Characterization of peri-urban dairy production in Ghana. 2. Health and other constraints in the production system

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SUMMARY

A survey was carried out in five districts of the Accra plains to characterize the peri-urban dairy system. Results of the survey indicated that farmers were not treating their animals with anthelmintic. The use of acaricide and the control of trypanosomiasis was fairly frequent. Skin diseases, ticks, digestive diseases, and trypanosomiasis were the most important diseases affecting farmers' cattle in that order. The lack of livestock extension and the unwillingness of banks to provide credit facilities for cattle farming were identified as other factors hampering the growth of the dairy industry in Ghana.

RÉSUMÉ

OKANTAH, S. A., ODDOYE, E. O. K., OBESE, F. Y., GYAWU, P. & ASANTE, Y.: *La caractérisation de la production laitiére péri-urbaine au Ghana. 2. La santé et d'autres contraintes dans le système de la production.* Une enquête s'est déroulée dans cinq districts des plaines d'Accra pour caractériser le système laitier péri-urbain. Les résultats de l'enquête indiquaient que les éleveurs ne traitaient pas leurs animaux avec anthelmintique. L'utilisation d'acaricide et la lutte contre la tripanosomiase était assez fréquente. Les maladies de peau, les tiques, les maladies du système digestif et la tripanosomiase étaient les maladies les plus importantes, touchant les éleveurs des bestiaux, par ordre logique. Le manque de vulgarisation de bétail et le fait que les banques ne sont pas disposées à donner une ligne de crédit aux éleveurs des bestiaux étaient identifiés comme d' autres facteurs entravant la croissance de l'industrie laitière au Ghana.

Introduction

The Animal Production Department of the Ministry of Food and Agriculture (MOFA), prompted by reports by Okantah (1990, 1992), has set up a pilot milk collection scheme on the Accra plains to stimulate peri-urban milk production. This resulted in the need to evaluate the production systems to provide baseline information to guide future research work and formulation of policies.

Diseases, particularly those associated with tick and worm infestations, have been reported on-stations at Amrahia, Buadi, and ARS Legon as major constraints to dairy production in Ghana (Buadu, 1977; Yeboah, 1977; Aboagye & Agbemawle, 1989). A similar situation may exist on-farm.

A previous report (Okantah et al., 1997) dealt with attributes of the peri-urban dairy production environment in Ghana. This study looks at factors constraining the production system.

The study aims to assess the health situation in peri-urban herds, to identify other constraints to the development of peri-urban dairying in Ghana, and to recommend policies that will improve/increase domestic milk production and thereby reduce reliance on imported milk and dairy products.

Materials and methods

The materials and methods have been described in detail by Okantah *et al.* (1997). In brief, a questionnaire was developed which, among others, solicited information on health and disease problems in the production system.

The survey was designed to sample six farms in each of four villages within the five districts, making a total of 120 farms in all. A total of 107 farms was surveyed (Table 1).

The survey was carried out between April and August 1994 by enumerators with assistance from interpreters. Respondents were the farm owners or herd managers. Questions asked related to the frequency of use of acaricide and dewormer, and also of the control of trypanosomiasis. Farmers were also asked to rank the most important

diseases affecting their cattle, from 1 to 4, in a descending order of importance. For the analysis, diseases ranked by farmers as 1, 2, 3, and 4 were assigned scores of 7, 5, 3, and 1 respectively; and total scores were used to indicate importance.

Data from the field administration of questionnaires were coded according to a format supplied by the International Livestock Research Institute (ILRI), and analyzed according to a software of the Statistical Analysis Systems Institute (SAS, 1987).

Results and discussion

Use of veterinary services, frequency of acaricide use, and mortality rates

Table 2 presents the least square means of livestock health variables such as use of veterinary services, frequency of acaricide use, and mortality rates in cattle.

At the time of the survey, private veterinary practice was lacking. However, most districts had extensive public veterinary services. Significant differences existed between districts in the rate of use of public veterinary services ($P<0.05$). The Awutu-Effutu Senya and North Tongu districts used public veterinary services more frequently compared to the other districts. The Veterinary Services Department of MOFA carries out a free yearly vaccination programme of cattle against Rinderpest. It was also found that many farmers purchased drugs such as antibiotics, anthelmintics, and acaricides and treated the animals themselves (self-medication).

