

# Influences of Social Structure on the Diffusion and Adoption of Recommended Goat Husbandry Practices

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## ABSTRACT

This study aims to investigate pattern of the diffusion of goat raising of southern Thai farmers and their uses of recommended goat husbandry practices, to compare the characteristics of farmers in more and less developed villages and to identify economic, social, communicative and psychological factors affecting the adoption of recommended goat husbandry practices. The study revealed that most farmers used very few recommended practices as they perceived that their goats were in good health. Although most farmers had good knowledge of recommended practices, these practices were perceived to be unnecessary. This perception was observed by farmers in both more and less developed villages. Although farmers in more developed villages had a higher income and had a better standard of living than those in less developed villages, no statistical difference was observed in the use of recommended goat husbandry practices between the two groups. In correlation analysis, socio-economic factors - income, standard of living, number of goats, leadership status, social participation, knowledge of goat husbandry, awareness of community leaders, urban contact and degree of modernization - were found to correlate with the degree of adoption of recommended goat husbandry practices.

**Key words:** social structure, socio-economic factors, diffusion, adoption, goat husbandry practices.

## INTRODUCTION

Social change is the process by which alteration occurs in the structure and function of a social system. The structure of a social system is

determined by the various individual and group statuses of which it consists. The functioning element within this structure of statuses is the role or actual behavior of an individual or group of a given status. Status and role reciprocally affect one another. In the

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process of social change, as one is altered so is the other.

Diffusion is the process by which an innovation spreads, or the spread of a new idea from its source to its ultimate users. Most frequently this spread has been conceptualized and operationalized by observing the increase over time in the number of units who reach the adoption stage. The diffusion patterns that occur within a particular social system are affected by the social structure of that system. A social system constitutes a set of boundaries within which innovations diffuse. Diffusion and social structure are complexly correlated. A particular social structure acts to impede or facilitate the rate of diffusion and adoption of new ideas through what are called system effects. The basic notion of system effects is that norms, social statuses, hierarchy, and other aspects of a social system affect the behavior of individual members of that system. System effects are the influences of the system's social structure on the behavior of the individual members of a particular social system.

To the extent that the members in a social system are differentiated, structure then exists within that system. Although there have been studies on the affects of social structure on the diffusion and adoption of agricultural innovations, there has apparently been no research on the adoption of recommended husbandry practices in relation to the study of the affects of social structure on the diffusion of innovations. This study aims to investigate patterns of diffusion of goat raising and adoption of goat husbandry practices by farmers in southern Thailand, to compare the characteristics of farmers in less and more developed villages, and to find the relationship

between economic, social, communicative and psychological factors and the adoption of recommended husbandry practices.

## LITERATURE REVIEW

First, summaries of several relevant studies on the affects of social structure on the diffusion and adoption of agricultural innovations will be reviewed. Then a conceptual model will be presented to provide a clearer picture of the framework of this study.

Van den Ban (1960) found that although such individual characteristics as farmer's education, size of farm and net worth positively related to his innovativeness, township norms were even better predictors of farmer innovativeness. He concluded that a farmer with a high level of education, on a larger farm and with a high net worth, but residing in a township with traditional norms, adopted fewer farm innovations than a farmer with a lower level of education and a smaller farm in a township where the norms were modern.

Mendez (1968) used a method of tracing the diffusion of innovations through time in different societies to analyze the differential rates of cultural change and the correlates of change in a social system. Due to the fact that societies differ in the efficiency and speed with which they change, affects on the diffusion of an innovation will also vary. Five villages with different degrees of integrative structures were selected to study the diffusion of an analgesic, a soft drink and a mild laxative. Because the social structure of a society has an influence on the determination of the pattern of communication of the

individuals in that society and due to the absence of modern technology such as mass media, interpersonal contact was used as an indicator of social structure. His study indicated that differences in the patterns of social structure determine the differences in the patterns of interpersonal contact. It was revealed that the greater the degree of integration of a community, the greater the interpersonal contact. This supports the premise that social structure is important in the diffusion of innovations.

