

AgroSource 4

Farm Accounting

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Foreword

This guide is about *the farm as a commercial enterprise* operating in a market economy. Generally the word *farm* has a wider meaning namely land, livestock and crops, farm buildings and a house; and a place where people live and work and where financial-economic aspects are not the only ones which are important for the people who live on the farm.

In our guide the farmer owns or rents land and farm buildings, borrows money if and when necessary, owns and buys livestock, equipment and machinery, buys other input in the form of goods and services, and sells farm output; all this with the purpose of making (more) profit and a better and lasting living for the family.

The farmer is free to run the farm as h/she likes. However, there are certain restrictions, because farms do not exist or operate in a vacuum. Everywhere in the world, social, legal, political, economic, ecological, technical and infrastructural realities affect the freedom of the farmer to manage the farm business.

Our text is divided into two parts, appearing as a separate, equally important volumes in the Agro-Source Series: nr 3: THE FARM AS A COMMERCIAL ENTERPRISE and nr 4: FARM ACCOUNTING. The underlying text is the ‘economics’ part and it should be used together with the ‘farm accounting’ text. The series offers also a related edition, nr 5: ECONOMIC CONCEPTS IN MARKET-ORIENTED FARMING, for use in undergraduate teaching.

The underlying text is far from being a ‘handbook’; it is an introductory text only, containing the basics of the subject, valid everywhere in commercial farming of some size.

The concepts introduced in the text are followed by examples and exercises so that students gain working knowledge of the subject, which is very important.

The exercises can be used as they are; in this way the students learn to work with the different concepts introduced in the instruction part. But apart from the exercises provided in the text, teachers should try hard to construct exercises which are based on local conditions and which use the national currency. In such exercises students should recognize farming as it is done locally. Farm visits & surveys are also very important in this context.

The ‘**M**’ in the text stands for **M**(oney), a fictitious monetary unit.

The text generally refers to the farmer as ‘he’, ‘him’ or ‘his’. We would like to assure the reader that it is only for the sake of textual convenience that we have chosen not to mention the woman farmer explicitly.

The following persons have contributed to the original texts ‘farm economics’ and ‘farm accounting’, in their capacity as farm economics teachers in various countries: *M.F.J.M. Cremers, A. Heykoop and Y.S. van der Valk.*

C. Verduyn of Dairy Training Centre Friesland closely read the text of earlier versions and provided some new text for revised versions. Agromisa is most grateful for all contributions.

Compilation and editing by B.Gietema

IJhorst

The Netherlands

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1 Introduction

1.1 Why farm accounting

Farm accounting is measuring and recording in a systematic way

- all farm resources
- all business transactions having financial consequences

As accounting involves much time and effort on the part of the farmer, there must be good reasons for keeping farm accounts. These reasons are the following (in decreasing order of importance):

- 1 First of all, **it permits the farmer to find out the size of the income** which is derived from the farm. Family expenses and other expenditures such as loan repayments and taxes may then be adjusted to that income. Money may be saved for investments in order to improve the farm.
- 2 To know the total value of the farm business and to know which part is actually owned by the farmer and which by others.
This information is required for making a budget and for determining the creditability of the farm business and its real sales value.
- 3 Farm accounts provide the **indispensable tool for farm management**.
In other words, accounting is needed to obtain and to maintain the most profitable use of farm resources.
Keeping farm accounts is the only way to reveal the weak spots in the farm's business and show where and how to improve management so as to arrive at a larger income.
Note that accounts cannot by themselves teach a farmer **how** to farm, but they can without doubt assist the farmer to use agricultural knowledge to best advantage.
- 4 To detect loss or theft of cash or stock.
- 5 To provide the necessary data for a correct income tax assessment.
- 6 To claim expenses for work done by others.

Normally farmers dislike paper work, busy as they are with their farm work. And where to keep records may be a real problem for a farmer, as one cannot expect that an office or a desk is available on the average farm. Therefore farm accounting should be kept very simple; it helps when all records can be kept in just one book.

It would help too if, for instance, the Ministry of Agriculture would make a Farm Accounting Book available for farmers. This would also guarantee uniformity in accounting practices.

Such a Farm Accounting Book should be set up in such a way that all data can be filled in directly.

Farmers should be advised to fill in this book weekly or monthly at least. If a farmer keeps all receipts, invoices, statements and other business documents in a file, a box, or in a clip on the wall, he will have sufficient material to produce reliable accounting figures for the proper management of his farm.

About this volume

In this volume we will discuss the **(opening) balance sheet** (Chapter 2). Chapter 3 shows how to record what happens during the period which is under review (= book keeping). This leads to the **closing balance sheet** and the calculation of the **Net Farm Income NFI** in Chapter 4. Chapter 5 provides **exercises** (with answers) and the guide ends with some remarks on **how to improve farm efficiency** (Chapter 6).

1.2 Customary business documents and their use

Cash receipt

A cash sale takes place when merchandise is bought and paid for **in cash**. In this case the seller in a modern business will make out a **cash receipt** which is printed in duplicate.

The original cash receipt is given to the buyer. The buyer should keep the receipt and later enter it in his Cash Book.

The duplicate remains in the book of the seller; later on the seller will summarize the duplicates and enter them in his Cash Analysis Book.

However, the (small scale) farmer selling at home or on the market, is not likely to use a cash receipt book. He must note his sales (at the end of the day) in his petty cash book or directly in the Cash Book.

Invoice

Whenever merchandise is sold on credit an **invoice** is made out in the invoice book which is usually in triplicate.

The original invoice is given to the buyer together with the merchandise.

Where monthly statements are sent to the buyer, the duplicates will be sent to the buyer together with the statement.

The triplicate remains in the book as a record.

Small scale farmers usually do not sell on credit.

But they should keep the invoices which they receive in order to be able to check the statements.

Statement

At the end of each month the seller can summarize all invoices to a customer in a **statement**; this statement is then sent to the customer for payment. The date of the statement is the last day of the month in question.

The statement gives the dates of the invoices, their numbers with or without details and the amounts which are due, under the heading DEBIT.

If during that month any payment or merchandise or credit is received from that customer, it will be accounted for under the heading CREDIT.

The difference between debit and credit is entered under the heading BALANCE. This balance is the amount due for payment.

Purchase order

The **purchase order** is a written request to a trading business to supply specified merchandise on credit; at the same time it warrants payment when the merchandise (with the invoice) is delivered.

A farmer will normally not make use of this purchase order, but in government departments, in companies and in large organisations it is an indispensable means of controlling expenditures.

It is commonly called a 'local purchase order' or LPO (in English speaking countries). Officers in Ministries of such countries will certainly come across LPO's.

A purchase order specifies the merchandise in number, kind, size, make, colour, etc.. It needs the signature of the person who actually orders and that of the person who must approve the purchase.

Cheque (check)

A **cheque** is an order to a bank to make a payment in money.

A cheque is the safest and easiest way of paying a debt or a purchase for a person having a **bank account**.

Two different bank accounts must be mentioned here:

1 a current account

- no interest (or little)
- money can be withdrawn without notice

2 a deposit account

- earns interest
- notice must be given before money can be withdrawn; in general, the longer the notice period, the higher the interest rate

The current account is commonly used for business transactions.

To open a bank account one normally has to deposit a certain sum and the bank will require a specimen signature of the person concerned.

If the person concerned is unknown to the bank it may ask a reference from a known person.

After a cheque book has been bought, payments can be made by cheque provided that there is sufficient money (usually called funds) in the account.

The person who writes the cheque is the drawer. The drawer writes on the cheque the date, the name of the payee (the person who is to receive the money), the amount of money in letters and in figures and then the cheque must be signed by the drawer.

Important details should be copied on the stub (which bears the same number) and later be entered in the account books: name of payee, number and kind of merchandise, amount paid.

A cheque can be 'open' or 'crossed'.

A crossed cheque is a cheque on which two parallel lines are drawn, up and down. A crossed cheque cannot be cashed and must be paid into a bank account. This is a matter of precaution, it prevents abuse. An additional precaution is to write between the lines '& Co' 'not negotiable' or 'account payee only'.

An open cheque can be cashed at the bank.

A cheque can be 'endorsed', which means that the payee signs his name on the back of the cheque and gives it to somebody else by way of payment.

An endorsement can be forged. To make endorsement impossible the words 'not negotiable', 'account payee only' or '& Co' are added to a crossed cheque.

To draw from one's own account, 'self' or 'cash' is written on the line intended for the payee's name.

To put money into one's own account (whether cash or cheque) one has to fill in a pay in slip, in duplicate, which the bank provides.

Cheque and pay in slip are handed over to the cashier, who checks the slip and hands one copy back after having stamped it. It serves as a receipt.

Money order

A **money order** is another kind of order to make a payment.

It is a means of transmitting money to persons who have no current bank account. It is provided by the Post Office or by a bank.

To obtain a money order, the amount to be transmitted plus a fee have to be paid to the Post Office or the bank. A money order form has to be completed (sender, payee, name of the office where the money order can be cashed).

1.3 Exercises

Exercise 1

On 10.4.10 Sunrise Farm at Hope Town purchases on credit the following items from the National Farmers Association NFA:

- 1 20 bags of feed oats at M 25 per bag
- 2 16 bags of single superphosphate fertilizer at M 32 per bag
- 3 45 bags of seed wheat 'Supergold' at M 72 per bag
- 4 5 burdizzo at M 9 each
- 5 8 shearing knives at M 6.50 per knife

On the same day Sunrise Farm sold to the NFA on order the following items:

- 1 8 bags of seed potatoes at M 48 per bag
- 2 50 bags of last years' wheat crop at M 52 per bag

Payment was made by cheque to NFA by Sunrise Farm after it had received a statement from NFA.

Write out:

- 1 The **purchase order** that Sunrise Farm made out on 8.4.06.
- 2 The **invoice** that Sunrise Farm received from NFA at the time of purchase.
- 3 The **statement** that NFA sent to Sunrise Farm at the end of April 2006.
- 4 The **cheque** that Sunrise Farm sent on 22.5.06 to NFA for the balance payable.

Exercise 2

From the following data, write out the **invoice** on 9.9.06 and the **statement** that Provident Provision Store at Mandele sent to the Junior Common Room JCR, Bayside Farm College, on 30th September 2006.

On 1.9.06 the JCR Canteen owed Provident M 425 for previous month's account rendered.

