

8

The importance of record keeping

This chapter describes the range of farm records that could be kept to improve the efficiency of technical and financial management and the ease of decision making on the farm.

The main points in this chapter

- Without written records, farmers have to depend on their memory when making decisions to modify their farm practices. Memories can become unreliable, particularly after a few days, months or years.
- Some records are compulsory, such as data for taxation purposes, whereas most are advisory. There must be good reasons to collect farm records.
- There is a diversity of useful records to keep, such as production and financial transactions in the dairy enterprise. Many are not difficult to collect but all should be easily accessible. Farm diaries and other recording systems such as notebooks, filing systems and computers must be organised.
- This is particularly important with financial records because they are routinely used for bookkeeping purposes, to prepare balance sheets, as well as cash flow and income (or profit and loss) statements.
- Benchmarking, or comparative farm performance, is a useful way to become more aware of the important performance indicators that are most relevant to each dairy production system.

Keeping track of what is happening on the dairy farm requires some records. Good farm management requires having a good useful set of farm records. Good records do not ensure the farm will be successful, however, success is unlikely without them. Farm records are like the report cards students receive at school. With a farm report card, farmers can tell how well they are managing their operation compared to other producers in their 'class'. They can also see the strengths and weaknesses in their operation.

Having accurate facts and figures is most useful when borrowing money, seeking government support and completing tax returns. From reliable farm records, equity (or

proportion of total assets actually owned) can be updated to assist with future farm investment programs. Farm records can help evaluate the dairy enterprise on a mixed farm while farm advice will be more effective if the adviser knows exactly what is happening on the farm. Records and statements show what has occurred or is occurring on the farm while budgets predict what might happen in the future.

Records provide the farm manager with data, information and knowledge. There are four uses for farm records:

1. They are frequently used as a service tool. The types of services provided are income tax calculations, estate planning, business arrangement reconciliation and obtaining and managing credit.
2. They can be used to provide data for financial analysis and other diagnostic instruments, such as identifying the strengths and weaknesses of the business.
3. They can be used as an indicator of progress. A series of records are necessary to monitor progress.
4. They are a good forward planning tool. Past records can be used to project future cash flows for current and modified farm management practices.

8.1 What records should be taken?

Keeping full records just for the sake of keeping them is a waste of time and energy. A little time spent keeping a few orderly records that will be used is a good investment in managing the farm business.

8.1.1 Farm records to keep

- **Farm diary.** A small notebook in which to record the key facts and figures of the farm business and the day-to-day activities as they occur is the most useful, practical (and often the only) form of record keeping. Farmers who do use a diary find that important facts and figures that could easily be lost or forgotten are permanently recorded for future reference, though they may not be easy to find quickly.
- **Crop records.** It is sometimes useful to record what happens to each plot or crop each year, such as type of crop, fertiliser applications (time and amount), agronomy (seeding, weeding, sprays), visual impression of crop, harvest interval of forage crops and if known, crop yield.
- **Livestock records.** See the herd performance list below.
- **Unit costs** of all major farm inputs, such as fertilisers, fuel, irrigation water, concentrates and/or their ingredients, purchased forages, stock purchases. These are necessary for routine bookkeeping and also to monitor seasonal changes and hence to plan future purchases.
- **Unit returns** from all farm outputs, such as milk, cull cows and heifers, sale steers or bulls, manure, excess feed, to plan future sales.
- **Livestock inventory accounting.** The main purpose of livestock accounts is to monitor net losses and gains in income, and to distinguish the increases and decreases due to changes in market value. When quantifying total livestock value you have to take into account both changing herd size and change in unit price.

