



A report prepared for

Asian Development Bank

Improving Livelihoods of Upland Farmers Using Participatory Approaches to Develop More Efficient Livestock Systems (RETA No. 6067)

Semi-Annual Report – July to December 2004



Working with farmers in Lao PDR – supporting the innovation process

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Summary

1. Good progress has been made during July to December 2004, a period of extensive travel by the two research fellows to provide support to project partners. Being the growing season (rainy season) at most project sites, this period was the implementation part of the year when action plans were put into practice.

2. The national coordinator at CATAS in PR China changed from Mr. Yi Kexian to Mr. Tang Jun. Mr. Kexian was promoted to become Director of the Subtropical Crops Research Institute in Guangdong and was no longer able to coordinate project activities in Hainan. Mr. Tang Jun has been working full time on the LLSP on Mr. Yi's staff and was therefore well suited to take on the task of national coordinator. CATAS agreed to assign an additional staff member to the Project to assist Mr. Tang Jun.

3. The three main approaches used to improve livestock production systems were (i) working with farmer focus / production groups, (ii) conducting farmer livestock field schools and (iii) farmer experimentation. Farmer experimentation was successful in 'demonstrating' the magnitude of technologies that are new to farmers. For example, feeding of legumes which are high in protein is well known to significantly improve productivity of cattle fed grass-based diets. The challenge for the Project was to find effective ways of convincing farmers that this is worthwhile to try and farmer experimentation has proven successful in doing this. One of the main challenges has been to build the capacity of extension workers to plan and support farmers with experimentation.

4. Farmer livestock field schools were conducted at three sites in the Philippines. The themes of the three field schools were (i) integrated goat management, (ii) dairy cattle, and (iii) cattle fattening. The main difference of these field schools when compared to the conventional field school concept was that farmers themselves selected the issues / topics to be included in the field school. This was based on a participatory diagnosis of the production system by farmers, selecting the most pressing questions and issues for inclusion in the curriculum. This remained flexible throughout the course and additional topics could be introduced by farmers. This model ensured that every session was important to farmers and resulted in very high adoption of new ideas and technologies by almost all farmers involved in the field school. Enthusiasm is very high and resulted in many requests for further, advanced topics field schools by participants and other farmers who heard about them. While highly successful, this model of responding to farmers' needs and questions put tremendous strain on extension workers who needed to learn facilitation as well as technical skills; this would be difficult without intensive support by project staff.

5. Dissemination of forage technologies and improved feeding system components has continued at all sites. The basic principle is to identify success stories of farmers who have adopted improvements and ask these farmers to share their experiences with other farmers through cross visits, field days and other farmer-to-farmer interactions. Inviting farmer leaders and neighbors to see the results of farmer experimentation has been another means of highlighting new technologies and ideas. Different partners are experimenting with a range of ways of linking dissemination (output 2) with production system improvement techniques (output 1).

6. Ms. Ganda Nakamane (Division of Animal Nutrition, Department of Livestock Development, Thailand) visited project sites in Viet Nam to assist project partners to design farmer experiments for more efficient forage seed production. This involved workshops with extension workers and field visits to plan experiments, and was conducted as a follow up to

the training course conducted for Vietnamese farmers and technicians in Thailand in 2003. The experiments were carried out successfully and provided excellent information on suitable timing and management of forage seed crops at these sites.

7. Two market studies were carried out during the second half of 2004. These were a market study on smallholder goat production in Savannakhet, Lao PDR and an impact study of the sale of fresh forage in Yasothon, Thailand. Goat production in Savannakhet has been mainly opportunistic; but farmers are beginning to see the opportunities of producing larger (heavier) goats for the lucrative Vietnamese market. The market study has made farmers aware of these market opportunities and reinforced the need for better feeding and management of goats. The study on the market for fresh forage in Yasothon, Thailand has provided excellent information on the profitability of producing forages for sale with many lessons for project partners in other countries.

8. Project staff and partners continued to interact with a wide range of development projects, providing forage technologies and more effective ways of introducing agricultural technologies to smallholder farming households.

9. Overall, the Project has made excellent progress during the July – December 2004 reporting period, and no major problems were encountered.

Background

10. The Asian Development Bank (ADB) funded project RETA No. 6067 – Improving Livelihoods of Upland Farmers Using Participatory Approaches to Develop More Efficient Livestock Systems, started in January 2003 for a period of three years. The project was given a short name by project participants and will be known as 'Livelihood and Livestock Systems Project' (LLSP). The overall goal of the LLSP is to contribute to reducing poverty in upland areas through increasing the welfare of men and women farmers and the resilience of the farming system (ADB¹, 2002). Participating countries are Cambodia, China, Indonesia, Lao PDR, Philippines, Thailand and Viet Nam.

11. This LLSP follows the ADB-financed project RETA No. 5866 – Developing Sustainable Forage Technologies for Resource-Poor Farmers in Asia. The previous project developed forage technologies with smallholder farmers and demonstrated that adoption of forage technologies led to increased livestock production, reduced labor requirements for animal production, and improved soil and water conservation on small crop-livestock farms in the uplands. The LLSP will determine how these outputs contribute to more sustainable livelihoods and how they can be disseminated more widely. The project focuses on reducing poverty through increased and more efficient livestock production. The new project includes Cambodia and has a reduced level of activities in Lao PDR and Thailand.

12. The TA agreement between the Asian Development Bank (ADB) and the Executing Agency CIAT was signed on 7 January 2003. An inception workshop was held at the Chinese Academy of Tropical Agricultural Science (CATAS), Hainan, P.R. China, from 26 to 31 January 2003 to formally commence project implementation.

13. This is the fourth semi-annual report of the project.

¹ Asian Development Bank 2002. Proposed Technical Assistance for the Seventh Agriculture and Natural Resources Research at International Agricultural Research Centers. ADB, TAR:Res 36472, Manila, Philippines.

Purpose and outputs

14. The **purpose** of the project is to:

1. improve the sustainable livelihood of small farmers in the uplands through intensification of crop-livestock systems, using farmer participatory approaches to improve and deliver forage and feed technologies; and
2. improve delivery mechanisms in participating DMCs for the dissemination of these technologies.

The **outputs** of the project will be:

1. integrated feeding systems for livestock, that optimize the use of improved and indigenous fodders and crop residues, and farm labor;
2. improved methods to develop forage feed systems and extend them to new farmers, optimizing the use of M&E for feedback to others in the community;
3. Increased capacity in DMCs, at different levels, to expand the use of improved forage and feed systems and respond to local needs;
4. comparison of development opportunities, and market and logistic constraints, for intensification of smallholder livestock systems across sites in five countries;
5. improved regional interaction and linkages with national and donor funded development projects that ensure synergistic and multiplier effects.

15. The executing agency of the LLSP is the Centro Internacional de Agricultura Tropical (CIAT), a Future Harvest Center (www.futureharvest.org). The DMCs implementing agencies in participating countries are:

Cambodia	National Animal Health and Production Investigation Centre, Department of Animal Health and Production, Phnom Penh.
China	Chinese Academy of Tropical Agricultural Science (CATAS), Danzhou, Hainan.
Indonesia	Livestock Services of East Kalimantan, Samarinda, East Kalimantan, and Directorate General of Livestock Services, Ministry of Agriculture, Jakarta.
Lao PDR	National Agriculture and Forestry Research Institute (NAFRI), Vientiane.
Philippines	Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD), Los Baños, Laguna.
Thailand	Department of Livestock Development, Ministry of Agriculture and Cooperatives, Bangkok.
Viet Nam	National Institute of Animal Husbandry (NIAH), Ministry of Agriculture and Rural Development(MARD), Hanoi.

Progress towards Project Objectives

Project management

16. No major issues affecting the progress of the Project occurred during the reporting period. June to October is the main growing (rainy) season at most project sites and partners and staff were concentrating on implementation of agreed project activities. The two research fellows, Francisco Gabunada and Phonepaseuth Phengsavanh, traveled extensively during this period supporting project partner with field work, training and mentoring (Table 1). W. Stür visited project sites in P.R. China with F. Gabunada, in Lao PDR with P. Phengsavanh and in Thailand to review progress and discuss future plans with project partners. Reports of missions, workshops and training courses are attached in Appendix 1.

17. There has been a change of national coordinator at CATAS in PR China. Mr. Yi Kexian has been appointed as Director of the Subtropical Crops Research Institute of China in Zhangjiang, Guangdong, and was no longer able to coordinate LLSP activities in Hainan. CATAS has appointed Mr. Tang Jun as national coordinator of the LLSP. Mr. Tang Jun has been working full time on the LLSP on Mr. Yi's staff and is in the best position to take over this task. Mr. Yi has agreed to support Mr. Tang Jun in this task. CATAS agreed to assign additional staff to help Mr. Tang Jun with the activities of the LLSP, and continue its high-level support to the Project. We would like to thank Mr. Yi Kexian for the excellent leadership and coordination he has provided to the LLSP.

