantial, sub-paragraph (6) of this paragraph shall not apply, and the last preceding sub-paragraph shall apply to a number of animals in the original herd equal to the difference.

(9) The preceding provisions of this paragraph shall apply in relation to the death or destruction of animals as they apply in relation to the sale of animals, as if any insurance or compensation moneys received by reason of the death or destruction thereof were proceeds of sale, and any references in this paragraph to the proceeds of sale of an animal include references to any proceeds of sale of its carcase or any part thereof.

Provisions applicable to special cases

4. A farmer who, having kept a production herd of a particular class, ceases altogether to keep herds of that class for a period of at least five years shall, as respects production herds kept by him after the end of that period, be treated as if he had never kept any production herds of that class before the end of that period.

5. (1) Where a farmer transfers to another person all or any of the animals which form part of a production herd otherwise than by way of sale, or by way of sale but for a price other than that which they would have fetched if sold in the open market, and either—

- (a) the transferor is a body of persons over whom the transferee has control, or the transferee is a body of persons over whom the transferor has control, or both the transferor and the transferee are bodies of persons and some other person has control over both of them; or
- (b) it appears with respect to the transfer, or with respect to transactions of which the transfer is one, that the sole or main benefit or one of the main benefits which, apart from the provisions of this paragraph, might have been expected to accrue to the parties or any of them was a benefit resulting from the obtaining of a right to make an election for the herd basis, or from such an election having effect or ceasing to have effect, or from such an election having a greater effect or a less effect,

then the like consequences shall ensue for all relevant tax purposes in relation to all persons concerned as would have ensued if the animals had been sold for the price which they would have fetched if sold in the open market.

(2) In this paragraph, the expression 'body of persons' includes a partnership and the expression 'control' has the meaning assigned to it by subsection (1) of section sixty-eight of the Income Tax Act, 1945.

Savings, interpretation and application to trades other than farming, etc.

6. Nothing in this Schedule applies to any animals kept wholly or mainly for the work they do in connexion with the carrying on of the farming.

7. (1) In this Schedule, the expression 'herd' includes a flock, and any other collection of animals, however named.

(2) For the purposes of this Schedule, immature animals kept in a herd shall not be treated as forming part of the herd unless the following conditions are fulfilled, that is to say, unless—

- (a) the land on which the herd is kept is such that animals which die or cease to form part of the herd cannot be replaced except by animals bred and reared on that land; and
- (b) the immature animals in question are bred in the herd, are maintained therein for the purpose of replacement and are necessarily maintained for that purpose,

and references in this Schedule to herds shall be construed accordingly, and references therein to an animal being added to a herd include references to an immature animal which is kept in the herd becoming a mature animal:

Provided that not more immature animals shall in any case be treated as forming part of a herd than are required to prevent a fall in the numbers of the herd.

Female animals shall be treated for the purposes of this Schedule as becoming mature when they produce their first young.

(3) In this Schedule, the expression 'a production herd' means, in relation to a farmer, a herd of animals of the same species (irrespective of breed) kept by him wholly or mainly for the sake of the products which they produce for him to sell, being products obtainable from the living animal.

In this sub-paragraph the expression 'product obtainable from the living animal' means—

- (a) the young of the animal; or
- (b) any other product obtainable from the animal, not being a product obtainable only by slaughtering the animal itself.

(4) For the purposes of this Schedule, production herds kept by a farmer shall be deemed to be of the same class if and only if all the animals kept in the herds are of the same species (irrespective of breed) and the products produced for him to sell for the sake of which (either wholly or mainly) the herds are kept by him are of the same kinds in the case of all the herds; and elections for the herd basis shall be framed accordingly.

(5) Any reference to profits or gains chargeable to income tax under Schedule D includes a reference to profits or gains which would be so chargeable if there were any such profits or gains for the year of assessment in question.

8. (1) The preceding provisions of this Schedule shall, with the necessary adaptations, apply in relation to trades other than farming, and trades consisting only in part of farming, as they apply in relation to farming, and references to farmers shall be construed accordingly.

(2) The said provisions (both in relation to farming and in relation to trades) shall apply in relation to living creatures other than animals as they apply in relation to animals.

Laying birds shall be treated for the purposes of this Schedule as becoming mature when they first lay.

