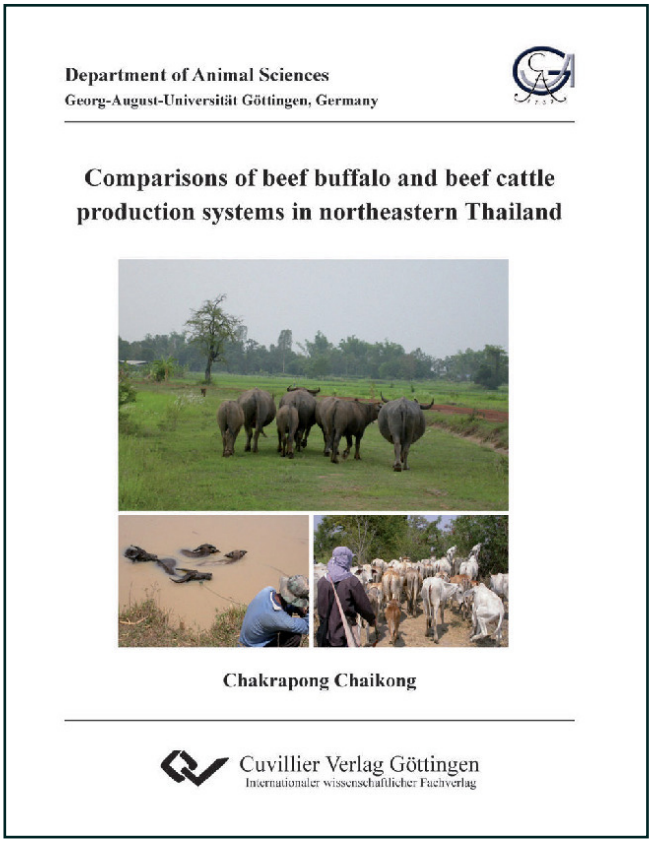
Chakrapong Chaikong (Autor)

Comparisons of beef buffalo and beef cattle production systems in northeastern Thailand



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General introduction

1.1 Foreword

In Thailand, buffaloes and cattle were previously used mainly for draught purposes in crop-livestock integrated farming system. Over the last years the socio-economic pattern of local farmers has changed and modern technology is more and more adapted. As a consequence, draught animals are replaced by machinery and animals are raised for meat production and to some degree for traditional purposes (Na-Chiangmai, 2002; Khemsawat et al., 2003). Competitions between cattle and buffaloes arise when they are kept in the same area and communal resources are used for pastures. Cattle are usually preferred due to their greater heat tolerance (Skunmen et al., 2001). Thus, the number of buffaloes has drastically declined during the last decade (Na-Chiangmai, 2002; Khemsawat et al., 2003).

The average farm area and herd size of Thai livestock production is small. An extensive grazing system is widely practiced by village farmers. The animals are traditionally kept in the back yard and fed on native grasslands and crop residues (Na-Chiangmai, 2002). Their feed supply is depending on seasonal differences and land use patterns (Kehren, 1999). Therefore, the production efficiency of smallholder farms is quite low. Other constraints are the low genetic potential of the native breeds, insufficient management and high mortality rates, particularly among young animals (FAO, 2002; Khemsawat et al., 2003). Due to the fact that local farmers mainly rely on public resources, public concern about the impact of animal production on human well being and the local environment rose in recent years. Moreover, many livestock farms which were located outside cities before are located in community housing areas or peri-urban areas now due to the expansion of residential areas and urbanization (Chantalakhana and Skunmun, 2002).

The beef consumed in Thailand is mainly produced by local cattle and buffaloes. The meat sold for local consumption and to meat processing factories is normally from the abattoir where live animals are purchased directly from the villagers. These animals are priced per head according to individual appearance and animal size, while the meat sold to local consumers is priced according

to weight (Na-Chiangmai, 2002). There is no “standard price” for beef animals in Thailand and livestock marketing is not well developed (FAO, 2002). Beef animals, especially buffaloes, have been exploited for various purposes such as draught power and meat production but are neglected by research, development and promotion programmes due to the fact that they are mostly kept by remote farmers, who usually have little or no influence on government or administrative decisions (Chantalakhana, 2001). In order to supply the high demand for beef and to reduce the large amount of high quality beef, which is imported to Thailand, because of the increasing human population and the increasing standard of living and education, as well as to improve the livelihoods of the farmers, smallholder beef farms have to improve their productivity (Na-Chiangmai, 2002). To achieve this, it is important to understand the behaviour of rural farmers, their existing farming systems, resources, limitations and potentials through inter-disciplinarity and the community-based approaches (Chantalakhana and Skunmun, 2002; Devendra, 2002a).

