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# Farmers' View and Knowledge: the Gate to Problem Solving - A Case from Northern Thailand -

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## Abstract

The majority of Thailand's population lies in rural areas where farming activities generally play an important role. Improvement of farming systems could directly improve the standard of living of families, therefore, solving the obstacles of farming systems is crucial. However, little has been done to encourage problem solving in farming systems from the view of farmers. The paper first identifies the obstacles of the existing farming systems and then proposes ways and means to solve those problems from the perspective of farmers.

The supply situation of food, health care, water and housing was, in general, satisfactory for the families in Northern Thailand. There were common problems in all families in terms of farm resources such as degradation of soil fertility, poor management or lack of irrigation systems, and unemployment during slack periods of cultivation. In addition, most farmers reported drought as the main problem of farming. Therefore, improving irrigation management, as well as the distribution of information, on improving soil fertility, perhaps through extension services, are suggested. As well, enhancing local job opportunities, especially during slack periods of cultivation would be beneficial.

## Introduction

Much research has shown that participation of farmers is an important element in the decision process for making any policy (Doppler, 1994, Ramirez, 1994, and Singh, 1994). This will help not only to produce an appropiate right policy for improving the farming systems but also to assure success of that policy. Therefore, a summary of farmers' views and opinions on the farm-family-household will be very useful. This paper aims to transfer the views and knowledge of the farmers in Northern Thailand to those who are involved in the decision making process in the development of farming systems.

## Approach

The paper followed the farming systems approach of Doppler (1994) (Figure 1). That is to say the information was collected at micro, village and regional levels, however, emphasis was given to the micro level. Supplies, resources and problems of farming were investigated. Three family groups were classified based on their location as a criteria for farming systems classification (Doppler, 1991). They are (1) Rural forest families: the families located in or nearby the mountain forests, and who work with some agricultural activity. (2) Rural agricultural families: the families who live in the plains area, and are mainly agriculturists. (3) Urban families: the families who live in towns, and comprise few farmers. Then, the survey of

these three groups of families (60 samples per group) was done at Phayao province, Northern Thailand in 1993. A databank was established. All relevant data was analysed and a conclusion was finally drawn.