Molho and Katz (1970) found that differences in social values affected the adoption behavior by moshav and kibbutz members differently. Innovative behavior of kibbutz members was greater than those of the moshav. In the moshav, which was composed of small farms, the head of the family was usually the main operator and considered to be the unit of decision and adoption of innovations in all branches of his farm. Despite his lack of specialization, he was responsible for final decisions, whether arrived at independently or through consultation with others. In the kibbutz, each member usually worked in one single branch of considerable size and was likely to achieve a high degree of specialization. The unit of adoption was therefore the operator in charge of the particular branch for which the innovation was being considered. Economic risk in the kibbutz was a problem for the entire collective, while in the moshav it was the concern of the head of the family.

Grewal and Sohal (1971) found that variations in socio-economic and other characteristics of refugee farmers in villages they entirely or partially occupied gave rise to a social system in those villages different from that prevailing in the villages remaining

unaffected by migrations of population. As a consequence, there emerged two social systems in the villages studied, one composed of all refugee or partial populations and the other with a non-refugee or native population, and each system had its own distinct characteristics. The social system in refugee villages was deemed to represent modern norms by virtue of being more technologically developed, cosmopolitan, literate and rational, while native villages conformed to traditional norms with opposite traits. The rate of adoption of farm practices in refugee villages was greater than that in native villages, specifically in relation to the use of the furrow turning plough, diesel engine, American cotton 320-F, D.D.T, wheat C-273 and fertilizer.

The Department of Community Development, Thailand (1985) studied indicators for measuring the degree of village development, and those findings were as follows:

1. There was a positive correlation between social structure and degree of village development.
2. There was a positive correlation between village solidarity and degree of village development.

Reckrai *et al.* (1985) found that people who lived in poverty areas in Thailand had lower standards of the following as compared to people who lived in non-poverty areas: nutritional consumption for pre-school children, water supplies, use of natural resources, employment of the head of the family, child-care for children, compulsory education, occupational youth training, use of vaccinations and access to self-identification cards. However, no differences were found between 20 other basic minimum need (BMN) characteristics.

**Conceptual model**

The model summarily indicates categories of social structure and factors that affect individuals and predispose them to adoption behavior. Social structure may affect the individual characteristics of a person and conversely, an individual's characteristics may have an affect on social structure. Thus, an individual's characteristics affect adoption behavior (Figure 1).

From the conceptual model, the following hypothesis have been developed:

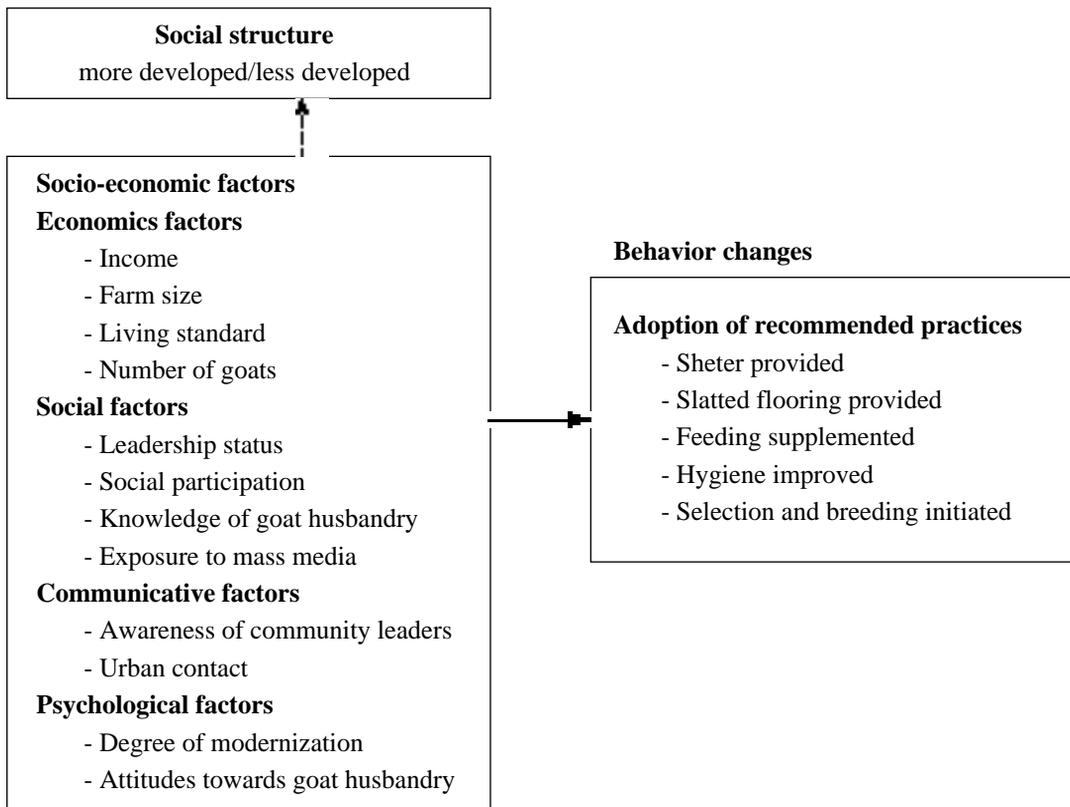
**Hypothesis 1** - Farmers in more developed villages