- **Plant and improvement records.** Examples of relevant records include date and cost of purchase or installation, annual depreciation, insurance and registration, fuel use, hours use (to plan services), major repairs and maintenance.
- **Key financial records,** such as interest and principal repayment schedules, to plan repayments.
- **Other key farm management records** such as rates and government charges, other administrative costs such as telephone and office upkeep, labourer's wages, capital investments, unusual weather events, dates of important meetings, credit repayments, changes in valuation of capital items such as land and livestock categories.
- **Personal expenses,** to ensure the manager and farm family's imputed wages are realistic and that people are living within their means. This should include a valuation of any farm produce used for personal consumption.
- **Multicolumn records.** Books with multicolumn pages help with financial records. Each column can be given a heading which fits the specific situation on the farm. For example, with crops, columns could list for each plot the cost for fertiliser, seeding, spray, labour, water, machinery, harvesting, processing, transport and selling. Wages could be broken down into different farm activities.
- Many farmers keep all relevant records as scraps of paper in a box. Transferring them to a book will save time in the long run.
- Farm costs can be partitioned into variable (herd, shed and feed) and overhead (cash and imputed) as in Chapter 9.

8.1.2 Livestock records to keep

With dairying being such an intensive form of livestock production, keeping track of individual animals is very important. Such information will be essential in preparing realistic budgets for future farm developments, rather than depend on generic estimates of farm performance. Some of the key records to keep include:

- **Calving dates,** to follow through different stages of each cow's lactation and to assess weight for age of young stock. Also to update annual livestock inventory as stock change classification, e.g. from calves to yearlings. They are also useful to identify cows that are due to be mated.
- **Daily milk yields,** for closer animal observations if they suddenly and unexpectedly change.
- **Daily herd milk yield,** to check up on milk payments and to finetune feeding programs.
- **Regular milk composition data,** if provided by the cooperative or processor, to closely monitor the effects of diet.
- **Mastitis treatment** for individual cows and other treatments requiring milk not being sold. The drug withholding period must be followed to ensure milk quality is not compromised.
- **Routine monitoring of feed offered** (forages as well as concentrates) and actually consumed, which can indicate if cows are on heat or subclinically sick.
- **Live weight and body condition of adult cows** to monitor milking performance during the entire lactation and better plan feeding programs.

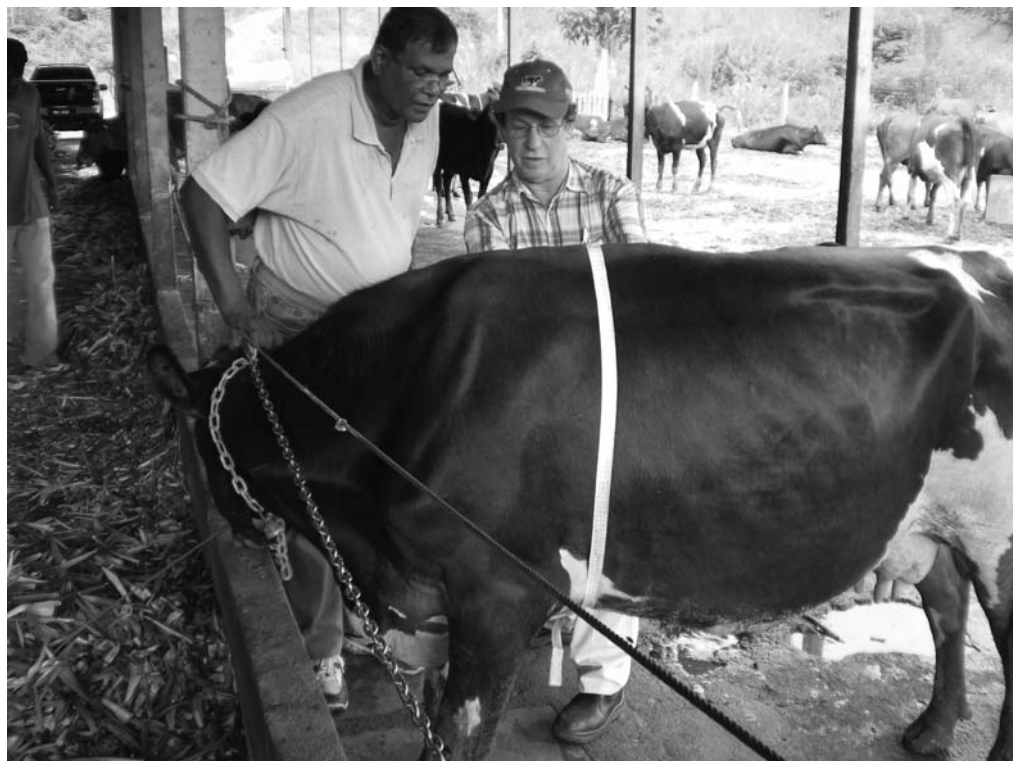


Figure 8.1 The author showing a farmer how to measure a cow's chest girth to estimate her live weight (Malaysia)