1.2 Problem statements

Although buffaloes and cattle have a great potential for production under extensive conditions, this special production system, especially for buffaloes, is neglected by research as well as by development and promotion programmes of the government. Efficient livestock development programmes in Thailand are still lacking. Thai farmers still operate their farms in a traditional form and modern commercial farming is adopted only in some areas. Uncontrolled mating and careless breeding practices are the main constraints for the improvement of livestock genetics. Thus, the productivity of Thai livestock farming is low and has influenced the farmers’ well-being. As a result of the increasing beef cattle farming the buffalo population is declining. Reasons for this development should be investigated at the farmers’ level in order to develop strategies to control this development. The information obtained through inter-disciplinary research and community-based participatory management has to be taken into account by the livestock farming promotion and development programmes in order to improve farm productivity and consequently livelihoods of the farmers and at the same time combine this with a sustainable development of livestock farming.

1.3 Aim and objectives of the study

The goal of this study was to compare production systems and the potential for further development of beef buffalo and beef cattle farms in northeastern Thailand aiming at an improvement of production and as a consequence of farmers' livelihoods. The specific objectives were:

1. to better understand and re-examine characteristics of the livestock farms and reasons for keeping livestock,
2. to assess socio-economic and livelihood benefits of the livestock for the farmers,
3. to investigate the livestock husbandry including farm management, feeding and breeding practices,
4. to explore farmers' perceptions of favourable traits of buffaloes and cattle and reasons for the decline of the buffalo population,
5. to investigate social and environmental impacts as well as problems and needs of the livestock farming according to the farmers' point of view.

1.4 Research hypotheses

Our objectives are achieved by testing the following hypotheses:

1. Characteristics of livestock farming and reasons for keeping livestock differ between beef buffalo and beef cattle farms and between herd sizes.
2. Differences between beef buffalo and beef cattle farms and between herd sizes have an effect on socio-economics and livelihoods of the farmers.
3. There are differences in farm management, feeding management and breeding practices between beef buffalo and beef cattle farms and between herd sizes.
4. Beef buffalo farms have a lower level of farm inputs and a higher potential for improving the production.
5. Community and environmental conflicts are caused by livestock farming depending on animal species and herd size.

1.5 Outputs and contributions

This study was carried out under field conditions in order to better understand the current situation of livestock farming, and to identify and diagnose farmers' point of views. The characteristics of livestock farming and the roles of livestock mentioned by the farmers are re-examined while the benefits of the livestock in terms of socio-economics and livelihoods aspects are investigated. Livestock husbandry including feed resources and feeding management throughout the year, herd structures, breed compositions and breeding practices as well as farm management are investigated. Beef buffalo and beef cattle farms are compared in terms of farm practices and farmers' preferences of animal traits. Furthermore, reasons for the decreasing buffalo population from the farmers' point of view are recorded as well as social and environmental aspects, constraints and needs of the livestock farms in this region are investigated. The results of this study are expected to support the formulation of appropriate policies and promotion programmes for developing the beef livestock farming.

1.6 Conceptual framework for the study

Dependent variables in this framework (Figure 1.1) consist of characteristics of livestock farms, reasons for keeping animals (as roles of the livestock), socio-economic and livelihood benefits of the livestock, livestock husbandry including year-round feed sources and feeding management, herd structures, breeds, breeding practices, social and environmental impacts of the farming, comparisons of favourable traits between beef buffaloes and beef cattle, reasons for the decline of buffalo farming, and constraints and prospects of the livestock production in the studied area. For independent variables, all collected aspects between types of livestock farms, namely beef buffaloes and beef cattle farms, as well as between sizes of livestock farms, namely small-, medium- and large-scale herds, are compared.

