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**THE DEVELOPMENT AND EVALUATION OF A VILLAGE-BASED
PARASITE CONTROL PROGRAM FOR SWAMP BUFFALO AND CATTLE
IN NORTHEAST THAILAND**

*A THESIS PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
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ABSTRACT

Internal parasitism is a major problem in large ruminants in Thailand, especially nematodes in newborn calves and liver fluke in adults. Veterinary services are sparse, and can offer only very limited assistance at the village level. There are about 20,000 villages in the north-east of Thailand, where this study was conducted. To combat these major logistic problems a Basic Animal Health Service (BAHS) is being developed progressively within the region. The first component of the service to be developed was a "farmer self-help worm control program", commenced at a pilot level in 1983. Village farmers are selected on aptitude for the task, trained as BAHS "keymen" for one day, and then provide extension advice to farmers in up to 10 villages about disease control, with the initial emphasis being on internal parasites. This local effort is supported by wider promotional campaigns. Keymen are taught to dispense drugs for each type of parasite, and receive part of the price paid by farmers for the drugs. Purchase and distribution of drugs is supported out of a special revolving fund.

Experience in the program since 1983 has shown that overall adoption of the program has been high, but that drug sales have varied greatly between keyman areas. A comparison was therefore made of "high adoption" and "low adoption" keyman areas, to determine levels of knowledge about parasites and the BAHS, and to assess which of a range of factors might be most closely associated with program success at the local level. Adoption rate was judged by sales of anthelmintics by each keyman. Results in four provinces which had participated in the program for either one or three years were compared with two provinces which had not yet begun the program. In total 420 farmers and 16 keymen were interviewed using a standardised questionnaire form.

Farmers were classified into those showing high acceptance (understood the BAHS and had used the drugs within the last year), medium acceptance (understood the BAHS, but had not used the drugs for at least a year), and low acceptance (unfamiliar with the BAHS and its relevance to them, and had not used the drugs). Overall, 64% of farmers in the "high adoption" areas showed high acceptance of the program, compared with only 16% in the low adoption areas - producing a mean of 40% across the whole sample.

Users of the control system were very satisfied that treatment provided economic benefits, and this view was supported by empirical evidence from the study, which showed that owners who carried out treatment had lower calf mortality, higher market value of treated animals, and improved calving rates.

The single most important determinant in the success of the program is the energy of the keyman in promoting the program and the sale of drugs, and acceptance of the program is almost entirely a function of this factor, rather than issues beyond the keyman's control. A number of quite simple and cheap modifications to details of the BAHS should further increase the already exceptionally high adoption rate. These include replacing ineffective keymen, increasing the density of keymen so that travel is not a limitation, and strengthening further the regional promotion effort to give maximum credibility to the keyman's local work.

An economic analysis based on the data showed a return of US\$143 to the typical farmer in the region for an investment of US\$0.69, making very conservative assumptions about the nature and scale of the benefits. In contrast, the keymen make only a very small income from their efforts, estimated at US\$0.70 per day worked on the program. The net benefit of the program across the six provinces studied was estimated at US\$33.64 million. This can be increased by various improvements to the program, and costs and returns for such improvements were calculated. If 80% of farmers in the six provinces treated all of their animals, the net benefit to the region would be US\$118 million for an investment of about \$1 million, the costs being shared equally by Government and the farmers. Small scale farmers share more favourably in the benefits than is the case for many improvements in village agricultural practices.

The program has been very successful, primarily because it deals with a problem which farmers recognize as serious, and because everything the farmers need to carry out the program is available within the village. Various simple improvements identified in the study will further improve its acceptance and its benefit to the country.

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CONVERSION FACTORS

	1	rai	=	1600	square meters
			=	0.16	hectares
			=	0.395	acres
	1	square kilometre	=	247.1	acres
			=	100	hectares
			=	0.386	square miles
	1	kilometre	=	0.621	miles
US\$	1		=	25	baht(approximately)
NZ\$	1		=	15	baht(approximately)