- **Live weight and body condition of young stock**, to monitor feeding management required to achieve growth targets.
- **Dates when each cow is on heat**, to manage artificial insemination (AI) programs as well as predict expected dates of calving.
- **Dates and results of pregnancy diagnoses**, if undertaken, to predict expected calving dates.
- **Animal sickness, veterinary visits and drug treatment**, to follow through animals' responses to treatment. With replacement heifers, it also provides a guide as to whether the heifer's lifetime productivity might be compromised.
- **Routine vaccination and drenching**, to ensure they are timely and to plan future programs.
- **Stock purchases and sales of culls**, to update livestock inventory.
- **Stock deaths and probable causes**, to update livestock inventory and also monitor general herd health.
- **Age when culled** from the milking herd, reason for culling and number of lactations while in milking herd.
- **Milk and concentrate intakes of young calves**, to plan weaning and calculate total rearing costs.
- **Yields of forage crops**, to better utilise fertilisers and plan forage purchases.



Figure 8.2 Scoring body condition is an easy skill to learn (Guizhou province, China)

- **Other dairy enterprise sales**, such as stock fattened for sale, cow manure and any excess forages, for accounting purposes.

8.1.3 Financial records to keep

Data are not knowledge and often are not even information. The conversion of data to information requires a set of principles, concepts, methodologies and formulae that are accepted as standards by the community using the information. Separate balance sheets should be constructed for business and personal applications. The lack of standards in agricultural finance is obvious when looking at the numerous methods to describe a farm's business performance.

Farm transactions can be recorded when they occur or when cash changes hand. The accrual method of accounting (when it occurs) is more useful than the cash method (when money is received or disbursed) because it documents when things were done due to management decisions at the time. For example, when recording sales of milk for a specific time period, all the expenses needed to generate that milk are relevant when calculating the cost of production. The major roles for financial accounts are to assist in farm management rather than satisfy the tax man and other government officials. To use accrual methods, resources must be inventoried regularly.

Every physical item on the farm can be placed into one of five economic categories, namely:

1. **Assets**: what is used to generate income, either owned or purchased on credit. This is a combination of physical and monetary values, with the physical quantity multiplied by a unit price to obtain its monetary value.

2. Liabilities: what you still have on credit.
3. Equity: assets less liabilities.
4. Revenue: what your business generates.
5. Expenses: the costs to your business of generating the revenue.

The range of relevant financial records for smallholder dairy farmers will be covered in future chapters in this book and these are all combined to form the basis of the annual financial accounts presented in Appendix 6, namely:

1. Opening balance sheet: to record all assets and liabilities at the beginning of the financial period (usually 12 months).
2. Closing balance sheet: to record all assets and liabilities at the end of the financial period.
3. Cash flow: to record all cash inflows and outflows into the business.
4. Income statement, also called profit and loss statement, to calculate dairy enterprise profit (or loss) before or after income tax. This shows the 'bottom line' from the year's farming or trading operations.

8.1.4 Recording the data in the farm office

One key aspect of record keeping is where, how and when they are recorded.

Recommendations for setting up a farm office:

First, find an area at home or in the dairy shed that can be dedicated to keeping records. It must have a desk and good lighting. It must be a quiet place to set up the office files (preferably in a filing cabinet) and computer (if the manager has or needs one) and office supplies. The farm manager will need a system of storing and easily accessing all the financial paperwork. These include files relating to farm production (milk yields, veterinary reports, other stock and forage crop production data) and for each of the vendors (feed suppliers, veterinarians, cooperatives etc.), creditors, milk supply centre and any other farm related agents. It is preferable to separate files from the dairy enterprise with those from other farm enterprises and it is important to separate these business files from any personal financial files. A file will need to be kept on unpaid bills. A simple recording system for payment of bills (with details of how they were paid) and receiving receipts from sale of farm produce should be developed.