Table 1: Travel by project staff Jul – Dec 2004

Period	Traveler	Countries visited	Purpose	Report on Page
5-9 Jul 2004	F Gabunada	Manolo Fortich, Philippines	Assist with farmer experimentation and development of farmer field schools, and update workplan for LLSP Philippines	23
19 Jul-1 Aug 2004	P. Phengsavanh	Viet Nam	Conduct a workshop on methodology of improving livestock production systems in Tuyen Quang, Viet Nam, facilitate the visit of G. Nakamane, DLD, Thailand to Viet Nam for designing simple farmer forage seed production experimentation	29
24 July - 7 Aug 2004	F Gabunada	East, Central and South Kalimantan, Indonesia	Visit sites to assess accomplishments with partners, facilitate planning of next activities for the sites with partners, and assist in getting small experiments started.	34
12-19 Aug 2004	P. Phengsavanh	Savannakhet Lao PDR	Organize a workshop on forage agronomy and management, visit LLSP sites in Savannakhet to monitor progress	42
23-29 Aug 2004	F. Gabunada	CLSU, Philippines	Assist with facilitation of a training for trainers on Integrated Goat Management	44
23 Aug-1Sep 2004	P. Phengsavanh	Kampong Cham, Cambodia	Organize training course on forage management and monitoring visit the LLSP sites in Kampong Cham	49

Period	Traveler	Countries visited	Purpose	Report on Page
5-12 Sep 2004	P. Phengsavanh	Luang Phabang, Lao PDR	Facilitate cross-visit and experience-sharing of LLSP staff from Cambodia and Savannakhet with FLSP partners in Luang Phabang, Lao PDR	52
6 - 11 Sep 2004	F Gabunada and E Magboo	Leyte and Mindanao, Philippines	Review accomplishments and plan out LLSP activities in Leyte, assist in preparing the module for the field school session in Cagayan de Oro and work with Ed Magboo in the preparation for training of site collaborators.	55
24 Sep-6 Oct 2004	P. Phengsavanh	Savannakhet Lao PDR	Assist the LLSP Lao team to conduct a goat market study and monitoring visit to project sites	64
29 Sep-4 Oct 2004	F. Gabunada	Hanoi, Viet Nam	Participate in the Viet Nam Livestock Working Group Donors' Conference, discuss site workplans for Tuyen Quang with Mr. Le Hoa Binh	69
4 – 15 Oct 2004	F. Gabunada and W. Stür	China (and Philippines)	Review and update workplans and implementation arrangements with CATAS in PR China; W. Stür also spent time in the office in the Philippines to discuss LLSP operations and management with J. Samson and D. Bonilla	72
15 Oct-4 Nov 2004	J. Samson and P. Phengsavanh	Yasothon, Thailand	Participate in an impact study on 'sale of fresh cut forages' to livestock producers in Yasothon province, Thailand	83
5-11 Nov 2004	W. Stür and P. Phengsavanh	Lao PDR (WS + PP) and Thailand (WS)	Review activities and contribute to plans for 2005 at Savannakhet, Lao PDR and in Pakchong, Thailand	87
17- 20 Nov 2004	Francisco Gabunada	Mindanao, Philippines	Attend the closing program of the field school in Manolo Fortich, plan out activities with Ed Magboo	89
27 Nov – 10 Dec 2004	P. Phengsavanh and W. Stür	Cali, Colombia	Participate in the CIAT Annual Review and present progress of forage R&D in Southeast Asia, and mobilize HQ support for impact assessment of the LLSP for 2005	91
4-20 Dec 2004	Francisco Gabunada	East Kalimantan, Indonesia	Evaluate results of small experiments conducted by farmers, assess accomplishments and formulate plans for LLSP in Indonesia, conduct informal training/mentoring activity with collaborating field workers	92
21-30 Dec 2004	Phonepaseuth Phengsavanh	Kampong Cham, Cambodia	Monitor LLSP sites and conduct participatory evaluation on forages with smallholders in Kampong Cham	94

18. Jindra Samson, a locally recruited resource economist based at the office in Los Baños, resigned from the LLSP in November 2004 to join ADB. We have made arrangements with CIAT to support project staff and partners with impact assessment (see paragraph 19).

19. W. Stür and P. Phengsavanh attended that CIAT Annual Review in Cali, Colombia and presented a plenary presentation on the progress of the LLSP which was well received. We discussed options for assessing the impact of the Project with Dr. Carlos Lascano and staff of the CIAT Forages Improvement Project and with Dr. Nancy Johnston of the CIAT Impact Assessment Unit. CIAT agreed to allocate three months of time of a senior staff member, Dr. Federico Holmann, to assist the Project with impact assessment. Dr. Holmann is an economist specializing in livestock R&D; he is based in Cali, Colombia on a joint appointment with CIAT and ILRI. We would like to thank ILRI for allowing him to spend this time attached to the LLSP. A first visit by Dr. Holmann to Southeast Asia was scheduled for February / March 2005 to familiarize him with the Project and to lead a planning workshop on impact assessment of the LLSP.

Output 1: Integrated feeding systems for livestock that optimize the use of improved and indigenous fodders and crop residues, and farm labor

20. Good progress was achieved during this reporting period. The main approaches to assist farmers with improving their livestock production systems included working with farmer focus / production groups, conducting farmer livestock field schools and facilitating farmer experimentation (integrated into both focus groups and farmer field schools). These were planned in the first half of 2004 and implemented during the reporting period.

21. Farmer experimentation has been successful in 'demonstrating' the benefits of technologies that are new to farmers. For example, feeding of legumes which are high in protein is well known to significantly improve productivity of cattle feed grass-based diets which are deficient in protein for high growth rates. The challenge for the Project was to find effective ways of convincing farmers that this is worthwhile to try. Grasses were quickly adopted by farmers at all project sites since it addressed a critical problem for farmers – the lack of feed and the enormous amount of labor needed to find sufficient feed for their animals. Grasses produce a lot of feed and were therefore adopted quickly. Legumes were not adopted as they produce much less feed than grasses and were thus initially rejected by farmers. While we know that feeding a small proportion of legumes (10-30%) in addition to grasses can improve animal growth rates by 50-100%, there are no on-farm examples of this at project sites. Following discussion of the basics of animal nutrition, farmers at some sites were convinced to test the feeding of forages (and other protein sources) to determine the effect of improved nutrition on growth of animals. This approach of farmer experimentation has been more successful than simple farmer training sessions in animal nutrition as farmers can see the results for themselves. Once farmers are convinced of the benefit of legume feeding they become effective advocates of this technology in their community.

22. In Viet Nam, farmers in Daklak conducted on-farm experiments on the best way to produce grass seeds, processing and feeding of crop residues, supplementation of cattle with legume leaves and urea-molasses blocks of grazing animals. In Tuyen Quang, farmers also conducted experiments on forage seed production, different feeding systems (grasses + cassava leaves) for fish production, and the use of home-made concentrates for fattening of

cattle. Results from these experiments will be reported at the next Annual Review and Planning Meeting scheduled for late January 2005.

23. In Cambodia, farmers evaluated a range of forage varieties for feeding of cattle during the wet season when most of the area is flooded and farmers find it difficult to find sufficient feed for their animals. Most farmers selected *Brachiaria* hybrid “Mulato” and *Stylosanthes guianensis* “Stylo 184” as preferred varieties. Farmers in areas with higher soil fertility also selected *Panicum maximum* “Simuang”. Selection criteria used by farmers were good establishment, fast growth and regrowth after cutting, and varieties that stay green into dry season. The main benefit for farmers is labor saving, cutting the time needed to collect feed from several hours to less than 30 minutes per day. This has proved to be a strong incentive to plant forages and many farmers have expanded their area of forages, even replacing cash crops such as cucumber and filling in some paddy fields (flooded during the rainy season) to raise the soil level to enable them to grow forages for their animals.

24. In Lao PDR, the site team conducted a study on goat production in Savannakhet including production systems, animal productivity and identification of problems and opportunities for smallholder goat production. At the same time, 13 farmers in three villages evaluated the growth and productivity of forage varieties and their use for feeding goats. Of the varieties introduced to farmers *Andropogon gayanus* “Gamba”, *Brachiaria* hybrid “Mulato” and *Stylosanthes guianensis* “CIAT 184” were well adapted to local conditions. *Panicum maximum* “Simuang” grew well only in areas with better soil fertility or where farmers applied manure and/or fertilizer. Farmers reported that goats preferred Stylo 184, Gamba and Simuang. Most farmers started to feed Mulato to cattle or buffalo rather than goats. The LLSP also introduced the tree legume *Gliricidia sepium* to this area but seedling growth was slow and performance was poor except in some situations where farmers applied manure and protected the seedlings from accidental grazing. Clearly the Project has identified forages which grow very well during the wet season, which is the time when forages are needed most as grazing is not possible during this time of year. Issues for 2005 include the application of manure to maintain forage productivity, the need of protecting tree legume seedlings and some of the forages from accidental grazing during the dry season when animals of all farmers are allowed to graze freely, and management of internal parasites.

25. In PR China, farmers in Wentou and Laogen conducted feeding trials with rabbits for meat production. They found that in some cases, rabbit productivity improved by feeding grass-legume mixtures and supplementation with a concentrate but the benefits were relatively small. There was a large variation in rabbit performance between farmers showing that some had optimized their feeding system already while others are having serious problems. Knowledge-sharing between farmers may be the most effective way to improve this situation. The role of forages is relatively small unless farmers raise a large number of rabbits. Our Chinese partners are also working with farmers on improving goat production in the township of Qiatou in Chengmai county. Participatory diagnosis showed that there is a role for planted forages and improved goat management in an attempt to overcome the identified production constraints (Figure 1).

