

Planning and conducting workshops in Farm Business Management

This chapter summarises the programs and major findings from two workshops on Farm Business Management (FBM), the first one for dairy extension staff and farmers with little exposure to FBM, and the second one for economists and others with experience in FBM.

The main points in this chapter

- It is important to develop a clear set of workshop objectives to ensure all participants know why they are there.
- Distributing copies of all overheads, translated into their local language, prior to the workshop will improve comprehension of the material to be presented.
- Asking participants to complete an expectations form at the beginning and an evaluation form at the end of each workshop, in their local language, helps plan each day's program and provides valuable feedback.
- Conducting group presentations, where small groups prepare and report back on specific aspects of the program, encourages active participation.
- Input from the case study farmers will provide a 'reality check' for the participants on their recommendations for any practice changes.
- The chapter contains a theoretical case study to assess the impact of changes in farm practices on financial farm performance.

Chapter 1 outlines two structured Farm Business Management (FBM) training programs based on this book, firstly, a basic one for farmers and high school students, and secondly, an advanced one 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, they should be initially introduced as an abridged basic course.

This chapter outlines two workshops conducted in Thailand in 2007 entitled, 'Improving the business skills of smallholder dairy farmers in Thailand'. A 'train the

trainer' approach was considered the most cost-effective method to improve FBM skills among smallholder farmers because government, dairy cooperative and milk processing factory advisers can then pass these skills directly to smallholder dairy (SHD) farmers. There were 30 participants in the three-day Workshop 1, 24 livestock officers (government and cooperative advisers) and six government farm management specialists. The two farmers who agreed to have their farms used as case studies also attended for half a day during Workshop 1. The two-day Workshop 2 was planned specifically for eight government farm management specialists and senior government managers.

Workshop 1 was designed for livestock extension officers and other technical specialists with little exposure to the principles of FBM. Workshop 2 was developed for economists and other technical specialists with previous experience in FBM.

18.1 Workshop objectives

1. To highlight the importance of keeping accurate production and financial records.
2. To use these records to calculate cost of production (COP) on dairy farms of any herd size.
3. To quantify farm profit in terms of the three basic elements: cash, efficiency and wealth, these being the most relevant to long-term sustainability.
4. To prioritise farming practices to maximise sustainability and farm profit.
5. To better understand the technical practices (called the 'raw materials of FBM') behind successful dairy farming operations.
6. To provide a workshop environment conducive to farmer/farmer and farmer/adviser networking (this objective is more for farmer orientated programs).

18.2 Workshop preparation

Three modules (with the number of PowerPoint overheads) were developed as follows:

1. Introduction to Farm Business Management (29 overheads)
2. Economic performance of case study farm (24 overheads)
3. The raw materials of Farm Business Management (40 overheads).

Prior to the workshop, each participant received copies of all the PowerPoint overheads translated into the Thai language. This is important for ease of comprehension and to provide pages for writing down additional notes during the workshop. At the closing ceremony for each workshop, participants were each presented with a Certificate of Attendance.

During the workshops, participants were offered Australian souvenirs as rewards for individual oral presentations or as gifts for farmers who opened up their farm (and books) for participants to calculate their COP. Government workshop organisers also received similar gifts.

Expectation forms were completed by each participant at the beginning, and evaluation forms at the completion of each workshop, both translated into the Thai

language. Examples of these are presented in Appendix 7. These are very important, firstly, because workshop participants may not all be aware of the workshop's emphasis on FBM, and secondly, this helped plan the 'open session' on the last day to discuss specific issues on dairy production technology.

It is important to involve participants in the workshops in addition to them listening to, and discussing, course material. Conducting group presentations where small groups prepare and report back on specific aspects of FBM encourages active participation in the workshops. It also provides opportunities for public speaking which many may have not been asked to do previously. In addition, it gives a 'local flavour' to the workshop which is very valuable for the presenters as well as the participants. Examples of topics for several group presentations are given below.

18.3 Daily programs for each workshop

18.3.1 Workshop 1

The daily programs have been summarised in Tables 18.1, 18.2 and 18.3.