Also write out the **cheque** that the JCR of Bayside Farm College sent to Provident Provision Store on 20.10.06.

During September the JCR canteen manager purchased the following from Provident:

- | | |
|--------|---|
| 9.9.06 | 8 dozen envelopes at M 3.60 per dozen |
| | 10 dozen ballpoints at M 5 per dozen |
| | 12 packets of sweets at M 4 per packet |
| | 4 cases of beer at M 76 per case |
| | 50 cases of soft drink at M 13 per case |
| 15.9 | 20 packets of nuts at M 0.90 per packet |
| | 24 packets of candy at M 0.80 per packet |
| 21.9 | 6 cases of beer at M 64 per case |
| | 2 cases of soft drink at M 8.40 per dozen |
| 25.9 | 10 dozen pieces of soap at M 8.40 per dozen |
| | 20 dozen packets of razor blades at M 0.80 per packet |
| 28.9 | 8 cases of beer at M 64 per case |

On 23rd September 2006 the JCR paid Provident M 850 per cheque.

Exercise 3

At the beginning of July 2006 Mrs. Merchant from Stonebridge owed Tatton Farm at Bayside M 156.

During July she purchases on credit from Tatton Farm:

- | | |
|----------|--|
| 3.7.2006 | 6 kg mutton at M 4.20 per kg |
| | 3 kg maize at M 5.25 per kg |
| 5.7 | 3 dozen eggs at M 3 per dozen |
| 8.7 | 5 litres milk at M 0.80 per litre |
| | 3 kg butter at M 7 per kg |
| 13.7 | 3 litres ice cream at M 5.50 per litre |

- 18.7 2 chickens at M 4.50 per chicken
 2 kg maize at M 5.25 per kg
 6 kg onions at M 0.60 per kg
 6 kg tomatoes at M 0.75 per kg
- 23.7 8 kg beans at M 0.50 per kg
- 24.7 3 kg veal at M 3.60 per kg
- 28.7 4 kg steak at M 4 per kg

and on the 30th July she paid Tatton Farm M 48 on account.

Write out the **statement** that Tatton Farm sent to Mrs. Merchant at the end of July.

Page for additional notes, etc.....

2 Balance Sheet

2.1 Measuring and recording of farm resources

The main purpose of farm management is to obtain and maintain the most profitable use of the available farm resources.

How profitably a farmer has used his or her resources is measured by Net Farm Income.

Before we can calculate the Net Farm Income, we must first see how we can measure and record systematically the available farm resources.

As in every business undertaking, the resources of a farm business are nature, labour and capital:

- by 'capital' is commonly meant capital or production goods; not money!
- 'labour' is the resource provided by individual human beings with their free consent (it cannot be owned)
- 'nature' and 'capital' are either owned or rented

When making a list of the resources, only those owned by the farmer are considered; the rented resources are taken into account when the costs of production are calculated.

It is also important to know by what financial means the farmer is able to own his farm resources.

The farm resources are also called 'factors of production'.

A general way of recording the facts about the available farm resources is the **Balance Sheet (BS)**.

The Balance Sheet is a listing of all the possessions and debts of the farm business at a certain date.

The possessions are called 'assets' and normally listed on the right side of the Balance Sheet.

The debts (= what is owed to others) are called 'liabilities'; they are normally listed on the left side.

Right or left: do what is customary in your country.

Schematically a Balance Sheet looks as follows:

Balance sheet			
of (name and place)		on (date)	
Liabilities	Credit	Assets	Debit
How are the farm resources (possessions) financed:		Possessions = all farm resources	
a. by the farmer himself			
b. by others = loans or debts			

A Balance Sheet should always bear the name of the document (in this case Balance Sheet), the name and place of the business and the date.

The **possessions** or **assets** are listed in the following order: first the most fixed assets, such as land; then the more current assets; and finally the most liquid, such as cash in hand and money to be received.

It is very important **to separate property belonging to the farm business from property belonging to the farmer's household**, both with respect to money and bank accounts, and to other properties.

The total assets, also called Gross Capital, is the total value of all land, capital goods, stocks in store or in the field and money available in the business.

Under **liabilities** are listed the different sources used to finance the farm business. When the farmer is the sole supplier of finances (as is Mr. Jones of Sunrise Farm at Hope Town, Balance Sheet I), the total assets (or Gross Capital) equal the Net Capital or Net Worth.

The Net Capital is that part of the total value of the assets which is financed by the owner; it is therefore also called Capital Owned.

Balance sheet I

Sunrise Farm, Hope Town, on 1.1.06			
Liabilities	M	Assets	M
Net Capital	17,040	fixed assets: land, 5 ha	5,000
		farm buildings	1,000
		current assets: implements	4,000
		cattle	5,000
		bank account	1,600
		cash	440
	————— +		————— +
Gross Capital	17,040	Gross Capital	17,040

In many cases a farmer may not have had enough money or capital to finance his farm; this means that he has not paid for all the assets himself. He has obtained a loan, for instance, from the Agricultural Finance Company, from a bank or from relatives.

Another way of financing farm operations is to delay payment of bills. Until a bill (invoice) is paid, the supplying firm is lending money and actually financing the farm business concerned. Likewise, when a farmer is overdrawing his bank account, the bank is actually lending money to him. This is called an overdraft and, just like other obligations, it will appear on the Balance Sheet under the heading 'liabilities'.

Let us suppose that close to Mr. Jones of Sunrise Farm there is another farm owned by Mr. Smith, which looks very much like Mr. Jones' farm because it is of the same size, has the same number of cattle, etc..

However, Mr. Smith has got a loan of M 10,000 from AFC, a bank overdraft of M 1,500 and he holds M 500 in unpaid NFA invoices.

All these amounts will appear on the Balance Sheet as liabilities (Balance Sheet II).

Let us suppose that, at the time the Balance Sheet is drawn up, Mr. Smith has still to receive M 300 from National Co-operative Creameries NCC for milk. This amount will be recorded as 'debts receivable' under assets.

Notwithstanding the fact that the two farms look exactly alike, their Balance Sheets are different, as can be seen on the following page.

Balance sheet II

Yellowcreek Farm, Hope Town, on 1.1.06			
Liabilities	M	Assets	M
loan from AFC	10,000	fixed assets: land, 5 ha	5,000
bank overdraft	1,500	farm buildings	1,000
debts payable (or creditors): to NFA	500	current assets: implements	4,000
		cattle	5,000
Net Capital	3,740	cash	440
		debts receivable (or debtors): from NCC for milk	300
	————— +		————— +
Gross Capital	15,740	Gross Capital	15,740

When looking at the two Balance Sheets we see that on the assets side there are only two

differences, both in the financial resources: on Balance Sheet II there is no money in the bank account but there is M 300 receivable. Therefore the Gross Capital is M 1,300 less than on Balance Sheet I and it totals M 15,740 against M 17,040 on Balance Sheet I.

However, the liabilities show many differences.

The most important is the decrease in the Net Capital by M 13,300 to only M 3,740. So, Mr. Smith is only financing 24% of the farm business. The other 76% is financed by AFC, the bank and NFA, which all take risks as the **equity** is seen to be low. Equity is the Net Capital expressed as a percentage of the Gross Capital.

Without Balance Sheet no visitor, may be not even Mr. Smith himself, would be aware of the fact that Mr. Smith actually owns only a quarter of Yellowcreek Farm himself!

This comparison illustrates the usefulness of a Balance Sheet.

It will now be clear that the liabilities show in which way the assets are financed. Therefore a Balance Sheet may also be considered to be a picture of the possessions and the financial situation of a business at a certain moment.

Finally, when the assets exceed the liabilities, the farm business is said to be **solvent**. If the business were sold, the farmer would be left with a surplus = Net Capital. The Net Capital is thus an estimate of the amount of capital a farmer could realize by selling out the farm on the date of the Balance Sheet.

When the assets are insufficient to pay off the debts (or liabilities), the farm business is insolvent and might be called 'bankrupt'.

Other example

On 1.1.2006 the assets of Last Hope Farm, Stone Valley, are valued in terms of money, as follows:

➤ buildings	M 50,000
➤ equipment	5,000
➤ materials in store	2,500
➤ crops in the field	500
➤ seed	500
➤ land	150,000
➤ cattle	25,000
➤ tractor	10,000
➤ cash	1,000
➤ bank account	1,500

Last Hope Farm has been financed as follows: family loan M 25,000, bank loan (working capital) 50,000 and mortgage loan 50,000.

M 1000 is still to be paid to the fertilizer supplier. The farm is waiting for the payment of 500 kg milk (M 1 per kg).

Prepare the **Balance Sheet** of Last Hope Farm as per 1.1.2006.

How much own capital has been invested in this farm?

Would a bank be willing to provide an additional loan?

As follows:

Balance sheet

Last Hope Farm, Stone Valley, BALANCE as per 1.1.2006			
Liabilities	M	Assets	M
fixed liabilities:		fixed assets:	
mortgage loan	50,000	land	150,000
family loan	25,000	buildings	50,000
		equipment	5,000
		tractor	10,000
current liabilities:		crops	500
bank loan	50,000	cattle	25,000
debts payable	1,000		
Own/Net Capital	120,500	liquid assets:	
		materials in store	2,500
		seed	500
		cash	1,000
		bank	1,500
		debts receivable	500
	_____ +		_____ +
Gross Capital	246,500	Gross Capital	246,500

The family has invested M 120,500 own capital.

The liquidity of the farm is negative because the current liabilities (M 51,000) exceed the amount of cash, bank and other liquid assets (including cattle) by M 20,000.

At this date Last Hope Farm cannot meet its current financial obligations and it is most unlikely that a bank will provide an extra loan.

2.2 Depreciation

Depreciation means loss of value. Depreciation always refers to capital goods or investments.

Depreciation is due to the fact that capital goods (or production goods) do not last forever but wear out. They deteriorate and finally become useless.

Here we see a crucial difference between the biological world and the technical goods made by mankind. The (domestic) animals used in agriculture reproduce themselves even without human interference. The technical goods go to pieces after a certain time and have to be replaced by new ones produced by industries.

Not only **wear and tear**, but also **age** may cause depreciation. Something may become what is called obsolete, when it is outmoded.

To calculate depreciation or loss of value, one should know how long a capital good is going to last. This will depend on its quality, the standard of maintenance and the way the capital good is handled. Hence, we do not quite know in advance how long a capital good is going to last. Therefore, to calculate depreciation we use **averages** based on the experience of others.

