Field Report on
Indigenous Soil Taxonomy, Household Level Diagnostic Survey and Market Research in Phonsay District, May-June 2003

Socio-Economic Research Component

Lao Swedish Upland Agriculture and Forestry Research Programme
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Field Report on
Indigenous Soil Taxonomy, Household Level Diagnostic
Survey and Market Research in Phonsay District,
May-June 2003

Socio-economics Research Component

Lao-Swedish Upland Agriculture and
Forestry Research Programme

June 2003
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1. Itinerary

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<th>Activity</th>
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<td>May 27</td>
<td>Travel to Luangphabang</td>
</tr>
<tr>
<td>May 28-29</td>
<td>Ethnoscientific elicitation of indigenous soil taxonomies with Hmong, Khumu and Lao Loum focus groups in Ban Huaymaha and Ban Thapho</td>
</tr>
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<td>May 30</td>
<td>Market interviews at Talat Mai transportation hub for Phonsay on the northern side of Luangphabang town</td>
</tr>
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<td>May 31</td>
<td>Interviews with traders in Talat Tha Hua, Talat Phousy and Talat Mai about frogs (wild and cultivated, local and imported)</td>
</tr>
<tr>
<td>June 2-4</td>
<td>Village characterization &amp; pre-testing of HH surveys+ replication of Hmong soil classification in Ban Nambo</td>
</tr>
<tr>
<td>June 5-7</td>
<td>Interviews with DAFO extensionists and growers in Xieng Ngun about the tomato market, following the market channel to Phousy market while the price was dropping, interviews with traders in Phousy and Talat Mai markets about tomatoes, other vegetables, fish and frogs</td>
</tr>
</tbody>
</table>

2. Purpose of Fieldwork

This was a multipurpose fieldtrip, focusing on three aspects of the current workplan of the Socioeconomic Unit:

**Indigenous Soil Taxonomy**
To demonstrate ethnoscientific elicitation techniques for indigenous knowledge on soil classification and to begin to develop a knowledge base on indigenous soil classification and management concepts of the three major ethnic groups (Hmong, Khumu and Lao Loum).

**Village and Household Level Diagnostic Survey**
To follow up on the village level diagnostic survey conducted at the beginning of the field research programme in Phonsay and to develop a deeper understanding of the livelihood systems, problems, coping mechanisms and opportunities of the different kinds of households in the research villages (stratified by multiple criteria).

**Market research**
To expand our information about seasonal markets and develop a more systematic overview of market channels (traders, processors, transporters, manufacturer, consumers) for key products, and to follow-up on issues raised by previous fieldwork.

3. Methodology and Findings

3.1 **Indigenous soil taxonomy**
The following methodological guidelines were used as a basis for the group interviews with adjustments to fit the dynamics of the situation in each case:
Methodology for Discovery of
Indigenous Soils Classification System

**Purpose:** To discover the indigenous classification system for soils and to construct an ethno-taxonomy of soils as a first step in understanding how different ethnic groups in the research area perceive and manage soils.

**Materials:** Cards & marking pens

**Approximate time:** 2 hours per group session. This is done separately for each language group.

**Method**

1. Explain what we want to do to the village headman and ask his help in organizing a focus group of people within each ethnic who are knowledgeable about soils and their names in the local language (this exercise should be done separately with each ethnic group).

2. Explain to the group what we want to do and figure out is the term for “soil” in the local language (this term will be the starting point, the first and most inclusive level in the local taxonomy of soils; it is also the name of the “domain”).

3. Elicit all other local terms for different “types of soil.” For example: Ask one of the informants, “What different kinds of soils are there on your land?” Probe, “Any others?” Ask another informant, “How about you, what types of soil do you have on your land?” Ask others for contributions in turn. Then ask the group as a whole, “Are there any other kinds of soil?” or “Are there any other terms that relate to soil.” Get someone from the local group to write down all of these terms on separate cards, one term on each card.

4. When you have got all the local names for soils, then ask the group to sort the cards into piles. Let the informants discuss among themselves how they want to sort them. Give them enough time and do not interfere. (Do not assume that the ethnic classification system is the same as the Lao Loum system or one of the existing scientific social classification systems, and be careful not to suggest terms or descriptions to them as this will “contaminate” the data.) When they have finished sorting number the piles 1, 2, 3 . . . and write the pile number on each of the cards in each pile.

5. After the cards are sorted into different piles, ask them why they sorted them this way. What do the cards in each pile have in common and how are they different from the other piles of cards? This information reveals the “constrast sets” by which the local people differentiate soils. It is the 2nd level of the taxonomy. (Often soil color is one of the features which distinguishes the first or second level in indigenous taxonomies of soils but it is not so in every case. Don’t assume anything and don’t contribute your own ideas to the discussion. Let the local group tell you what features they use to distinguish and classify soils.)

6. Then give the first pile back and ask them to sort them again into sub-piles according to whatever criteria they want to use. Do this with each pile. After they have finished sorting, Number the cards again (1.1, 1.2 . . . 2.1, 2.2 . . . and so on). Then repeat step 5, asking them what criteria they used to subdivide the cards this time. Then add the new descriptive information to the cards. These criteria and descriptions define the 3rd level of the soil taxonomy.

7. If needed, repeat this procedure again for each of the piles. Ask the group if it is possible to sub-divide the piles further. Maybe some can be subdivided while others can’t. Take note of any new contrast sets and levels. Add the new information to the cards. Continue in this way until subdivision is no longer possible.