Table 18.1 Program for Day 1 of Workshop 1: 'Introduction to FBM'

Session	Content
Opening session	Official opening by senior government official Presenters introduce themselves Overheads on Australian dairy industry Overheads on aspects of smallholder dairying in South-East Asia Participants complete Expectation form
Smallholder Dairying (SHD)	Why SHD farmers need to formalise their business skills
What is profit?	Various elements of profit: cash, efficiency, wealth creation Various formulae to quantify profit
Record keeping	Physical and financial records to allow calculation of profit
What are farm costs?	Variable v overhead costs Cash v imputed costs Personal expenses v imputed labour Capital and financial costs Equity (or risk) Flow chart of farm costs on smallholder dairy farm
Categorising farm income	Cash income; sales of milk, stock, manure Imputed income; changes in livestock inventory, land value
Categorising farm costs	1. Herd and shed costs 2. Feed costs 3. Cash overhead costs 4. Imputed overhead costs
Components of total feed costs	Feeding decisions driving profit
Using profit to improve management	Optimum herd size Diagnosing poor farm profitability
Preparing for two farm visits	Participants form four groups to record the above annual costs

Table 18.2 Program for Day 2 of Workshop 1: 'Economic performance of case study farms'

Session	Content
Two farm visits	Groups interview farmers
Group Presentation 1: Feedback from farm visits	Groups prepare short report of calculated farm costs One person from each group presents 5–10 minute overhead presentation Participants discuss and calculate COP (in Bt/kg milk)
Group Presentation 2: Improving farm profitability	New groups formed to discuss following topics: 1. Increasing farm milk yields 2. Increasing milk unit returns 3. Reducing farm costs (cash and imputed) One person from each group presents 5–10 minute overhead presentation Participants discuss technical aspects of above topics
Group Presentation 3: Reporting back to farmers	Prioritise key findings from 'Improving farm profitability' session Groups present short report to farmers on calculated farm costs Groups present short report to farmers on how to improve their farm profit Farmers provide feedback to develop their on-farm action plans

Input from the case study farmers on Day 2 provides a 'reality check' for the participants on their recommendations for any practice changes arising from the farm visits.

Table 18.3 Program for Day 3 of Workshop 1: 'The raw materials of FBM'

Session	Content
Review	Participants share their most important learnings from Day 1 and 2
Group Presentation 4: Industry strategic planning	Same groups as for Presentation 2 discuss following topics: 1. Develop an extension program to demonstrate improved farm profitability as a result of reducing feed costs 2. Assess the opportunities for value adding to increase milk unit returns 3. What will the Thai dairy industry look like in 2017, in terms of farm and herd size, geographical location and level of farm profitability? One person from each group presents 5–10 minute overhead presentation
Open session	Discuss participants' specific queries on dairy production technology
Closing session	Concluding remarks from presenters Participants complete Evaluation form Presentation of workshop certificates by senior government official

18.3.2 Workshop 2

The daily programs have been summarised in Tables 18.4 and 18.5.

Table 18.4 Program for Day 1 of Workshop 2: 'Economic performance and profits'

Session	Content
Review of breakdown in farm income and costs	Review sessions on Day 1 of Workshop 1
Key measures of FBM	Key performance indicators (KPI) of FBM, e.g. cash operating surplus, Milk income less feed costs, Economic farm profit and Return on assets, Return on equity and equity gain Sensitivity analysis
Dairy cow lactation cycle	Changes in milk yield, intake and live weight during a lactation cycle Effects on herd fertility
Farm case study	Description of theoretical case study farm Changes in peak milk yield and lactation persistency Feed inputs to effect such changes Changes in KPI of case study farm

Table 18.5 Program for Day 2 of Workshop 2: 'Economic performance and profits'

Session	Content
Review of breakdown in farm income and costs	Participants share their most important learnings from Day 1
Diagnosing poor farm profitability	Ten KPI of farm profitability
Partial budgets	Partial budgets for farm case study Marginal responses to farm inputs
Risk	Examples of risk in smallholder dairy farming
Open session	Discuss participants' specific queries on FBM
Concluding session	Key factors influencing the future of the Thai dairy industry

18.4 Group presentations from Workshop 1

The following two tables present some of the workshop participants' original thoughts on FBM. Table 18.6 summarises their deliberations on 'Improving farm profitability' (Group Presentation 2 from Table 18.2). Table 18.7 summarises their reporting back on one of the case study farms they visited (Group Presentation 3 from Table 18.2), with both their specific suggestions and those agreed to by the farmer.