will have a higher income than those in less developed villages.

**Hypothesis 2** - Farmers in more developed villages will have a larger farm size than those in less developed villages.

**Hypothesis 3** - Farmers in more developed villages will have a better standard of living than those in less developed villages.

**Hypothesis 4** - Farmers in more developed villages will have a larger number of goats than those in less developed villages.



**Figure 1** A conceptual model showing various social structure, socio-economic and communicative factors of farmers affecting behavioral changes leading to the adoption of recommended goat husbandry practices.

**Hypothesis 5** - Farmers in more developed villages will have a higher leadership status than those in less developed villages.

**Hypothesis 6** - Farmers in more developed villages will participate in more social activities than those in less developed villages.

**Hypothesis 7** - Farmers in more developed villages will have a better knowledge of goat husbandry than those in less developed villages.

**Hypothesis 8** - Farmers in more developed villages will have more exposure to mass media than those in less developed villages.

**Hypothesis 9** - Farmers in more developed villages will be more aware of community leaders than those in less developed villages.

**Hypothesis 10** - Farmers in more developed villages will have experienced more urban contact than those in less developed villages.

**Hypothesis 11** - Farmers in more developed villages will have a higher degree of modernization than those in less developed villages.

**Hypothesis 12** - Farmers in more developed villages will have a more positive of attitude toward goat husbandry than those in less developed villages.

**Hypothesis 13** - Farmers in more developed villages will adopt more recommended goat husbandry practices than those in less developed villages.

## RESEARCH METHODOLOGY

### Selection of study area and sample

Chana district in Songkhla province was selected for the study area as it contained a greater number of farmers who raise goats compared to

farmers in other districts in the province. A total of 522 farmers in the study area raise Redgoats. Purposive sampling was employed as the method of sample selection. A total number of 300 farmers were randomly selected.: 120 from more developed villages and 180 from less developed villages.

### Data collection

As most of the farmers in the study had little formal education, the personal interview method was selected for data collection method. After designing the questionnaire, a pre-test was conducted. Ten farmers of similar socio-economic status were interviewed. Based on the pre-test findings, the questionnaire was modified to improve its effectiveness. By the end of September 1994, the field survey had begun. At that time, 300 farmers were interviewed. Interviews were concluded by the end of December 1994. Of the 300 questionnaires, 297 were usable, representing 56.5 percent of the total population.

### Data organization and analysis

After completing the field survey, coding and data processing were conducted at Prince of Songkla University. Statistical Packages for the Social Sciences (SPSS) for windows version 7.0 was used for data analysis. Due to the nature of the data, parametric statistics were employed as follows:

1. t-test was used to compare whether or not there was a difference in the mean of groups when there were only two groups.
2. Pearson's correlation was used to determine the relationship between interval variables.