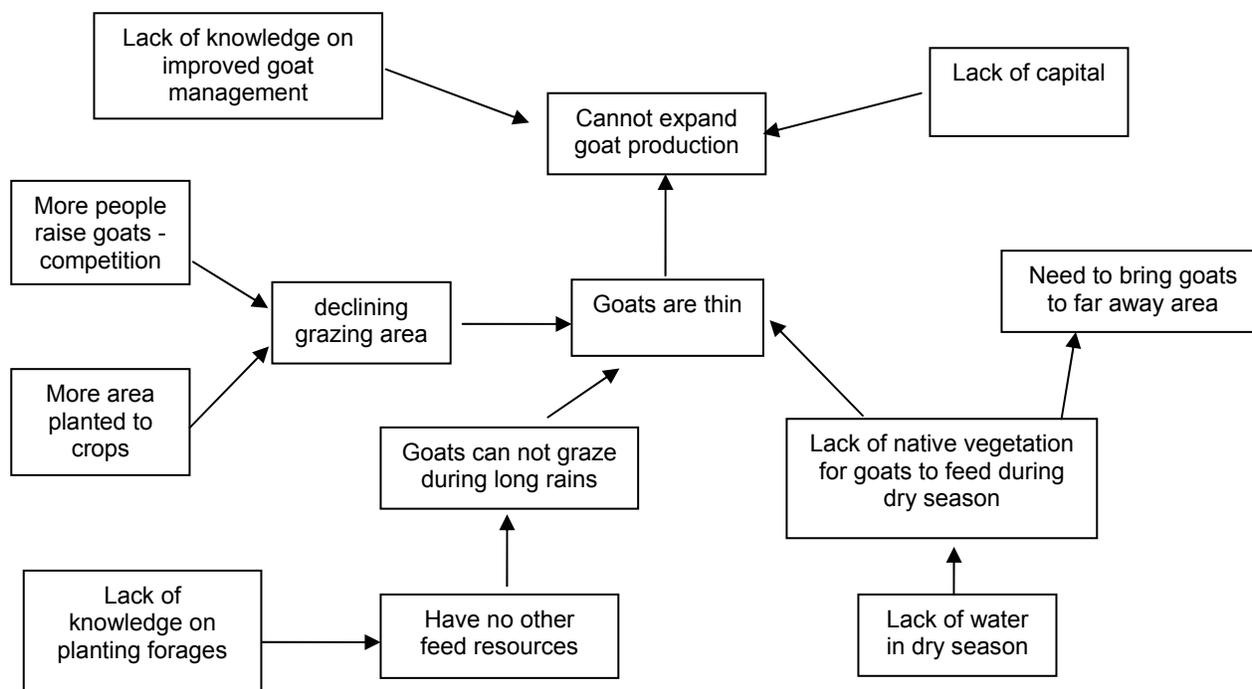


Figure 1: Analysis of farmers' problems with raising goats at Qiaotou, Chengmai, Hainan

26. In Indonesia, farmers in East Kalimantan conducted experiments on supplementation of legumes and locally available by-products for growing cattle and lactating cows. Pre-weaned calves of lactating cattle supplemented with legumes or *ampas tahu* (a tofu processing by-product) grew faster, indicating improved milk production. In growing Bali cattle supplementation with legume leaves or *ampas tahu* resulted to growth rates similar to cattle supplemented with commercial concentrates showing the potential of legumes and *ampas tahu* as low-cost alternatives to commercial concentrates. Similar positive results were obtained with goats when farmers supplemented their grass-based ration with legumes and *ampas tahu*. In lactating goats, kids attained weights up to double that of kids of unsupplemented native does. At another site, farmers near Balikpapan evaluated improved feed trough designs with the aim of increasing feed efficiency. Results showed that improved feed troughs could save farmers considerable amounts of labor and forages due to reduced wastage. Another innovation evaluated by goat farmers in Balikpapan was pen sanitation. Farmers found that keeping the pen cleaner resulted in better health, reduced spread of diseases and incidence of scabies. The challenge now is to share the experiences from these experiments with other farmers through cross visits, field days and other ways of facilitating farmer to farmer extension.

27. In the Philippines, the national coordinating agency PCARRD was keen to experiment with farmer livestock field schools as a way of improving livestock production systems. This built on experiences of the participatory approaches developed by the Forages for Smallholders Project and the field school concept for integrated goat management developed in an ILRI-PCARRD Project funded by IFAD. The principles of these two approaches were combined resulting in a livestock field school responsive to farmers' needs where participating farmers decided on the issues to be addressed during the field school and which integrated farmer experimentation as part of the learning process. Three livestock field schools were

held during this period: on dairy cattle, goat production and cattle fattening (Table 2). Farmer experiments were conducted as part of these field schools to support learning. For example, participants in the field school on dairy cattle in Manolo Fortich evaluated improved feed trough designs. This enabled them to save forage and labor for gathering feed by reducing the amount of feed wasted. In the field school, results are observed and discussed by all participants and most of the participants modified their feed troughs to take advantage of the learnings. In the field school on goat production in Cagayan de Oro, farmers evaluated and compared three goat feeding and management systems (full confinement, tethering and free grazing). Farmers concluded that the full confinement system enabled them to produce more animals through more efficient use of labor and feed resources. Farmers were enthusiastic about these livestock field schools as they responded directly to their needs and enabled them to immediately improve their production systems. Responding to farmers needs in a field school (by farmers setting the issues to be addressed) was largely responsible for the success of this method BUT put enormous pressure on the extension workers to find suitable sources of information on all of these issues and was only possible because of the support of the national coordinator and project staff. However, as problems are researched this will build up a database of resources which can be utilized in subsequent field schools. Another challenge will be the linkage of production systems improvements with dissemination to other farmers.

Output 2: Improved methods to develop forage feed systems and extend them to new farmers, optimizing the use of M&E for feedback to others in the community

28. Following the review of dissemination methods in Viet Nam, planning commenced for a similar review in Indonesia. This review will include a capacity building component and a presentation to provincial and district government representatives to assist local partners with obtaining local support for the continuation of their work beyond the end of the Project. A workshop with collaborating extension workers in East Kalimantan will review and evaluate dissemination methodology used to extend forage and feed technologies, and build on the results of the study in Viet Nam. Prior to the workshop, extension workers will be asked to prepare case studies of farmers who have successfully integrated forage technologies to encourage active inquiry and recording of adoption histories.

29. Dissemination of forage technologies and improved feeding system components has continued at all sites. The basic principle is to identify success stories of farmers who have adopted improvements and ask these farmers to share their experiences with other farmers through cross visits, field days and other farmer-to-farmer interactions. Many sites are trying to link dissemination with successful farmer experimentation, asking farmers conducting experiments to share the results with the wider farming community. Ways for more effective linkage of Output 1 (production system improvements developed by successful farmer focus groups and farmer field schools) and Output 2 (dissemination to other, non-participating farmers) are needed. Farmers participating in focus groups and field schools are very enthusiastic about the improvements they have developed and this enthusiasm needs to be harnessed more effectively for farmer-to-farmer dissemination.

30. Local partners in PR China have prepared case studies of farmers with successful rabbit production and forage seed production, and are utilizing these in cross-visits and field days for farmers. In Indonesia, dissemination of forages has continued to more farmers at

LLSP sites and expanded to new areas involving additional extension workers. In the Philippines, cross visits and field days were held to reach more farmers at LLSP sites.

Output 3: Increased capacity in DMCs, at different levels, to expand the use of improved forage and feed systems, and respond to local needs

31. Training events and workshops are listed in Table 2. Aside from formal trainings, mentoring by project staff is provided as part of field visits. In addition, project partners have carried out a large number of training events for extension workers and key farmers.

32. Ms. Ganda Nakamanee for the Division of Animal Nutrition, Department of Livestock Development (DLD), visited LLSP partners in Tuyen Quang and Daklak, Viet Nam from 19-31 July 2004 to assist our Vietnamese partners in designing farmer experiments to maximize forage seed production. This involved workshops with extension workers and field visits to plan experiments; she was assisted by Mr. P. Phengsavanh and Mr. Le Hoa Binh, the national coordinator for Viet Nam. We would like to thank Ms. Nakamanee and DLD for providing this training and support as part of her normal duties. The experiments were carried out successfully and provided excellent information on suitable timing and management of forage seed crops at these sites.

33. In the Philippines, a series of workshops was held to assist local partners with the development of modules for farmer livestock field schools in three project areas in northern Mindanao. This included sourcing and preparation of material on topics requested by farmers, teaching methods and process, evaluation of field school sessions, and built on previous experience by PCARRD.

34. Cambodia only joined the Project in 2003 but changes in how extension workers are interacting and working with farmers are clearly evident. There has been a significant shift from a top-down approach (very much in evidence in 2003) to a “client-oriented” participatory approach. Extension workers have found that participatory approaches have helped them to understand the needs of farmers and provided an effective way of working with farmers. As has happened at other sites, local collaborators have become keen advocates of participatory approaches.

35. Two local project partners from Cambodia and 7 collaborators from Lao PDR were taken on a cross visit to sites of the Forages and Livestock Systems Project in Luang Phabang province, Lao PDR to share experiences with extension workers involved in the FLSP. This has provided an excellent stimulus for project partners, providing them new ideas and examples of sustainable livestock development.