8. Review the results with the group to be sure the list of soil types is complete. Then pick up each card, read out the name of the soil type and ask: “What can you grow in this soil?” (or “What is this soil good for?”). Write this information on the card. Then ask: “What can you NOT grow on this soil?” and add this information to the card. Go on to the next card and continue until you have recorded all of this “suitability” information on all of the cards.

9. Finally, take all the cards and shuffle them together, mixing all the groups. Then ask the group to sort the cards again into 3 piles from most “most abundant” to “least abundant” with a “medium” category in between. This information will indicate the local people’s perception of the relative abundance of each soil type in the area.

The data from 3 villages are displayed in the following pages in graphics and tables.
Pronunciation note: The term were written by the Hmong informant in the script developed by a linguist for the Hmong language. The final “b” is a tone marker, not a consonant. It is not pronounced as the English “b” sound. For example, “pozeb taub” is pronounced more like “pohzeh tauh” (in non-specialist terms).

#1 arrangement. This is the preferred arrangement because this is the way they gave it to us. The first sort resulted in two piles, which were designated “hard” and “soft.” The informants were adamant that the two piles could not then be further sorted. Nevertheless, in terms of the linguistic markings it would appear that another, at least linguistically plausible, interpretation would be as shown on the next page.
Huaymaha Hmong #2 arrangement: not given directly, but linguistically plausible. The soil names are the same but the taxonomic arrangement is different, depending on which criteria are exercised first.
Hmong, Ban Nambo
2 June, 2003

Av
(pron Aa)
(Soil)

(fertile soils in uplands)
(can grow anything)

Av duh
(black soil)

Av liab
(red soil)

Av nplaum
(mauve sticky soil)

Av suab
(sandy soil)

Av khaah
(blue)

Av luaj
(yellow red layers)

Av zeh
(yellow melting)

Av zeh xauh
(black, hard)

Av rooh
(50% rock, red or black)

Av rooh tsuas
(2/3 rock)

(fertile soils near streams)
(can grow anything except opium)

Av suab pmam

Av khaah xih

Av luaj ntsha

Av zeh txhais daj

(shallow soils)

Av luaj

Av zeh

(shallow, rocky hill soils)

Av suab pmam

Av khaah xih

Av luaj ntsha

Av zeh txhais daj

Av rooh

Av rooh tsuas
Khumu, Ban Huaymaha
28 May 2003

Pate
(Soil)

Pate (soil)

(Pure soil)

(Pure soil)

(Mixed with rock)

(Gleng kora) (sliding rock) 50%

(Gleng saa) (glass rock) 70%

(Gleng bu bu) (sticky rock) 90%

(Melt in water)

(Gleng lai) (like limestone)

(Gleng bu bu) (sticky in water)

(Gleng sara waktang (soil mixed with rock)

(Gleng iakwak) (worm soil)

(Gleng yim) (red soil)

(Pure soil)

(Mixed with rock)

(Pure soil)

(Mixed with rock)

(Pure soil)

(Mixed with rock)

(Pure soil)

(Pure soil)
Lao Loum, Ban Thapho
29 May 2003

Din (Soil)

Din gam sai
(sandy soil, cannot hold water)

Din hin gap
(smooth soft rock soil with tendency for land slips when very wet)

soft

Din hin gap yellow

harder

Din hin gap black

Din gam tom
(near stream)

Din dak
(not near stream)

Din ki mon
(containing less stone)

Din gam hin ong
(2/3 stone)
Characteristics and uses of the soils according to the perceptions of the focus groups.