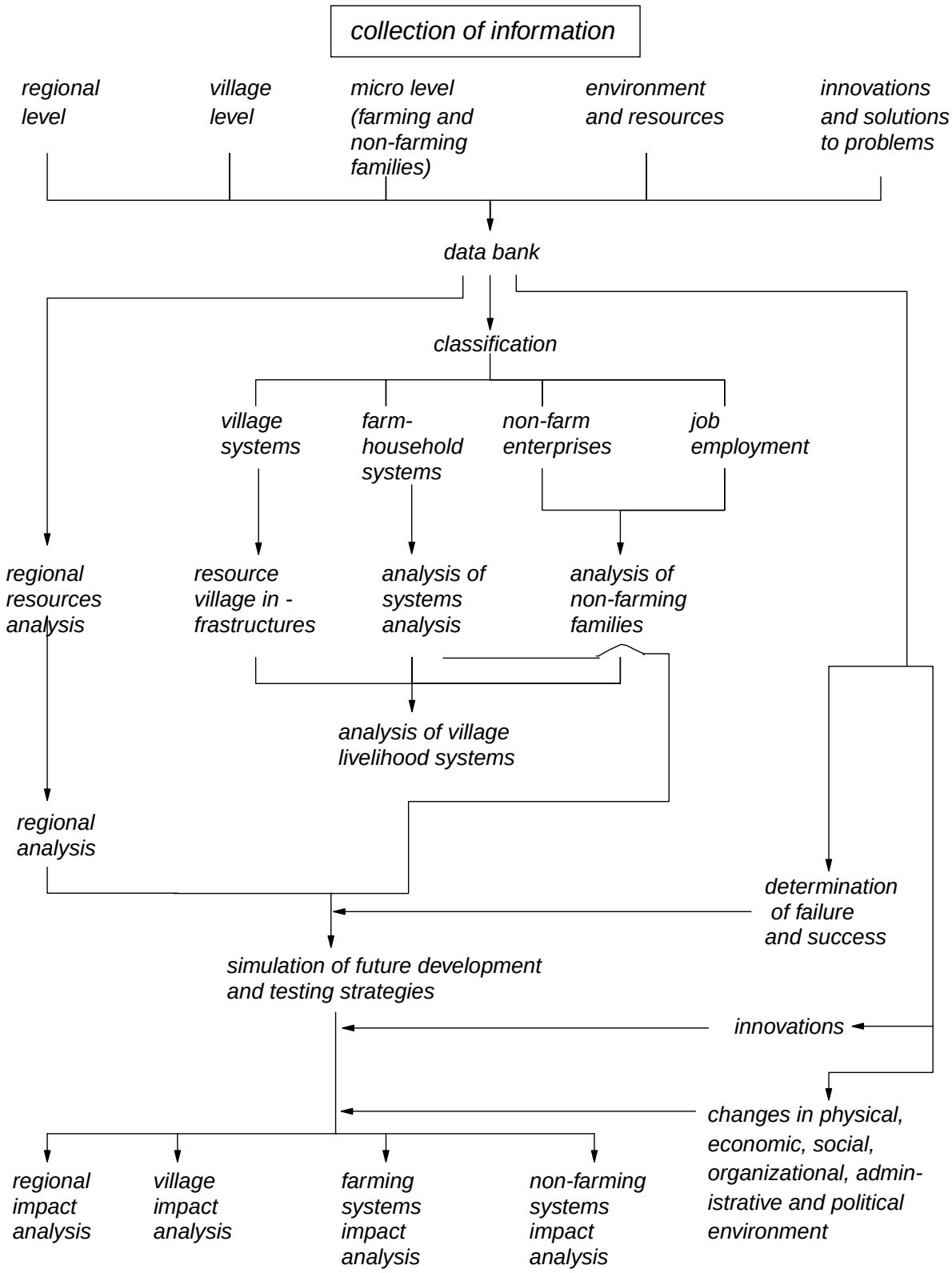


Figure 1. Procedure of applying micro, village and regional systems approach

Source: Doppler, 1994

## Results and Discussion

### Family supply

*Food.* Food requirements were generally satisfied by the families themselves. Most rural forest and rural agricultural families produced enough rice, the main staple, to provide for their families throughout the whole year. Families who own no land often work in farming activities for other farmers and can choose to receive rice as payment after harvesting. Chicken was the main source of home produced meat for rural forest and rural agricultural families and other meats such as pork and beef had to be purchased from the market.

*Health.* The health situation of families in the study area was generally considered to be good since about 80% of all families were satisfied with their health care (Praneetvatakul, 1996). Most families visited the doctor when they were sick. The main health stations visited by the rural forest and rural agricultural families were the government health stations. Here the families, in principal, do not pay for any medicine or treatment, unlike a private clinic. Private clinics are relatively costly and were the main health facilities of the urban families.

*Water.* The water supply of the families was generally sufficient except in the dry season when the problem had to be addressed. Pipeline water was mainly utilised for drinking purposes, whereas water from wells was used for other household activities such as washing. Concerning the water supply, about half of the rural forest and agricultural families complained of insufficient water for household and agricultural purposes during the dry season (Praneetvatakul, 1996). Most of them reported providing irrigation systems as a solution.

*Housing.* The housing situation was, in general, satisfactory since almost all families owned a house. Single story houses were the most common style of the rural forest and rural agricultural families whereas two or more story houses were dominant in urban areas.

### Family resources

*Land.* The amount of land owned by the families in Northern Thailand was rather small. The average land cultivated was 9 rai per rural forest farmer, 15 rai per rural agricultural farmer and 18 rai per urban farmer (there are few farmers in urban areas but they owned larger farm area). Few rural agricultural families had no land rights. By contrast, more than half of rural forest families had no land title to the farm land, some of them had land rights (land rights defined as having the right to a piece of land for cultivation but not for sale). This is a problem to be addressed since it implies investing inputs to improve cultivated land in order to ultimately improve the farming systems. They asked for the land title as a solution.

*Soil fertility.* Most of the farmers mentioned declining soil fertility in their cultivated fields. Most of them did not know the reason for this decline but some reported the reasons of continuous monoculture cropping and lack of fertilizer applications. However, most of them did nothing to improve soil fertility and few regularly applied animal manure or chemical fertilizers. The families who did nothing to improve soil fertility mainly lacked information on how to improve. Few gave the reason of a lack of money to improve soil fertility or of no

incentive. This indicates the need for extension services to supply information and knowledge on improving soil fertility as claimed by the farmers.