Table 2: List of training courses / workshops

Country	Topics	Period	Trainers / Translators	Participants
Philippines	Farmer Livestock School on Dairy Buffalo Feeding	Jun - Nov 2004	G. Cania, C. Velasco, E. Magboo and F. Gabunada	27 male and 15 female farmers in New Sankanán, Manolo Fortich, Bukidnon
Philippines	Farmer Livestock School on Goat Management	Jul - Nov 2004	P. Asis and F. Lavictoria, supported by E. Magboo and F. Gabunada	30 male and 21 female farmers in three barangays of Cagayan de Oro
Philippines	Farmer Livestock School on Cattle Fattening	Jul - Nov 2004	J. Saguihon and staff, supported by E. Magboo and F. Gabunada	12 male and 2 female farmers in Mindagat, Malitbog, Bukidnon
Tuyen Quang, Viet Nam	Methodology of improving livestock production systems	22 Jul 2004	P. Phengsavanh	8 participants from district and commune extension offices
Tuyen Quang, Viet Nam	Forage Seed Production	23-24 Jul 2004	G. Nakamaneer P. Phengsavanh	8 participants from district and commune extension offices
Daklak, Viet Nam	Forage Seed Production	29-30 Jul 2004	Ganda Nakamaneer P. Phengsavanh	7 participants from Ea Kar extension office, Ea Kar district.
Lao PDR	Forage agronomy and management	13-15 Aug 2004	P. Phengsavanh	17 participants from provincial and district livestock offices
Philippines	Integrated Goat Management	23 Aug - 3 Sep 2004	F. Gabunada	14 female and 11 male Department of Agriculture personnel; organized by ILRI and PCARRD
Cambodia	Forage management and utilization	25-27 Aug 2004	P. Phengsavanh Sorn San	8 participants from 3 project target districts
Viet Nam	Livestock Working Group Donors' Conference	1 Oct 2004	Le Hoa Binh, F. Gabunada	40 participants from different projects involving livestock in Viet Nam
Indonesia	Training workshop on animal nutrition and health, forage agronomy, experimentation, and dissemination	13-17 Dec 2004	Y. Pangedongan, Ibrahim, Ludy Kristianto, Drh. Retno Dwi Murni, Drh. Dyah Angraini and F. Gabunada	17 male and 2 female collaborating field workers
Cambodia	Participatory evaluation with farmers	23-26 Dec 2004	Phonpaseuth Phengsavanh Sorn San	8 participants from 3 project target districts

Output 4: Comparison of development opportunities, and market and logistic constraints, for intensification of smallholder livestock systems across sites in five countries

36. Two market studies were carried out during the second half of 2004. These were a market study on smallholder goat production in Savannakhet, Lao PDR and an impact study of the sale of fresh forage in Yasothon, Thailand.

37. The aims of the goat market study in Lao PDR were to (i) assess the potential of the goat market in Savannakhet, and (ii) provide farmers better information on market needs and

opportunities. Collaborating provincial and district staff in Savannakhet collected secondary information on goat population and background to the study. In September 2004 the study team (P. Phengsavanh, S. Keonouchanh, K. Sidavong, B. Pheowankham and P. Sihavong) met with farmer groups and livestock traders to identify problems and opportunities of the goat production-market chain. This was followed with more detailed discussions with a small group of key farmers to validate the results of the larger meeting and to discuss goat production issues from a smallholder producer's point of view; this group also discussed potential solutions for identified problems. Finally, a semi-structured questionnaire was designed to provide individual data from farmers and traders in 8 villages in three goat raising districts in Savannakhet.

38. Traditionally, goat production has not been a major production system in the province. Approximately 5 years ago demand for goat meat increased mainly because of export opportunities to Thailand. More recently, the export market has switched to Viet Nam because of higher prices and easier export procedures. Local consumption has also risen (Figure 2).

39. Farmers usually sell goats when they need cash for schooling, medicine or other necessities. Middlemen travel to villages to collect a number of goats and sell these to traders in the township of Savannakhet. These traders have organized themselves at one location with pens for collecting and holding goats. Two thirds of these animals are sold to Vietnamese traders who come to Laos every two days; the rest is sold on the local market. Traders reported that they sell 200-300 goats per week. The price of a 25 kg goat is US\$15-20 at farm gate, which middlemen are able to sell at a profit of approximately \$5 per animal to town traders. Traders are able to sell the better animals to Vietnamese traders for \$30-40 but much less for the local market. In Viet Nam the market price of these goats is \$50-55 per animal.

40. Farmer meetings revealed that farmers are satisfied with the price obtained from middlemen, citing the quick return of goat production when compared with cattle or buffalo. They prefer to sell their goats to middlemen who come to them rather than having to bring goats to the town traders themselves as this would be quite expensive in terms of transport and time. They know that there is a strong demand for goats. Middlemen reported that it has been increasingly difficult to find enough goats and that they have to travel farther and farther. The traders reported that it is difficult to find male goats with the preferred weight of 25-30 kg for the Vietnamese market; farmers tend to sell male goats (1-1.5 years) which weigh only 15-18 kg. There appears to be an opportunity to improve productivity to ensure that goats reach the preferred weight and enable farmers to get a higher price for their animals. A detailed report of this study is available upon request.

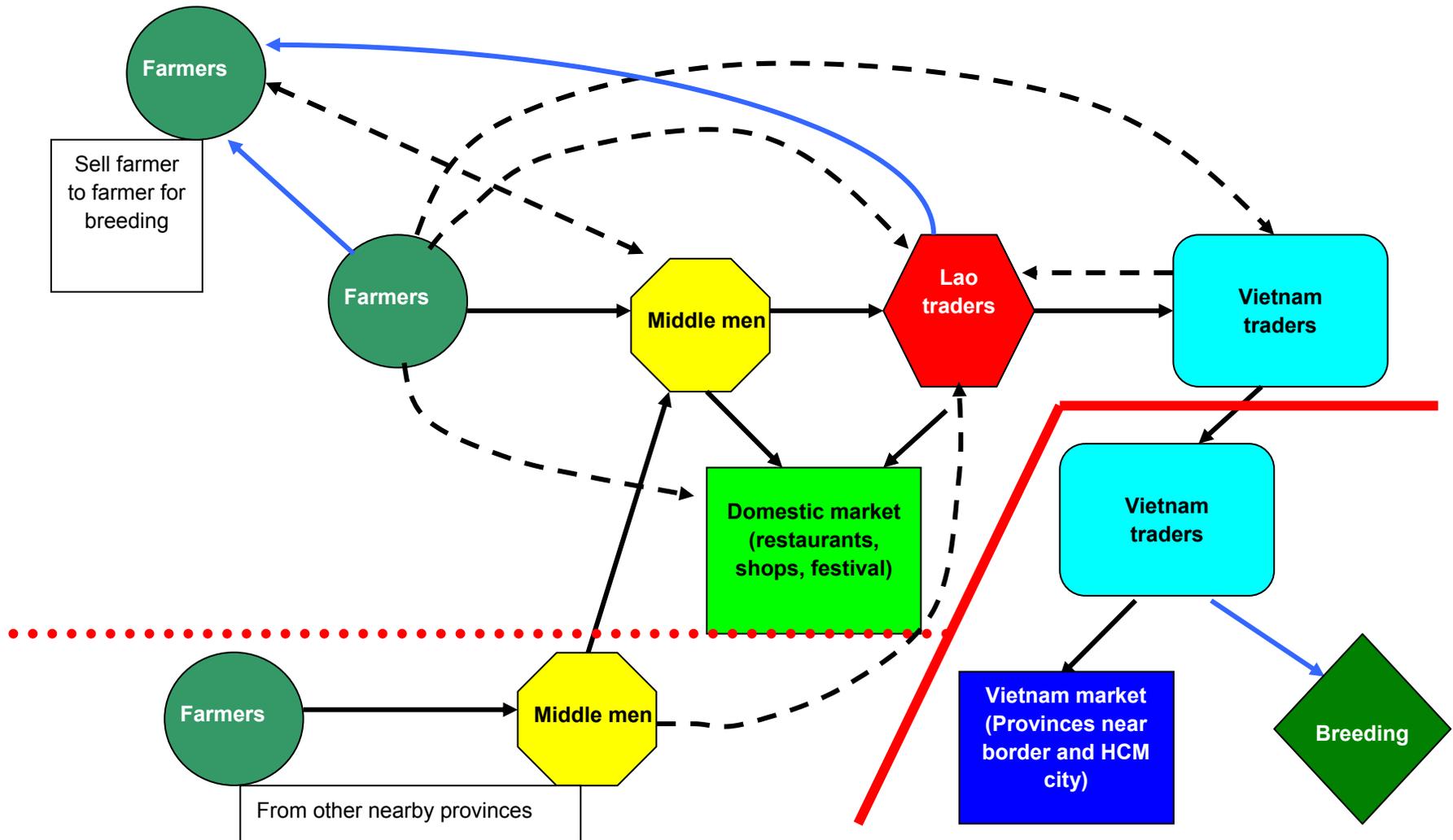


Figure 2. Production-market chain in Savannakhet

41. The sale of fresh forage is a relatively new enterprise which occurs in some areas in Thailand and also at some LLSP sites such as Tuyen Quang, Viet Nam where farmers produce forages for sale as feed to dairy farms. In Thailand, the Government started to promote the production of forage crops for sale to dairy farms and for supply of feed for livestock in flooded areas of central Thailand during the wet season in 2002. Yasothon province is located in northeastern Thailand and is an unusual case as there are no dairy farms but nevertheless a thriving market for cut forage developed. Our Thai collaborators decided to investigate this market to better understand the potential of fresh forage as a cash crop.

42. The study team consists of Ms. Ganda Nakamanee, Mr. Phaiboon Polboon, Ms. Watanawan Srisomporn, Mr. Sonthaya Nga-Kom, Mr. P. Phengsavanh and Ms. Jindra Samson. The study was conducted in October and November 2004 and included three parts:

1. History of the development of a fresh forage market
2. Production to market chain analysis
3. Cost / benefits of growing forages for sale

The study area included three villages where most of the forage for sale is grown. Methods included interviews with key informants, farmer group meetings to obtain general information on agricultural activities, their importance, sources of income and forage production in the village. Key farmer and buyer interviews were used to obtain more detailed information of the forage production-market chain and details on production costs and benefits.