<table>
<thead>
<tr>
<th>ETHNIC GROUP</th>
<th>VILLAGE NAME</th>
<th>SOIL NAME</th>
<th>MISC. DESCRIPTORS</th>
<th>ABUNDANCE</th>
<th>GOOD FOR</th>
<th>NOT GOOD FOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>av</td>
<td>soil (the domain name)</td>
<td>1 high 2 med 3 low</td>
<td>bricks pottery</td>
<td>crops</td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>av dai</td>
<td>yellow sticky brick and pottery soil</td>
<td>3</td>
<td>corn rice but not high yield</td>
<td></td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>av dawb</td>
<td>white hard cliff soil</td>
<td>3</td>
<td>corn rice sugarcane vegetables (rice if enough water)</td>
<td>jackfruit (tree but no fruit)</td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>av xiau</td>
<td>river garden soil, wet soil, blue soil</td>
<td>3</td>
<td></td>
<td>rice</td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>av pobzeb txhais dai</td>
<td>rock and soil mixed together, found on eroded land, usually on steep slopes, often on steep slopes near streams</td>
<td>3</td>
<td>job’s tears makduay, posa, porsa, corn</td>
<td>rice</td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>pobzeb tooj</td>
<td>yellow rock soil, underwater in streams, scarce</td>
<td>2</td>
<td>nothing</td>
<td>crops</td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>pobzeb taub truab</td>
<td>limestone</td>
<td>2</td>
<td>nothing, medicine?</td>
<td>crops</td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>pobzeb xob</td>
<td>looks like glass</td>
<td>2</td>
<td>nothing</td>
<td>crops</td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>pobzeb dawb</td>
<td>white rock</td>
<td>1</td>
<td>house construction, cement brick</td>
<td>crops</td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>av liab</td>
<td>red soil, the best soil, can grow everything</td>
<td>1</td>
<td>everything, including mango jackfruit</td>
<td></td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>pobzeb quav txhis</td>
<td>soil mixed with rock, goat shit rock, round black rock</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>pobzeb quav hluau</td>
<td>black rock, hard mountain soil, iron?</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hmong</td>
<td>Huaymaha</td>
<td>av txua</td>
<td>fertile black soil, too beautiful, volcanic</td>
<td>1</td>
<td>everything can grow except mango &amp; jackfruit</td>
<td>mango jackfruit</td>
</tr>
<tr>
<td>ETHNIC GROUP</td>
<td>VILLAGE NAME</td>
<td>SOIL NAME</td>
<td>MISC. DESCRIPTORS</td>
<td>ABUNDANCE</td>
<td>GOOD FOR</td>
<td>NOT GOOD FOR</td>
</tr>
<tr>
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<td>-------------------</td>
<td>-----------</td>
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<td>--------------</td>
</tr>
<tr>
<td>Khmu</td>
<td>Huaymaha</td>
<td>pate</td>
<td>Soil (domain name)</td>
<td>1</td>
<td>every crop can grow</td>
<td></td>
</tr>
<tr>
<td>Khmu</td>
<td>Huaymaha</td>
<td>pate yim</td>
<td>not so fertile, good for trees</td>
<td>3</td>
<td>teak, posa, khem</td>
<td>annual crops</td>
</tr>
<tr>
<td>Khmu</td>
<td>Huaymaha</td>
<td>pate hiang</td>
<td>black soil, salty soil (din khem, acid), found at bottom of valley</td>
<td>3</td>
<td>can grow every crop but maybe not good yield</td>
<td></td>
</tr>
<tr>
<td>Khmu</td>
<td>Huaymaha</td>
<td>pate jaknar</td>
<td>yellow soil, pure soil, hard, slippery in heavy rain</td>
<td>2</td>
<td>pineapple, making bricks, rice if after bamboo-fallow (bamboo opens up the soil)</td>
<td>corn, mak duay</td>
</tr>
<tr>
<td>Khmu</td>
<td>Huaymaha</td>
<td>pate iakwak</td>
<td>worm soil, shit soil</td>
<td>1</td>
<td>every crop can grow</td>
<td></td>
</tr>
<tr>
<td>Khmu</td>
<td>Huaymaha</td>
<td>glang saa</td>
<td>glass rock, 90% rock, mountain soil</td>
<td>3</td>
<td>no use except furniture (beautiful)</td>
<td></td>
</tr>
<tr>
<td>Khmu</td>
<td>Huaymaha</td>
<td>glang kora</td>
<td>sliding rock, eroded soil on slope, often near stream, if much rain rice will become yellow and die or will develop bitter taste</td>
<td>1</td>
<td>rice, corn, chili, makneng, posa</td>
<td>rice - if much rain rice will become yellow and die or will develop bitter taste</td>
</tr>
<tr>
<td>Khmu</td>
<td>Huaymaha</td>
<td>glang lai</td>
<td>limestone, hin poon</td>
<td>2</td>
<td>break to make house, cement</td>
<td></td>
</tr>
<tr>
<td>Khmu</td>
<td>Huaymaha</td>
<td>glang bu bu</td>
<td>rock, top of steam, water from this soil sticks to everything</td>
<td>3</td>
<td>nothing</td>
<td></td>
</tr>
<tr>
<td>ETHNIC GROUP</td>
<td>VILLAGE</td>
<td>SOIL NAME</td>
<td>MISC. DESCRIPTORS</td>
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<td>GOOD FOR</td>
<td>NOT GOOD FOR</td>
</tr>
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<td>--------------</td>
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<td>----------</td>
<td>--------------</td>
</tr>
<tr>
<td>Lao Loum</td>
<td>Thapo</td>
<td>din</td>
<td>Soil (domain name)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lao Loum</td>
<td>Thapo</td>
<td>din gam sai</td>
<td>sandy soil near river water can’t stay extremely well drained can’t hold water in rainy season very dry &amp; hard in dry season near river flooded in rainy season</td>
<td>5</td>
<td>sweet potato peanut white yam corn rice</td>
<td></td>
</tr>
<tr>
<td>Lao Loum</td>
<td>Thapo</td>
<td>din hin gap1 (soft)</td>
<td>flat smooth rock soft rock tendency for land slips on mountain slopes</td>
<td>3</td>
<td>corn dok khem nga</td>
<td>rice – not so good mak duay (falls down, roots not deep)</td>
</tr>
<tr>
<td>Lao Loum</td>
<td>Thapo</td>
<td>din hin gap2 (harder)</td>
<td>flat smooth rock soft rock tendency for land slips on mountain slopes</td>
<td>3</td>
<td>corn cassava never plan others</td>
<td></td>
</tr>
<tr>
<td>Lao Loum</td>
<td>Thapo</td>
<td>Soil Type</td>
<td>Characteristics</td>
<td>Good for</td>
<td>Remarks</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-----------</td>
<td>----------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Lao Loum</td>
<td>Thapo</td>
<td>din dak</td>
<td>pure soil (no mix) holds water not near streams black white yellow or red all good, different in color only</td>
<td>4</td>
<td>good for everything can grow chili 3 years consecutively</td>
<td></td>
</tr>
<tr>
<td>Lao Loum</td>
<td>Thapo</td>
<td>din gam tom</td>
<td>pure soil (no mix) along streams wetland soil (mud) river bank soil</td>
<td>6</td>
<td>good for everything onion lettuce corn rice vegetable</td>
<td></td>
</tr>
<tr>
<td>Lao Loum</td>
<td>Thapo</td>
<td>din gam hin ong</td>
<td>doesn’t hold water loose, gravelly soil soil 1/3, small stones 2/3 hard wet wet, can walk on it</td>
<td>2</td>
<td>only good for pineapple</td>
<td>corn not so good (too dry)</td>
</tr>
<tr>
<td>Lao Loum</td>
<td>Thapo</td>
<td>din hi moh</td>
<td>doesn’t hold water in hard rain gravelly soil soil 2/3, stones 1/3 less stones than din gam hin ong, softer when wet can’t walk easily (feet go in) crops will die not slippery or sticky</td>
<td>1</td>
<td>IF much rain good for rice corn banana</td>
<td>IF not much rain can’t grow rice corn banana</td>
</tr>
</tbody>
</table>
The foregoing tables are given for the purpose of recording and preserving the basis data. The analysis of this data is not finished. This is a new topic that we are opening up and it is hoped that it will become the focus of interdisciplinary discussion. The Land Management Component of the programme is already actively engaged with us on this, having participated in the first round of group interview sessions to elicit the soil taxonomies. It is hoped that they will be able to bring the Soils people into the discussion. The plan for this exercise was warmly approved by the Soils advisor, Mats Olsson, and a copy of the results will also be sent to him. He mentioned that this might be a suitable topic for an in-depth study by a Masters or PhD student.