(3) The provisions of this Schedule shall (both in relation to farming and in

relation to trades) apply, with the necessary adaptations, in relation to animals or other creatures kept singly as they apply in relation to herds.

(4) Nothing in this Schedule shall apply in relation to any animal or other creature kept wholly or mainly for public exhibition or racing or other competitive purposes.

Supplemental

9. Where an election for the herd basis is made, every person carrying on any farming or other trade affected by the election shall, if required to do so by notice from the surveyor, make and deliver to the surveyor, within the time specified in the notice, such returns as to, and as to the products of, the animals or other creatures kept by him for the purposes of the trade as may be required by the notice, and the provisions of section one hundred and seven of the Income Tax Act, 1918 (which relates to failure to deliver proper lists, declarations and statements) shall apply in relation to any such return as they apply in relation to the lists, declarations and statements therein referred to.

10. (1) The provisions of this paragraph shall have effect where, after an assessment for a year or period has become final and conclusive, an election for the herd basis has effect for the purposes of income tax or, as the case may be, the profits tax, for that year or period.

(2) All such additional assessments and repayments of tax shall be made as are necessary to give effect to the election.

(3) Section forty-one of the Finance Act 1927 (which contains provisions with respect to the making and determination of claims) shall apply in relation to any claims for relief from income tax by reason of the operation of the election as it applies in relation to claims for deductions of tax under section forty of that Act:

Provided that any such claim to which objection is made shall, if the claimant so elects when he makes the claim, be heard and determined by the Special Commissioners, and subsection (2) of the said section forty-one shall have effect accordingly.

(4) Subsection (4) of section forty-two of the said Act (which makes standard rate tax assessments conclusive for surtax purposes, and prohibits certain allowances and adjustments being made for surtax purposes unless they have previously been made for the purposes of standard rate tax) shall apply to the reliefs mentioned in the last preceding sub-paragraph as it applies in relation to the allowances and adjustments mentioned in that subsection.

(5) Any claim for relief from the profits tax by reason of the operation of the election shall be made in writing to the Commissioners of Inland Revenue and the provisions of Part II of the Fifth Schedule to the Finance Act, 1937 (which relate to appeals against assessments to the profits tax), including the provisions thereof enabling the Commissioners to make regulations, shall, with the necessary modifications, apply in relation to any determination by the Commissioners of any such claim.