43. *History of fresh forage market in Yasothon province.* Fresh forage production in Yasothon started in 1999 when the Department of Livestock Development introduced a cooperative approach to promote cattle production in the province. Many farmer groups were formed at that time to raise livestock and DLD assisted with the planting of forages. One group of farmers in Kwang village realized the potential of planted forages for sale as they had traditionally supplied native grass to livestock traders (and some cattle producers) in the area. Planted forages made the supply of feed much easier and farmers formed a group to plant forages for sale to other farmers and traders. The group consisted of 13 farmers, who at first planted only small plots. After a slow start, the market began to expand and by 2002, more than 200 farmers produced forages for sale in Yasothon, and by 2004 this number had increased to over 600 farmers. Forage production clearly had become a major cash crop.

44. *Production to market chain analysis.* The main market for fresh forages is a direct transaction involving only the producer and the buyers, who are cattle producers and livestock traders. Farmers cut forages and bring to these to the roadside for selling. Sometimes farmers take forages to livestock markets for sale to traders at the market. Direct selling of forages is easy during the dry season, when feed supply is limited. However, during the wet season supply exceeds local demand (Figure 3) and some farmers become middlemen by buying forages from several producers and transport these forages to other provinces, such as the flooded central areas, where forages are in higher demand. Another large but temporary buyer is the government during flood relief programs.

45. *Cost-benefit of producing forages for sale.* The price of fresh forages varies from US 5 cents per kg fresh forage in the dry season to US 3 cents per kg in the wet season. Production costs (including soil preparation, planting material, weeding, fertilizer, irrigation and cutting) are only a fraction of the income from forage resulting in a net income of more than US\$ 4,000 per ha which is much higher than for alternative crops. Clearly, the price of forage is currently exceedingly favorable for producers.

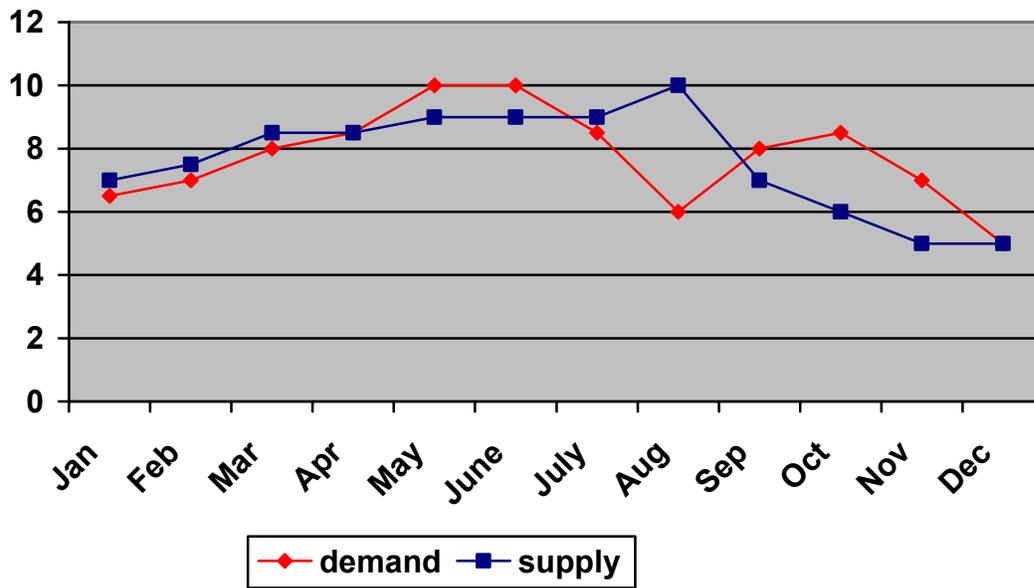


Figure 3. Project seasonal supply and demand of forages for sale

46. Fresh forage production in Yasothon has become an excellent source of cash income for many farmers. Many of these farmers have recently invested in cattle for fattening themselves. Clearly, forages are currently overpriced and a more realistic price is likely as more and more farmers are moving into forage production for sale. A full report has been prepared and is available upon request.

Output 5: Improved regional interaction and linkages with national and donor funded development projects that ensure synergistic and multiplier effects

47. Project partners and staff interacted with a wide range of research and development projects:

- Mr. Le Hoa Binh, the national coordinator in Viet Nam, assisted the Participatory Research for Development in the Uplands (PRDU), a CIAT-CIP managed project supporting IFAD Loan Projects in the region, with training of extension staff in forage agronomy and participatory research approaches.
- Mr. Francisco Gabunada and Mr. Le Hoa Binh participated in the “Livestock Working Group Donors Conference” of Viet Nam on 1 October 2004 in Hanoi. 40 participants from Livestock R&D Projects presented their activities and experiences with livestock development in Viet Nam. The work of the LLSP found widespread interest and a large number of booklets on forage technologies and participatory approaches has been requested as a result of new contacts.
- Dr. Truong Tan Khanh, the LLSP coordinator in Daklak, has contributed to trainings and livestock development programs of several development projects in Daklak.

Many have visited the LLSP project site in Ea Kar and have linked activities with our local partners in Ea Kar.

- The Village Development Program (VDP) in Savannakhet (funded by the Belgian government) sent staff to a LLSP training course on forage agronomy and management. The LLSP also provided 300 *Gliricidia sepium* seedlings to VDP.
- The LLSP-Cambodian team interacted closely with CAAEP (Cambodian-Australian Agricultural Extension Project) and the Kampong Cham Agriculture School with forage technologies and participatory approaches to developing agricultural solutions with farmers. They also contributed to teaching of students at the agriculture school on forage technologies.
- LLSP partners in East Kalimantan, Indonesia initiated linkages with UNOCAL (an oil company) that has a rural development program in Penajam; they also presented LLSP activities and experiences at a national workshop on livestock development.
- In the Philippines, the LLSP continued to collaborate closely with ILRI and its projects. Francisco Gabunada contributed to a training course on integrated goat production organized by PCARRD and ILRI. The LLSP also sent one local partner to this training course.
- In PR China, the LLSP national coordinator Mr. Tang Jun participated in a workshop of the “Farmer-Centered Research Network in China” (FCRNC) of which CATAS is a member. He presented a paper on the participatory approach developed by the LLSP.

Appendix 1: Reports by project staff

Manolo Fortich, Bukidnon, Philippines, 5 - 9 July 2004

Francisco Gabunada Jr.

Objective

- Assist with getting small experiments started
- Assist with the conduct of farmer field school
- Update workplan for LLSP Philippines

People Traveling

- Francisco Gabunada
- Eduedo Magboo

Persons Met

Municipal Agriculture Office-LGU Manolo Fortich:

- Mr. Ernesto Ducusin
- Mr. Marcelino Remotigue
- Mrs. Cynthia Velasco
- Mrs. Gemma Cana

City Veterinary Office, Cagayan de Oro:

- Dr. Perla Asis

Itinerary

- | | |
|-----------|--|
| 4 July 04 | Departure from Leyte |
| 5 July 04 | Start developing picture stories for Manolo Fortich Field School (FFS)
Meet with Cagayan de Oro collaborator (gather additional information for case studies) |
| 6 July 04 | Visit to Manolo Fortich (plan FFS)
Formulate FFS module for following day's FFS at Manolo Fortich |
| 7 July 04 | Assist with conduct of FFS followed by assessment |
| 8 July 04 | Formulate next two sessions of FFS together with collaborators from Manolo Fortich |
| 9 July 04 | Meeting with Cagayan de Oro collaborator to discuss status and plan of activities
Depart for Leyte |

Summary

The farmer field school has already been started at Manolo Fortich. Support needed for the activity include reference materials and pictures for their picture stories. The staff facilitating the FFS also needs help in developing facilitation skills and assessing where the farmers are and how to move forward. This is best attained by working with the site collaborators in the first few sessions to give them hands-on experience.

The other sites still have to start with farmer experiments because these will be used to support the sessions in the field school. Manolo Fortich has already conducted a cross-visit

aimed to learn about design of feed troughs and other practices to improve efficiency of feeding. The farmers will start testing ways to improve efficiency of using forges.

Activities

Meeting with Cagayan de Oro collaborator to gather additional information for case studies previously conducted by John Connell

A meeting was conducted with Dr. Perla T. Asis to discuss the requested missing information needed to further improve the case study in Cagayan de Oro done by John Connell. Perla committed to gather the needed information within the week. She scheduled to submit it in the meeting with Ed on July 9.

Visit to Manolo Fortich

Background

Manolo Fortich has already started their field school. The schedule agreed with the farmers was every first and fourth Wednesday of the month. The main facilitators were Cynthia Velasco and Gemma Cana.

The first session had been started in June 30. It was attended by 34 participants. The main activity involved facilitating levelling of expectations by the participants and formulation of training norms (house rules) by the participants. Aside from the expectations of participants, the facilitators also relayed to the participants the expected modality of the field school. This was done through the games (9 and 16 dots game) and group activities (painting their dream) during the session.

The main purpose of the session was to inculcate to the farmers that the field school was different from traditional trainings that are geared towards getting the farmers to “receive” the information; rather the farmers will have to “get” information and “use” it to develop their decisions.

The modality explained was one where farmers will only be provided information which they use to make decisions. This would mean that:

- i. facilitators only provide the “why” (basic principles); not the “what” and “how to do”,
- ii. facilitators will get the farmers to discuss their ideas together in the field school by posing guide questions and situations that lead to the discussion. Then the facilitators will synthesize the ideas and, if necessary add more ideas to give the farmers a better grasp of the principles involved. Moreover, the facilitators will always have to challenge the farmers to think and act based on what was learned,
- iii. farmers have to be prepared to share their ideas and plans, criticize each other’s idea openly and be open to learn not only from the facilitators but from the other farmers, and
- iv. farmers themselves have to think and use their creativity, rather than getting them to do what is said by the trainers.