The how and when of keeping farm records depends on the person recording them. Computers are very convenient but require money to purchase and skills to operate efficiently. As computers can break down, 'hard' (paper) backup copies should be routinely made. Record keeping should be given as high a priority as other farming activities so should not be 'put off' until the last job each day when simple bookkeeping mistakes can more easily be made.

8.2 Describing the farm's physical and financial resources

It is important that description of any farm follows a consistent approach to allow accurate documentation of farm performance for any production or financial analysis. A

suggested series of definitions of farm physical resources and herd performance are presented below.

1. **Location of farm:** state or province and distance from the nearest large town.
2. **Farm area:** farms consist of various components which should be differentiated. These are:
 - a) Total area of the entire farm which includes houses, dairy sheds and other buildings, infrastructure such as laneways and other non-forage production areas, and areas used for other farming enterprises, such as cash cropping or other livestock enterprises.
 - b) Area of dairy enterprise, that part of the farm devoted to dairy production.
 - c) Forage production area, that part of the dairy enterprise devoted to growing forage for milking cows and young stock. Some may be for grazing while other areas are for 'cut and carry'. This is sometimes called the milking area.
 - If the farm grows a variety of forages for the dairy enterprise, this should be included in the farm description.
 - With mixed farms it may be difficult to identify areas specifically devoted to the dairy enterprise. When sourcing fodder from non-dairying areas, then this fodder should be given a monetary value to be 'purchased' from one enterprise to feed dairy stock.
 - Some of this area may be owned outright by the farmer with other areas leased, and this should be included in the farm description.
 - It is likely that all or most of this area is on the home farm, but for a dairy farming area in another location, this should be included in the farm description.
 - It would be useful to describe physical features of the farm, such as topography (hilly or flat) and soil type (if this is known).
 - A farm map overlain by clear plastic is very useful, so annual activities on each area can be recorded and updated.
3. **Livestock:** Throughout this book, dairy cattle have been categorised into five classes, namely:
 - a) Adult cows (milking and dry cows) which have had a calf. This includes first calf heifers, although sometimes it is useful to place them in a different class. These stock are collectively called the milking herd, with other dairy stock (except bulls) categorised as the replacement herd.
 - b) Yearlings (heifers older than 12 months) yet to have a calf.
 - c) Heifers (3–12 months of age).
 - d) Calves (0–3 months of age).
 - e) Bulls (older than 12 months) including steers, used for either breeding or grown out for slaughter.
 - All dairy farms sell stock (cull cows) for slaughter but some dairy stock may be grown out for dairy beef production, such as bulls or steers older than three months of age. In this case, they can be either be considered as dairy stock or as part of a separate beef enterprise.