There are various methods of calculating depreciation. The most common method is the **straight line method**, in situations with no or little inflation (prices remain the same, or almost).

This method is commonly used in farm accounting. The depreciation is calculated as if the value decreases by the same amount each year hence the name 'straight line method'.

For example, a shovel costing M 10 will last eight years before it is worn out and has to be replaced by a new one. In reality the shovel may lose M 2.50 of its value in the first year and in the eighth year a mere M 0.50. However, for the sake of simplicity, we calculate an equal depreciation of 10 ÷ 8 = 12.5% per year; so M 1.25 is the average yearly loss of value.

In most cases a capital good still has some value after it is worn out; this value is called residual , salvage, rest or scrap value. It is clear that the scrap value has to be subtracted from the original or initial value of the capital good before one starts to calculate the depreciation.

$$\text{annual depreciation} = \frac{\text{purchase value} - \text{scrap value}}{\text{useful life in years}}$$

Example

A farmer has bought a tractor for M 30,000. It is estimated that after 4 years the tractor will be so worn out that the costs of repair will be almost the same as the price of a new tractor.

At that time the scrap value of the tractor is estimated to be M 5,000. What will be the annual depreciation of the tractor?

A duration of 4 years means that the annual depreciation is 25%. The loss of value during the 4 years will be M 30,000 minus M 5,000 = M 25,000. The annual depreciation is then 25% of M 25,000 = M 6,250.

So the tractor is going to cost M 6,250 yearly to the farm business, in terms of depreciation. This is over and above the cost of repairs, fuel, oil and insurance.

Again, in this example we assume that there is no inflation.

When there is **(heavy) inflation**, the calculation may be based on the most recent new value, one way or another. Consultation with peers or the agricultural extension service may be useful.

2.3 Inventory and valuation of resources

Before a Balance Sheet can be drawn up a **valuation** and **inventory of resources** has to be made.

A **valuation** is the estimation of the value of each asset or item.

An **inventory** is a list of all possessions or assets item by item, at their present value.

In making valuations, the value of farm produce can be based either on its cost of production or on its market value. If possible, the cost of production is used; if this is not possible, the market value.

We use the straight line method of depreciation and deduct depreciation from the value at the time of purchase or from the replacement value.

Rules of valuation

Land does not deteriorate under good husbandry practices and keeps the same value; it may even become (much) more valuable with time!

The value entered is the purchase price or the estimated price, based on the value of similar land in the area at the time.

Buildings of stone or brick may last 25 to 40 years. So, depreciation is between 4% and 2.5% per year.

Wooden buildings depreciate at about 10% per year.

Machinery:

1 non motorised machinery, for instance ploughs, harrows and carts, depreciate at about 10% per year;

2 motorised machinery, for instance tractors, harvesters and (diesel) pumps depreciate at 20% per year or more, depending primarily on maintenance and secondly on the number of hours which they operate per year.

Example

Say a tractor lasts 8 years or 7500 working hours. Thus when it is used 1500 hours/year it will last 5 years only:

➤ cost price of tractor	M 28,000
➤ trade in value after 5 years	5,000
➤ depreciation over 5 years	23,000

Value after three years is M 28,000 minus M 13,800 = M 14,200.

Small tools such as hammers, pliers, shovels, buckets, etc., which have purchase values of less than M 50 each, are often written off immediately at purchase (which means that their depreciation is 100%).

However, on a large, modern farm there may be thousands of M worth of such small tools; some might be new and some nearly worn out. Therefore a suitable method is to calculate the new value of all small tools and to enter them on the Balance Sheet for half that value once and for all.

Livestock

During an initial period the value of newly born farm animals increases; then the value remains constant and finally it decreases: in this period the animals are usually sold. Calculation of the depreciation of domestic animals is therefore meaningless.

Something different is needed here.

Livestock is listed by kind, age and sex.

For example, in a dairy herd there are bulls, dairy cows, heifers over 2 years, heifers of 1 2 years and calves under 1 year.

Each group of animals is valued by multiplying the number in that group by a fixed price. Ideally, this fixed price would be the cost of breeding a representative animal of that group.

In certain countries a 'standard value' may be applied for inventory/valuation purposes. In other countries good averages may be available.

If these are not available, the regional market prices or estimated cost prices have to be used.

Purchased mature cattle is valued at the purchase price.

2.4 Exercises

Exercise 4

A. Prepare a **Balance Sheet** from the following data for Greengold Farm at Bahati, on 31st December **2006**.

Greengold Farm owes M 2,000 for fertilizer to NFA, Niroo, M 350 for feed to Unga Ltd., Newtown and has borrowed from the National Co-operative Bank M 35,000 on 1.5.2006.

The money from the bank is to be repaid in equal annual instalments over a period of 5 years, with an interest of 7.5% per year.

At the time that the Balance Sheet is drawn up the farm has M 3,500 in the bank account and is owed M 1,700 for wool sold to NFA, Niroo.

Cash in hand is M 125.

The valuation was as follows:

➤ arable land	M 60,000
➤ sheep	12,000
➤ dairy cattle	35,000
➤ equipment	20,000
➤ buildings	40,000
➤ maize in store	15,000
➤ citrus orchard	60,000
➤ goats	5,000

➤ wool in stock	11,000
➤ citrus fruits in store	3,000
➤ cattle minerals in stock	700
➤ lambs for sale	9,000
➤ bullocks for sale	20,000

- B. Do you think that, if the farmer applies for a loan from the National Co-operative Bank amounting to M 50,000, he will stand a good chance?
What are the main points to be considered?

Page for additional notes, etc.....

3 Cash Analysis Book

3.1 Cash Book, Petty Cash and Diary

A **cash book** is what it says, namely a record of **all** changes in cash and a record of all cash transactions. In other words, it records cash receipts and expenditures (or expenses).

For farms with a bank account the cash book also records changes in the bank account since a bank account may be considered as an extension of the cash box at home.

A cash book has separate columns for receipts and for expenditures.

In addition there is a column for the date and one for a (brief) description of each transaction.

So, the cash book in its simplest form is as follows:

Date	Description	Receipts (debit)	Expenditures (credit)

Each transaction starts with a new line in the cash book.

To check whether the amount of money in the cash box (or purse) is equal to the cash balance in the cash book, the total expenditures in the cash book must be subtracted from the total receipts.

In principle, the total cash receipts must be a larger sum than the total cash expenditures.

But where a cash book also records bank account changes, the total receipts may be less than the total expenditures because a bank account can be overdrawn.

To keep the cash book neat and tidy the above calculation is done in draft. Then the difference, which is called **cash balance** is entered in the expenditure column because, in accounting, debits and credits must always be equal.

This procedure is called 'closing the books'.

If there is a difference between the cash balance and the actual cash in hand, the farmer will usually be able to discover the error (by checking all entries) provided that the previous closing of the books did not take place too long ago.

Therefore checking should be done weekly, or at least monthly.

The 'opening' is done by entering the previous cash balance from the expenditures column in the receipts column and then calling it 'cash in hand'.

Example of a cash book

Cash Book of Mr. John Pasture, Greenhill, 1st of January to 31st of December 2006

Date	Description	Receipts	Expenditures
1. 1.06	Cash in hand	2,000	
12.1.06	10 kg cattle minerals		32
21.1.06	Milk cheque, Dec. 2005	148	
23.1.06	1 heifer sold	1,500	12
23.1.06	2 kg nails		176
23.1.06	Veterinary services, Dec. 2005		120
31.1.06	Wages		1,590
31.1.06	Private drawing		* 1,718
31.1.06	Cash balance		
31.1.06	Total (closing January)	3,648	3,648

1. 2.06	Cash in hand	* 1,718	
2. 2.06	Maize seed		40
2. 2.06	Fencing wire	375	175
2. 2.06	1 cull cow sold		
10.2.06	Artificial insemination	487	1
15.2.06	Fencing posts		150
22.2.06	Milk cheque, Jan. 2006		
28.2.06	Wages		120
28.2.06	Private drawing		1,425
28.2.06	Cash Balance		* 669
28.2.06	Total (closing February)	2,580	2,580
Summary for the rest of the year	Cash in hand 1.3.06	* 669	
	Milk	4,325	2,425
	Beans sold	1,250	960
	1 bullock sold	950	235
	Goats and sheep sold	290	175
	28 bags of maize at M 82	2,296	4
	Cabbage	2,365	475
	Tractor repairs		68
	Fuel and oil		1,275
	Cattle feed and minerals		1,200
	1 milk can		4,800
	Artificial insemination		528
	Veterinary services		
	Cattle medicines		
	Fertilizer for crops		
	Wages		
	Private drawings		
	Cash Balance		
	Total (rest of the year)	12,145	12,145
	TOTAL	18,373	18,373
	* Minus carried forward balances	2,387	2,387
	TOTAL for the year	15,986	15,986

Remarks on Mr. Pasture's cash book

The purpose of a cash book is to record receipts and expenditures whenever they occur and to balance both sides at any time. That may be daily, weekly or monthly, depending on what is desirable or necessary.

The balance in the expenditure column must tally with the money in the cash box and in the bank.

This balance is then carried forward into the receipt column when the book opens for the following period (in our case February, to begin with).

Looking at the 'totals' at the end of January, February, or for the rest of the year, the amounts indicated are not a true reflection of what was really received or spent in the time period under consideration (January or February or the rest of the year). The carrying forward procedure of the balances of each month causes a bias.

In order to arrive at the 'true' total for the year, the carried forward balances have to be deducted from the total for the twelve months (arrived at by adding the totals for each month), except those at the beginning and at the end of the year.

Always keep two rules in mind:

- at the beginning (opening) of an accounting period the balance in cash is always entered in the receipt column, and at the end (closing) the cash balance is entered in the expenditures column;
- sales and purchases are only entered after **payments** (by cash or by cheque) **have taken place**.

Sometimes farms use a **petty cash book** in which expenditures and receipts for cash in hand are recorded when they occur ('petty' means small).

Once a week or once a month the totals are entered in the cash book.

A **diary** is a book of events, transactions or observations recorded daily or at frequent intervals.

Large farms which keep a complete set of accounting books may use a diary for non financial records, such as work performed by labourers, fertilizer applications on specified crops and fields, dates of sowing and harvesting, servicing, yields, feed given to animals, etc..

