

## Disease prevention and control in dairy cattle of smallholders in Chiang Mai, Thailand

Nucha Simasatitkul<sup>1</sup>, Angkana Phongphaew<sup>1</sup>, Pattana Jierwiriyaant<sup>1</sup> and Udo ter Meulen<sup>2</sup>

<sup>1</sup>Animal Science Department, Faculty of Agriculture, Chiang Mai University, Chiang Mai 50200, Thailand

E-mail: [agahi001@chiangmai.ac.th](mailto:agahi001@chiangmai.ac.th)

<sup>2</sup>Institute for Animal Physiology and Animal Nutrition, Georg-August-University, Kellnerweg 6, D-377077 Göttingen, Germany

E-mail: [umeulen@uni-goettingen.de](mailto:umeulen@uni-goettingen.de)

### Abstract

Monthly interviews of 33 dairy farmers in Sankamphaeng, Mae-on and Sansai Districts were performed from June, 1995 until July, 1996. On average farmers hold 12.42 animals per farm: 4.21 milking cows and 1.6, 2.62, 1.92 and 2.07 dry cows, heifers, weaning calves and calves respectively. The highest pregnancy rate (55.7%) was found in Mae-on compared to 48.6% in Sansai and 40% in Sankamphaeng.

All farmers vaccinated their cattle twice a year for FMD whereas only 36.4% used the yearly vaccination for Haemorrhagic Septicaemia, since the newly introduced vaccine caused inflammation at the injection site and a short term decrease in milk production, which made the farmers reluctant to have their animals vaccinated. 81.8% of the farmers had their cattle tested for Brucellosis and Tuberculosis. Female calves are vaccinated for Brucellosis at 3-8 months of age. During the interview period 63.6% of the farmers had their calves vaccinated.

Ninety-seven percent of the farmers dewormed their animals, 94% dewormed the dry cows 1 month before calving, 63.6% dewormed the calves and only 39.4% eradicated external parasites.

All farmers supplied minerals daily to the dairy cows and 87.9% of the farmers had their cows injected with ADE vitamins one month before calving.

For mastitis prevention, 24.2% of the farmers rubbed the cows udders with chlorine solution before milking and used teat dip after milking. In average about half of the farmers had the dry cows treated with antibiotics for mastitis prevention (dry cow therapy), however, major differences were found among the districts. In Sansai all farmers had the animals treated, in Mae-on only half and none in Sankamphaeng. Still the most common reasons for sick cattle were mastitis and hoof problems. For hoof problems, there is not yet a prevention scheme.

The expenses for dairy disease prevention and control are distributed at almost an equal ratio between farmers and government. At the time of the survey the ration was 1 : 1.04

**Keywords:** Dairy cows, disease control, disease prevention

## **Introduction**

During the past two decades, dairy production in Thailand has been expanding rapidly. There are four major factors that contribute to the increasing production efficiency of the Thai dairy industry:

- Government promotion policy
- Social and economic expectations of dairy farmers
- Improved management factors, i.e. breeds, feeding, husbandry and disease control
- Improved processing and marketing of dairy products.

Not only the dairy farmers have a very important role in contributing to the success of production but also a number of departments/ organisation in both government and private sectors have responsibilities. The country's dairy production has been progressively developed since 1987 according to the government policy to reduce the amount of imported dairy products and to replace some cash crops i.e. rice, cassava and palm oil (Charun, 1994).

Most farmers are currently small-scale producers, their incomes depending on the many factors mentioned above. The main cost of production are feedstuffs (roughage and concentrates), the lesser are in descending order: cow value, maintenance of housing, equipment and tools, water use, electricity, chemicals, pesticides, medical treatment and land use (if rented). Although Udomprasert (1993) found that costs of medicines and pesticides for nursing and caring were not much compared with other expenditures (1.8% of the price of 1 kg raw milk), sick or dead cows still cause great losses to the farmers. Therefore, from government side it is sought to make optimal strategies for disease prevention and control.

By monthly interviews of 33 dairy farmers in Sankamphaeng, Mae-on and Sansai Districts from June, 1995 until July, 1996 the following topics:

- How do Thailand's dairy farmers manage disease prevention and control?
- What diseases do they prevent and control?
- What are problems causing sick animals?
- What are assisted and supported by government?

was studied in order to make recommendations on proper management to the farmers maximise their economic return for dairy production.

## **Present situation**

**Number of dairy animals:** On average the farmers held 12.42 animals per farm: 4.21 milking cows and 1.6, 2.62, 1.92 and 2.07 dry cows, heifers, weaning calves and calves respectively (Table 1). The highest pregnancy rate (55.7%) was found in Mae-on compared to 48.6% in Sansai and 40.4% in Sankamphaeng (Table 2)

**Deutscher Tropentag 1999 in Berlin**  
**Session: Sustainable Technology Development in Animal Agriculture**

Table 1: Average number of dairy animals per farm in Sankamphaeng, Mae-on and Sansai Districts

District	Milking cows	Dry cows	Heifers	Weaning calves	Calves	Total
Sankamphaeng	4.50	1.77	2.66	1.54	1.99	12.46
Mae-on	3.72	1.63	1.76	1.49	1.72	10.32
Sansai	4.42	1.41	3.43	2.72	2.50	14.47
Average	4.21	1.60	2.62	1.92	2.07	12.42

Table 2: Pregnancy rate of the cattle

District	Milking cow	Dry cow %	Heifer	Total
Sankamphaeng	37.4	51.3	36.8	40.4
Mae-on	55.8	63.1	49.4	55.7
Sansai	49.0	63.6	40.4	48.6

*Contagious and infectious disease prevention and control:* All farmers vaccinated their cattle twice a year for Foot and Mouth Disease whereas only 36.4% used the yearly vaccination for Haemorrhagic Septicaemia, since the newly introduced vaccine caused inflammation at the injection site and a short term decrease in milk production, which made the farmer reluctant to have their animals vaccinated.