4. **Water resources:** As water is a major driver of fodder production, some description of the available water would be useful, such as:
 - a) Rainfall, if known, and actual months of the wet and dry seasons,
 - b) Irrigation water, if available from underground sources, rivers or irrigation channels with estimates of how much is used each year.
5. **Labour resources:** For each unit of paid labour, some estimate of weeks worked per year and average hours worked per day would be useful. It would be good to convey some idea of the role of the farming family in dairy activities such as, the farmer and/or his wife spend x hr per week in off-farm employment and the farmer's family spend y hr per week on dairy related activities.
6. **Feed resources:** A brief description of the feeds grown and purchased for the dairy enterprise and approximately what proportion of the annual forage consumed by the dairy stock is actually grown on the farm, with other details such as:
 - a) The types and sources of other forages fed to the dairy stock
 - b) Whether some of the forage area is grazed or the entire area is harvested by hand (or machine) for feeding housed stock
 - c) Whether some of these forages had been conserved as hay or silage
 - d) The types and sources of concentrates (formulated and/or ingredients) fed to dairy stock
 - e) A 'typical' ration formulation for milking cows during the wet season and the dry season.
7. **Other farm resources:** Description of all farm buildings (and their purpose), other fixed assets and farm constructions (such as silage pits and milking equipment), machinery and farm equipment, feed and other consumable resources on hand.
8. **Financial resources:** Current loans (with details of repayment process) plus other current, intermediate and long-term liabilities, cash on hand, investments generating farm income and other current, intermediate and long-term assets.
9. **Milk production:** Total annual milk produced by the farm should be an easily accessible measure. An average annual milk yield per cow is acceptable but average milk produced/cow/day would suffice. It would also be useful to quantify the average lactation length (the number of days milking and number of days dry), as well as some indication of milk composition (total solids, milk fat and solids-not-fat).
10. **Key herd information:** There are a number of useful farm measures to describe herd management. These include average age of first calving, inter-calving interval, number of services per conception (if using AI) and calf mortality (during milk feeding). These will be discussed in later chapters of this book.
11. **Personal information on structure of the farm business:** It would be good to know more about the people involved in the business and how the business is structured. For example, the age of the decision makers in the farm family and their years of experience in dairying, for how many years they have been milking cows on this farm, if the business is a partnership or if there are other investors in the business. Other relevant information would be how the farm got to where it is now and where the farm family want it to be say, in one, five and ten years time. It may or may not include targets for the size of the milking herd, the annual farm milk output, and

even financial targets, such as profit margins, for future years. These are sometimes clarified in ‘the goals and vision for the farm’.

12. **Any previous physical and financial evaluation** of the dairy enterprise would be useful as it provides good background information on the farm and also indicates that the farmer may know what relevant data to collect. Depending on the quality of any historical data collected and its analyses to produce relevant key performance indicators, it could form a useful starting point for an ongoing farm assessment.

8.3 Comparative farm performance or benchmarking

Appraisal of the financial performance of individual farm businesses generally forms the basis for farm management advice. This inevitably involves collecting data on that farm and comparing it with results for similar farms. This procedure is also called benchmarking. The data may be at a whole farm level, for example overall farm profit, or of outputs or costs on that farm, such as milk sales or total labour costs. These comparisons are normally made on a per hectare or per adult cow basis to remove the effects of differences in farm and herd size. Further ratio analysis is often undertaken to compare relationships between farm input and farm output. Deeper analyses can be carried out by comparing the performance of individual enterprises, such as yield, output or direct costs per milking cow.

Traditional comparative analyses of this sort have a number of problems (Cain and Venus 2000). First, the comparison is often made with the average results for a collection of similar farms. This ‘average of the sample’ farm, although broadly similar, may well be different from the target farm. Secondly, the comparative data may require complex recalculations of farm accounts that have been produced for a different purpose, such as taxation rather than farm advice. Thirdly, the interpretation of the data may not take into account all the interactions within the farm, such as season of collection or the proportion of fodder collected off-farm. Other people have queried the role of comparative farm analyses in improving farm performance because you cannot treat the past as a predictor of the future, and farm management is about the future, not the past. As technological change over time moves operations to different cost levels, how can the past predict the future? In addition, benchmarking implies a cause and effect relationship and this may or may not be true. However, if benchmarking encourages farmers to look more critically at their cost structures, it has achieved a major purpose.

It is important to clearly categorise farm type, generally based on herd size or number of milking cows. For such comparative analyses to be valid, they must be restricted to farm units that use similar technology and operate under similar conditions. They should also consider the other enterprises on the farm, in that mixed farmers who only have a small proportion of their on-farm income derived from dairying are likely to place less emphasis on investing in their shed or fodder production area than would farmers who are 100% dairy farmers.

Comparative analyses have a very useful role for single farm comparisons to monitor a single enterprise over time. In that case, they are analysing trends in performance of a particular business which will overcome the major concern about comparative analyses, namely ‘you should only ever be comparing yourself with yourself’.