INDEX

- Accountant and the farmer, 90-102.
 Accounts, uses of, 1, 74, 82-9.
 Accrued expenses, 18, 22, 28.
 Acreage payments, 26.
 Administration expenses, 134.
 Aftermath, 68-9.
 Agistment, 126, 128.
 Agricultural Economic Departments of universities, 1, 2, 32, 73, 82, 92, 103, App. II, Form I, 140.
 — economics, 74-89, 92, App. II, Forms III and IV.
 — education, 82, 84.
 — output, 32.
 — science, 80, 83-4.
 Annual financial accounts, 28-31.
 Arable inclosures, 77.
 Ashby, A. W., 91, 92.
 Asset values, 9.
 Audit, 6, 90, 94.
- Balance in agriculture, 89.
 — sheet, 31.
 — statement, 23, 30.
 Bank charges and interest, 7, 135.
 — reconciliation statement, 7, 28.
 Banking account, 2, 98.
 — of receipts, 3, 5.
 Barley sold, 125.
 Black Death, 75.
 Blacksmith, 26, 130.
 Book values, 9.
 Bristol, University of, Department of Agricultural Economics, 2, 24, 103, App. II, Form I.
 Buildings, 12, 27.
- Cambridge Report, 99, 102.
 Capital, 9, 12, 21, 85, 86, 102.
 Cash account, 6, 7, 24.
 — book, 2, 5-9, 10-11, 24, 25, 27, 28.
 — payments, 6.
 Casual labour, 48, 133.
 Cattle, 71, 108, 121, 122.
 Central Association of Agricultural Valuers, 57.
 Cereals record, App. II, Form III.
 Cheese sold, 124.
 Cheque, payments by, 4, 6.
 — books, charges for, 7.
 Cider, 127.
 Coal and coke, 130.
 — -mining, 33.
 Combine harvester, 14, 43, 52.
 Companies, 90, 93-5.
 Comparison and interpretation of data, 83, 84, 88-9, 92.
 Conference of Provincial Agricultural Economists, App. II, Forms III and IV.
 Contract labour, 48.
 — work and hire of tackle, 131.
 Corn Laws, 77.
 — sold, 125.
 Cost accounts, 32-73, 83, 87-9, 91, 102, App. II, Form III.
 — of living, 79, 80.
 County War Agricultural Committees, 48.
 Crop cost form, App. II, Form III.
 Cropping record, 107, App. II, Form IV.
 Crops, final cost accounts for, 60-2.
 — sold, 127.
 — valuation of, 15.
- Dairy herd, 38, 62-5, 70-1, 99-102.
 — requisites, 133.
 Day books, 27.
 Deadstock valuation, 15, 20, 28, 113.
 Debtors and creditors, 17-19, 22-3, 28-9, 41.
 Depreciation, 12-14, 20, 27, 29, 31, 50, 55, 63, 65, 98, 132.
 De-rating Act, 1928, 54.
 Diary, 25, 35-9, 58.
 Discounts, 4.
 Ditching and draining, 48.
 Double entry, 19.
 Drawings, 26, 30, 134.
 Drilling records, 38.
- Economists, 74-89, 92.
 Eggs, 72, 122, 123.
 Electricity, 131.
 Expenses, accrued, 18, 22, 28.
- Factor costs, 60.
 Farm account book, 1, 2, 22, 24-8, 29, 72, 103-35.
 — administration expenses, 134.
 — banking account, 2-4.
 — buildings, 12-14, 19-20, 27, 132.
 — capital, 9, 12, 21, 85, 86, 102.
 — cash book, 2, 5-9, 10-11, 24, 25, 27, 28.
 — debts owing by and to the farmer, 17-18, 22, 116-17.
 — management, 82.
 — sundries, 134.
 — wages book, 7, App. II, Form II.
 — workers, 26, 48, 55.
 Farmer's own labour, 47, 102.
 Farmers, number of, 32.
 Farmhouse, 13, 55.
 — consumption of produce and stores, 25-6.
 Farming year, 93.
 Farmyard manure, 46-7, 57-60.

- Feeding-stuffs, 38, 39, 52, 65-7, 127.
 Fertilizers, 45, 57-60, 128, 129.
 Field records, 40-1, 42.
 Filing, 4, 6, 28.
 Final calculations of costs, 70-3.
 — cost records, 41-70.
 Finance Act, 1947, Tenth Schedule, 99-102, 141-6.
 Fruit and cider sold, 127.
 Fuel, 38, 50.
- Grazing, 39, 52-3, 67-70, 126, 128.
 Growing crops, 15.
- Haulage, 129.
 Hay, 65-6, 68-9, 126, 128.
 Hedging and ditching, 38.
 Herd basis for income tax, 99-102, 141-6.
 Hire of tackle, 131.
 History of agriculture, 74-8.
 Horse labour, 37, 52-4.
 Horses, 54, 109, 121, 123.
- Implements, 14, 28, 43, 55-6, 114-15, 129, 130.
 Inclosures, 76-7.
 Income and expenditure journals, 27.
 — tax, 1, 13, 14, 15, 16, 26, 55, 90, 96, 99-102, 141-6.
 — Tax Act, 1945, 13, 14.
 Inland Revenue arrangements, 15, 16, 50, 55, 99-102, 141-6.
 Institute of Chartered Accountants, 32, 96.
 Insurance premiums, 17, 133.
 Intermediate cost records, 40-1, 42-3.
 Ironmongery, 26, 130.
- Journal of Accountancy*, 98.
 Journals, 27.
- Keep bought and sold, 126, 128.
- Labour records, 37-9, 47-9, 58, App. II, Forms I, II, IV.
 Land tax, 132.
 Lease, value of, 12.
 Ley, 69.
 Licences, 133.
 Livestock, final cost accounts for, 62-5.
 — records, 38-9, 41, 42-3, 108-9, 121-3, App. II, Form IV.
 — units, 67.
 — valuation, 16-17, 28, 41, 53-4, 71-2, 110-11.
- Loveday Committee on Higher Agricultural Education, 84.
- Machinery, 14, 43, 55-6, 114-15, App. II, Form IV.
 Manorial system, 74-5.
 Manure, 46-7, App. II, Form III.
 Manurial residues, 15, 45, 57-60, App. II, Form III.
- Market expenses, 57.
 Milk bought, 124.
 — cost, 70-1, 88-9.
 — Marketing Board, 33.
 — Production, national investigation into the economics of, App. II, Form III.
 — sales, 27, 70, 71, 123, 124.
 Milking machines, 43, 52.
 Ministry of Agriculture and Fisheries, 15, 32, 33, 58, 62, 80, 84.
- Narrative balance sheet, 31.
 National Agricultural Advisory Service, 84.
 — Farmers' Union, 1, 13, 15, 32, 50, 92.
 — insurance, 48, 132.
 — investigation into the economics of milk production, App. II, Form III.
 Net worth, 12, 18-19.
- Oats, 61, 125.
 Operational profit, 95-7.
 Ordnance Survey numbers, 40.
 Overhead costs, 56-7.
 Owner-occupier, 97.
- Partnerships, 93.
 Payments by cheque, 4, 6.
 — in cash, 4, 6.
 — on account, 4.
 — unexpired, 17, 22.
 Petrol, T.V.O., oil, &c., 130.
 Pigs, 72, 109, 121, 122.
 Ploughing records, 37.
 Population, growth of, 77.
 Posting, 24, 28.
 Potatoes sold, 126.
 Poultry, 72, 122, 123.
 Price level, 79-80, 98.
 Primary return, App. II, Form IV, 137-40.
 Private drawings, 26, 30, 134.
 — ledger, 2, 7, 8, 9, 12-24, 27, 29.
 — receipts and payments, 27, 134.
 Process costs, 60.
 Produce and stores consumed, 25, 120.
 — valuation, 15, 112.
 Professional accountant and the farmer, 90-102.
 Profit and loss account, 29, 73, 95, 118-19.
 Profits tax, 90, 95, 141-6.
 Protective legislation, 77-8.
 Purchases and sales day books, 27.
- Rabbits sold, 57.
 Railways, 33.
 Rates, 54-5, 132.
 Rebates and resales, 128.
 Receipt forms, 5.
 Reconciliation of bank balance, 7, 28.
 — of cost and financial accounts, 72-3, 91.
 Register of farm buildings, 20.

