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Introduction

This chapter presents an outline of the book and its role in developing training programs in tropical Farm Business Management (FBM).

The main points in this chapter

- This book is a companion to *Tropical dairy farming*, which discusses the management of the farm's biological and natural resources to produce quality milk.
- This book concentrates more on the human side of smallholder farming, focusing on the farming family and their support structures.
- The thrust of this book is smallholder dairy farming of both dairy cattle and buffalo in South and East Asia.
- The book is multipurpose in that it forms the basis for various structured training programs in Farm Business Management.
- One of the key benefits of developing an understanding of FBM is the calculation of a realistic on-farm cost of production for raw milk.

This book is a companion to *Tropical dairy farming* (Moran 2005) which details the production technology of smallholder dairy farming. This second book discusses the farm business management (FBM) skills required to ensure such systems can remain financially sustainable.

The first book addresses the management of the farm's natural and biological resources to produce quality milk, these being the climatic environment, soils, forages, concentrates, the livestock. This second book concentrates more on the human side of smallholder dairy farming, that is, the farming family and their support structures. These include the village communities, cooperatives, marketing and government agencies and other service providers, and importantly, the consumers. The aim is to ensure such farming systems remain profitable and sustainable into the future.

During the last three to four decades, governments throughout Asia have established smallholder dairy farming as part of their social welfare and rural development schemes, to provide a regular cash flow for poorly resourced and often landless farmers. Now these have become accepted rural industries. The need is for a more business-minded



Figure 1.1 Farmer participants at a FBM training course in Binh Duong province, Vietnam

approach to management decisions on each farm. Dairy farmers across the world, including the Asian smallholder mixed farmer with only one or two cows, milk cows to make money. As the dairy value chain becomes more liberalised, and farmers become more exposed to the pressures of global markets, their daily farming decisions must become based on changes to their farm profitability.

Dairy farmers are business managers, irrespective of the size of their milking herd. A successful business is based on a good understanding of the technology underlying the production of the end product, in this case raw milk, and the ability of the manager to run the day-to-day operations at a profit and to make astute decisions regarding investments in its sustainable future. The scale of operation is generally limited by personal asset worth, but even smallholder farmers can make good financial returns on their dairy enterprise.

Every day we intuitively manage our personal assets when we make household business decisions at the shops, schools and in the wider community. It is the same with the smallholder dairy farmer when deciding on today's livestock feeding program, next week's crop agronomy program or the optimal herd size for next year's likely farm gate milk price. Such decisions are based on the elementary frameworks of farm business management.

Most farmers intuitively think about farm costs and returns. However, greater use should be made of ways to make them become aware of the relative importance of all their financial inputs, in terms of their contribution to the cost of production (COP) per kilogram of milk produced on the farm. In addition, when contemplating changes in their routine farm practices, such as those discussed in detail by Moran (2005), proposed changes should be appropriately costed to allow farmers to make more meaningful and timely decisions.

The performance and sustainability of any dairy value chain in the tropics depends on the continued supply of raw milk from the smallholder farmers. Economic pressures,

such as those experienced by dairy industries throughout South and East Asia, require each farmer to be more aware of their individual COP. Without such skills, farmers cannot prioritise their management decisions to address the high cost items of their production systems.

In addition, better knowledge of farm business management allows support organisations to more clearly define the key drivers of profit on smallholder farms. This information can be used to develop regional and national strategies for government departments and national dairy organisations, such as those overseeing the producer-driven dairy cooperatives, to routinely evaluate and update their industry policies.

1.1 Aims of the manual

This manual assists smallholder (and large-scale) dairy farmers to identify the most important physical, financial and human issues affecting their business and it looks at ways of ensuring sustainable profitability. It allows farmers to understand where their business is currently positioned, what opportunities exist for them to move forward and improve its performance.

When used as part of the reviewing process, together with their dairy cooperative, government or milk processor adviser, the regular FBM sessions can engage farmers in discussion, assessment and recognition of their current situation and future options. It provides a framework to structure discussions with trusted, credible advisers who have a solid understanding of farm management and local dairy industry issues. Following through such discussions can help farmers to more quickly and easily identify their weaknesses or opportunities using agreed physical and financial indices. These may even be previously unidentified features of the dairy enterprise that place the operation at risk.