As control on Brucellosis and Tuberculosis an annual check up is offered by the district veterinarian. 81.8% of the farmers had followed the program whereas the activities had not yet taken place on other farms before the interview. 63.6% of the farmers had their female calves at 3-8 months of age vaccinated against Brucellosis during the interview period (Table 3).

Table 3: Number of farmers having their cows tested for Brucellosis and Tuberculosis, and Brucellosis vaccinated.

District	Brucellosis and Tuberculosis tested	Brucellosis Vaccinated
	No. of farm (%)	
Sankamphaeng	10 (90.9)	5 (45.5)
Mae-on	7 (58.3)	7 (58.3)
Sansai	10 (100)	9 (90)
Total	27 (81.8)	21 (63.6)

**Deutscher Tropentag 1999 in Berlin**  
**Session: Sustainable Technology Development in Animal Agriculture**

*Parasitic control:* 97% of the farmers dewormed their animals, 94% dewormed the dry cows 1 month before calving and 63% dewormed the calves (Table 4). Only 39.4% eradicated external parasites.

Table 4: Number of farmers deworming their animals

	No. of farmers (%)
Dry cows, heifer and calves	14 (42.4)
Dry cows and heifers	6 (18.2)
Dry cows and calves	6 (18.2)
Dry cows	5 (15.2)
Calves	1 (3.0)
Total	32 (97)

*Retained placenta prevention:* All farmers supplied minerals daily to the dairy cows and 87.9% of the farmers had their cows injected with ADE vitamin 1 month before calving to prevent retained placenta (Table 5).

Table 5: Number of the farmers having their cows injected with ADE vitamins

District	No. of farm (%)
Sankamphaeng	8 (72.7)
Mae-on	11 (91.7)
Sansai	10 (100)
Total	29 (87.9)

*Mastitis prevention and control:* 24.2% of the farmers rubbed the cows udders with chlorine solution before milking and used teat dip after milking but not regularly. Dry cow therapy, treatment of dry cows with antibiotics, is suggested in the mastitis control scheme. Major differences were found among the districts in its application (Table 6).

Table 6: Antiseptic treatment and dry cow therapy for Mastitis prevention and control used by farmers

District	Use of chlorine before milking		Use of teat dip after milking		Use of dry cow therapy	
	Farms	%	Farms	%	Farms	%
Sankamphaeng	1 <sup>a</sup>	9	1 <sup>b</sup>	9	0	0
Mae-on	1 <sup>a</sup>	8.3	2	16.7	6	50
Sansai	6 <sup>c</sup>	60	5 <sup>c</sup>	50	10	100
Total	8	24.2	8	24.2	16	48.7

a = 2 months used

b = 1 month used

c = irregularly used

*Health problem:* No cow had Foot and Mouth Disease or Haemorrhagic Septicaemia. Ten of eleven farms in Sankamphaeng had 1-3 cows with mastitis. Seven of 10 farms in Sansai had 1-5 cows with mastitis, whereas only one cow in Mae-on had mastitis. The average number of sick animals per farm per month is shown in table 7.

Table 7: Average number of sick animals per farm per month

Disease	Sankamphaeng	Mae-on	Sansai	Average
Mastitis	0.14	0.01	0.12	0.09
Hoof problem	0.18	0.01	0.07	0.08
Metritis	0.03	0.01	0.05	0.03
Retained placenta	0.02	-	0.05	0.02
Fever	0.1	0.01	0.06	0.01
Others	0.05	0.04	0.02	0.04
<b>Total</b>	<b>0.5</b>	<b>0.1</b>	<b>0.4</b>	<b>0.3</b>

*Expenses for dairy disease prevention and control:* The average cost for disease prevention and control by farmers are 223.96 Baht/farm/month (20 Bath = 1 DM) and the government expenses for dairy farms average 233.83 Bath/farm/month, thus the ratio of expenses between farmer and government at the time of the survey was 1 : 1.04.

### **Aknowledgement**

This research was a joint project of ACIAR THAI - AUSTRALIAN PROJECT funded by the Australian government under the supervision of the Department of Economics, the University of Queensland, Australia.

### **References**

- Chanthalukana, Charun. 1994. Report on a study of dairy development and products in Thailand : Trends for future research and development. Fund for Research Support Council. p. 24-36.
- Udomprasert, Preeyapan. 1993. Dairy farm production cost: Manual for Dairy Co-operatives data base. Faculty of Veterinary, Kasetsart University. Kamphaengsan. Nakorn-pathom. p. 66-77.