

It's no child's play down on the cattle farm (The Nation, Bangkok, 19 February 91)

Three years ago Mr Prajak Ngamuan switched 12 rai of his 18 rai farm on the Lam Ta Kong land settlement from maize and cassava to pasture, and borrowed 200,000 baht to start a small-scale dairy enterprise.

“Some neighbours were already raising cows”, he says. “I had wanted to try but I had no capital. BAAC persuaded me to start.”

Is he pleased or sorry to have taken the risk? From his original five imported cows he now has a herd of 15, seven of which are giving milk. During 1990 they gave between 1,000 and 2,000 kgs of milk per month, and a gross annual income of about 160,000 baht. Along the way Prajak borrowed a further 36,000 baht to buy milking machinery which was not included in the original project design or loan provision. Nevertheless, he has been able to pay off his original loan in three years instead of ten as planned by the bank, and he expects to repay the machinery loan before long.

In 1987 Thailand was in the early stages of what has turned out to be a boom in dairy production. The Bank for Agriculture and Agricultural Cooperatives (BAAC) designed the Lam Ta Kong project as a way of enabling small-scale farmers to benefit from what seemed a promising farming sector. Lam Ta Kong in Pak Chong district, Nakhorn Ratchasima, had the advantage of being near to both the established, large-scale Choke Chai dairy farm and the Dairy Promotion Organisation in nearby Muak Lek district, Saraburi. Prajak was one of 25 farmers who joined the project, attracted by the possibility of improved income and an interest rate of 9 percent instead of the usual 11.5 percent, made possible by a grant to BAAC from the European Economic Community (EEC).

Prajak is the first farmer the bank takes visitors to see, so even before you meet him and browse through his meticulous farm records you can guess that, unlike some of his neighbours, he has been successful. On balance he is pleased to have taken up dairying.

There have been other successes. About half the project farmers earned over 100,000 baht from their cows in 1990,

two earned over 200,000. Mrs Samai Theejanthuk was the champion with a gross 1990 dairy income of about 250,000 baht. She now has a total of 18 cows of which 14 are giving milk. Unlike Prajak she supplemented her original herd by buying six additional animals, hence the faster growth rate. Samai operates what is probably the cleanest of the project's enterprises, and has taken the trouble to screen her milking shed to protect the cows from bothersome bugs while they are being milked. She repaid the final installment of her loan in January.

These successes are no more than we might expect in view of the rapid growth in domestic demand for dairy products over the last several years, and the continuing market optimism. Dairying would appear to be an ideal route to a better life for farmers who have small farms and who have until now depended on producing field crops for which prices are highly unstable and the longer-term prospects dismal. The Office of Agricultural Economics reports that the number of dairy cows has increased at an average rate of almost 20 percent per year since 1984. So aren't Prajak, Samai and the others typical?

Closer inspection suggests a more complex and interesting story which illustrates the uncertainties of technology transfer among small-scale farmers. To begin with, the numbers of farmers willing to join the project are revealing. The initial EEC-funded project target was 36 farmers, compared to an achievement of 25. For a follow-up project in the same area but funded separately the BAAC set a target of 100 farmers, but the uptake has been only 19. Why is interest so limited?

Mr Bidijit Laocaroen is the BAAC field officer directly responsible for the project, and has been





involved almost from the start. From the experience of this project he is cautious about advising small-scale farmers to take up dairying.

“They should start with a clear understanding of the degree of commitment involved,” he says. “Not all farmers are suitable for dairying. For example, only about half are diligent enough to keep records of their cows’ performance. They should not start dairying without first having a close look at some farmers already raising cows.”

Dairying is a totally new activity for almost all these farmers, and when each cow costs 26,000 baht the farmers feel there is a large element of risk and uncertainty. Prajak for example says he had to learn a great deal as he went along, despite attending a mandatory three-week residential training course at the Department of Livestock Promotion.

“The training was good, but there was a lot they did not tell you,” he says. Most importantly, few of the farmers appreciated how dedicated they would need to be to succeed. “The work is not heavy, but it is continuous, and you have to be careful of the details.”