Three weeks before the training, a meeting was conducted to plan the activity. The meeting was attended by Ed Magboo (country coordinator), the local collaborators (Cynthia Velasco, Gemma Cana, Mar Remotigue, Ernesto Ducusin and Antonio Guillermo), Jindra and Papang.

Planning the second field school session

A meeting was conducted with the collaborators in the morning to plan out the FFS in the next day. The next day would constitute the second session of the field school. The group started

with a review and assessment of the first field school session. The facilitators expressed that they found the session enjoyable and observed that the farmers enjoyed the session. They were quite positive that the session enabled everybody to get an understanding of what is expected from the field school.

The general impression was that the facilitators were amazed at how easy the session was (they were expecting it to be harder during the planning). However, they were still not so sure on how to go on with the next session. This indicates that there is a need to build up their:

- a) confidence in handling the sessions – this is expected because the activity is new to them. Initially, they were expecting that they will be the one who do the teaching (just like in normal trainings), rather than facilitating. They were also expecting to deal with the sophisticated and technical issues, rather than the simple basic principles. Both have already conducted field schools in crops. However, the field school in crops already had a ready-made guide; rather than a guide which they had to make themselves based on their feel of the participants and the situation.
- b) innovative skills – this is best done by actually working with them in the sites on the first few sessions, rather than doing a formal training getting all of the technicians from all sites. The main reason is that each site will have a different situation. However, bringing the field workers from the different sites together will have to be done after they have already had a few sessions. The purpose of this will be for them to share what they have experienced and learn from each other. The main messages that should get across are:
 - their role is facilitation (they have to draw out farmers' ideas first, rather than push their ideas)
 - they have to work more on the why's (basic principles) rather than the what and how (but they have to draw these out from the farmers)
 - they have to be sensitive to their situation (where they are)
 - then they should innovate (think and be creative) ways of moving forward

The plans of the second session (formulated with the facilitators) were as follows:

- a) Opening activities (prayer, national anthem)
- b) Recapitulation of the previous session – to be done by the host team; then synthesized (affirmed then supplemented if there are missing points) by the facilitators
- c) Mind setting group game (balancing nails) which is fun but could be related to attitudes (target attitude is paradigm shift and positive thinking)
- d) Exercise on efficiency (grain of rice discussion – which shows participants how much effect will be attained if each Filipino wastes just one grain of rice per meal)
- e) Relating the idea of efficiency to participants' cattle feeding management, then drawing out ideas from participants on how efficiency can be obtained in cattle feeding
- f) Sharing of the experiences of the 5 participants (those who had volunteered to do small experiments) on what they have seen and learned during their cross-visit (done some time in June)
- g) Identifying with participants what topics they want to tackle in the next sessions that are related to improving efficiency in feeding their cattle
- h) Agreeing with participants on where and at what time they come back in the next session

During the planning meeting, some possible topics that farmers might be interested in for the next sessions were identified. These included:

- a) importance and design of feeding trough
- b) amount of feed needed by cattle
- c) age of cutting forages (young VS old)
- d) importance of chopping forage for feeding

Second Session of the Field School

This was conducted on 7 July 2004. A total of 44 farmers attended the session. The session plan was thus modified to include asking the new participants to present the reasons to the group why they wanted to join the field school. This was then followed by asking the whole group if they would approve of the participation of the new participants. The 10 new farmers were accepted by the group but it was agreed that they will not accept new participants in the succeeding sessions. It was felt that the number of participants has increased and there was a need to make adjustments in handling the group.

The session went as planned. The facilitators did their job satisfactorily, although there were times when Ed and Mar (who both had very good facilitation skills and experience) had to come in and help. These were done when the discussion went off-tangent. Another realization during the session was on the importance of co-facilitation. It was observed that facilitation went well because there were two facilitators. As such when Gemma seemed to run out of momentum, Cynthia took over. Ed and Mar only came in when they felt the situation was already difficult for Cynthia and Gemma to handle. This occurred only once. However, the help of Ed and Mar served to boost the confidence of the other two facilitators.

The topics for discussion in the next sessions identified by the participants were the same as the one identified in the planning. The participants also identified an additional topic: composting. The topic selected by the participants for the next session was on the design of feeding troughs.

Evaluation of the Session and Preparing for the Third Session

This was started in the afternoon of 7 July 2004. The facilitators, Ed and Papang first assessed what transpired during the session. This was followed by planning for the upcoming sessions based on the topics identified with the farmers during the second session.

The following learnings were identified:

- a) importance of having more than one facilitator
- b) the need for the facilitators to be able to direct the discussion by being able to handle off-tangent comments (avoiding getting side-tracked)
- c) the importance for facilitators to process and synthesize the ideas drawn out from the farmers before going to another topic
- d) the need for facilitators to have a good knowledge on the basic technical principles beforehand
- e) the importance of structuring the training session such that only a few (but very important and broadly applicable) ideas are delivered for each session. However, these should be presented very clearly/simple, and as much as possible, be drawn out from the farmers. The main thing is that the farmers should be able to relate these ideas to their situation.

- f) The need for facilitators to be always on the look out/sensitive to the situation of the participants. If the participants get bored and tired, then the facilitators should set an activity that will get the participants' attention back.

The following day, Ed and Papang drafted a plan for the next two sessions (feeding trough and amount of feed). Materials for a picture story were selected from the collection of pictures from the project. Reference materials were also reviewed to get basic principles (e.g. considerations in making a feed trough). Discussion on what mind setting exercise to use was also done. These were assembled to get a draft of the plan.

The draft was then discussed and reviewed with Cynthia and Gemma. They were involved in final selection of the pictures and also planning out the procedure of the session. The technical principles were provided and discussed with them. The main emphasis of the discussion was on how to get the principles across to the farmer-participants. It was realized that this could not be attained only by getting the right translation (getting the right word or term). Rather, mind-setting exercises and other activities have to be designed to be able to draw out ideas from the farmers leading to the principle. Also, it has to be considered that all these principles have already been known by the farmers. However, the main purpose of the field school is to get the farmers to appreciate, relate and apply the principles in their work.

There is a need to compile good pictures as well as references where we can find basic principles involved in the improvement of the different production systems that we work in.

Plans for the Farmer Experiments

The main activity identified for the experiments was for each of the 5 farmers to start out working on how to improve the efficiency of forage/feed utilization. This could either be through improvement in the design of their feeding trough or chopping the forage. It was learned that 2 of the 5 farmers were already chopping their feed. As such, it was decided that Gemma and Cynthia talk to these farmers and facilitate their plan of improving their feeding trough. Some may not be able to get it done in time for the next field school session. However, Gemma and Cynthia has identified that there will be at least one who can do it in time.

The other aspect discussed was on data gathering for the field school. Gemma and Cynthia expressed that they will have no time for the activity. It was decided that students from MOSCAT who are doing the field practice (these are students who are working with the DA as part of their curriculum will be involved in the activity. The LLSP will provide the students with transport expense.

Visit to Cagayan de Oro

The livestock production system considered for LLSP activities in Cagayan de Oro is goats. Collaborators in Cagayan de Oro were tasked to identify small experiments and plan out with the farmers the details of the farmer field schools. The main reason was that it was felt that the field school is best done after the experiments have been started. The experiments will be used in the field school as focus of discussion and serve as demonstration. The farmers doing the experiments will also be used to share their experience.

The results of these tasks were discussed with Perla Asis. It was learned that out of the 5 farmers that volunteered for the experiments, 3 were interested to work on parasite control while the other two wanted to work on feeding.

The idea of the field school's relationship with the experiments was once again discussed. The main decision was that Ed and Papang come back on July 21 to work with the

collaborators. Each of the 5 farmers will be visited; their goat management situation assessed and plans for the experiment will be laid out with them.

Annex 1. Program of the First Session of the Field School in Manolo Fortich (30 June 2004)

1. Opening Prayer
2. National Anthem
3. Mood Setting Game – 9 dots, then 16 dots puzzle
4. Each participant expressed to the group the reason why they wanted to join the field school. New participants (those not present during the previous meeting) were likewise assessed by other participants whether they could join or not.
5. Leveling of expectations
 - a. A series of card and chart sessions were conducted. The questions were:
 - i. What do you expect from the field school?
 - ii. What do you expect from yourself during the field school?
 - iii. What do you expect from the other participants?
 - iv. What do you expect from the facilitators?
 - b. Participants agreed on the training norms, which was like a covenant on the conduct of participants during the field school. This was written out in a large paper, then signed and thumb marked by each participant. They likewise grouped into 3, selected a leader and secretary for each group and assigned a day for each group to serve as host team.
 - c. Each group were asked to draw on big paper a situation which they want to happen as a result of their activities (called “painting a dream”). This did not only help get the group started in working together but was also intended to get them to get a feel of creativity.
6. Agreement with the participants on the schedule and venue for the next training.