Other possible analyses and follow-up in collaboration with others might include:

- replication of the taxonomy elicitation exercise in other communities in order to assess the degree of similarity and variation within the taxonomy for each ethnic group
- direct physical documentation (e.g. with photos, samples) of the soils corresponding to each of the soil names (hopefully this will be taken up by the Soils researchers in the Land Management Component)
- comparison of the soil classes between different ethnic taxonomies and with the main international scientific soil classification system, with a view toward developing a “soils key” that combines the strengths of the indigenous and scientific classification systems and provides a tool for translating between the different classification systems
- use of the indigenous categories to construct a participatory soils map and GIS representation of the research area
- use of both indigenous (ethno-scientific) and international scientific classifications for land use planning (zoning), research planning and extension communication

The main contribution of the Socioeconomic Component has been to introduce the anthropological method for elicitation of indigenous soil taxonomies and to open the subject up for further investigation by NAFRI scientists. The Socioeconomic research team stands ready to collaborate with others as needed in whatever follow-up activities are deemed appropriate.

International experience with interdisciplinary studies of indigenous soil classifications (“ethnopedology”) has been very positive (references). It appears to be one of the most productive areas of interdisciplinary research on indigenous knowledge contributions to agricultural development (“ethnobotany” is another active area). One of the reasons for this success is that knowing the indigenous soils terminology has enabled researchers and extensionists to communicate more effectively with local land users about existing and alternative approaches to land management.

A striking example of this occurred at the end of the session with the Khumu focus group at the school house in Huaymaha. The session had been very lively with a lot of interest from the local participants. When it was over, they seemed reluctant to leave. As the research team was packing up and getting ready to leave, one of the Khumu participants commented: “You know, the funny thing about those glang kora soils is that in a season of heavy rains the rice turns yellow and dies.” Glang kora is the highly erodable “sliding rock” soil that occurs on steep slopes. What this villager was saying sounded like a classic symptom of nutrient deficiency due to heavy erosion and leaching. They had already told us that the crops which they considered suitable for this soil were: rice, corn, chili, mak neng and po sa.
This gave the research advisor the excellent opportunity to comment: “Well, you know, with that kind of *glang kora* soil on steep slopes, you know, you really shouldn’t plant annual crops. You should concentrate on the perennials, like mak neng and po sa, which give you good soil cover and reduce the risk of erosion.”

This is the basic extension message of the government about what to plant on steep, highly erodable land. But this time you could see “the light” switching on in their eyes as they heard this message. Why? Because it was expressed in terms of one of their own concepts – “*glang kora*.” This time the message got to them in a way it never had before. This is why anthropologists have always emphasized the importance of getting the “inside view.”

### 3.2 Market Research

There are four main categories of products relevant to NAFRI’s current research activities in Phonsay:

- Horticultural and agricultural cash crops
- Meat products
- NTFP products
- Timber products

The “key products” in focus on in this field trip were those for which the Farming Systems Research team has requested market information:

- tomatoes
- pineapples and bananas
- frogs
- fish

Note: The following information is simply a preliminary record of initial findings and semi-digested field notes. It does not represent a complete analysis and is not to be interpreted as team’s considered conclusions. Some of the information is still in the form of rough field notes.¹

**Market research methodology**

*Things we need to find out about each product:*

1. price: when low price? when high price?
2. supply, demand, price this year compared with last year
3. seasonal calendar (plant, harvest, supply, demand, price)
4. trader (retail, wholesale): trader come to buy at the village or growers go to sell at mkt by themselves
5. transportation cost, production cost

¹ This field report is only one step in the research process, and its main purpose is to preserve the field information in a permanent form while it is still fresh in the minds of the researchers. More detailed and careful analysis, supplemented by additional information and new interpretations, will come later. Any conclusions expressed here must be regarded as tentative and should be treated as hypotheses for further investigation. It is good to make our hypotheses clear, but clarity in this case should not be confused with certainty. A clear statement of a working hypothesis facilitates the scientific discovery process by making it easier to confirm or reject the current hypothesis and move on to a new one. As Francis Bacon once said: “Truth is more readily discovered from error than confusion.”
6. characteristic of plant (tomato): size, color, taste,…
7. market situation/channel
8. where/who traders buy from?
9. where/who growers sell to?
10. the other plant/fruit popular in growing by villagers

**Tomato**

The price of tomato from XiengNgeun is 4,000 kip per kilo sold in LP and 5,000 kip per kilo (??? sold in VT.