### Reliability tests

After the final survey, three types of reliability tests were employed. Cronbach's alpha was conducted to test the degree of modernization and attitudes toward goat husbandry. It was found that the coefficient of reliability was fairly high and yielded 0.61 and 0.47 respectively. Kendall's correlation of concordance was assigned to test the adoption of recommended husbandry practices. The coefficient of concordance (W) was 4.07 while  $\chi^2$  was 483.49 ( $p = .0000$ ). The Kuder-Richardson method was assigned to test the knowledge of goat husbandry. The coefficient was found to be 0.65 which was fairly high.

### Term definition

1. Less developed villages were those that according to basic minimum needs in Thailand were classified as level 1 villages (below average).

2. More developed villages were those that according to basic minimum needs in Thailand were classified as level 2 villages (average).

## RESULTS AND DISCUSSION

### General characteristics of the respondents

The study indicated that about one-half of the respondents were male and had the status of head of the family. More than four-fifths were married and were Islam. Two-thirds had received formal education between Grades 1-7, while about one quarter had received no education. About two-thirds were literate. About two-thirds had their primary occupation in cultivation, and goat husbandry was regarded as a

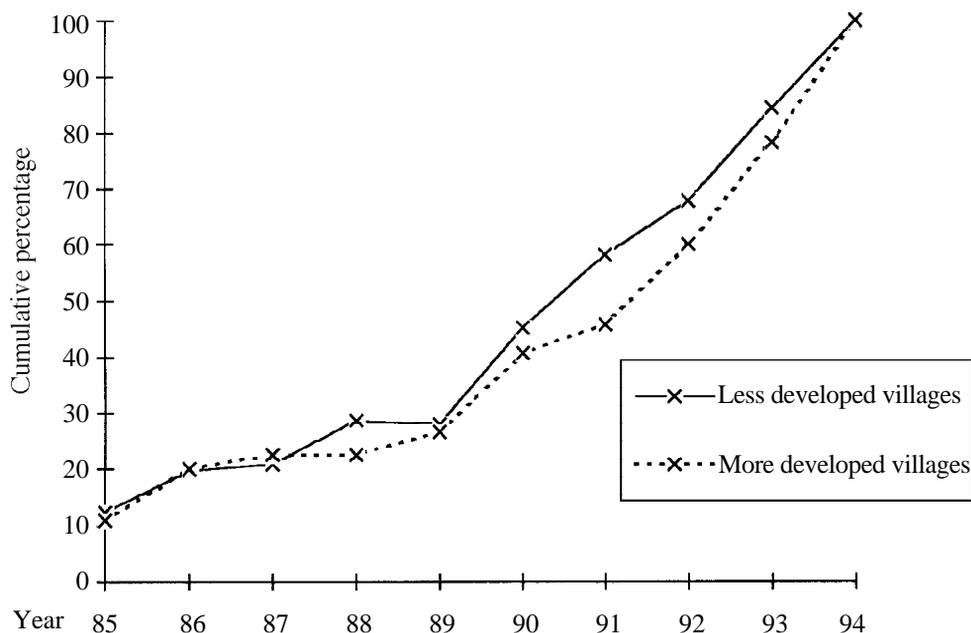
minor occupation. Most respondents had the status of tenured land owners and had a moderate living standard. About one-tenth participated in social activities and were aware of community leaders. More than four-fifths had good knowledge of and favorable attitudes toward goat husbandry.

### Characteristics of goat husbandry

It was revealed that one-half of the respondents had raised goats for three years or less, and about three-fifths had a herd size of one to three goats. Goats were raised primarily for sale as a market commodity, for use in religious ceremonies and for home consumption. About one-fifth received information about goat husbandry from relatives, friends and veterinary extension workers.

### Diffusion of goat raising

It was found that while the diffusion of goat raising was initiated before 1985, diffusion was minimal. Additionally, some farmers had forgotten which year they began to raise goats, but most data indicates, and for purposes of this study it is assumed, that 1985 is the starting point in the diffusion process. Figure 2 shows a curve representing the diffusion of adoption by number of farmers each year. It is clear that the curve for more developed villages parallels that for less developed villages. Thus, diffusion rates of goat raising in both types of villages were generally similar. Social structure had no influences on the speed of diffusion of goat raising. The rate of diffusion in both types of villages increased slowly during 1985-1989 and then more rapidly after 1989.