This book does not provide detailed guidelines on how to develop farm cash books or farm financial records although examples of such statements are presented in Appendix 6. It concentrates on developing an understanding of what exactly farm costs and income are on a smallholder dairy farm in the tropics and how they can influence ‘the bottom line’, namely farm profit.

This book provides a framework for farmers to develop new skills to become more astute business managers. Many smallholder dairy farmers have mixed enterprises, such as cash cropping and various types of livestock of which dairying may be just one. Mixed farmers must be able to separate out the inputs and outputs from their dairy enterprise, to be able to manage that enterprise within their whole farm business. They should be able to budget their cash inputs to match their cash outflows during different seasons of the year, and also invest wisely in improving their herd size, cattle housing and other farm infrastructure and of most importance, their feed management systems.

1.1.1 Some key points about this book

- Dairy farmers, whether they run five or 100 cows, milk cows to make money.
- Farmers’ concepts of costs, returns and hence profit, vary considerably and this can have a dramatic effect on their long-term viability.
- Ideally, farmers should make farm management decisions based on their profitability.

- In many cases they do not take all the costs of dairy farming into account, for example imputed costs such as family labour or depreciation.
- Family labour is not free, particularly if it can generate income off the farm. In other words, family labour should be considered as an opportunity cost of dairying.
- Profit can be categorised into three types; cash, efficiency (of utilisation of existing resources) and wealth (creation).
- The relative importance of these three types of profit will vary with the type of dairy industry existing in that country.
- This book presents a framework to determine COP.
- This book also presents concise summaries of various key aspects of production technology, such as feed and herd management, which could be considered the 'raw materials' of FBM.

1.2 Outline of the manual

This book is written primarily for the stakeholders of smallholder dairy production in the tropics. Smallholders are the major suppliers of milk in the tropics. However, many larger farms with up to one thousand milking cows, using intensive feedlot or less intensive grazing systems, have been established throughout South and East Asia in recent years, to satisfy the increasing demand for fresh milk. These farmers and their advisers will also gain much from this manual. In addition, the book provides relevant key information to research scientists on aspects of tropical dairy production and business management, such



Figure 1.2 Smallholder farmers waiting to deliver their milk at the Milk Collection Centre (East Java, Indonesia)

as forage production, herd and feeding management. Policy makers and senior managerial personnel would also benefit from reading selected chapters.

Most tropical countries have pro-active programs to increase local supplies of milk, which require increasing numbers of well trained workers to service the dairy industry. Consequently, educators from agricultural schools, universities and technical colleges need to be kept abreast of the latest technical developments and applications in dairy farming. This manual also serves this purpose. Table 1.1 on page 9 presents suggested structured training programs that can be developed from the manual.

Geographers categorise the humid (or rainy) tropics as areas with at most one or two dry months and no winter, with the coolest month above 18°C mean temperature. Other tropical zones are:

- Wet and dry tropics, having a well developed dry season, with one or two rainy seasons
- Semi arid tropics, with light rainfall and high evaporation
- Hot arid tropics, with negligible rainfall and high evaporation.

My first book, *Tropical dairy farming* (Moran 2005) limited its scope to the humid tropics of South-East (SE) Asia. This book extends its scope to all the above zones within tropical Asia, although dairying is more likely to be restricted to just the humid and the wet and dry tropics. In addition, it covers both South and East Asia, not just South-East Asia as in *Tropical dairy farming*. Tropical Africa and Central America are not discussed in any great detail.

The book also extends its scope to cover milk production for all large ruminants, namely dairy cattle and milking buffalo. To differentiate between the two species, the term ‘cow’ is used specifically for dairy cattle, even though this descriptive word often covers milking buffalo as well.

These principles of improved farm and business management can be profitably incorporated into dairying anywhere in the tropics, although successful examples in this book will be mainly those from South and East Asia. Its thrust is on smallholder dairy farming. Since most of the relevant principles of FBM currently available in the world literature cover larger-scale operations, these have had to be adapted for readers of this manual.

With the cows generally located in close proximity to the home, dairying offers opportunities for women to become more closely involved in the day-to-day management than with other farming pursuits. This is important in the village life of South and East Asia, where women have traditionally been the homemakers and family rearers. The cultural and religious bonds limiting their contribution to managing the family budget are becoming loosened in many smallholder dairying communities. For the sake of brevity, when referring to managers, this book assumes them to be men, although in many situations the description could apply equally to the farming women who make key management decisions.