3 sizes of tomato:
- big one from VT
- medium one grown along the riverbank in LP
- small one grown in PX - natural fresh, Laosung people village from Longlun, Thongnasa,

People in many villages such as Moud village, Suanluang village, Long-Or village near XiengNgeun district grow tomatoes.

Tomatoes are sent from LP to VT by bus (southern bus station), but traders prefer to take their tomatoes with fuel-tank truck (tanker) or beer truck because of cheaper cost of transportation (how much? compared with passenger bus).

At Xieng Nheun district:

3 kinds of tomatoes:
- **SYSUNNET 382** tomato (medium size):
  hard cover, red, (NanNao) around 50 fruit of tomato = 1 kilo, can grow in dry and rainy season, 95 days can harvest, 7-8 kind of tomato were experimented but SYSUNNET 382 is the best, at the first time people don't like because hard cover but popular later (why? - NanNao?), people don't grow many in dry season coz lower price (many supply from other areas so they grow other crops instead like cabbage, eggplant, pepper, long bean, pumpkin, vegetable… (these crops don't grow well or difficult in growing in heavy rain, Why?)
- Local tomato (small size):
  grow in dry season (why people grow only in dry/cold season?), it grow well in cold season.
- Big tomato:
  grow not so well (why?), people grow at Vad village, grow before rainy season, have to import many from VT and China, Chinese farmers rent land in LP district (3 plots) for growing this kind of tomatoes, higher price (6,000 kip per kilo)

LP traders (only LP traders, any VT trader?) come with bus/tanker buying the tomato along the road in XiengNgeun. Some growers take their tomatoes to Phosy mkt in LP by themselves for selling to the retail traders, who usually buy their tomatoes.

Cost of input:
- seed 1 bag = 135,000 kip sell in LP (120,000 kip sell in VT)
- fertilizer 2,500 kip/kilo
- plastic bag 8,000 kip/bunch
- wood for standing ???
For example, one grower (Mrs Champa, Suanluang village) grows 30 Nan (30 m long) of tomato. She uses:
- 4-5 kilo of fertiliser: 2,500 kip per kilo
- 1 bag of seed: 135,000 kip per kilo
- 6-7 bunches of plastic bag: 8,000 kip per bunch

She starts growing in early March, then she can harvest in the beginning of June (about 90 days), already harvested 3 times: first 7 kalong (1 kalong = 12 kilo), second 11 kalong, third (we interviewed) 15 kalong. The number of harvested is not much at first time because tomato is not old enough. She estimated the total amount of harvested is 200-300 kalong.

Tomatoes are harvested and sold (traders come to buy) every other day.

Today (5/6/03) traders did not come to buy because there are still tomatoes left in VT so many growers have to take their tomatoes to sell at Phosy mkt.

Transport cost from XiengNgeun to LP is 5,000 kip per person and 1,000 kip per basket (2 kalong).

Tomatoes are sold in XiengNgeun 40,000 kip per kalong, sell in LP 45,000 kip per kalong.

At Phosy mkt grower came in small bus to sell tomatoes (wholesale) to shop trader (retail), price for today (5/6/03) is 30,000 kip per kalong, if need worker to carry tomato 1,000 kip for big basket (Kheay).

Tomato is sold in 2 grades:
- big, good quality: 35,000 kip/kalong
- small, less good quality: 30,000 kip/kalong

Name of tomato traders at Phosy mkt: AuayKham, NangNguan, AuayNoyKoud,…

### Seasonal Calendar of SYSUNNET 382 Tomato and Local Tomato

<table>
<thead>
<tr>
<th>activity/month</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>planting</td>
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<td>harvesting</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>price</td>
<td></td>
<td></td>
<td></td>
<td>price decreased coz many local tomatoes (like cold weather 18 C) from other areas</td>
<td>price start to increase</td>
<td>highest price</td>
<td>price decreased coz many local tomatoes (like cold weather 18 C) from other areas</td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>planted area decreased, people prefer grow other crops like cabbage, eggplant, pumpkin, pepper, vegetable,…, which get higher price</td>
<td></td>
<td></td>
<td>planted area decreased, people prefer grow other crops like cabbage, eggplant, pumpkin, pepper, long bean, vegetable,…, which get higher price</td>
<td></td>
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</tbody>
</table>

Last year price
price in August, September 70,000-80,000 kip/kalong (why price increase?), because planted area was flooded and difficult in planting when heavy rain (tomato died) price in December 1,000 kip per kilo

This year price (2003)
beginning of May 45,000 kip/kalong,
late May 40,000 kip/kalong
and now the beginning of June 35,000 kip/kalong

the price is controlled by supply and demand in VT (price maker)

In dry season (hot climate) local tomato grow not well or die

DAFO (Mr. Bounchan) mentioned about too much supply of the tomato this year so price trend starts to change. For example one grower in Suanluang village (garden in the other side of Khan river) can harvest 60 kalong in three days; approximately he sold in the amount of 2 million kip.