*Irrigation.* Rainfed systems played a more important role than irrigation systems in the cultivated areas of the rural forest families. Irrigation systems mainly serviced the cultivated areas of the rural agricultural and urban families. However, most farmers claimed that although irrigation systems exist, there was indeed no water in the irrigation canals. This indicates the poor management of irrigation systems. As a result, insufficient water for agricultural purposes was reported as serious and very serious problems of the farmers. Therefore, improvement of the existing irrigation systems and providing more irrigation systems were suggested by the farmers to solve the problems.

*Labour.* Since most farmers had a small piece of land, there was generally enough labour to cultivate their land. However, labour bottlenecks occurred during the period of rice transplanting and harvesting but was not a very serious problem. On the other hand, most farmers experienced problems of unemployment during the slack period of agriculture (from January to April). Therefore, improving irrigation systems so farmers can do more cultivating during this dry season or enhancing local job opportunities during this period, could reduce unemployment as claimed by most respondents.

*Capital.* A tractor, mainly a two wheel hand tractor, is a common farm implement used for land preparation and is a substitute for the traditional buffalo. More than half of the farmers did not own tractors for land ploughing. They usually hired one to plough the land from the families who owned tractors. The problem of not having a tractor at the right time was mentioned but was not a severe constraint.

### Family economic success

*Family income.* Family income is the aggregation of farm and off-farm incomes. These terms are defined as follows. 1) Farm income is the farm revenues minus farm expenses. Farm revenues are comprised of the value of sales and home consumption of crop and livestock production as well as the increase in the value of stock. Farm expenses include inputs and services for both crop and livestock production, processing, storing, marketing, hired labour costs, transport expenses and other expenses related to farm production, decreases in the value of stock, depreciation of machinery and equipment as well as interest paid for farming. 2) Off-farm income includes wages (employment), salary, income from trade, remittance, income from forest products and other income from private enterprises. The farm revenue in the crop year 1992/93 was relatively low because of the rice blast disease outbreak. As a result, negative farm incomes in the rural forest and urban families and low positive farm incomes in the rural agricultural families appeared. Since the families had to find additional earnings to meet their household expenditures as the farm income was not enough, the off-farm income was the main source of income for all families. Employment as a worker was the largest off-farm source of income of the rural forest and agricultural families. Among the three family groups, the family income of the rural forest families was the lowest (936 US$ /family /year) with the rural agricultural families second (1533 US$ /family /year) and the urban families the highest (7116 US$ /family /year). In summary, family incomes were sufficient to fulfil the minimum basic requirements (poverty line) which was estimated by the Department of Community Development of Thailand.

*Liquidity.* Liquidity is defined as "the ability to meet the cash liabilities in time" (Steinhauser and et al, 1982, p.189). The liquidity of the families was mainly maintained by crop sales, animal sales, off-farm cash income and credit. Cash is needed by families for buying inputs for farming activities, paying interest and debts, purchasing food, clothes, medicine and other personal and household items. Urban families had no problems with liquidity since there was a cash surplus, mainly from off-farm cash income, throughout the year. Rural agricultural families experienced a shortage of cash during the period of January to April. Cash shortages were severe in the case of rural forest families because of the negative cash balances occurring in September to April. Without cash from credit during May to August, they would also experience negative cash balanced during this period. As a result, cash was scarce throughout the year. Providing local job opportunities, particularly for women, could help to overcome the cash shortage as suggested by the village heads.

## Production systems

*Crop production.* Regarding farming activities, crops played the most important role in every farm. The most important crops were rice, garlic, groundnut, tobacco and ginger. Vegetables, such as white cabbage, green cole, chinese cabbage, chilli, onions and others, were grown in the backyards of some rural forest and agricultural families, mainly for home consumption with the rest being used for sale.

*Problems of crop production.* Comparing the present crop yields to those of the past ten years, most families reported a declining trend, mainly due to the rainfall fluctuation over the period. Drought was the primary problem of crop production for all families in the study area (Figure 2). All families reported similar crop production problems such as drought, the lack of water in the dry season, rat and weed problems, the high price of inputs, the lack of credit and investment opportunities, the lack of irrigation facilities, the lack of land to cultivate, and the lack of labour during transplanting and harvesting.

*Livestock production.* Livestock played a minor role in the production systems of the families in the area. However, the trend to raise animals is increasing. Native chickens were raised by nearly all families, principally for home consumption. Other livestock raised were swine and cattle. Buffalo had almost disappeared in the study area since it requires a longer period to produce offspring than cattle.