Chapter 2 addresses the question, ‘What is Farm Business Management?’ Chapter 3 provides an insight into the role of smallholder dairying in Asia and how dairying has developed in various South and East Asian countries.

Chapters 4, 5 and 6 cover the production technology of smallholder dairy farming, namely feed production (Chapter 4), herd management (Chapter 5) and milk harvesting and marketing (Chapter 6). Some key aspects of this technology can also be found in *Tropical dairy farming* (Moran 2005), but these have been duplicated because they are essential to profitable dairy farming and need to be well understood by business minded dairy farm operators. These chapters also include more recent aspects of dairy production technology cited following the publication of my first book.

The major profit driver on smallholder farms is the base price of raw milk and this is discussed in Chapter 7. Chapters 8, 9, 10 and 11 address the basic principles of FBM. The outcome of any FBM decision depends on sourcing accurate farm records, either production or financial (Chapter 8), using these records to quantify actual farm costs and farm revenue (Chapter 9) then with the tools of business analyses (Chapter 10), calculating the various measures of farm profit (Chapter 11).

It is relatively easy to quantify profit through monitoring feed costs, so Chapter 12 discusses the mechanics of formulating profitable dairy rations while Chapter 13 discusses how profit is influenced by feeding management, the greatest contributor to farm costs.

The next three chapters are important to the farm business manager in that they provide insights into key business decisions. Firstly, there are certain farm measures, called key performance indicators (KPI), which can quickly provide a guide as to 'how the farm is travelling', in a financial sense. These can provide a quick assessment of farm profitability (Chapter 14). It is one thing to know the farm's current financial performance, but it is also important to be able to predict how it will respond to changes in farm practice. Chapter 15 discusses this in terms of marginal responses and partial budgets. All farm decisions are based on coping with risk, the topic of Chapter 16.

The best way to understand the process of farm business decision making is to undertake case studies, several of which are presented in Chapter 17. Chapter 18 provides an insight into running a two- or three-day workshop on FBM for farm technical and financial advisers or for the farmers themselves.

Chapter 19 looks towards the future for production technology and business management of smallholder tropical dairy farming. It addresses such questions as, 'How appropriate is high technology, dairy farming to the smallholder farmer in South and East Asia?' This is very timely because much of this 'high tech farming' has recently evolved in the developed industries of the temperate dairy world. In addition, this chapter addresses the question of sustainability of small-scale farming and dairying in particular.

In the process of developing a series of workshops on dairy production technology for Indonesian smallholder farmers, I prepared a summary entitled, *Tips for proper managing of dairy cows on Indonesian smallholder farms*. This four-page booklet highlights the key features of good feeding, herd and milking management on profitable farms throughout Asia, so it is presented here in a separate section.

Appendices are included to facilitate sourcing specific information and gaining experience in ration formulation. Appendix 1 presents the Temperature Humidity Index, the universal method of quantifying heat stress in dairy stock. Appendix 2 provides conversion factors to the standard metric system from a wide variety of systems used for

describing weights and measures. Appendix 3 presents a currency converter for South and East Asian countries as at March 2009. Tables of nutrient requirements are presented for energy, protein and fibre (Appendix 4). Appendix 5 presents worksheets that provide a structured approach to calculating the nutrient requirements for formulating rations for milking cows. Appendix 6 presents a series of financial statements used to assess business performance. Appendix 7 presents examples of Expectation and Evaluation forms used in FBM workshops.

Full publication details of all sources of information are presented in ‘References and further reading’. A glossary of technical terms and abbreviations used in the manual is also provided. Finally, for ease of finding specific information, the index lists all the key topics covered in the book and their relevant page numbers.

1.3 Role of manual in training programs

This manual is multipurpose in that it forms the basis of structured training programs in smallholder dairying for advisers and educators (for farmer training organisations, agricultural high schools and universities), while also providing background information to researchers and policy makers in tropical dairy industries.