3.2 The design and use of the Cash Analysis Book

It is **not** possible to calculate the Net Farm Income from the cash book as such.

To make this possible, receipts and expenditures have to be sorted out, kind by kind.

And, what is more, for management purposes the farmer needs to know more than the total receipts and expenditures which the (simple) cash book can provide.

To be able to manage the farm in such a way that the most profitable use is made of the farm resources, the farmer must

➤ **distinguish**

- 1 receipts for farm produce from other receipts, such as sales of capital goods and loans;
- 2 expenditures for production purposes from expenditures for other purposes, such as investments and repayments;

➤ **calculate** the costs and revenues of his separate farming activities (also called enterprises);

➤ **compare** the output and costs of each activity with the results of previous years and also with the results of other farms.

The **Cash Analysis Book (CAB)** can be helpful in this respect (see following pages).

The Cash Analysis Book

The Cash Analysis Book is an extension of the cash book.

In order to analyze receipts and expenditures, the Cash Analysis Book adds several columns to the total +receipts and total expenditures columns of the cash book.

In these columns receipts and expenditures of one and the same kind are recorded a second time.

The totals of such columns enable a farmer at the end of the year to analyze each particular farm activity (or enterprise).

The number of these added columns depends on the number of activities (operations, enterprises) on the farm, and also on how many details the farmer requires about costs.

So, the first three columns in a Cash Analysis Book are like those in a cash book: date, brief description, total.

Then follow different types of columns, as required:

- columns in which the output and costs are entered for **each activity** (enterprise or operation) for which separate information is wanted; examples: maize, poultry, citrus, milk, cattle, woodlot;
- a column 'other output' on the receipts side and a column 'overhead costs' (or general costs) on the expenditures side, in which output and costs are entered **which cannot be allocated to a specific activity**;
- a column for **livestock sales** on the receipts side and a column for **purchases** on the expenditures side;
- a column for **non output** receipts and a column for **non cost** expenditures on the expenditure side
- a column for **receipts from the household** (private) and a column for **expenditures** for the household;
- other columns.

It should be noted that all entries are made twice and on the same horizontal line: once in the total column and once in the appropriate analysis column.

An example of a Cash Analysis Book is shown on the following page.

If a farmer has a business account with a bank, the same type of Cash Analysis Book can be used. Then, however, the columns of total receipts and total expenditures have to be divided into two: one cash and one bank.

Moreover, an additional column is needed at the very end (after 'private') to enter all transfers from cash to bank and vice versa.

This column could be called 'cross bookings'. All transfers have to be entered twice, once on the receipts and once on the expenditures side. This cross bookings column can then also be used for cash and bank balances at the opening and closing

Cash Analysis Book Mr. John Pasture, Greenhill, 1st of January to 31st of December 2006

Receipts							
Date	Description	Total	Crops	Milk	Livestock sales	Other out-put	Private
1.1	Cash in hand	2,000				2,000	
12.1	Milk cheque Dec. 2005	148		148			
23.1	1 heifer	1,500			1,500		
2.2	1 cull cow	375			375		
22.2	Milk cheque Jan. 2006	487		487			
	Summary for the rest of the year:						
	Milk delivered	4,325		4,325			
	Beans sold	1,250	1,250				
	1 bullock sold	950			950		
	Goats and sheep sold	290			290		
	28 bags of maize at M 82	2,296	2,296				
	Cabbage	2,365	2,365				
	Total	15,986	5,911	4,960	3,115	2,000	-

Expenditures

Date	Description	Total	Crops	Cattle costs	Livestock purchases	Overhead costs	Other exp.	Private
12.1	10 kg cattle minerals	32		32				
23.1	2 kg nails	12				12		
23.1	Vet.services Dec. 2005	176		176				
31.1	Wages	120				120		
31.1	Private drawing	1,590						1,590
2.2	Maize seed	40	40					
2.2	Fencing wire	175					175	
10.2	A.I.	1		1				
15.2	Fencing posts	150					150	
28.2	Wages	120				120		
28.5	Private drawing	1,425						1,425
	Summary for the rest of the year:							
	Tractor repairs	2,425				2,425		
	Fuel and oil	960				960		
	Cattle feed & minerals	235		235				
	1 milk can	175					175	
	A.I.	4		4				
	Veterinary services	475		475				
	Cattle medicines	68		68				
	Fertilizer for crops	1,275	1,275					
	Wages	1,200				1,200		
	Private drawings	4,800						4,800
	Cash balance	528					528	
	Total	15,986	1,315	991	-	4,837	1,028	7,815

Page for additional notes, etc.....

4 Profit and loss account

4.1 Summary of a year's output and costs

At the end of the year the columns of the Cash Analysis Book provide the totals of the receipts and expenditures of the business operations carried out in that year. This makes it possible to compile the **Profit and Loss Account**.

The Profit and Loss Account can be defined as:

- a list of output and costs over a one year period;
- in our case resulting in the Net Farm Income.

The origin of the name Profit and Loss Account is the industrial business company which came into being in the 19th century.

In an industrial business company the head (the 'director') is usually an employee who is paid a salary. This salary is therefore an expenditure which is included in the costs of the Profit and Loss Account which finally shows a 'profit' or a 'loss'.

A farm can be such an 'industrial company' with a salaried 'manager'.

However, the legal status of a farming business is quite often that of a sole proprietor, a one man business or a family business. In our text we take the latter as being the case.

The head of the farm is quite often both the owner and the 'entrepreneur' (see the 'farm as a commercial enterprise' text which describes the roles of the 'agricultural entrepreneur').

Therefore the reward (remuneration) for the labour and management provided by the head of the farm (or by family members) is not included in the expenditures, because it is not paid for with a salary or wages.

The remuneration then consists of what is left from the output after the costs have been deducted.

The balance is commonly called **Net Farm Income** (or Net Revenue or Net Return).

Thus the Profit and Loss Account of a farm calculates the Net Farm Income.

The Profit and Loss Account is divided into two parts.

The left side shows the value of all **output**. It lists the headings of the Cash Analysis Book (receipts) and shows the total amount at the end of the year.

The right side shows all **costs**. It lists the headings of the Cash Analysis Book (expenditures) and shows the total amount at the end of the year (note: right and left, do what is customary in your country).

This seems simple enough. However, to obtain 'output' from 'receipts' and 'costs' from 'expenditures', some **adjustments** have to be made. In order to see this clearly it helps to keep in mind that:

$$\begin{array}{lcl} \text{output} & = & \text{any produce from the farm} \\ \text{cost} & = & \text{any sacrifice made in order to produce} \end{array}$$

4.2 Calculation of Profit and Loss Account from Cash Analysis Book

a. Adjustment for output (or credits) receivable

Farm produce that is sold **on credit** (for instance milk to National Co-operative Creameries NCC, grain to the Marketing Board) are **not** entered in the Cash Analysis Book **until** the date on which payment is received.

This may be several months after delivery.

Hence there will be 'debts receivable' at the beginning and at the end of the accounting year. Remember the 'debts receivable' on the Balance Sheet.

As debts receivable at the **beginning** of the year concern output of the previous year, they have to be **deducted** from the total receipts in order to get the right output.

But debts receivable at the **end** of the year concern output of the current year. Therefore they have to be **added** to the total receipts from the cash book, in order to get the real output of the current year.

b. Adjustment for costs (or debts) payable

Likewise, **purchases on credit** for the farm are **not** entered in the Cash Analysis Book **until** the actual payment is made.

Therefore there will be debts payable at the start and at the end of the accounting year.

As debts payable at the **beginning** of the year concern costs from the previous year, they have to be **deducted** from the total expenditures.

Debts payable at the **end** of the year concern expenditures of the current year; therefore they have to be **added** to the total expenditures, in order to arrive at the correct costs for the year.

c. Adjustment for stock

At the beginning and end of the year there are generally 'dead stocks' on the farm, which appear as Assets on the Balance Sheet. These stocks are either output or means of production (input). When a Profit and Loss Account is drawn up they have to be taken into account separately, as follows.

Stock of output, such as grains and potatoes, present at the **beginning** of the year (produced during the previous year) and sold during the current year, must be entered as a receipt in the Cash Analysis Book.

But, as it belongs to the previous year's output, it has to be **deducted** from this year's receipts.

Stock of output present at the **end** of the year will **not** be entered in the Cash Analysis Book, but it is an output of this year. Therefore it must be **added** to this year's receipts.

Examples of **stock of input** are feedstuffs, seeds, fertilizers and other agricultural chemicals.

Stock of input present at the **beginning** of the year has been paid for in the previous year, but will be used in the production process during the current year.

Therefore the value of this stock is a cost for the current year and has to be **added** to the expenditures.

On the contrary, stock of input at the **end** of the year has been entered as an expenditure in the Cash Analysis Book of the current year, but it will only be used the following year.

As this is not a cost for the current year it has to be **deducted** from the expenditures.

d. The cost of capital, or the distinction between capital and current expenditures

Most purchases which are recorded as expenditures are used up within the current year of accounting.

For instance, hired labour, seed, fertilizers, fuel and feedstuffs.

Such current expenditures are simply **costs**.

Other expenditures concern the **purchase of capital goods** or resources such as buildings, implements, machinery or livestock.

They last longer than the current year.

Such capital expenditures **are not costs**.

The proper calculation of costs of capital goods requires further explanation.

In discussing the valuation of capital goods we have already come across the concept of **depreciation**. This must now be more closely studied.

Capital goods (also called producer's goods, production goods or investments) are either '**dead**' when produced by industries or **live** when produced biologically.

The cost of dead capital must be considered separately from the cost of live capital or livestock.

Dead stock, such as buildings, machinery and implements, lose value by wear and tear. This loss of value or depreciation, which forms the cost of dead capital, is calculated as a percentage appropriate to each kind of dead capital, as we have seen before.

Livestock, or natural resources in general, do not depreciate as long as we do not make it deteriorate ourselves.

Hence land will not depreciate as long as it is well managed and conserved.

Young farm animals will replace old ones (which can be sold) and increase the herd's value. Therefore livestock (farm animals) is at the same time both capital good and farm produce.

It therefore follows that all changes, caused either by growth, death, sale or purchase, have to be taken into consideration.