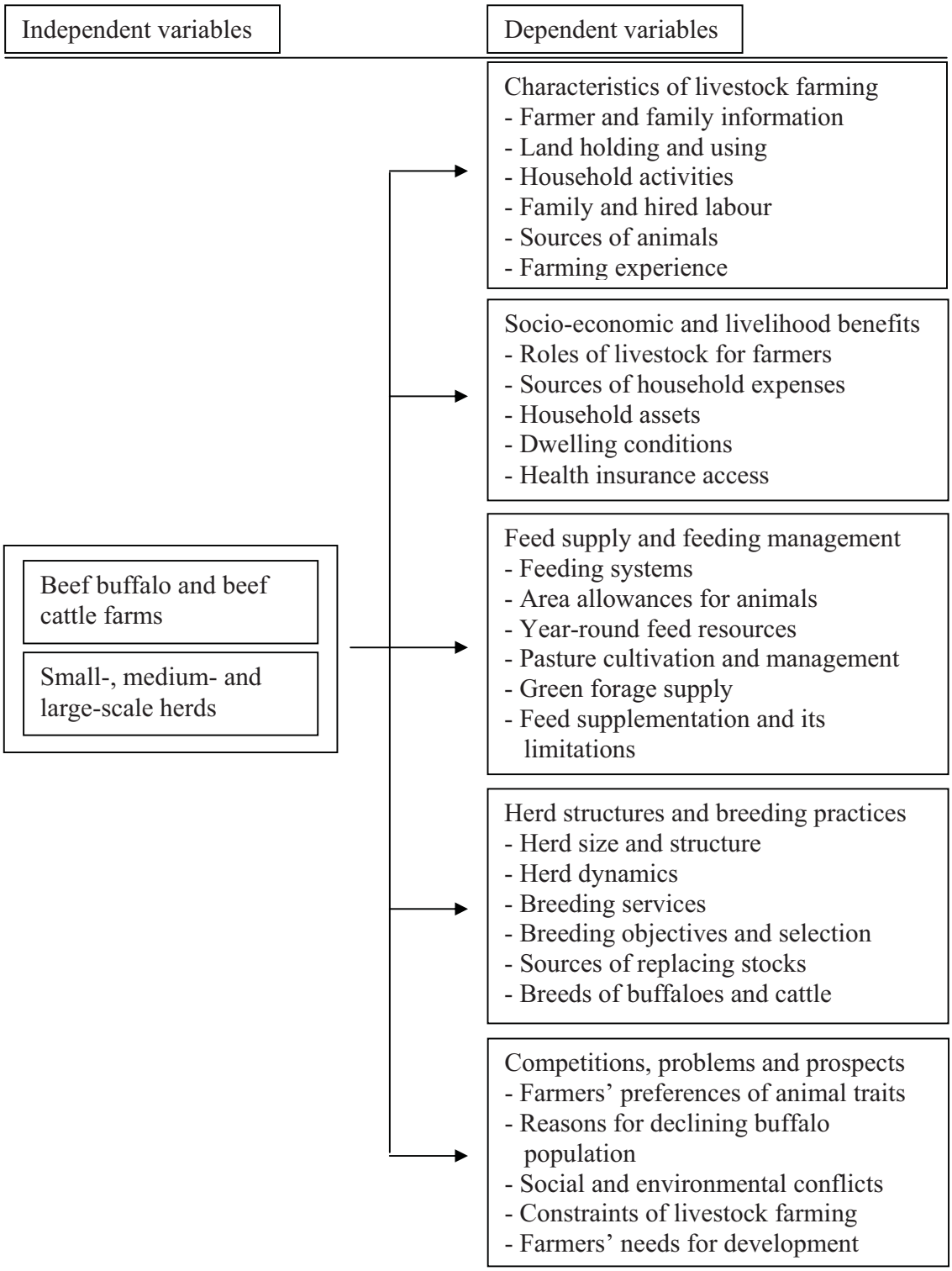

Figure 1.1: Dependent and independent variables in the analysis of this research