As a guide to the book’s role in technology transfer, Table 1.1 on page 9 presents two structured training programs and highlights those chapters written more specifically for dairy researchers and policy makers. Two FBM programs are outlined. The first is a basic program for farmers and high school students, while the second is an advanced program



Figure 1.3 A farmer feeding his small herd of cows in a cooperative cow colony (West Java, Indonesia)

for more highly skilled farmers, advisers and university undergraduates. It is assumed that participants in the advanced program would be familiar with topics covered in the basic program; if not, the topics should be initially introduced as an abridged basic course.

The basic 'Farm Business Management' course introduces participants to:

- What is Farm Business Management (Chapter 2)
- The importance of record keeping (Chapter 8)
- Categorising farm costs and farm revenue (Chapter 9)
- The key tools of farm business analyses (Chapter 10)
- Measures of farm profit (Chapter 11)
- Feeding decisions driving profit (Chapter 13)
- Key performance measures of farm profitability (Chapter 14).

The advanced 'Improving the business skills of smallholder dairy farmers' course does not duplicate topics from the basic course and introduces participants to:

- Feed production technology (Chapter 4)
- Improved herd management (Chapter 5)
- Harvesting and marketing of milk (Chapter 6)
- Formulating profitable rations (Chapter 12)
- Budgeting for future farm development (Chapter 15)
- Coping with risk in dairy farming (Chapter 16)
- Case studies of profitable tropical dairy farming systems (Chapter 17)
- Planning and conducting workshops in Farm Business Management (Chapter 18).

Many of the chapters in the advanced program would also be relevant to tropical dairy researchers and policy makers. Chapters written more specifically for these people are:

- Smallholder dairy farming in Asia (Chapter 3)
- The base price of raw milk (Chapter 7)
- The future for smallholder dairy industries (Chapter 19).

The chapters are written to be understood by advisers and tertiary students. Hence the trainers must ensure that other target audiences can comprehend their course material. For example, Chapter 16 (Coping with risk) has been excluded from the basic 'Farm Business Management' course, even though parts of it are just as relevant to farmers as they are to advisers and tertiary students. Hence the course planner should select these most relevant sections to incorporate into the basic course. Because the chapters are written as 'stand alone' documents so they can be downloaded from the internet, there is some repetition, but this has been kept to a minimum.

For a book covering such a diversity of tropical dairy industries, every attempt has been made to present information from many countries. For example, Chapter 3 (Smallholder dairying in Asia) presents data from eight South-East Asian and five South Asian dairy industries. This chapter also provides an overview on smallholder dairying in Thailand. In addition, several chapters present more detailed production and financial data from selected countries. Malaysian data are used in Chapters 12 (Formulating

Table 1.1 Suggestions (+) for the selection of chapters from this manual to use in a basic course on 'Farm Business Management' (A) and an advanced course on 'Improving the business skills of smallholder dairy farmers' (B) and chapters of relevance to tropical dairy researchers and policy makers (C)

Chapter	Topic	A	B	C
1	Introduction	+	+	+
2	What is Farm Business Management?	+		
3	Smallholder dairy farming in Asia			+
4	Feed production technology		+	+
5	Improved herd management		+	+
6	Harvesting and marketing of milk		+	+
7	The base price for raw milk			+
8	The importance of record keeping	+		
9	Categorising farm costs and farm revenue	+		
10	The key tools of farm business analyses	+		
11	Measures of farm profit	+		
12	Formulating profitable rations		+	
13	Feeding decisions driving profit	+		
14	Key performance measures of farm profitability	+		
15	Budgeting for future farm development		+	+
16	Coping with risk in dairy farming		+	+
17	Case studies of profitable tropical dairy farming systems		+	+
18	Planning and conducting workshops in Farm Business Management		+	
19	The future for smallholder dairy industries			+
Appendices	Units and currency converters, worksheets	+	+	+

profitable rations) and 15 (Partial budgets), Thai data are used in Chapter 18 (FBM workshops) while Chapter 17 uses Thai, Vietnamese, Indian and Pakistani data as farm case studies. These data were selected to provide 'real life' examples from well researched studies. It is desirable for FBM course planners to seek similar quality data from within the country in which the training programs are to be conducted.

Every profession has its jargon, or words developed specifically for that profession, and agriculture is no exception. There are some very specific terms and acronyms that are routinely used by farm management economists and consultants. These are explained in the Glossary and when they are first used in this book.