18.5 Theoretical farm case study in Workshop 2

The theoretical farm case study developed for the FBM specialists in Workshop 2 demonstrates the beneficial effects of improving milk production through better feeding management, on various KPIs of the farm business. The farm selected was the same 14-cow farm (Farm 2) used by Garcia *et al.* (2005) in their comparative analyses of herd size, already discussed in Table 17.1 (page 198). Farm input prices and output returns are the same 2003 values as used by Garcia *et al.* (2005).

Table 18.6 Workshop 1 summary of Group Presentation 2: 'Increasing farm profitability'

Technique	Details
Increasing farm milk yields	<ol style="list-style-type: none"> 1. Reproduction/breeding: group cows on milk yield and feed—high producers better, aim for 7:3 ratio of milking: dry cows, reduce services/conception to two (not three)] with better heat detection 2. Feeding: higher fertiliser rates on cut and carry forages and harvest at optimum stage of maturity, reduce concentrate: forage ratio, incorporate tree legumes into forage system 3. Management: 15% culling to reduce stocking capacity, dry off cows producing <4 kg/d, increase lactation length, aim for 25% replacement rate each year
Increasing milk unit returns	<p>Improve cleanliness of shed, equipment, cows and staff</p> <p>Reduce adulteration of milk, ensure no residual water in milk</p> <p>Improve milk composition with better feeding management</p> <p>Routinely test for mastitis and minimise antibiotic residues</p> <p>Avoid over milking, ensure colostrum doesn't contaminate raw milk</p>
Reducing farm costs	<ol style="list-style-type: none"> 1. Feed costs: concentrates: feed for a predetermined level of milk yield, formulate concentrates on-farm and bulk purchase ingredients 2. Feed costs: roughages: grow sufficient, plan for dry season feeding, use more fertilisers (e.g. urea), improve forage agronomy 3. Herd/shed costs: reduce length of dry period, reduce services/conception, farmer does AI following training, cull low producers, select heifers to grow out as replacement, milking machine maintenance, reduce use of veterinary drugs through greater use of natural medicines

Table 18.7 Specific recommendations for a case study farm to increase profitability and agreed farmer's decisions

Technique	Details
Increase farm milk yields	<p>Feed less concentrates and more roughages</p> <p>Feed better quality roughages</p> <p>Grow better quality roughages (tree legumes, fertiliser, forage maturity)</p> <p>Group and feed cows according to production (feed 1.5 kg conc: 1 kg milk)</p>
Increase milk unit returns	Farmer already has Grade 1 milk
Reduce farm costs	<p>Feed for target milk yields</p> <p>Grow more forage, especially for dry season feeding</p> <p>Forgo some cash crop area for forages</p> <p>Improve current irrigation system for dry season forages</p> <p>Cull stock to reduce herd size to optimise stocking capacity</p> <p>Aim for 25% replacement rate to allow culling of poor producers</p> <p>Improve milking machine maintenance</p>
Farmer decisions	<p>Reduce herd size</p> <p>Increase roughage supplies</p> <p>Address long calving interval</p> <p>Address low replacement rate</p> <p>Try to address problem of aging father with little involvement in day-to-day activities but still with strong influence on farm management decisions</p>

This farm had the following features:

- 14 crossbred cows producing 46.5 t milk/yr, all sold to local co-op
- Cows produce 3324 kg/lactation, averaging 11.1 kg/day
- Farmer uses AI, producing 12 calves/yr with 15% calf mortality, 7% cow mortality, and 7% cow culls
- Roughages are Napier grass, sweet corn stover, rice straw
- Feeds 1.9 t/cow of formulated concentrate (16–18% protein) or 0.5 kg/kg milk
- Four member household, no off-farm income, some farm income from poultry and mangos
- Labour is valued at 10.4 Bt/hr, averaging 480 hr/milking cow/yr
- No annual change in land or stock values
- Total farm assets are 2.5 M Bt, with 60% as land, 25% as cattle and 15% other
- Gross dairy enterprise income is 707 k Bt with COP 590 Bt/yr, hence 117 k Bt/yr profit.