The Awutu-Effutu Senya

TABLE 1

Districts Sampled During the Survey

Distance from Accra (km)	Name of district	District capital (km from Accra)	Frequency (herds)	Percentage
0 - 49	Ga Rural	Amasaman (20)	17	15.9
0 - 49	Tema	Tema (25)	21	19.6
0 - 49	Dangbe West	Dodowa (45)	24	22.4
50-100	Awutu-Effutu Senya	Winneba (50)	24	22.4
> 100	North Tongu	Juapong (110)	21	19.6
	Total		107	100.0

TABLE 2

Application of Public Veterinary Services, Frequency of Acaricide Use, and Cattle Mortality

Class	Level	Public veterinary services Mean	SE	Acaricide frequency Mean	SE	Mortality rate Mean	SE
Overall mean		3.4	6.6	35.7	13.2	7.7	8.1
District	Awutu	6.9a	1.7	24.9a	3.4	5.7	2.1
	Dangbe West	1.2b	1.7	3.2b	3.4	8.7	2.1
	Ga Rural	1.0b	1.8	44.0b	3.7	5.0	2.2
	North Tongu	6.6a	2.1	33.4ab	4.1	7.4	2.8
	Tema	0.8b	1.7	40.2b	3.4	5.3	2.2
Ethnic Grp	Fulani	2.7ab	0.9	39.9a	1.8	9.4	1.2
	Ga	5.9a	1.5	27.0b	3.1	4.6	2.0
	Ewe	-0.7b	2.1	36.7ab	4.3	3.7	2.8
	Others	5.3ab	2.7	39.3ab	5.5	8.0	3.4

Awutu: Awutu-Effutu Senya

district had the lowest values for frequency of acaricide use while Ga Rural had the highest. The effect of district ($P < 0.01$) and ethnicity of the herd manager or owner ($P < 0.05$) on frequency of acaricide use was significant. Although acaricide use in the Ga Rural District was the highest, the Ga ethnic group seemingly had the lowest frequency of acaricide use. Mortality rate was unaffected by any of the factors considered ($P > 0.05$). The mean mortality rate was 7.7 per cent.

Anthelmintic use and trypanosomiasis control

Differences in the use of anthelmintics between districts were not significant ($P > 0.05$). In all districts, over 93 per cent of anthelmintics was applied either for curative use for the whole herd, preventive use for calves, or for treatment of calves. Whereas in Tema, 65 per cent of anthelmintics was applied for curative use, in the Dangbe West the highest percentage (56.5) was for treatment of calves. In the North Tongu, Awutu, and Ga Rural districts, the highest percentages (71.4, 58.3, and 47.1, respectively) were for preventive treatment of calves (Table 3). The preventive application of anthelmintics, whether regular or irregular, was not practised in adult cattle.

There was no significant difference between districts in the control of trypanosomiasis ($P > 0.05$). Over 66 per cent of farms in all districts took control measures (Table 4). Most farmers (over 81 per cent) took measures to control trypanosomiasis in their cattle.

Poor disease control may be a nationwide problem. In a study on causes of low cattle productivity in the Upper West Region, Kabuga & Bunbia (1988) observed that none among 71 farms practised spraying or dipping, only 15.6 per cent practised deworming, and only 1.1 per cent isolated sick animals.

Length of dry season and acaricide use, anthelmintic use, and control of trypanosomiasis

The number of dry months is related inversely to the length of the wet season when diseases tend to be more prevalent on farms as compared to the dry season. This survey, however, found no significant association ($P > 0.05$) between the length of dry season and acaricide use, anthelmintic use, and trypanosomiasis control.

Ranking of important diseases by farmers

Table 5 shows total scores for farmer's ranking of major diseases. Despite some changes, in the order of importance, in the various districts, skin diseases, ticks, digestive (diarrhoea) diseases, and trypanosomiasis were the four most important diseases, in that order. Skin diseases, particularly dermatophylosis, and ticks are closely linked and the control of dermatophylosis involves the control of ticks. Digestive disorders may be linked to heavy worm load. It can be concluded that farmers consider tick-borne diseases and helminthiasis more important than trypanosomiasis.