*Problems of livestock production.* No serious problems in animal production were reported by the animal producers of any of the families. Nonetheless, some minor problems were mentioned such as animal diseases, swine fever and salmonella in chickens, and the low selling price of animals (Figure 3).

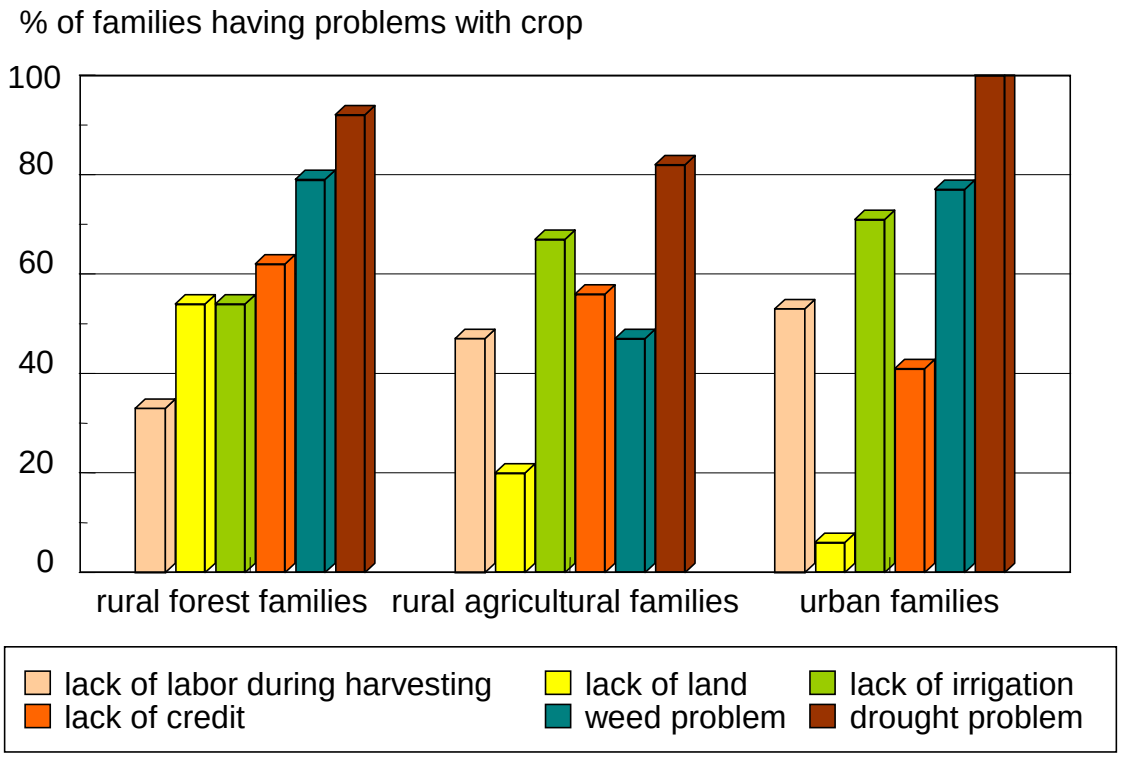


Figure 2. The views of farmers on problems of crop production, Phayao province, Northern Thailand, 1992/93