It has been too much for four of the original 25 farmers. Two gave up and sold their cows within a few months, and two more did the same a year or so later. The level of enthusiasm for the project varies among the remaining 21 stalwarts.

According to the farmers, feed is one of the biggest problems. A great deal of time and expense are involved in getting enough good quality feed for the cows. The long dry season is particularly difficult because the grass won’t grow. Theoretically the farmers can offset the problem by producing and storing low-cost feed from their farms. In practice few farmers will set aside enough land for feed

production, and they have to spend 2,000 - 3,000 baht per month on buying hay and, for protein, commercially produced concentrate.

In general, those who are prepared to spend enough on good quality feed will more than recoup their money in increased milk yields, improved animal health and quicker expansion of the herd. But many are tempted to skimp on the feed. Mr Rian Phiwsuk, for example, buys concentrate but mixes it with too much cassava and reduces the quality. He saves money, but gets little more than half the yield of Mr Prajak’s and Mrs Samai’s cows.

But feed is by no means the only problem. Dairy farming involves relatively high levels of skill in areas with which few farmers have any experience. There are key technical issues, most importantly concerning breeding but also in recognising sickness problems. Good, detailed records are essential in order to keep track of the health, breeding cycle and milk production of each cow. The farmers depend heavily not only on their own skill but also on a supporting network, both for the care and maintenance of their animals and for marketing.

The dependence on support services is nicely illustrated at Prajak’s farm. He had recognised that morning that one of his cows was on heat, part of their natural 21 day cycle. Failing to inseminate the cow immediately means missing three weeks of milk production and delay in building up the herd, so Prajak had to travel 10 kms into Pak Chong to make an appointment with the artificial insemination service of the Department of Livestock Promotion.

And what kind of semen does he want the DLP to use? The decision is Prajak’s, and can have crucial consequences. With the advice of the Dairy Promotion Organisation the BAAC has imported cross-bred animals, in this case 50:50 Sahiwal-Friesians from New Zealand, impregnated with semen from a 100% pure Friesian bull. The resulting calves are 75% pure, and a key question is whether to maintain this level by using semen from a 75% pure bull in each successive generation, or continue using 100% Friesian semen so as to improve the purity of the herd progressively.

On the face of it, improving the herd’s purity seems attractive. Yields from pure Friesian cows can be spectacular compared to the achievement of even the best project farmers and their cross-bred animals. For Prajak and Mrs Samai the daily yield from 75%



baht each while females, if they are not kept, sell for 10,000 to 20,000 baht depending on their age and whether they are already pregnant. Although on average the numbers of males and females born should be about equal, there is a wide variation from farm to farm. Mr Sombat's calves have almost all been males, so he has been able to build a herd of only nine cows, seven in milk.

Individual cows vary significantly in their milk yields, sometimes for reasons which are not clear. This kind of variation is another disadvantage of using cross-bred animals, because the genetic

cross-breeds has ranged from 18 kgs in the first month to 8 kgs in the tenth and last month of each lactation cycle. So wouldn't it be better to upgrade the cows?

Some farmers intend to upgrade. Mr Sombat Phunsawat for example has asked the AI service to continue using 100% semen on each generation of his cows. So far he has achieved only 8-11 kgs of milk per cow per day in the first month, falling to 5 kgs at the end of the lactation period. He hopes to improve on that by upgrading his herd.

He is probably unwise. It is difficult to cite clear statistical evidence, but Mr Phichet Sukpituksakul of the DPO in Muak Lek is convinced that for inexperienced, small-scale dairy farmers the degree of purity should be not less than 62 percent, but not more than 82 percent.

“In tropical areas pure bred animals are more affected by heat stress than cross-bred animals are, and the pure-breeds get sick easily. Small-scale, inexperienced farmers simply don't have the skill to handle them properly,” he says.

There have been local farmers who have raised pure-bred cattle, but with little success and in some cases outright failure. One of them built a herd of cross-bred animals with a careful breeding programme, and eventually supplemented the herd with pure-bred cows bought from Australia. His original herd is still giving higher milk yields.

Mr Prajak has opted for a 75% pure herd. Watching the delivery of AI service is a sobering experience.