**Figure 2** Diffusion curve showing adoption of goat raising.

#### **Adoption of recommended husbandry practices according to type of village**

Actual use of various recommended practices were assigned as indicators of adoption. It was found that adoption behaviors of farmers in both types of villages were substantially similar. A low level of adoption (less than one-third) was observed in both types of villages in relation to provision of shelter, provision of slatted floors, use of feeding concentrates, use of improved pasture, use of internal and external parasite control, use of vaccinations, use of mineral supplements and use of goat breeding strategies. About one-half of the farmers in each type of village used legumes as feed for their goats and practiced goat selection strategies. About three-quarters of farmers in both types of villages used leaves as feed. Table 1 provides precise figures on the adoption

factors measured. The results indicated that overall farmers still used minimal recommended goat husbandry practices. This was clearly due to the fact that farmers perceived that their goats were in good health; therefore, there was no need to use recommended practices. However, following recommended goat husbandry practices results in a greater increase in the growth rates of goats, which is desirable for commercial goat production. Intensive training for farmers should be conducted to increase use of recommended practices and therefore, the potential profitability of raising goats.

#### **Comparison of characteristics of farmers in more and less developed villages**

Analysis showed significant differences for total income and standard of living. Farmers in more

**Table 1** Adoption of recommended goat husbandry practices according to type of village.

Recommended practices	Type of villages			
	Less developed (n <sub>1</sub> =177)		More developed (n <sub>2</sub> =120)	
	No adoption	Adoption <sup>1</sup>	No adoption	Adoption <sup>1</sup>
Provision of shelter	80.2	19.8	82.5	17.5
Provision of slatted flooring	76.3	23.7	66.7	33.3
Use of feeding concentrates	94.4	5.6	90.8	9.2
Use of improved pasture	96.6	3.4	95.8	4.2
Use of legumes as feed	39.5	60.5	43.3	56.7
Use of leaves as feed	19.8	80.2	25.0	75.0
Use of internal parasite control	93.8	6.2	84.2	15.8
Use of external parasite control	89.3	10.7	91.7	8.3
Use of vaccinations	91.0	9.0	83.3	16.7
Use of mineral supplements	82.5	17.5	85.8	14.2
Use of goat selection strategies	52.5	47.5	55.0	45.0
Use of goat breeding strategies	89.8	10.2	89.2	10.8

1 Figures indicate the percentages.

developed villages had a higher income and had a better standard of living than those in less developed villages (Table 2). This supported hypothesis 1 and 3. The other hypothesis were rejected. Although farmers in more developed villages had higher scores in most cases for farm size, number of goats, leadership status, social participation, knowledge of goat husbandry, exposure to mass media, awareness of community leaders, urban contact, degree of modernization, attitudes towards goat husbandry and adoption of recommended goat husbandry practices than were those in less developed villages, statistically significant differences were not observed. However, farmers in more developed villages should have had

significantly higher scores in those characteristics than farmers in less developed villages. The lack of a statistically significant difference between some characteristics of farmers in more and less developed villages might due to the selection process used for the study. Classifications of village development in Thailand were according to the BMN characteristics were divided into three levels: 3 (above average), 2 (average) and 1 (below the average). There were not enough villages in the level 3 category for the study (6 out of 131 villages in the district). Therefore, instead of comparing characteristics of farmers in level 3 villages (above average or most developed) and level 1 villages (below average or least

**Table 2** A comparison of characteristics of farmers in less developed and more developed villages.

Characteristics	Average scores		F	p
	Less developed villages (n1=177)	More developed villages (n2=120)		
Income	33,655.96	43,877.64	7.002	.009
Farm size	10.21	10.35	.024	.878
Living standard	4.58	4.93	8.074	.005
Number of goats	5.64	5.09	.636	.426
Leadership status	.76	.79	.714	.399
Social participation	.30	.35	.600	.439
Knowledge of goat husbandry	8.38	8.58	.348	.556
Exposure to mass media	3.53	4.92	.444	.556
Awareness of community leaders	2.86	3.00	1.512	.220
Urban contact	9.84	10.82	.012	.912
Degree of modernization	23.06	23.51	3.217	.074
Attitudes towards goat husbandry	14.02	14.26	.981	.323
Adoption of recommended goat husbandry practices	4.08	4.28	.019	.890

developed), the comparison was between level 2 villages and level 1 villages. It is probable that there would have been statistically significant differences between characteristics of farmers in level 3 villages as compared to those in level 1 villages.