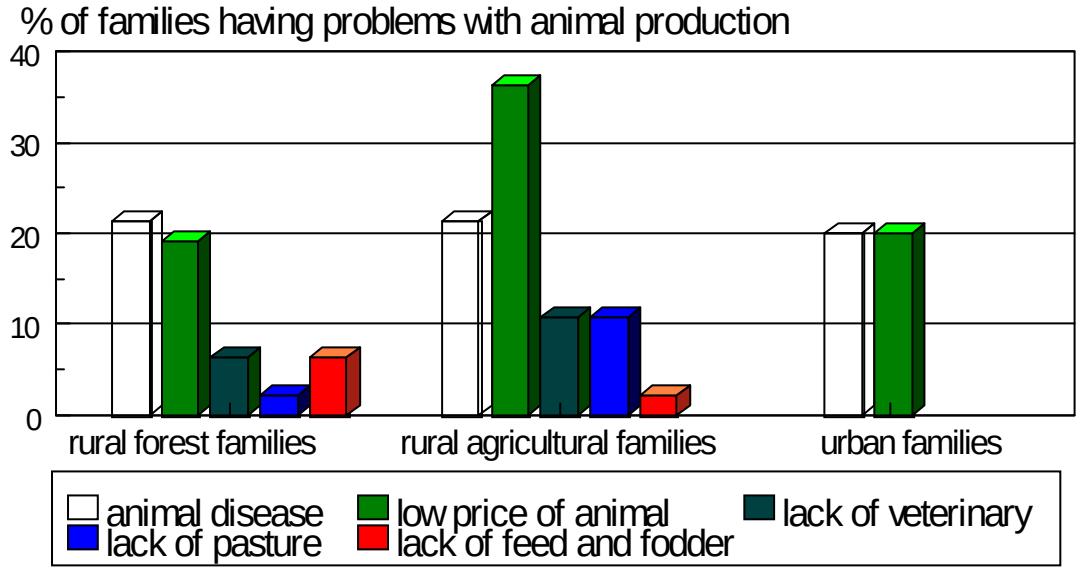


Figure 3. The responses of farmers regarding problems of livestock production, Phayao province, Northern Thailand, 1992/93

## Problems of Farming Systems and Potentials for Change

Drought and dependency on rainfall were reported as the biggest problems in the farming systems in the study area. Most families said they did nothing to solve the problems because they are natural problems (climatic and weather) which are beyond their capability to solve. Other problems were not significant (Table 1). However, the outbreak of a disease, such as rice blast in 1992/93, can be a serious problem in farming. The problem of lacking investments for farming activities was reported as the next important problem of the rural forest families. The destruction of crops, by crabs for rural agricultural families and by rats for urban families, was also listed as a secondary problem.

Table 1. The responses of farmers on problems of farming systems, Phayao province, Northern Thailand, 1992/93

| Items | Rural forest families (n=52) | Rural agricultural families (n=55) | Urban families (n=17) | All families (n=124) |
|---|---|---|---|---|
| % of farmers response to problems of farming systems | | | | |
| - drought | 78 | 90 | 71 | 80 |
| - pest & disease | 4 | 8 | 23 | 12 |
| - marketing & investment | 14 | 2 | 0 | 5 |
| - lack of labour | 4 | 0 | 6 | 3 |

When the opinions of respondents were asked about future problems expected in farming, drought still ranked as the highest problem of all families in the study area. Most of the respondents suggested solving the problem by asking the government to help provide the irrigation systems (Table 2). Other opinions were also given such as conserving and protecting the watershed area, improving the existing irrigation system and releasing more water into the present irrigation canal.

In terms of risk, most of the farmers were willing to try new varieties of crops and even new crops if they proved to be good (Table 3). Moreover, they were actually risk-takers in that they were also willing to increase their debt to buy inputs for farming activities. However, most of the respondents were against leaving their areas and migrating to other places.

Table 2. The opinions of farmers on the ways to solve farming problems, Phayao province, Northern Thailand, 1992/93

| Items | Rural forest families (n=52) | Rural agricultural families (n=55) | Urban families (n=17) | All families (n=124) |
|---|---|---|---|---|
| opinions of farmers on the ways to solve farming problems (% of families) | | | | |
| - do not know | 2 | 19 | 6 | 9 |
| - provide irrigation system | 71 | 50 | 76 | 65 |
| - improve irrigation system | 4 | 4 | 0 | 3 |
| - improve watershed area | 2 | 0 | 6 | 3 |
| - others | 21 | 27 | 12 | 20 |

Table 3. The responses of farmers on the potential for change in farming, Phayao province, Northern Thailand, 1992/93

| Items | Rural forest families (n=52) | Rural agricultural families (n=55) | Urban families (n=17) | All families (n=124) |
|---|---|---|---|---|
| % of farmers response to the potential for change in farming | | | | |
| - willing to try new crops | 72 | 56 | 60 | 63 |
| - willing to increase debt for farm input | 70 | 56 | 65 | 64 |
| - willing to migrate | 16 | 16 | 5 | 12 |

Higher education and better occupations than farming were reported as the greatest wish for their childrens future. Finally, If the farmers had more money their highest priorities would be to improve farming systems and to buy more land (Figure 4). For instance, about 28% of rural forest farm-families, 15% of rural agricultural farm-families and 18% of urban farm-families would invest in farming if they had more money, whereas, about 25% of rural forest farm-families, 33% of rural agricultural farm-families and 29% of urban farm-families would buy more land. However, depositing money in a bank was also mentioned by 23% of rural forest farm-families, 20% of rural agricultural farm-families and 29% of urban farm-families. Others would invest extra money in trade or in repairing the house. In summary, although most farmers wish their children to work outside farming, they are in fact still considering the improvement of their farming as a priority if they would have had more money. This indicates that any support from the government related to farming will be accepted by the farmers and can improve the whole farming systems of the region.