**Banana**

- Cooking banana (KuayNam)

This kind of bananas is grown at Km.10 village in XiengNgeun district, but grow not many. Growers come to sell to the retail traders at Phosy mkt once week. The retail traders buy 500 kip per a branch of banana (16-20 fruit), then they sell 1,000 kip per a branch of banana.

People at Nadad village, road to XiengMuak and Nduay, also grow many bananas. They come to sell by themselves as retail traders at Phosy mkt in the price of 1,000 kip per a branch of banana.

Banana is expensive in dry/cold season during March – May (how much?) and need to import from VT. But banana grows well in rainy season so there is a lot of supply at the market.

- Egg banana (KuayKhai)

These bananas are from Sad village (30 minutes by car).

The retail traders at Phosy market buy from growers/wholesale traders in the amount of 80 kip per fruit (800 kip per 10 fruits) (mixed big and small fruit).

In cold season (November-December) bananas are expensive (buy 1,200 kip per 10 fruits)

- Long banana (KuayNgao)

This kind of bananas is from PakXuang.

Wholesale traders go to buy from the growers at the village and send these bananas for selling to the retail traders at Phosy mkt everyday in a little bit higher price than the growers come to sell to the retail traders by themselves.
The price in rainy season
Big fruit  3,000 kip per a branch of banana
Small fruit  2,000 kip per a branch of banana

The price in cold season
Big fruit  4,000 kip per a branch of banana
Small fruit  3,000 kip per a branch of banana

_In cold season bananas are from VT in the price of 8,000-10,000 kip per a branch of banana (why so expensive?)_

**Pineapple**

Pineapple sold at Phosy market are from XiengMuak, PakXeuang

<table>
<thead>
<tr>
<th></th>
<th>Sell</th>
<th>buy from grower</th>
<th>buy from trader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big</td>
<td>3,000</td>
<td>1,500</td>
<td>1,600</td>
</tr>
<tr>
<td>Small</td>
<td>2,000</td>
<td>1,000</td>
<td>1,100</td>
</tr>
</tbody>
</table>

Retail price at Phosy mkt (cold season)
Big 5,000
Small 3,000

Pineapple is low price in August-September about 1,000 per fruit because lots of supply in rainy season. They are sent to VT. But in October-December pineapple is expensive because of reduction in supply.

**Frog**

Most of frogs found at the market are paddy field frogs, which are from VT. We found that there is big demand for frog in LP. If much rain, there will be lots of supply of frog, but now just in the beginning of rainy season so there is a need for frog from outside LP (VT). The price of frog is 5,000 kip per head and 20,000 kip per kilo.

**Fish**

Fish (Panin, Papak) sold in the price of 16,000 kip per kilo at the market in LP are from NamNgeum reservoir, Vientiane province.

There is no fish raising in the pond sold at the market. There is also no fish raising in cage in Mekong river because of heavy rain and the cages are damaged.

Fish sellers at Phosy mkt said that there are lots of fish raising in the pond in Vernkham, km 62 near Phonehong district, Vientiane province.

**Transportation between Phoxay district and Talat Mai in Luanprabang (northern bus station)**
Another major objective of this fieldwork was to improve our understanding of the transportation infrastructure of the Phonsay market. During the initial diagnostic interviews in 2002 the information from the group interviews indicated that transportation might be a constraint to market development in Phonsay, even for the villages located along the main road. In order to evaluate this interpretation it is important to get detailed information on the amount and timeliness of transport available to the villages along the road in Phonsay District. Hence, the additional focus on transport in this fieldwork.

There are 7 buses service in PX - the owners are villagers - in PX and 6 buses service - the owners are people living around LP - in LP.

2 buses from LP to PX; one in 9 a.m. and the another one in 1 p.m.
2 buses from PX to LP; one in 10 a.m. and the another one in 2 p.m.

The bus, which go from LP to PX in 9 a.m., will stay a night in PX and will come back to LP in the next morning (10 a.m.) And the one, which go from LP to PX in 2 p.m., will stay a night in PX and will come back to LP in the next day (2 p.m.). These two buses has to stop service for around a week for the other buses having an opportunity to do service. The same schedule is for the bus going from PX to LP.

Bus association makes rule for the bus service (2 buses go and back), this is because of limited in the number of passenger; if there are more buses service, the problem of loss for the bus owner will be occurred (high cost of fuel and maintenance, low revenue from small number of passenger).

A passenger has to buy a ticket cost 13,000 kip per passenger and the passenger will pay 100 kip per kilo of his/her bag (the way for measuring the amount of kilo is made by eyes of the bus driver and how much a passenger will pay can be negotiated)

One bus will be charged by the bus association 5% of the total amount money of 13,000 x number of passenger and 2,000 kip per bus.

The other cost are the payment for tax (60,000 kip per annum - 25 seat-bus) and for the maintenance of the bus association (125,000 kip per year).

**Ten Day Market at Nambo Village**

The market opens in early morning (7 a.m. – 9 a.m.).

Traders from LP district come to sell consumer products, drinks, clothes,…They come with bus or small truck and sometimes the bus owner comes to buy when it is not his turn for bus service from LP to PX.