This study compared three different scenarios for milk production as follows:

1. Current farm production, with 20 kg/d peak yield and 11% persistency (that is a 11% per month decline in milk yield from peak or 2.2 kg/d/month)
2. Improved persistency, with 20 kg/d peak and 8% persistency (or decline of 1.6 kg/d/month)
3. Improved peak and persistency, with 25 kg/d peak and 8% persistency (or 2.0 kg/d/month).

Scenario 2 produced an extra 645 kg milk/cow or a total farm yield of 55.5 t milk/yr, achieved by feeding 967 kg DM/cow more forages (milk response of 1 kg milk per 1.5 kg DM of extra forage) through purchasing additional Napier grass. This cost 0.8 Bt/kg fresh or 4.0 Bt/kg DM.

Scenario 3 produced an extra 1635 kg milk/cow or a total farm yield of 69.5 t milk/yr, achieved by feeding 600 kg DM/cow more concentrates and 1552 kg DM/cow more forage. Total extra concentrate purchases (with milk response of 1 kg milk/kg DM extra concentrate) were 456 kg of cassava (for 2.8 Bt/kg or 3.2 Bt/kg DM) plus 222 kg of cottonseed (for 5.2 Bt/kg or 5.8 Bt/kg DM). The purchased forage was Napier grass as in Scenario 2.

18.5.1 Calculation of financial measures

Table 18.8 presents COP and KPI measures for these three scenarios. Providing more feed at current feed and milk prices improved all measures of farm performance in Table 18.8, of cash and farm efficiency, with return on assets more than doubling from 4.6% to 6.6% to 10.2%.

Clearly then, more intensive production systems, even with current herd sizes and farm cost and return structures, are good investments in improving the profitability of smallholder dairying in countries such as Thailand.



Figure 18.1 Farm management economists calculating cost of production at the workshop in Thailand

Table 18.8 Breakdown of farm costs and income (Bt/kg milk produced) and KPIs of business performance for three scenarios on the theoretical farm case study

Scenario	1	2	3
Herd milk yield (t/yr)	46.5	55.5	69.5
Farm returns (Bt/kg)			
Milk sales	11.3	11.3	11.3
Stock sales	3.9	3.3	2.6
Total	15.2	14.6	13.9
Milk production costs (Bt/kg)			
Purchased feed	9.2	8.7	7.9
Other cash costs	1.6	1.3	1.0
Labour	1.3	1.1	0.9
Capital	0.4	0.3	0.3
Land	0.2	0.2	0.1
Total (COP)	12.7	11.6	10.2
Dairy enterprise profit (Bt/kg milk)	2.5	3.0	3.7
Cash operating surplus (k Bt/yr)	205	253	343
Economic farm surplus (k Bt/yr)	145	193	283
Dairy enterprise profit (k Bt/yr)	117	165	255
Profit (%)	17	20	26
Return on assets (%)	4.6	6.6	10.2

COP: cost of production (Bt/kg milk)

Dairy enterprise profit: gross income less total production costs (Bt/kg milk or k Bt/yr)

Cash operating surplus: gross cash income less cash costs

Economic farm surplus: gross income less cash costs plus labour

Profit percentage: dairy enterprise profit divided by gross income

Return on assets percentage: dairy enterprise profit divided by total farm assets.

18.5.2 Developing partial budgets

Table 15.1 in Chapter 15 presents a format to prepare a partial budget. As the Day 2 program in Workshop 2 includes partial budgets as one of the topics for discussion, the theoretical farm case study provided the ideal opportunity to develop them for Scenarios 2 (Table 18.9) and 3 (Table 18.10).

These partial budgets calculated positive net benefits for both scenarios and return on investments of 88% and 113% for Scenarios 2 and 3 respectively. This clearly indicates it was a good business decision to improve feeding practices in both cases.