- Reigal, E. C., 98.
 Rent and rates, 54-5, 132, 135.
 Repairs, 26, 55, 57, 98, 130, 132.
 Replacement reserves, 98-9.
 Reserves, 97-9.
 Residual unexpired costs, 16.
 Residues, manurial, 15, 45, 57-60, App. II, Form III.
 Resting account, 138-9.
 Root crops, 127.
Russell, Sir E. J. (editor), Agriculture:
 To-day and To-morrow, 91, 92.
 Saving, 97-8.
 Science, 80, 83-4.
 Seed, 44-5, 128, 129.
 Sheep, 71, 108, 121, 122.
 — -farming inclosures, 76-7.
 Standard costs, 92.
 — outputs, 92.
 — values of livestock, 63.
 Statistics, 32, 82, 92.
 Stock record, 28, 108-9.
 Straw, 62, 127, 128.
 Subsidies, 79.
 Sugar beet, 62, 126.
 'Sundries', 8.
 Telephone, 57.
 Tillages, valuation of, 15, 57-60.
 Time-sheets, 38-9, App. II, Form I.
 Tithe, 132.
 Tools, 26-7, 130.
 Towns, growth of, 76.
 Tractor, 14, 37, 43, 49-51, 133.
 Unexhausted manurial residues, 15, 45, 57-60.
 Unexpired outlay, 27.
 — payments, 17, 22, 28.
 Universities, Agricultural Economic Departments, 1, 2, 32, 73, 82, 92, 103, App. II, Form I, 140.
 Unpaid labour, 47-8, 102.
 Valuations, 14-17, 20, 28, 43, 57-60, 63-5, 93.
 Veterinary bill, 70, 131.
 Voelcker and Hall's tables of manurial residues, 46, 58.
 Vouchers, filing of, 4, 6.
 Wage level, 79, 80-2.
 Wages, 7, 48-9, 85, 132, 133, App. II, Form II.
 — in kind, 26.
 Wear and tear, 28, 55.
 Wheat sold, 125.
 Wool sales, 71, 122.
 — trade and inclosures, 76-7.
 Workers, boarding of, 26.
 — cottages occupied by, 26, 55.
 — supplies to, 26, 48.

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