## Conclusions

The views of farmers are important to form any policy toward the development of farming systems. The supply situation of food, health, water and housing, was in general, satisfactory to the families. There were common problems in all families in terms of farm resource deterioration, such as degradation of soil fertility, poor management and lack of irrigation systems as well as unemployment during slack periods of cultivation. In general , most farmers reported drought as the main problem of farming systems. Therefore, policy implication should focus on improving irrigation management as well as increasing extension service on improving soil fertility and enhancing local job opportunities, particularly for women.

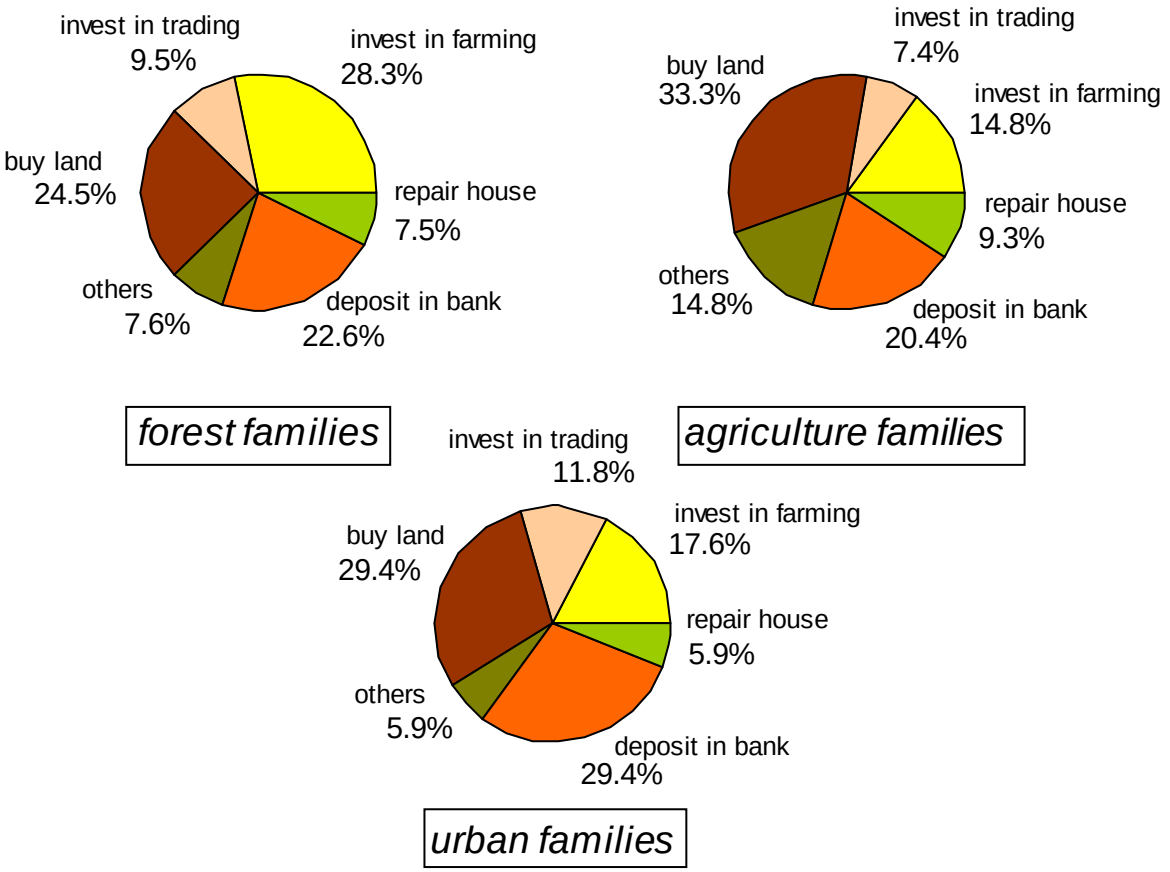


Figure 4. Farmers priorities if they had more money, Phayao province, Northern Thailand, 1992/93

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