The partial budgets only considered higher feed costs and improved milk returns. They did not take into account improved fertility (through better body condition) or higher unit milk price (through better milk composition). In addition, they did not take into account the higher costs of feeding out.

Partial budgets can quantify benefits in many farm practices, for example:

- Balancing diets for energy, protein and other nutrients
- Optimising farm stocking capacities to minimise fodder purchases
- Improving animal health and fertility
- Better young stock feeding and management
- Investing in housing, heat stress, effluent disposal and recycling
- Addressing problems in milking hygiene to improve milk quality.

Table 18.9 Annual partial budget for Scenario 2 (Improving milk persistency)

	K Bt/yr
Capital requirements	
Nil	–
Negative effects	
<i>Added costs</i>	
967 kg Napier grass @ 4.0 Bt/kg DM or 3868 Bt/cow/yr	54.1
<i>Reduced returns</i>	
Nil	–
Total	54.1
Positive effects	
<i>Added returns</i>	
645 kg milk @ 11.3 Bt/kg or 7288 Bt/cow/yr	102.0
<i>Reduced costs</i>	
Nil	–
Total	102.0
Net benefit	47.9
Return on marginal capital	88%
Additional non monetary factors	–

Table 18.10 Annual partial budget for Scenario 3 (Improving peak yield and persistency)

	K Bt/yr
Capital requirements	
Nil	–
Negative effects	
<i>Added costs</i>	
1552 kg Napier grass @ 4.0 Bt/kg DM or 6208 Bt/cow/yr	86.9
600 kg cassava/cottonseed meal @ 4.1 Bt/kg DM or 2460 Bt/cow/yr	34.5
<i>Reduced returns</i>	
Nil	–
Total	121.4
Positive effects	
<i>Added returns</i>	
Milk: 1635 kg @ 11.3 Bt/kg or 18 475 Bt/cow/yr	258.7
<i>Reduced costs</i>	
Nil	–
Total	258.7
Net benefit	137.3
Return on marginal capital	113%
Additional non-monetary factors	–

18.6 Conclusions from FBM workshops in Thailand

There are many constraints to smallholder dairy production in Thailand. Many of them are nutritional, generally a lack or imbalance of nutrients, which can be overcome with improved feeding in early lactation.

To improve the competitive strength of Thai dairy farmers and cooperatives:

- Reduce farm costs to at least maintain profit margins with lower milk returns
- Reduce variable costs, e.g. more local roughages, on-farm concentrate mixing
- Exploit economies of scale, more milk per cow and/or more cows per farm
- Exploit areas of specialisation to reduce costs, e.g., contract calf/heifer rearing
- Better monitoring of individual cow performance to cull poor stock
- Improve milking hygiene on-farm with cooperatives penalising poor milk quality
- Consolidate milk collection centres to reduce cooperative overhead costs
- Make better use of the full range of services that cooperatives can provide
- Undertake more on-farm applied research and extension into feeding, herd and financial management.

These workshops aim to provide a framework to allow COP comparisons to be made between different size and types of dairy farms in different countries. For example, IFCN

(2005) have published many surveys of costs and returns from smallholder dairy farming throughout Asia, although their methodology is slightly different to the one described above. The workshops provide an ideal learning tool for farmers and advisers to better understand the partitioning of costs and returns from smallholder dairy farming. In addition, it assists farmers with prioritising their farm management decisions to address the high cost components on their systems, such as on-farm production of forages and purchases of concentrates, either fully formulated or their ingredients.

A second series of workshops was developed for Vietnam in 2008, and as part of that training program a computer program was created to calculate COP and many of the key KPIs. This Excel spreadsheet, FARMPROFIT, is freely available from the author, at john.moran@dpi.vic.gov.au or jbm95@hotmail.com.

Analysis of farm financial performance data requires assumptions on farm unit costs and returns. When comparing farms with differing systems, herd sizes or geographical locations, such conclusions are dependent on these relative costs and returns, which can vary over time. Therefore generalisations about farm profits must specify their year of data collection.