Villagers from other villages (around 10 villages: Kokvan village, Kokmuang village,….) come to sell their agricultural products such as NTFPs (few NTFPs are found at the market today), pineapple, vegetable, short bean,… Some villagers come by horse with carrier for agricultural products.
Traders buy short bean (Ghouaber) from villager in the amount of 20,000 kip per bag (kilo?), then they sell at market in LP in the price of 1,000 kip per small plastic bag (how much per bag if wholesale?). Traders usually buy many different kinds of products such as porsa, kham, corn, rice, makduay, nga,… but this is the time for growing and clearing the weed so not many sellers or buyers at the market. In October, November lots of agricultural products are sold at the market.

One Nambor villager puts medicines on the table for selling.

3.3 Village Level Characterization and Pre-Testing of Household Level Diagnostic Survey Instrument

The initial village level diagnostic report was able to present a basic characterization of the research villages in terms of a number of variables related to land use and livelihood systems. The task now is to characterize the similarities and differences between households within the villages. Thus, what we are interested in is what kinds of households there are in the village, so that we can then include a sample of each of these household types in our household survey in order to discover the importance differences in terms of resource endowment and livelihood problems, opportunities and strategies.

This work is still in progress and we will only make a partial report here. As a bridge between village and household levels we developed a form for listing and classifying all the households in the village in terms of the following variables:

- name of HH head
- ethnicity
- wealth rank (using the categories used by the naibans)
- participation in on-farm experiments
- active in cash cropping
- very active in NTFP collection (forest dependency)
- shopkeeper
- recently migrated in
- recently migrated out (or planning to)
- labor problem due to sickness or death in the family

We were able to pre-test the survey instrument but we were not able to conduct household surveys in many households because during the week scheduled for this work most of the households were out of the village and fully engaged in rice planting and first weeding. Nevertheless, we were able to complete the pre-test and on the basis of this we have revised the survey instrument to make it more efficient.

Using this structured-but-open-ended instrument it takes about 1.5 hours to conduct the interview with each household, which is about the maximum amount of time for the respondents to be able to sustain the high level of attention required to get reliable information. After 1.5 hours, the respondents are easily distracted and the quality (detail, truthfulness, etc.) of the information declines steeply. If the interview is going to take much longer than this it is highly advisable to break it into two sessions, conducted on different days. Since we have a lot of households to cover for an adequate sample in 10 research villages in 2 districts, it is important to keep the HH interviews to 1 session. Hence, the target of 1.5 hours maximum duration.
The following form was found to be a reasonably efficient survey instrument that could be administered within these time constraints.

**Household Survey Form**

1. HH Name __________________________ 2. Location ______________________________
3. Ethnic group ______________________ 4. Date ______________________________
5. HH Category ______ (wealth rank)

6. FAMILY COMPOSITION & LABOR

<table>
<thead>
<tr>
<th>Generation</th>
<th>Does the HH ever use hired labor?</th>
<th>Does the HH ever sell their labor?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What work? Who? Man-days</td>
<td>What work? For whom? Man-days</td>
</tr>
<tr>
<td>Grandparent</td>
<td>a)</td>
<td>a)</td>
</tr>
<tr>
<td>Parent</td>
<td>b)</td>
<td>b)</td>
</tr>
<tr>
<td>Children</td>
<td>c)</td>
<td>c)</td>
</tr>
<tr>
<td>Full time workers</td>
<td>d)</td>
<td>d)</td>
</tr>
<tr>
<td>Adult Labor</td>
<td>e)</td>
<td>e)</td>
</tr>
<tr>
<td>Child Labor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. What is the overall labor situation? ____ adequate _____ insufficient____ surplus
If insufficient what kind of work? _______________________________________

8. Is there anyone in this HH that is not able to work because of sickness? Who? ____ When? ____ how does the family cope with this?

9. RECENT MIGRATION
9.1 When did the family come to live here?
9.2 Where did they come from?
9.3 Do they still have relatives living there?
9.4 Have they left any of their resources there? (animals, fruit trees, etc?) Who takes care of them? Explain
9.5 Do they ever go back to the old village to get anything? Harvest fruit, get animals? Explain
9.6 What interaction do they have with the people in the old village? How often? (economic exchange? family help? Explain
9.7 Why did they move here? (Discuss fully, write enough notes to explain the thinking behind the decision to move)
9.8 What about the people left in the old village? Why do they not move here also? Are they likely to move here in the future, or will they stay there?
10. MIGRATION and BENEFIT
10.1 Problems have they encountered since coming here? (Discuss fully, probe for other problems, take good notes)
10.2 What is their strategy for coping with these problems?
10.3 What are the good things about moving here?

11. MIGRATION HISTORY OF THE HOUSEHOLD
Reconstruct full migration history for husband and separately for wife.

Table 11.1 Migration history of husband

<table>
<thead>
<tr>
<th>How old is the husband?</th>
<th>Make it clear where each location is &amp; how far it is from present location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where was he born?</td>
<td></td>
</tr>
<tr>
<td>XXXXXXXXXXXXXXXXX</td>
<td></td>
</tr>
<tr>
<td>When?</td>
<td>Where?</td>
</tr>
<tr>
<td>Where live next? When?</td>
<td>Why?</td>
</tr>
<tr>
<td>Where next? When? Why?</td>
<td></td>
</tr>
<tr>
<td>Where next? When? Why?</td>
<td></td>
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<tr>
<td>Where next? When? Why?</td>
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<td>Where next? When? Why?</td>
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<td>Where next? When? Why?</td>
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<tr>
<td>Where next? When? Why?</td>
<td></td>
</tr>
<tr>
<td>Where next? When? Why?</td>
<td></td>
</tr>
</tbody>
</table>