We shall first consider the livestock changes regarded as produce, and then regarded as capital good:

- 1 **As produce;** when sales of livestock have been higher than purchases, there is a **Net Sale**. However, if more livestock is bought than sold, there is a **Net Purchase**, which is to be considered as a negative sale, or in a way as a cost of livestock.
- 2 **As capital;** when the value of livestock at the end of the year is higher than at the beginning (we learn this from the Balance Sheet) there is an increase in livestock, a capital gain which we call **Growth of Livestock**.

We must understand that this 'growth of livestock' is greatly affected by the sales or purchases of livestock during the year under consideration.

The lower the Net Sales the bigger will be the Growth of Livestock, and vice versa.

When the value of livestock at the end of the accounting year is lower than at the beginning, there is a decrease of livestock (a negative growth or a capital loss).

This decrease of livestock will as a rule be caused by high Net Sales of Livestock.

Hence in order to calculate the total output of livestock, it should be looked at simultaneously in **two** ways: as produce rendering net **sales** and as capital rendering **growth**.

Hence the terms Net Sales and Growth of Livestock.

Under good husbandry, Net Sales and Growth of Livestock will as a rule add up to a positive figure and appear on the output side of the Profit and Loss Account.

Only if there are diseases and the like, will Net Sales and Growth of Livestock result in a negative figure and appear on the cost side of the Profit and Loss Account.

It should now be clear that receipts from sales of capital **are not output**. They do not appear on the Profit and Loss Account but increase the cash on the Balance Sheet.

e. Repayment of loan and payment of interest

One of the ways of increasing a farmer's income (which presupposes an increase in output) is to expand investments, or in other words to acquire more resources.

There are two ways of financing these investments: (1) either to use one's own savings or (2) to borrow money.

It is usually more economical to use one's own savings but when there are no savings, the only way is to obtain a loan.

A loan is a **means of financing investments** which otherwise would have to be postponed.

Normally interest has to be paid.

Interest can be considered as the price for the privilege of hiring money for one year. Therefore **interest is a cost** and should be entered in the Cash Analysis Book under the heading 'overhead', since a loan is considered as financing some part of the assets of the farm business.

A loan has to be repaid after a certain period.

The repayment of a loan is not a cost **but the acquisition of a resource**. Therefore it is not recorded in the Profit and Loss Account.

The repayment of a loan is recorded in the Cash Analysis Book in the column 'other expenditures'.

The balance of loans to be repaid is recorded as liability on the Balance Sheet.

When repaying a loan, the farmer is acquiring ownership of his resources. The repayment of a loan is actually included in the increase of the Net Capital and is paid out of the Net Farm Income. Therefore the repayment of a loan is also a way of saving.

When a loan is received, its amount must be recorded in the Cash Analysis Book in the 'other receipts' column.

When capital goods are acquired with this loan the procedure explained above must be followed.

f. **Payments in kind and home consumption**

Some farmers pay part of the wages of their labourers in farm such as milk.

This part of the wages does not appear in the Cash Analysis Book as expenditure. Therefore these payments in kind have to be calculated as **non cash costs of labour**.

When these payments in kind have been produced on the farm, they must also be counted as **non cash output**.

The farm produce **consumed by the farmer's family** is also a farm output which is **not** recorded in the Cash Analysis Book under crops or livestock because no money was involved. So, home consumption has to be estimated at the end of the year and must be entered as a non cash output only; never as a cost because it is included in the Net Farm Income.

g. **Private**

In the Cash Analysis Book, **private expenditures** are recorded in a separate column 'private', because they are payments out of the farm cash box (or out of the farm bank account) but they are not costs.

Private expenditures have to be considered as **payments in advance** from the Net Farm Income (that is only known at the end of the year) to enable the farmer's family to provide for its needs.

In the same way **private receipts** are recorded in a separate column.

Private receipts are monies that the farmer puts into the farm business but which he obtained from activities not connected with the farm; for instance, dividends from shares, wages from an off farm job, gifts and pensions. Hence they are not farm output.

Thus private receipts and private expenditures are omitted from the Profit and Loss Account.

The balance is called Private Drawings.

h. Net Farm Income and Proving of the Accounts

$$\text{Net Farm Income} = \text{Total (or Gross) Output} - \text{Total Real Costs}$$

Net Farm Income is derived from the Profit and Loss Account. It is understandably the most important piece of information for the farmer.

The Net Farm Income NFI is entered on the cost side of the Profit and Loss Account to make it balance.

It will be clear that the NFI is recorded as a cost, because the NFI is in fact the payment (or remuneration) which the farmer and the working members of the family receive for their labour, management and own capital.

However, the NFI resulting from the Profit and Loss Account is **not** the same as the cash which the farmer receives from the farm business. The Net Farm Income is in fact composed of three parts:

- cash income
- non cash income
- savings or investments

The **cash income** consists of the money the farmer really received from the farm business; it is called **Private Drawings**.

Private Drawings are actually a part of the payments in advance for the farmer's and his or her family's labour and management.

Any private receipts, however, might be considered as savings from outside the farm business, which are put into the farm business; they must therefore be deducted from the private expenditures so that Private Drawings are obtained.

The **non cash income** consists of the farm produce consumed by the farmer's family for which no payments have been made. It is estimated at market price. It is called **Home Consumption**.

A 'subsistence farmer' is getting the major part of his NFI by way of Home Consumption (he will not be aware of this technicality).

The **savings** are that part of the NFI which the farmer does not spend in his family household but which he keeps in the farm.

These savings will cause an increase in the Net Capital during the accounting year. Therefore this part of the NFI equals the difference between the Net Capital at the end and at the beginning of the accounting year.

If the Net Capital at the end of the year is smaller than at the beginning, then the farmer has been consuming part of his capital; the debts will have increased or the total assets will have decreased.

Unavoidably the result will be a decline in the next year's output and income.

The above information can also be used for **Proving the Accounts** since

$$\text{NFI} = \text{Net Private Drawings} + \text{Home Consumption} + \text{Increase of Net Capital}$$

4.3 Drawing up the final accounts

In order to show how to apply the rules of adjustment described above we will continue with Mr. John Pasture's farm.

To this end we need two more pieces of information, namely the Opening Balance Sheet and what is called Additional Information.

Opening Balance Sheet

Mr. John Pasture, Greenhill, on 1.1.2006			
Liabilities	M	Assets	M
creditor: veterinaries	176	fixed assets:	
		land, 5 ha	12,500
		farm buildings	2,500
Net Capital	39,972	current assets:	
		tractor	12,000
		equipment p.m. livestock	8,000
		crops in store and in field	3,000
		debtor: milk Dec. 2005	148
		bank account	1,500
		cash in hand	500
	————— +		————— +
Gross Capital	40,148	Gross Capital	40,148

Additional Information:

Home consumption	M 2,215
Debtors on 31.12.06 (milk)	258
Creditors on 31.12.06 (cattle feed)	205
Valuations on 31.12.06:	
➤ livestock	10,200
➤ crops in store and field	3,550

Table 1: Purchase values and depreciation rates

Investment	Date bought	Purchase value	Rate of depreciation
Buildings	Jan.01	M 3,000	16 2/3% (= 1/6)
Tractor	March 01	M 15,000	20%
Equipment	2006		10%

Calculation of adjustments

The information provided above enables us to calculate the adjustments from receipts to output and from expenditures to costs:

	Crops	Milk	Net Sales & Growth of Livestock	Cattle Costs
Cash Analysis Book	5,911	4,960	3,115	991
Bal.Sheet & Add.Inf.	+ 550	- 148 + 258	+ 2,200	- 176 + 205
Profit and Loss Account	6,461	5,070	5,315	1,020

Profit and Loss Account

For the output side we simply use the totals from the Cash Analysis Book and, if necessary, the adjusted figures shown above. We also use the figure for Home Consumption from 'Additional Information'.

For the costs side we apply the same routine.

Next we calculate the depreciations. They are deducted from the values on the Opening Balance Sheet or they are deducted from the purchase values, if bought during the current year.

This will lead us to the figures in the Closing Balance Sheet.

As follows:

farm buildings: depreciation	M 500;	value Closing BS	2,000
tractor: „	M 3,000;	„	9,000
livestock equipment: „	M 50;	„	450

Profit and Loss Account

Mr. John Pasture, Greenhill, 1st of January to 31st December 2006

Output	M	Costs	M
Crops	6,461	Crops	1,315
Milk	5,070	Cattle costs	1,020
Net Sales & Growth of Livestock	5,315	Overhead	4,837
Home consumption	2,215	Depreciation of:	
		farm buildings	500
		tractor	3,000
		livestock equipment	50
		Net Farm Income	8,339
	————— +		
Gross Output	19,061	Total Costs	19,061

Closing Balance Sheet

The basis for the Closing Balance Sheet is the Opening Balance Sheet.

Always start with the **assets**.

Check with 'other expenditures' from the Cash Analysis Book to see if new resources were bought and with 'other receipts' to see if old resources were sold.

In our example new equipment adding up to M 500 was bought for the livestock enterprise.

The depreciation values have already been calculated.

Information about debtors, creditors and valuations has already been provided.

Thus the Closing Balance Sheet will be:

Closing Balance Sheet

Mr. John Pasture, Greenhill, on 31.12.2006

Liabilities	M	Assets	M
creditor: cattle feed	205	fixed assets:	
Net Capital	38,281	land, 5 ha	12,500
		farm buildings	2,000
		current assets:	
		tractor	9,000
		livestock equipment	450
		livestock	10,200
		crops in store and field	3,550
		debtor: milk Dec. 2006	258
		bank account	400
		cash in hand	128
	————— +		
Gross Capital	38,486		38,486

Proving of the Accounts

Private Drawings	M 7,815
Home Consumption	2,215
Increase of Net Capital M 38,281 – M 39,972 =	–1,691
	————— +
Net Farm Income	M 8,339

5 Exercises

5.1 Exercise 5 (worked out)

On 1st July 2006 Fairview Farm at Aguna Junction started the year with M 12,400 in the bank and M 300 in the cash box.

The farm was owed M 3,000 for milk sold to National Co-operative Creameries NCC and M 500 for grain sold to Agricultural Products Company APC.

The farm owed National Farmer's Association NFA M 1,500 for fertilizers and Unga Ltd. M 500 for feedstuffs.