Table 5 shows the relative importance of other

TABLE 3

Anthelmintic Use by District

District	No use	Anthelmintic use (%)					Total no.
		Curative use	Irregular prevention	Regular prevention	Prevention calves	Treatment calves	
Awutu-Effutu Senya	4.2	8.3	0.0	0.0	58.3	29.2	24
Dangbe West	4.4	26.1	4.4	0.0	8.7	56.5	24
Ga Rural	0.0	11.8	0.0	0.0	47.1	41.2	17
Juapong	0.0	0.0	0.0	0.0	71.4	28.6	21
Tema	0.0	65.0	0.0	20.0	5.0	10.0	21
Average	1.7	22.2	0.9	4.0	38.1	33.1	107

TABLE 4

Trypanosomiasis Control by District

District	Trypanosomiasis control (%)			
	Not stated	Control	No control	Total no.
Awutu-Effutu Senya	0.0	83.3	16.7	24
Dangbe West	0.0	91.7	8.3	24
Ga Rural	5.9	70.6	23.5	17
North Tongu	0.0	95.2	4.8	21
Tema	4.8	66.7	28.6	21
Average	2.1	81.5	16.4	107

ciations in some of the districts visited, farmers' co-operatives were lacking. Extension services need to advise farmers on how to form producer co-operatives to facilitate credit acquisition. Suprisingly, farmers had little or no visits from livestock extension officers.

Conclusion

In general, farmers apply acaricide at a mean rate of 35.7 ± 13.2 days per annum. This may be considered low because ticks and skin disease

TABLE 5

Farmers Ranking of Major Diseases by District

District	Total score								
	Skin diseases	Ticks	Digestive (diarrhoea) disease	Trypanoso- miasis	Respiratory disease	Reproductive disease	Mastitis	Foot and mouth disease	Calf mortality
Awutu-Effutu Senya	70	120	61	29	21	13	6	5	10
Dangbe West	99	67	48	60	56	6	19	7	4
Ga Rural	83	80	59	16	8	3	7	14	-
North Tongu	69	79	67	77	30	31	10	11	10
Tema	89	43	57	77	31	6	11	7	6
Total	410	389	292	259	146	59	53	44	30

diseases. Suprisingly, calf mortality did not rank in the first eight important diseases. Herdsmen probably considered the loss of milk production and the cost of drugs for other diseases more important than the loss of a calf. Milk was the main remuneration of the herdsmen and was also a major item in their diet.

Extension, co-operatives and credit

In general, farmers apparently were not interested in using credit facilities to run their farms. This was due to lack of knowledge about credit facilities and also to lack of collateral. Of secondary importance could be the unwillingness of most banks to provide credit facilities for cattle projects because of their very long gestation periods. Most farms were managed by hired herd managers who cannot decide on credit requirements for farm operations.

Although there were cattle breeder's asso-

seem a major problem. The low frequency of acaricide use may be due to the high cost of acaricides. It would be necessary to formulate the right pricing policy and identify alternative acaricide, eg. herbal medicine, to improve the rate of acaricide use and reduce tick infestation and incidence of tick-borne diseases.

The methods of applying acaricide are also important. The method of hand dipping, which most farmers use, may not be effective enough. The provision of community dips may therefore be useful. Rotational kraaling could be used to break the life cycle of ticks.

A recent study (Okantah *et al.*, 1996) suggests that the quite high worm burdens in adult animals may be linked to the high incidence of digestive disorders. Farmers' use of anthelmintics is generally low, probably due to the high prices of drugs. There is, therefore, the need to provide some subsidy on veterinary drugs.

The Extension Services Department of the MOFA appears to concentrate efforts on crop farmers to the detriment of livestock farmers. This trend needs to be redressed. The problems of credit acquisition may be solved through the formation of producer co-operatives that meet the conditions for credit.

It seems the major diseases that cattle face on the Accra plains are linked to ecto- and endo-parasites. A concerted effort is required to control these parasites through proprietary chemicals, herbal medicines, and biological methods of control.

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