Tuyen Quang and Daklak, Vietnam, 19 Jul - 1 Aug 2004

Phonepaseuth Phengsavanh

Objective

- Conduct a workshop on methodology of improving livestock production systems in Tuyen Quang, Vietnam
- Facilitate field trip for Ganda Nakamane, Department of Livestock Development, Thailand to help Vietnamese collaborators with forage seed production

Itinerary

19 July	Arrive Hanoi (Seuth and Ganda)
20 July	Planning workshop and design of farmer seed production experiments with Le Hoa Binh in Hanoi
21 July	Travelling to Tuyen Quang to meet Vu Hai Yen
22 July	Workshop on methodology of improving livestock production systems
23 July	Field visit
24 July	Field visit and travelling to Hanoi
25-27 July	Develop an action-plan for output 1 for Tuyen Quang with Mr. Binh
28 July	Fly to Daklak
29-31 July	Develop farmer experiments with Dr. Khanh and local collaborators in Daklak
31 July	Fly to HCM
1 Aug	Fly back to Laos

Persons Met

- Le Hoa Binh, LLSP Country Coordinator- Vietnam
- Vu Hai Yen, Tuyen Quang Province
- Lam Van Suat, Dept of Ag. And Rural Development, Yen Son District
- Vu Thi Huong, Ag. Extension Department, Yen Son District, Tuyen Quang
- Do Thi Xuan, Ag. Extension Department, Yen Son District, Tuyen Quang
- Doan Thi Lan, Phu Lam commune extensionists
- Truong Thanh Khanh, Tay Nguyen University, Daklak Province
- Mr. Nguyen Van Ha, Ag. Extension Department, Ea Kar District, Daklak
- Extension Staff of Ea Kar District, Daklak

Summary

The aim of the trip was to work with the LLSP team in Tuyen Quang to plan and implement activities of output 1 and facilitate the trip of Ganda Nakamane of the Department of Livestock Development, Thailand, to assist Vietnamese counterparts to design simple farmer experiments on forage seed production.

The workshop on forage development which focuses on the activities and working approach has been organized in Tuyen Quang. The activities of forage development have been reviewed and followed by discussion on where and what activities the team will need to develop further and help farmers to improve farm animal production.

The plans for seed production were developed with local staff in Tuyen Quang and Daklak provinces. The experiments will work on planting techniques (row and between plant spacing), different closing date for cuttings, fertilizer rates and harvesting methods. Three

promising forage varieties in local areas, *Panicum maximum* “Simuang”, *Paspalum atratum* “Terenos” and *Stylosanthes guianensis* “CIAT 184”, will be used in the experiments.

Discussion of activities for Output 1 where conducted with the Tuyen Quang team. Three experiments on feeding animals and seed production will be carried out this year. The need for capacity building and possibility of involvement of new young staff to the team has also discussed.

Activities and Outcomes

Workshop on methodologies for improving livestock production systems in Tuyen Quang

The workshop was organised to review the development steps and methods used for improving livestock production systems for district and commune extension workers. There were 8 participants with 5 extension workers from districts and communes where the LLSP operates. The aim of the workshop was to review progress with livestock production system improvement and the methods used in Tuyen Quang.

The workshop started with a review of forage development in Tuyen Quang by Vu Hai Yen (site manager), who talked mainly about 3 forage varieties (*Panicum maximum* “Simuang”, *Paspalum atratum* “Terenos” and Napier grass) that are used in the province and the ways how the team works with farmers. I presented a review of the process which CIAT has used from forage variety evaluation to forage technology development in the last 14 years in Southeast Asia. The process and methods for improving livestock production was presented and followed by discussion about where we are in the steps of development to clarify the objective, activities and expected outputs from implementation of those activities. The presentation and discussions were focused on process of how to consolidate the activities in villages where forage technologies have already been adopted and what is needed to help farmers to derive the maximum benefit from having planted forages. Based on these activities, the team then looked at the capacity of local staff and discussed requirements for supporting and carrying out the plan.

Participants were asked to develop action plans for each of the villages in which they work and show what activity will need to be done in each village. This has encouraged staff to think and plan for the development in their villages. Then the plans were shared and compared to the forage technology ladder (see previous semi-annual report for details).

A field visit was organized following the workshop. The aim of the visit was to let participants practice and learn how to work with farmer production groups in the village and discuss further on improving livestock production in the areas. The team visited farmers in Thang Quan commune who raise fish. Farmers have planted forages (Simuang and Terenos); on average an area of approximately 500-800 m². These forages are used for fattening fish mainly during the wet season and fish is harvested in the dry season. Farmers have no problem with the amount of feed in wet season but in dry season Simuang grows too slowly, so farmers can not continue fattening fish. The possible options to help farmers with this problem were discussed.

Discussion on workplan and develop action-plan for Output 1

Based on discussion about process for improving livestock production, the team (Binh, myself and provincial team) continued to work on action plan for activities of output 1. The following issues were discussed:

1. Cattle fattening
2. Utilization of Ramnea (Native shrub) as alternative feed for fish in winter time
3. Seed Production

An experimental plan was presented by Vu Hai Yen and followed by discussion on detail of treatments which will be used in the experiment, duration, number of participating farmers, follow-up plan and data collection. Two staff from district agriculture office of Yen Son were assigned to help Vu Hai Yen to carry out these experiments with farmers. As a result of discussion, there is a need for Le Hoa Binh and Vu Hai Yen to work a little more on revision and improvement before they can be implemented.

There has been a discussion on the capacity building for staff and involvement of new young staff to the team and the need for building up of their capacity both in technology and working with farmers. The training courses should be based on the needs of staff and field activities of the project. Mentoring from Le Hoa Binh and Vu Hai Yen will be essential and both agreed to spend more with young staff to support implementation of project activities.

Seed production

Background

The rapid expansion in the area of forages planted in Vietnam has generated an interest by farmers (and the government) to produce forage seeds. In 2003, our Thai partners held a training course for key farmers and extension workers on “forage seed production” in Thailand. This training course was jointly organized by the Animal Nutrition Division, Thai Department of Livestock Development (DLD) and the CIAT-Livelihood and Livestock Systems Project (LLSP) with financial support from ADB. It was held at Mukdahan Animal Nutrition Development Station, Thailand, from 6 - 12 October 2003. There were 10 participants from Vietnam, which consist of 3 farmers and 7 technical officers. Mr. Le Hoa Binh, LLSP Vietnam Coordinator, was the group leader and acted as translator. The course objectives were to gain knowledge in tropical forage seed production for participants, enhanced their skills on producing tropical forage seed and enable them to produce tropical forage seed.

To follow up the training course, our Vietnamese partners requested for assistance with conducting farmer experiments on forage seed production in 2004. This led to the current visit by Ms Ganda Nakamane, a seed production specialist from DLD, Thailand. Ganda helped to design appropriate farmer experiments for Tuyen Quang and Daklak. The main species for seed production are *Panicum maximum* TD58, *Paspalum atratum*, *Brachiaria brizantha* and *Stylosanthes guianensis* CIAT 184. Vietnam can be divided into 7 agro-ecological zones and the research on forage seed production has been conducted in 3 of these zones. The study will evaluate the factors affecting seed production of *Panicum maximum* “Simuang”, *Paspalum atratum* “Terenos”, *Brachiaria brizantha* “Marandu” and *Stylosanthes guianensis* CIAT184. The following are the activities for seed production:

- a. Recommendation for fertilizer application for *Brachiaria* and *Paspalum* seed crops:
Manure 20 tons/ha/year, Nitrogen 160 kg/ha/year, Phosphorus 80 kg/ha/year and Potassium 80 kg/ha/year
- b. Plant spacing: 100 x 70 cm for Panicum and 70 x 70 cm for Paspalum

Farmers in Vietnam are different from farmers in Thailand on their purpose of planting forage for seed production, in Thailand normally seed producer plant forage only for produce seed

whereas farmers in Vietnam plant forage for dual purpose, both for feed animal and for seed production.

Seed production in Tuyen Quang

We discussed seed production issues with Binh, Yen, and staff from Tuyen Quang and farmers. Forage species that they produced and want to study more on management of seed production are *Panicum maximum* Simuang and *Paspalum atratum* Terenos.

Farmers noticed that if they cut *Paspalum* as feed for their animal at the end of August it flowers only very little. The flowering of *Panicum* is at the end of October and *Paspalum* is a little bit later than *Panicum*. Farmers and LLSP collaborators in Tuyen Quang decided to test different dates for closing cuts and rates of fertilizer on seed production. Two farmers will experiment with *Panicum* and another two farmers will experiment with *Paspalum*. Treatments will be 3 closing cut dates: 25 July (about 90 days before flowering), 25 August (about 60 days before flowering) and 25 September (30 days before flowering), and 3 different fertilizers: (1) 20 tons of manure plus N (160 kg/ha), P (80 kg P₂O₅/ha) and K (80 kg K₂O/ha) as basal fertilizer (2) basal fertilizer the same as (1) plus 50 kg N/ha after closing cut and (3) basal fertilizer the same as (1) plus 100 kg N/ha.

In Thailand the recommend closing cut date for *Panicum* is not later than July or about 60 days before flowering and the result from Chaisang's experiments showed that the last closing cut date for *Paspalum* is not later than 1 July or about 60-75 days before flowering.

After visiting farmers who will study on closing cut date and fertilizer on seed production of Guinea grass we reviewed the plans of the experiment. Farmer 1 planted 500 m² of *P. maximum* Simuang in February 2004. The plot was cut for feed animal once and 4 kg urea was applied. The area planted slopes in many directions so we plan to avoid error from fertilizer leaching by put the highest rate of nitrogen in the lower area and Yen plan to put plastic down to the ground between each plot. This farm is in upland area and soil is sandy soil. The plot layout is:

A1	B1	C1	Hut
A2	B2	C2	
A3	B3	C3	

A = manure + N-P-K

B = manure + N-P-K + 50 N

C = manure + N-P-K + 100 N

1 = cut 25 July

2 = cut 25 August

3 = cut 25 September

The second farmer, the field is paddy field but the soil is sandy soil and water can be drain from the field. Guinea was planted in November 2003 and cut 4 times for feeding animals. After the first cut she applied N-P-K and after the second, the third and the fourth cut she applied urea. The last cutting was on 20 July 2004. The plot layout is:

A1	B1	C1	road
A2	B2	C2	
A3	B3	C3	

Seed will be harvest by tying of seed heads and shaking method.