Opening valuation on 1st of July 2006

M	
dairy cattle	25,000
grain in store	9,000
potatoes in store	5,000
beans in store	3,500
young stock (heifers and calves)	15,000
goats	5,000
sheep	7,000
buildings	25,000
land, 320 ha	160,000
implements (tractors, etc.)	80,000
milking machine	10,000
cattle minerals	600

expenses

M		M	
cattle minerals	900	machinery repairs	2,500
A.I.	600	fuel, grease, etc.	3,000
veterinary expenses	1,400	harvesting	2,000
salaries	15,000	transport and marketing	1,400
feedstuffs	3,500	fertilizers	4,500
pesticides and other chemicals	2,000	private drawings	7,200

receipts

M		M	
cattle sold	6,000	grain sold	5,500
goats sold	4,500	potatoes sold	9,800
sheep sold	5,600	beans sold	6,000
wool sold	3,500	milk sold	12,000

Additional Information

Depreciation rates are:

- 4% for buildings
- 10% for milking machine
- 20% for implements

At the end of the year, on 30th of June 2007, the **Closing Valuation** was as follows:

	M
dairy cattle	25,000
grain in store	10,000
beans in store	4,000
young stock	14,000
goats	2,000
sheep	3,000
wool	3,000
cattle minerals	1,000
fertilizers	2,000
feedstuffs in store	600

The farm was owed M 1,000 for milk sold to NCC and M 250 for grain sold to APC.
 The farm owed NFA M 1,000 for fertilizer purchased and M 200 for feedstuffs from Unga Ltd.
 Cash in hand was M 3,000 and the bank balance (account) was M 17,800.

Required:

From the above data write out for Fairview Farm:

- Opening and Closing Balance Sheet
- Cash Analysis Book
- Profit and Loss Account
- and other documents which can be derived from the data

Exercise 5 is a worked out exercise. The following text (pages 33-36) was prepared by C.Verduyn of Dairy Training Centre Friesland.

A. Opening Balance Sheet Fairview Farm

Opening Balance Sheet on 1.7.2006			
Liabilities		Assets	
External resources		Fixed assets:	
Fixed:		land	160,000
		buildings	25,000
Current:		Current assets:	
fertilizer to NFA	1,500	implements	80,000
feed to Unga	500	milking machine	10,000
Own resources:		dairy cattle	25,000
Net Capital	359,300	young stock	15,000
		goats	5,000
		sheep	7,000
		Liquid assets:	
		grain in store	9,000
		potatoes in store	5,000
		beans in store	3,500
		cattle minerals in store	600
		Debtors:	
		milk to NCC	3,000
		grain to APC	500
		Bank account	12,400
		Cash in hand	300
	_____ +		_____ +
Gross Capital	361,300	Gross Capital	361,300

Equity = $359,300 \div 361,300 \times 100\% = 99\%$. If Fairview Farm would apply for a loan, it would stand a very good chance to obtain this loan (of, say, 200,000) because of its high Equity and high Net Capital!

B. Cash Analysis Book as per 30.6.2007

Receipts (summary for the year 2006 2007):

Description	Total	Crops	Milk	Livestock	Other
cash + bank balance	12,700				12,700
cattle sold	6,000			6,000	
goats sold	4,500			4,500	
sheep sold	5,600			5,600	
wool sold	3,500			3,500	
grain sold	5,500	5,500			
potatoes sold	9,800	9,800			
beans sold	6,000	6,000			
milk sold	12,000		12,000		
Total	65,600	21,300	12,000	19,600	12,700

Expenditures (summary for the year 2006 2007):

Description	Total	Crops	Livestock	Overhead	Other	Private
cattle minerals	900		900			
A.I.	600		600			
veterinary expenses	1,400		1,400			
salaries	15,000			15,000		
feedstuffs	3,500		3,500			
pesticides	2,000	2,000				
machinery repairs	2,500		2,500			
fuel, etc.	3,000		3,000			
harvesting	2,000	2,000				
transport	1,400		1,400			
fertilizers	4,500	4,500				
private drawings	7,200					7,200
cash shortage	800					800
Cash/Bank	20,800				20,800	
Total	65,600	8,500	6,400	21,900	20,800	8,000

Remarks:

- 1 The cause of the cash shortage is not known and unlikely to be discovered, so it will be added to the private drawings!
- 2 The CAB enables us to calculate the Management and Investment Income; the M + I Income is the cash surplus, or cash flow, of the year under consideration.

C. Management and Investment Income

M + I Income = result of 1 year CAB = cash surplus = cash flow.

M + I Income calculation out of the CAB:

Method 1

M + I Income = cash surplus = (cash in hand + bank balance closing value) minus (cash balance + bank balance opening value) = 20,800 – 12,700 = 8,100

Method 2

M + I Income = cash surplus = (cash receipts) minus (cash expenditures) = (crops + milk + livestock) minus (crops + livestock + overhead + private) = (21,300 + 12,000 + 19,600) – (8,500 + 6,400 + 21,900 + 8,000) = 52,900 – 44,800 = 8,100

Advice: calculate the M + I Income by both ways as check!

The M + I Income can be used by the farmer for private expenditure and/or investments on the farm.

D. Closing Balance Sheet

Closing Balance Sheet on 30.6.2007

Liabilities		Assets	
External resources:		Fixed assets:	
Fixed		land	160,000
		buildings	24,000
Current:		Current assets:	
fertilizer to NFA	1,000	implements	64,000
feed to Unga	200	milking machine	9,000
		dairy cattle	25,000
Own resources:		young stock	14,400
Net Capital	342,450	goats	2,000
		sheep	3,000
		Liquid assets:	
		grain in store	10,000
		wool in store	3,000
		beans in store	4,000
		cattle minerals in store	1,000
		fertilizers in store	2,000
		feedstuffs in store	600
		Debtors:	
		milk to NCC	1,000
		grain to APC	250
		Bank account	17,800
		Cash in hand	3,000
	_____ +		_____ +
Gross Capital	343,650	Gross Capital	343,650

E. Profit and Loss Account as per 30.6.2007

Adjustments from receipt to output and from expenditure to costs include only costs of the year under consideration. Use Closing Balance Sheet minus Opening BS and Additional Information, as follows.

Description	Output			Costs	
	Crops	Milk	Livestock	Crops	Cattle costs
From CAB	21,300	12,000	19,600	8,500	6,400
Crops:					
crops in store (14000-17500)	- 3,500				
grain debtor (250-500)	- 250				
fertilizer in store (-2000+0)				- 2,000	
fertilizer creditor (1000-1500)				- 500	
Livestock:					
wool in store (-0+3000)			3,000		
growth (44000-52000)			- 8,000		
milk debtor (1000-3000)		- 2,000			
minerals in store (-1000+600)					- 400
feed in store (-600+0)					- 600
feed creditor(200-500)					- 300
Total	17,550	10,000	14,600	6,000	5,100

Profit and loss account 30.6.2007

Output		Costs	
Crops	17,550	Crop costs	6,000
Milk	10,000	Cattle costs	5,100
Net Sales & Growth	14,600	Overhead costs	21,900
Home consumption	Depreciation:	
Loss	8,850	buildings	1,000
		milking machine	1,000
		implements	16,000
	————— +		————— +
Total	51,000	Total	51,000

Remarks on P + L Account:

Balance the P + L Account by writing the profit on the cost side (output > costs) or the loss on the output side (output < costs). In case calculated interest is considered, add it as a cost.

Here no information is available that requires adjustments for overhead costs (investments require adjustment; why?).

F. Proving of Accounts

NFI = Net Private Drawings NPD + Home Consumption + Increase in Net Capital + Net Interest

Private Drawings	=	8,000	(7,200 + 800 cash shortage)
Home Consumption	=	
Net Interest	=	
Increase in Net Capital	=	- 16,850	
		————— +	
Net Farm Income	=	- 8,850	

G. Gross Margin

The Gross Margin GM can be calculated by adding the fixed costs FC to the Net Farm Income NFI:

$GM = NFI + \text{Fixed Costs}$, as $NFI = GM - FC$

$GM = NFI + FC$

$GM = -8,850 + FC$; $FC = \text{overhead} + \text{depreciation} = 21,900 + 18,000$ (see P + L Acc.)

$GM = -8,850 + 39,900$

$GM = 31,050$

The GM can be used for comparison with previous years of our farm.

For comparison of GM/enterprise and with other farms, we have to divide the GM over the different enterprises.

The GM for the dairy enterprise is (see P + L Acc.):

$GM \text{ dairy} = \text{Output} - \text{Variable Costs}$

$GM \text{ dairy} = (\text{output milk} + \text{livestock output}) - (\text{cattle costs})$

$GM \text{ dairy} = (10,000 + 14,600) - 5,100$

$GM \text{ dairy} = 24,600 - 5,100 = 19,500$

The GM for the crop enterprise can be calculated on similar lines for the whole crop section. For GM/crop enterprise, we have to specify input and output in detail in the CAB and the P + L Account.

Remarks on these financial calculations:

1 In case of **planning** (complete new farm or farm expansion).

From assumed outputs and inputs we calculate:

GM → NFI → M + I Income (cash flow), in order to estimate whether the farm can pay off debts; a cashflow forecast can be made for several years.

2 In case of **ongoing farm** we calculate from proper records:

CAB → M + I Income (cashflow) → NFI → GM

5.2 Exercise 6

The following is an extract from a farmer's diary (note book) for the period 1st January 2006 to 30th April of the same year.

Required:

Write up the **Cash Book** for this period.

Check the **cash balance** at the end of each month.

Make a list of the **creditors and debtors** on the two dates mentioned above.

Notebook		
12 January	Paid cash for 10 kg cattle mineral	24
21	Received for 74 kg milk in December 2005	37
23	Sold calf skin for cash to Mr. John Knacker	19
23	Sold 3 bags of cabbage for cash	24
24	Paid cash for 2 kg nails	7
31	Paid labourer's wages for January	40
31	Paid for A.I. 2 cows	2
31	Drawn for household	50
7 February	Sold one calf on credit to Mrs. Baker	50
8	Sold one load of firewood for cash	40
11	Bought 5 kg maize seed for cash	10
19	Paid for one roll of fencing wire	62
22	Received for 70 kg milk in January	35
27	Paid for 90 kg fertilizer for maize	35
28	Sold 20 cabbages on credit to Mrs. Foodstall	6
7 March	Received from Mrs. Baker for one calf	50
13	Paid for cattle vaccination	8
17	Paid for cattle medicine	42
23	Received for 80 kg milk in February	40
28	Paid hire of tractor for maize cultivation	40
30	Paid labourer's wages for March	40
30	Drawn for household	44
7 April	Paid for two shovels	7
21	Received cheque for 66 kg milk sold in March	33
22	Sold one cull cow on credit to Mr. G.Hare	250
24	Sold 20 kg milk for cash	12
30	Paid labourer's wages for April	40
30	Bought one bag of feed oats on credit	25
30	Drawn for household	40

On the last day of each month the farmer checked the money she had in the farm cash box with the cash balance in the Cash Book.