#### **Association between economic, social, communicative and psychological factors and the adoption of recommended husbandry practices**

For all villages, income, standard of living, number of goats, leadership status, social participation, knowledge of goat husbandry, awareness of community leaders, urban contact and degree of modernization were found to be correlated with the adoption of

recommended goat husbandry practices. For less developed villages, the pattern of correlation was similar with all villages except for urban contact and attitudes towards goat husbandry practices. For more developed villages, only leadership status, awareness of community leaders and degree of modernization were found to be positively correlated with the adoption of recommended husbandry practices (Table 3). It was clear that most of the variables that were found to be correlated with adoption of recommended practices were found in all villages. This implies that farmers with more of the listed characteristics were more likely to adopt recommended husbandry practices, whether from more or less developed villages.

**Table 3** Association between selected variables and the adoption of goat husbandry practices according to type of village.

Variables	Type of village		
	All villages (N=297)	Less developed villages (n1=177)	More developed villages (n2=120)
Income	.1235*	.2565***	.0401
Farm size	.0709	.0675	.0753
Living standard	.1586 **	.2214 **	.0490
Number of goats	.1557**	.1894*	.1189
Leadership status	.3475***	.4521***	.1973*
Social participation	.1416*	.1699*	.0996
Knowledge of goat husbandry	.1730**	.2367**	.0610
Exposure to mass media	.0211	.1330	-.1409
Awareness of community leaders	.2836***	.2817***	.2850**
Urban contact	.1518**	.1691	.1208
Degree of modernization	.2528***	.1451*	.4299***
Attitudes towards goat husbandry	.1047	.1951**	.0116

\* Significant at the.05% level.

\*\* Significant at the.01% level.

\*\*\* Significant at the.001% level.

## CONCLUSIONS AND RECOMMENDATIONS

From the study it was revealed that most of the farmers participated in few social activities and had little exposure to mass media. Most of them had good knowledge of basic goat husbandry and had favorable attitudes towards goat husbandry, but used a low level of recommended husbandry practices as they perceived that their goats were already in good health. Farmers in more developed villages had higher income and better standard of living than those in less developed villages. Income, standard of living, number of goats, leadership status, social participation,

knowledge of goat husbandry, awareness of community leaders, urban contact and degree of modernization of farmers were found to be correlated with the adoption of recommended practices.

Methods for improving the adoption rate of recommended husbandry practices are obviously needed. The following steps are recommended:

1. Group meetings of farmers should be held more often. This will be very useful for providing information about goat husbandry and exchanging information and ideas among members in each group.
2. More contact between veterinary extension officials and target persons (those who raise goats) should be initiated. Transfer of new technology will

be undertaken through this method. Individual intensive training will be provided especially for those who are leaders in establishing opinions in the community.

3. Establishment of groups of farmers in remote areas should be encouraged, and these groups should contain members from throughout the whole area of the district. Veterinary extension officials should ensure that this occurs.

4. Intensive courses for commercial purposes should be organized for those who are interested and can participate for the full period of the short-course training.

5. Free supplies of medical equipment or materials and forage seed for pasture should be allocated through the groups of farmers rather than through individuals.

#### **Limitations of the study and suggestions for future research**

The primary limitation was the unavailability of a sufficient number of level 3 villages in the study area to provide for a better basis for comparison. This limited the comparison to characteristics between level 1 and level 2 villages where differences were not sufficient for the purposes of this study.

This study is concerned with farmer's adoption of recommended goat husbandry practices; however, there is need for future research concerning the adoption of beef cattle or dairy cattle husbandry practices. Such studies will provide a clear picture of important behavioral changes of farmers in their occupations within the scope of animal husbandry.

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