While knowledge, skill and care are crucial, success in building the herd also depends to a certain extent on luck. Male calves are worth no more than 500

characteristics of the calves are always somewhat uncertain. One of Mr Prajak's original cows would not gain weight and gave birth to a still-born calf, so he had to sell it at a significant loss. Other cows appear to be healthy but give little or no milk.

Sometimes the teats are too small to be easily milked. In a very small number of cases among cross-bred animals a cow may not give milk unless its calf is nearby, a problem which farmers may not be able to identify and which in any case creates a great deal of inconvenience.

The labour involved in dairy farming is not heavy, but ties the farmer securely to the farm. One farmer complains that he used to raise cocks for fighting, but no longer has time and misses the sport. Again, it is feeding the cows which is most demanding, even in the rainy season when the grass is growing. For most farmers the pasture is located some distance from the cattle pens, and the farmers have to cut the grass and carry it to the cows. Taking the cows to the pasture seems easier, but they would eat and trample other farmers' crops on the way.

A serious problem which is often not fully appreciated is the skill and physical effort involved in milking the cows by hand, according to the DPO's Mr Phichet. The cow's hormonal system works in such a way that milk will flow for only 5 to 7 minutes, and the farmer has to work quickly to get the milk out within that time. It takes some weeks for the newcomer to dairying to develop the strength in his or her forearms to milk the herd, even when there are only five cows. Poor milking technique can damage the cows' teats and cause mastitis which further restricts yields.

Starting with a good technique is important because

the initial level of production which the farmer can achieve tends to set the pattern for the future. According to Mr Phichet, if the beginning farmer's skill enables him to get 15 kgs per day from each cow in the first lactation period, after the birth of the first but before the birth of the second calf, he may be able to improve his technique and achieve 20 kgs in the next lactation. But if he can manage only 2 kgs initially, no matter how much he improves his technique the cow is unlikely ever to produce more than 15 kgs.

Accordingly milking technique accounts for a large portion of the DPO's training course. Mr Phichet worries that skills are lost between the end of the initial training course, the arrival of the cows and the onset of the milking regime after a further two months or so when the first calves are born. One weakness of the project, he says, has been the lack of a mobile support service to follow up on the training course after the farmers return to their farms. Perhaps this is one reason why the overall average milk production for the Lam Ta Kong project is about the same as the national average, about 9 kgs per cow per day.

Milk marketing enforces a level of discipline and cooperation which is alien to most small-scale Thai farmers. In this respect, proximity to the Choke Chai company has been critical. Choke Chai has helped the project in several important ways. Two months ago there was an outbreak of foot-and-mouth disease and the Choke Chai company arranged a vaccination programme which protected the project herd. Under the project, milk sales are made through a milk collection centre established by Choke Chai on the road to Pak Chong. Project farmers have improved on the system by arranging for one of their members to operate a twice-daily, paid delivery service between the farm and the collection centre.

Payments are made into a BAAC savings account after deducting 40 percent of the gross for loan charges and some expenses, such as the costs of AI services. The arrangement is fine, until the farmers want cash and have to travel to the nearest BAAC branch with cash handling facilities, 40 kms away in Si Khiw. Mr Prajak, having repaid his loan, is now free from this restriction and happily uses a commercial bank and its ATM service in Pak Chong.

Feed, breeding, labour shortages, technical support and marketing all present problems which the project has attempted to address, with at least modest

success. But as in many specialised projects, there is lurking in the background an imperative which in the end will overshadow each of these issues and against which this and other attempts at giving small-scale farmers a sound economic footing on their farms may be judged. Mrs Saowanee Muangjanthuk's pasture and cattle pen adjoin an attractive hill and she says the view from the top is beautiful. She has been offered 200,000 baht per rai for the 12 rai plot. Selling one rai would pay off her entire dairy loan. As much as 4 million baht per rai is rumoured to have changed hands in the southern part of the settlement, near the boundary of the Khao Yai national park. At prices like these it is hard to see why anyone is left on the land.

Mrs Saowanee says she doesn't know what she would do if she sold her land. Perhaps she will soon think of something, certainly a lot of her neighbours will. The important point about the dairy project is that it offers a long-term, financially viable alternative which these small-scale farmers could never match with their maize or cassava plots.