The money in the cash box amounted to:

M	223	on 31.12.01
M	180	on 31.01.06
M	148	on 28.02.06
M	64	on 31.03.06
M	9	on 30.04.06

Was there any surplus or deficit in the cash box on the dates mentioned?

5.3 Exercise 7

A.

Write up the **Cash Analysis Book** CAB using the data given in exercise number 6 for the period 1.1.2006 to 30.4.2006

Use the following headings:

For receipts: milk foodcrops forest produce livestock sales other receipts private.

For expenditures: cattle costs foodcrops overhead livestock expenses other expenditures private.

For the rest of the year the receipts and expenditures are as follows:

summarized receipts from 1.5 to 31.12.2006

	M
910 kg milk	455
one cow paid by Mr. G.Hare	250
9 bags cabbage sold	54
17 bags maize sold	512
firewood sold	160

summarized expenditures from 1.5 to 31.12.2006

	M
cattle medicines	28
maize seed	40
A.I. fees	2
tractor ploughing and cultivation for maize	80
2 forks	9
wages labourer	330
private drawings	460
2 bags fertilizer for maize	55
cattle feedstuffs	75
money in cash box on 31.12.2005 (to be checked)	361

B.

Write up the Profit and Loss Account P+L Acc. of this farm, based on the data collected in exercise number 6 and on the following Additional Information.

At the end of the year the farm is owed M 50 by NCC for milk delivered in December 2005

The Home Consumption of farm produce is estimated at:

M	400	for maize (12 bags)
M	250	for milk (500 kg)
M	100	for vegetables

It is assumed that the dead stock of feedstuffs and fertilizer is close to zero at the beginning and at the end of the year.

The livestock is assumed not to have changed in value.

Depreciation of buildings and equipment is M 50 altogether.

5.4 Exercise 8

A.

Write up the **Cash Analysis Book** of Lakeside Farm at Stone Bridge from the following list of receipts and expenditures covering the year 2006.

Use the following headings:

For receipts: milk and cream apples potatoes maize livestock sales other receipts private.

For expenditures: cattle costs apples potatoes maize overhead livestock purchases other expenditures-private.

For cash in hand see Opening Balance Sheet on 1st January 2006 under C. Buckets and cans to be considered as investments!

		M
	receipts:	
21.1.2006	apple cheque for December 2005	86.60
22.1	cream cheque for December 2005	124.56
31.1	farmer's wages for other employment	60
.....		
6.2	cows	700
21.2	apple cheque for January	145
22.2	cream cheque for January	191.45
23.2	41 bags of potatoes	1025
	summary fore the rest of the year:	
	milk and cream	1763.93
	apples	625.64
	potatoes	132.50
	farmer's wages for off farm employment	660
3.1.2006	expenditures:	
7.1	materials for building of store, December last year	42
10.1	cattle feedstuffs	90
14.1	nails for building of store December last year	14.85
20.1	2 milking buckets	55.80
21.1	1 bag feed oats	25
31.1	labour for picking apples	15
1.2	wages for labourer	90
7.2	1 bag feed oats	25
8.2	1 cow	1000
11.2	cattle medicine	9.10
13.2	1 bag feed oats	25
15.2	cattle vaccination	7
17.2	2 rolls of fencing wire	150
20.2	maize seed	5
23.2	tractor cultivations	150
23.2	fence posts including transport	177.20
28.2	seed potatoes	503.75
	private drawings	100
	summary for the rest of the year:	
	labour for apple picking	172.60
	cattle feed and minerals	164.20
	fertilizer for potatoes	70.54
	fertilizer for maize	49.69
	milk cans	42.50
	wages for labourer	990
	A.I.	47.50
	private drawings	835

B.

At the end of the year Lakeside Farm was owed by NCC M 137.90 for cream delivered in December 2006 and by United Fruits M 115.60 for apples also delivered in December 2006.

The farm owed Mr. Goodman M 25 for a calf which was bought in November.

During the year the labourer received from the farm output approximately 12 bags of maize valued at M 300 and 300 kg milk valued at M 150.

The farmer's household received from the farm output:

- 10 bags of potatoes valued at M 250
- 300 kg of milk valued at M 150
- 100 kg of meat and bones valued at M 200

At the end of the year the value of the cattle was M 3,100; there were no potatoes in store.

The rate of depreciation of buildings is 10% and of equipment and fencing 20%.

All new equipment and fencing are to be considered as being a full year in use.

Required:

Draw up the **Profit and Loss Account** from the data in A, B and C.

C.

On 1.1.2006 the **Opening Balance Sheet** of Lakeside Farm was as follows:

Liabilities	M	Assets	M
debts payable: building materials	56.85	fixed assets: land farm buildings	4,400 1,000
Net Capital	8,571.81	current assets: equipment cattle potatoes in store cash in hand	324.50 2,500 100 93
	_____ +	debts receivable: apples cream and milk	86.60 124.56
Gross Capital	8,628.66	Gross Capital	8,628.66

Required:

Draw up the **Closing Balance Sheet** on 31.12.2006 by making use of the data given in A and B.

5.5 Exercise 9

Mr. Littlejohn is a small scale farmer in Kurian District who tries to improve his farm. The Balance Sheet of his farm on 1.1.2007 was as follows.

Liabilities	M	Assets	M
debts payable: for cattle feedstuffs to NFA	210	fixed assets: land 7 acres tea plantation 1 acre farm buildings	2,800 1,400 800
Net Capital	10,060	current assets: equipment cattle cattle feed in store cash in hand	1,300 3,000 240 410
	_____ +	debts receivable: for milk to NCC for tea to U.F.	220 100
Gross Capital	10,270	Gross Capital	10,270

The transactions which took place on Mr. Littlejohn's farm from 1.1.2007 to 31.12.2007 were summarized as follows.

	M
Receipts	
milk	2,250
1 cull cow	400
1 bull calf	50
tea	1,100
maize	210
total	4,310
Expenditures	
cattle feedstuffs	660
1 milking bucket	60
cattle dipping	70
cattle vaccination	30
labour for tea picking	270
fence posts for new fencing	240
wire and nails for new fencing	60
maize seed	15
tractor ploughing and harrowing for maize	75
hoes and cutlasses	30
private drawings	1,080
fertilizer for maize	50
fertilizer for tea	120
A.I.fees	3
repair of fencing	30
repair of buildings	30
miscellaneous	110
1 cow	1,000
Total	3,933

A.

Write up the **Cash Analysis Book** of the farm for the year 2007.

Use the following headings.

For receipts: milk maize tea cattle sales other receipts private.

For expenditures: cattle costs maize tea overhead cattle purchases other expenditures private.

Additional Information is as follows.

Important for the Profit and Loss Account:

➤ milk consumed at home	M 250
➤ potatoes consumed at home	M 350
➤ beans and vegetables consumed at home	M 100
	————— +
Total Home Consumption	M 700

Important for the Profit and Loss Account and for the Closing Balance Sheet:

On 31.12.2007 the farm was owed

➤ by NCC for milk	M 260
➤ by T.D.A. for tea	M 140

On 31.12.2007 the farm owed NFA for cattle feedstuffs M 50

On 31.12.2007 the value of cattle was M 4,000
The value of feedstuffs in store M 120

Cash in hand M 787

Depreciation of buildings is 10% per year.

Depreciation of equipment and fences is 20% per year.

Table 2: Purchase values and depreciation rates

Investment	Purchase value	Date of purchase	Rate of depreciation	Depreciation
buildings	2,000	1997	10%
old equipment I	500	1999	20%
old equipment II	2,000	2001	20%
bucket	60	2003	20%
fencing	300	2003	20%

Required:

- B. Draw up the **Profit and Loss Account** for the year 2007.
- C. Draw up the **Closing Balance Sheet** as at 31.12.2007.

5.6 Exercise 10

This exercise has been worked out by C.Verduyn.

Mr.Peter Meadows at Hotsprings has a mixed farm of 10 acres.

On 1st July 2002 he received from Agricultural Finance Corporation AFC a loan of M 3,000 at 7%, repayable in 5 equal instalments.

He paid interest and repaid the capital as was agreed.

The last instalment has to be paid on 1st July 2007.

Opening Balance Sheet on 1.1.2007

Liabilities	M	Assets	M
debts payable:		fixed assets:	
loan AFC at 7%	600	grassland, 8 acres	11,000
		1 acre pyrethrum	3,000
		1 acre tea	2,400
Net Capital	24,910	milking shed	800
		watering tank and trough	1,250
		fencing 8 acres	1,000
		current assets:	
		equipment and implements	600
		3 cows and followers	4,400
		cattle feedstuffs in store	150
		cash in hand	443
		debts receivable:	
		Pyrethrum Board for pyrethrum	115
		T.D.A. for tea	35
		NCC for milk	317
	+ _____		+ _____
Gross Capital	25,510	Gross Capital	25,510

A.

Write up the **Cash Analysis Book** of the farm for the year 2007.

Also use the Additional Information provided below.

Use the following headings:

Receipts: food crops pyrethrum tea milk cattle sales other receipts private.

Expenditures: food crops pyrethrum tea cattle costs overhead cattle purchases other expenditures private.

		M
Receipts:		
3.1.2007	maize	12
14.1	maize	8
20.1	pyrethrum delivered Dec.06	115
25.1	NCC milk delivered Dec.06	317
30.1	tea delivered June 02	35
summary for the rest of the year:		
	maize and bananas	383
	milk to NCC	3,603
	cattle sales	30
	pyrethrum to Pyrethrum Board	1,310
	tea to T.D.A.	1,060
total		6,873
Expenditures:		
6.1.2007	chemicals for pyrethrum	30
15.1	wages for tea picking	10
21.1	A.I. fee	2
24.1	maize seed	25
31.1	wages - tea picking	10
31.1	wages - pyrethrum	8
31.1	wages for permanent labour	550
31.1	private drawings	200
summary for the rest of the year:		
	two bags fertilizers for tea	80
	maize spraying	30
	repair of buildings	40
	repair water supply	40
	repair fences	40
	new equipment	100
	wages for picking pyrethrum	112
	wages for picking tea	220
	wages for permanent labourer	550
	cattle concentrates	280
	A.I. fees, dipping, vet.services	308
	miscellaneous	160
	interest on loan 7%	45
	repayment of loan	600
	private drawings	3,300
total		6,740

B.