Table 11.2 Migration history of wife

<table>
<thead>
<tr>
<th>How old is the wife?</th>
<th>Make it clear where each location is &amp; how far it is from present location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where was he born?</td>
<td></td>
</tr>
<tr>
<td>XXXXXXXXXXXXXXXXX</td>
<td></td>
</tr>
<tr>
<td>Where?</td>
<td>Why did they move?</td>
</tr>
<tr>
<td>Where live next? When?</td>
<td></td>
</tr>
<tr>
<td>Where next? When? Why?</td>
<td></td>
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<tr>
<td>Where next? When? Why?</td>
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<td>Where next? When? Why?</td>
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<td>Where next? When? Why?</td>
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<tr>
<td>Where next? When? Why?</td>
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</tr>
</tbody>
</table>

11.3 Future migration plan? Where? ________________ Why? ________________

HOUSEHOLD RESOURCES

<table>
<thead>
<tr>
<th>12.1 ACCESS TO LAND*(present)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>How much land do you have access to</td>
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</tr>
<tr>
<td>What types? What tenure? (Units?)</td>
<td>Own</td>
<td>Borrowed</td>
<td>Rented</td>
</tr>
<tr>
<td>Rice padi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice hai</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn hai</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Hai rotated with livestock grazing</td>
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<td></td>
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</tr>
<tr>
<td>Other grazing land</td>
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<tr>
<td>River garden 1 – specify crops:</td>
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<td></td>
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<tr>
<td>River garden 2 – specify crops:</td>
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<tr>
<td>River garden 2 – specify crops:</td>
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<tr>
<td>Aquaculture pond – specify:</td>
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<tr>
<td>Opium field</td>
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<td></td>
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<tr>
<td>Po sa garden</td>
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<td></td>
<td></td>
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<tr>
<td>Mak neng garden</td>
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<td></td>
<td></td>
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<tr>
<td>Other NTFP – specify:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Cash crop field 1 – specify</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Unopenland:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other – specify:</td>
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<td></td>
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</tbody>
</table>

* Be careful not to count the same land twice
It is different in the past (only comment)
If land is “borrowed” (with no rent) what is the relationship with the owner? (relative, neighbor, other?)

12.2 Do you let other people borrow or rent your land?
Which kind of land? | What terms? (Rent amount? borrowing terms? relationship?)
--- | ---
a) |  |
b) |  |
c) |  |

What about the future?

13. LIVESTOCK | Number | Management System
--- | --- | ---
Buffalo |  |  |
Cattle |  |  |
Goats |  |  |
Pigs |  |  |
Poultry |  |  |
Frogs |  |  |
Fish |  |  |

Past comment?
Future plan?

14. TREES | Area or number | Year established
--- | --- | ---
Teak |  |  |
Po sa |  |  |
Fruit trees |  |  |
15. FOOD SECURITY

15.1 HH Strategy (check the one that best described the household food strategy):

______ The HH tries to grow all of its own rice (even if it often fails)

______ The HH normally wants to buy almost all of its rice (example: the HH are farmers with a cash crop strategy, or shopkeepers, or have other full time jobs)

Mixed strategy

15.2 The rice you produce is enough for how many months? ______

So you lack rice for _______ months

15.3 How do you do with the other months?

a) Find other way to get rice

____ Borrow rice from others with no interest payment (to be paid back in kind)

____ ‘Borrow’ rice from others on credit, to be paid back with interest payment

____ Buy rice. From whom/where? _______________________________________________

If buying rice, where do they get the money to buy rice?

____ Collect NTFPs to sell. Which NTFPs? __________________________________________

____ Grow cash crops. Which crops? ______________________________________________

____ Cottage industry. What product? _____________________________________________

____ Conduct trade (buying & selling) which products?


b) Eat other foods

____ Collect wild foods to eat. What foods?

____ Grow other foods to eat. What foods?

____ Buy other foods to eat. What foods?__________________________________________

c) Any other coping strategies for rice shortage?

16. CASH ECONOMY

What are the main HH EXPENSES? (Ask: What is your No. 1 expense? No. 2? etc.)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Expense</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>4</td>
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<td>5</td>
<td></td>
</tr>
</tbody>
</table>

What are the main sources of income for the HH?

<table>
<thead>
<tr>
<th>Rank</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
16.1. For what expenses is it hard to find enough cash?
16.2. Which statement “best” describes the cash situation (check one):
   _____ Cash income is in adequate
   _____ Cash income is adequate
   _____ Cash income is surplus & the family is able to save money or buy luxury goods.

If in adequate for what expenses is it hard to find enough cash?
Future plan?

17. SAVINGS, INVESTMENT and CREDIT
17.1. Does the household have a “savings” or "investment" enterprise? (e.g. cattle, trees, etc. Produced mainly for savings or investment) Describe:
17.2. Is it adequate?
17.3. Future plans?
17.4. Does the household ever have a need for credit (cash)?
17.5. What would they like to use credit for?
17.6. Where does the HH go to get credit (who)?
17.7. Are there any problems with this source of credit?

18. ANIMAL FEED
18.1. Does the household have any problem getting animal feed?
18.2. For which animal and which feed?