Write up the **Closing Balance Sheet** as per 31.12.2007 (use data above and below).

C.

Write up the **Profit and Loss Account** for the year 2007 (use data above and below).

milk consumed at home	M 300
maize and bananas consumed at home	M 300
	—————+)
Total Home Consumption	M 600

Debts receivable on 31.12.2007:

from Pyrethrum Board for pyrethrum	M 20
from T.D.A. for tea	M 142
from NCC for milk	M 402

Depreciation rates:

- fencing 5%
- for all other investments 10% (do not forget to include depreciation of new investments)

Valuations on 31.12.2007:

- cows and followers M 5,200

Table 3: Purchase values and depreciation rates

Investment	Purchase value	Date of purchase	Rate of depreciation	Depreciation
milking shed	1,000	2005	10%	
water tank and trough	2,500	2002	10%	
fencing	1,000	Dec.06	5%	
equipment I	1,000	2003	10%	
equipment II	100	2007	10%	

D.

Write up the ‘**Proving of Accounts**’.

E.

Calculate the **Management & Investment Income**.

Exercise 10 is a worked out exercise. The following text (pages 44 - 46) was prepared by C. Verduyn of Dairy Training Centre Friesland.

5.7 Answers to exercise # 10

A. Cash Analysis Book for the year 2007

Receipts

Date	Description	Total	Foodcr	Pyr	Tea	Milk	Cattle	Other	Private
1.1.2007	cash in hand	443						443	
3.1	maize	12	12						
14.1	maize	8	8						
20.1	pyrethrum	115		115					
25.1	milk	317				317			
30.1	tea	35			35				
	maize and bananas	383	383						
Rest of the year	milk	3,603				3,603			
	cattle	30					30		
	pyrethrum	1,310		1,310					
	tea	1,060			1,060				
	TOTAL	7,316	403	1,425	1,095	3,920	30	443	

Expenditures

			Foodcr	Pyr	Tea	Cattle	Overh	Other	Private
1.1.2007	pyrethrum	30		30					
15.1	tea	10			10				
21.1	A.I.	2				2			
24.1	maize	25	25						
31.1	tea	10			10				
31.1	pyrethrum	8		8					
31.1	wages	550					550		
31.1	private	200							200
	tea	80			80				
Rest of the year	maize	30	30						
	repair 3x	120					120		
	new equipment	100					100		
	wages pyrethrum	112		112					
	wages tea	220			220				
	wages	550					550		
	concentrate + A.I.	588				588			
	miscellaneous	160					160		
	interest on loan	45					45		
	repayment of loan	600					600		
	private	3300							3,300
	cash balance	576						576	
	TOTAL	7316	55	150	320	590	2,125	576	3,500

B. Closing Balance Sheet

Closing Balance Sheet as per 31.12.2007

Liabilities		Assets	
Net Capital	26,020	Fixed Assets:	
		grassland	11,000
		1 acre pyr	3,000
		1 acre tea	2,400
		shed	700
		tank	1,000
		fencing	950
		Current Assets:	
		equipment I (old)	500
		equipment II (new)	90
		cattle	5,200
		feedstuffs	40
		Liquid Assets:	
		cash in hand	576
		pyr debtor	20
		tea debtor	142
		milk debtor	402
Gross Capital	26,020	Gross Capital	26,020

C. Profit and Loss Account (including corrections)

(CB-OB = Closing Balance minus Opening Balance)

Output		Input	
Foodcrops 403 (-)	403	Food Crops 55 + (...)	55
Pyrethrum 1425 + (20 - 115)	1,330	Pyrethrum 150 + (...)	150
Tea 1095 + (142 - 35)	1,202	Tea 320 + (...)	320
Milk 3920 + (402 - 317)	4,005	Cattle 590 + (- 40 + 150)	700
Cattle 30 + (5200 - 4400)	830	Overhead 2125 + (- 100; - 600)	1,425
Home Consumption	600	Depreciation (100+250+50+100+10)	510
		Profit = Net Farm Income	5,210
TOTAL	8,370	TOTAL	8,370

D. Proving of Accounts

NFI = Private + Home Consumption + Increase Net Capital (CB – OB)

$$5,210 = 3,500 + 600 + 1,110$$

E. Management & Investment Income

Method I From CAB: Receipts – Expenditures = M & I I

$$6,873 - 6,740 = + 133$$

Method II Cash Surplus: Cash Closing BS – Cash Opening BS = M & I I

$$576 - 443 = + 133$$

6 Improving farm efficiency

When a farmer has completed the farm's accounts for the year he/she is in a position to examine the results.

The figure likely to interest the farmer most is the **Net Farm Income**, because this is the income on which the farmer's family must live (unless there is an outside source of income).

The question arises how to use records and other information to **measure success in the past and to plan improvements for the future**.

The first point to note is that the Net Farm Income is the difference between large totals, namely the output and the costs (or input) incurred in obtaining that output.

For this reason a small change in either output or input can alter the Net Farm Income drastically.

If the average farmer obtains M 117 output for every M 100 spent on input, then there is a profit of M 17. But this margin is very sensitive to changes in efficiency. A successful farmer who could obtain 10% more output from the same input, would have a profit of M 28 **or 60%** above the average!

The penalty for failure is equally pronounced. A farmer obtaining 10% less output per M 100 input, would have a profit of only M 5, less than a third of the average profit and less than **a fifth** of that obtained by the more successful farmer.

A 10% increase or decrease in costs could have nearly as much effect.

Therefore it is obvious that quite a small decline in yields or a small increase in costs, that might go unnoticed for months or even years, can have a marked effect on the farmer's income.

It is for this reason that time spent on understanding and analyzing the past and planning the future can be very profitable.

Why are some farms so much less successful than others?

The types of farms that the adviser is likely to encounter can be classified under the following headings.

1 The really **poorly managed** farm.

Poor crops and unthrifty stock may be so noticeable that they do not need records to bring them to light.

If this is due to ignorance and incompetence, there may be little that one can do. Such a farmer is unlikely to survive long in business unless there is some other source of income.

2 The **reasonably well managed** farm which, because of some fault that may not be obvious, is less successful than one might expect. An examination of records may be necessary, either to find the faults or to confirm the impression of them gained from observation.

3 The farm that shows **impressive yields and thriving stock** but on which **costs** are excessive. This is a type that can deceive the observer. Records can be most useful in detecting excessive costs.

4 The **problem farm**.

It may be too small. If output is below a minimum of, say, M 4,000, then no matter how efficiently the farm is managed, a farmer would have great difficulty in obtaining a living.

A problem farm may have very little fertile soil or some intractable problem of drainage, or there may be a lack of equipment.

Even if a solution can be found, the capital costs of implementing it may be quite beyond the farmer's means.

Sometimes there is no solution and the best advice may be for the farmer to leave the farm and look for a job.

To provide credit to this farmer might even make the position worse, and soon the farmer might find himself in a position in which it is quite impossible for him to repay his debts.

Very often the farmer does not see it that way him/herself!

5 The **above average farmer** who wishes to be even more successful.

This can be disconcerting to an inexperienced adviser because the farmer may be more knowledgeable about the farm than the adviser himself.

A comparison with averages or even premium standards may be a waste of time, except to demonstrate that the farm is above average.

Replanning with the farmer's high gross margins and capital budgeting for expansions may be more to the point than analysis of past results.

Often a **series of yardsticks (or efficiency factors)** is calculated when a farm's past records are examined. Some of these factors are briefly discussed in the following.

1 **Gross output per hectare.**

2 **Gross output less purchased feedstuffs.**

The reason is that farmers who depend heavily on purchased feedstuffs may appear to have a higher output per hectare than other farmers who use more pasture for feeding.

By deducting purchased feedstuff these types of farms can be compared better.

Calculations per cow also make sense.

Fertilizers in the case of crops have the same effect as feedstuffs used.

For poultry (and pig) farms gross output less feedstuffs is the most important basis for comparison.

3 **Labour productivity.**

As wages may be one of the largest cost items, the productivity of labour is of vital importance.

It is convenient to calculate output per M 100 spent on labour. 'Labour' in this case includes wages and an allowance for the farmer's manual labour.

The outcome can be compared with similar farms.

It is also possible to calculate output per M 100 labour and machinery, as labour and machinery are to some extent interchangeable.

4 **Net Farm Income.**

As far as the farmer is concerned, the most important measure of success is the Net Farm Income, and it is of interest to compare it with the average of other farms of the same kind. Net Farm Income, however, varies for reasons which may have nothing to do with the farmer's efficiency as a manager.

One farmer is an owner with no debts, a second a tenant who pays a very high rent, while a third is paying interest on a large loan. So, to make it a fair comparison, the Net Farm Income must be standardized.

Having calculated the efficiency factors, one can now compare the results of one farm with those of similar farms.

In terms of output per hectare, the most intensive farms are the horticultural and vegetable growing holdings.

Next come the specialised dairy farms, the general cropping farms, the cattle and sheep farms and finally the 'ranches', generally speaking.

The investments generally decrease in the same order.

Efficiency factors, together with a few physical measurements such as stocking density, concentrate fed per litre of milk produced, and some specialised ratios such as feed costs per M 100 of output calculated separately for pigs, poultry or cows, can help to highlight weakness in organisation. However, the emphasis is in the first place on tightening up the efficiency of existing systems rather than on finding a better system.

A weakness of efficiency factors is that they compare the farm with an **average**. Thus, while they are useful in showing how a poorly managed farm differs from the average, they are less helpful when dealing with above average and uncommon farms.

The lessons to be learnt from efficiency factors are also fairly general. A conclusion that 'output is low' does not carry any indication of which output is to be raised or how it is to be done. Therefore an adviser should not stop here, but should rather indicate how improvement could be achieved.

Page for additional notes, etc.....