Seed production in Daklak

Discussed with Khanh about the plan of this trip in Buon Ma Thuot. Then traveled to Ea Kar district for discussions with Khanh, Mr. Ha and his staff. Visited several farmers. Crops planted here are coffee and maize. Soil is sandy and sandy loam. Forages planted here are *Panicum maximum*, *Paspalum atratum* and *Stylosanthes guianensis* CIAT 184. Forages are planted for fish and cattle and also for selling root stock as planting material. Spacing between plants is 30 x 30 cm or forages are planted in rows with spacing of 30 cm between rows. In some farmers' fields spacing between plants is 50 – 70 cm which is the recommended plant spacing for seed production in Thailand. Mr. Ha organized a meeting with farmers group and discuss with farmers on forage seed production, farmers' interest, farmer's experience on seed production and the problem on producing forages seed. The farmers are interested in producing two species: *Paspalum atratum* and *Panicum maximum*, with the main problem to be investigated being time to harvest:

- Harvesting method
- Post harvest management
- Lodging
- Storage

Discussion on experiment design and plan

According to a discussion with farmers, they have harvested the seed by cutting seed heads and it is difficult to judge the best time for harvesting. Farmers said that after some of them attended a training course on seed production in Thailand they recommend the other farmers to harvest the seed by tying seed heads and shaking to improve seed yield and seed quality. For post harvest management, farmers wanted to know how to dry the seed and how to store the seed. Another problem for some farmers is lodging of seed crops before harvest. After discussions with Khanh there will be three things that will be investigated for *P. maximum* seed production. They are:

Date of closing cut

Treatments will be 3 closing cut dates:

- 45 days before flowering
- 60 days before flowering and
- 75 days before flowering

After the closing cut, farmers will apply 200 kg/ha urea and harvest the seed by tying seed heads and shaking tied seed heads every 2-3 days to collect mature seed.

Harvesting method

Treatments will be 3 methods:

- Tied seed head (50% flowering) and shake every 2-3 days
- Tied seed head (50% flowering) , clover seed head for nylon net bag and take seed out of the bag every 3 days
- Cut seed heads 10-15 days after 50% flowering

Fertilizer

Three rate of urea 150, 175 and 200 kg urea after the closing cut (60 days before flowering)

Kalimantan Sites, Indonesia, 24 July - 7 August 2004

Francisco Gabunada Jr.

Objective

- Visit sites to monitor accomplishments with partners
- Facilitate planning of next activities for the sites with partners
- Assist in getting small experiments started

Person traveling

Francisco Gabunada

People Met

- Drs. Yusran – Bupati, Kabupaten Penajam Paser Utara
- Ir. Mathur Riady – Director Budidaya Peternakan, DGLS
- Ir. Hj. Maskamian Andjam – Head, Dinas Peternakan, Propinsi Kalimantan Selatan
collaborators in the sites

Itinerary

- | | |
|------------|--|
| 23 July 04 | Departure from Leyte |
| 24 July 04 | Manila - Balikpapan |
| 25 July 04 | Meet with Ibrahim and visited the Bupati of Penajam Paser Utara |
| 26 July 04 | Meeting with Yacob and collaborating field workers to assess accomplishments |
| 27 July 04 | Visit Makroman site together with field workers |
| 28 July 04 | Visit partners and farmers in Karang Joang Balikpapan |
| 29 July 04 | Visit partners and farmers in Suliliran Baru, Kecamatan Pasir Belengkong, Kabupaten Pasir
Visit palm oil mill in Desa Long Pinang, Kecamatan Pasir Belengkong, Kabupaten Pasir
Meeting with farmers in Padang Pengrapat, Kecamatan Tanah Grogot, Kabupaten Pasir |
| 30 July 04 | Visit partners and farmers in Padang Pengrapat, Kecamatan Tanah Grogot, Kabupaten Pasir
Visit palm oil mill in Kecamatan Long Kali, Kabupaten Pasir |
| 31 July 04 | Visit partners and farmers in Desa Saluluang, Kecamatan Babulu and Desa Gunung Intan, Kecamatan Petung, Kabupaten Penajam Paser Utara |
| 01 Aug 04 | Visit partners and farmers in Kelompok Maju Serbaguna, Desa Semoi 2, Desa Semoi 3 and Desa Bumi Harapan (Sepaku 4), Kecamatan Sepaku, Kabupaten Penajam Paser Utara |
| 02 Aug 04 | Attend inauguration of farmer-managed feedlot in Kecamatan Sepaku, Kabupaten Penajam Paser Utara |
| 03 Aug 04 | Return to Balikpapan |
| 04 Aug 04 | Depart for Banjarmasin, South Kalimantan |
| 05 Aug 04 | Courtesy call/visit to Dinas Peternakan, South Kalimantan Province
Visit sites and partners in Kecamatan Sebarang, Kabupaten Kuala Kapuas, Central Kalimantan |
| 06 Aug 04 | Visit sites and partners in Kecamatan Pelai Hari, Kabupaten Tanah Laut, South Kalimantan |
| 07 Aug 04 | Return to Balikpapan (AM), then Depart for Singapore (PM) |

08 Aug 04 Depart for Manila (AM), then Cebu (PM) followed by boat to Leyte
09 Aug 04 Arrive Leyte

Activities

Meeting with Ibrahim and visit to Bupati of Penajam Paser Utara

Ir. H. Ibrahim just arrived shortly before from a 3-month training in Jakarta. According to him, activities (mostly dissemination) had already started in the sites in Kabupaten (District) Penajam Paser Utara (PPU). We planned out with him the schedule of visits to the sites.

The system of coordination agreed in Kalimantan Timur (KalTim) sites is that Ibrahim will take responsibility for sites in Kabupaten PPU and Pasir. Ir. Yacob Pangendongan is responsible for other sites. However, while Ibrahim was on training, Yacob visited all the sites to coordinate the activities.

Ibrahim was scheduled to meet the Bupati (Head) of PPU and we took the opportunity to visit him together. We were able to present to the Bupati the LLSP activities in his district. The Kabupaten, in cooperation with the National Ministry of Cooperatives has funded a feedlot fattening project for a farmer cooperative in Kecamatan Sepaku. The project includes provision of land as well as funds to construct the feedlot facilities, purchase of 1200 heads of Brahman Cross cattle from Australia and feed subsidy. The cattle arrived on July 1 and the formal turn over ceremony was scheduled for August 2. Most of the members of the farmer cooperative are farmers we work with in LLSP activities.

Meeting with collaborating field workers to assess accomplishments

The meeting was attended by 9 field workers from LLSP sites (1 field worker per site, Annex 1). In addition, Yacob was able to invite our new collaborators from the Animal Health Division of Dinas Peternakan Kalimantan Timur (Drh. Retno Dwi Murni and Drh. Dyah Angraini) as well as the BPTP (Ir. Ludy K. Kristianto). Mr. Dadang Sukarya (Head of Yacob's Division) chaired the morning session of the meeting.

The meeting had the following purposes:

- a) review the accomplishments since February,
- b) plan the details of the monitoring visit to LLSP sites
- c) agree on strategies and support mechanisms to facilitate site activities.

Experiments have been started in Makroman (cattle, goats), Suliliran Baru and Sepaku (cattle). The other sites have been facilitating dissemination of forage planting materials. Experiments were also planned for Samboja and Palaran. The meeting enabled the field-based participants to clarify technical issues with the new collaborators (animal health for the veterinarians and composting for Ludy). Mr. Sukarya also explained the provincial Dinas Peternakan's programs related to forages. The LLSP sites that have received cattle dispersal include Makroman, Babulu and Suliliran Baru.

In the afternoon, the field workers from the sites were asked to report their forage-related activities since last March. Schedule of the site visits were then finalized with them. The issues raised by the field workers include:

- need for reporting forms – they were reminded to follow the formats given to them during the training in March

- incentives – the main point stressed was that the project could not give a fixed amount of honorarium as incentive. What was suggested was that the project can provide for their food and transport when they go to work with farmers in the field. In addition, the project can pay for expenses like transport and food during cross-visits as well as food/snacks during farmer trainings and meetings. It was suggested that each staff formulate their own plan together with a budget to facilitate the process. The staff also had to submit a report for each activity.

Visit to site in Makroman

Farmers in Makroman were visited together with the field workers. Two hamlets were visited: (a) the crocodile farm area, and (b) Pak Ruslan's area. In both areas, experiments have already been started in July.

Two experiments are going on in the crocodile farm area. One involves goats, while the other is on cattle. The goats in the hamlet are raised for reproduction (ie. sale of young goats). These goats have PE (grades of breed similar to Jumnapari) blood. The goats are fully confined. The farmer experiments are as follows:

No. of Farmers	Animal Species	Nature of Experiment	Observations Taken
1	Goats	Effect of <i>ampas taho</i> (soybean curd processing by-product, given at 0.5 kg/hd/day) on kid birth weight and performance	Birth weight Weight at weaning
1	Goats	Effect of <i>ampas taho</i> (soybean curd processing by-product, given at 0.5 kg/hd/day) on performance of weaned kids	Growth of weaned kids
1	Goats	Effect of legume supplementation on growth of goats	Weight of goats
2	Cattle	Supplementation of <i>Ampas taho</i> (4kg) + Legume (5 kg) to cattle (fully confined, mostly Bali, from Dinas Peternakan of Province) to cattle (fully confined, mostly Bali, from Dinas Peternakan of Province)	ADG Birth weight of calves
3	Cattle	Legume supplementation to cattle (fully confined, mostly Bali, from Dinas Peternakan of Province)	ADG
2	Cattle	Legume supplementation to cattle (fully confined, mostly Bali, from Dinas Peternakan of Province)	Birth weight of calves Growth of calves
4	Cattle	Legume supplementation and pen sanitation to cattle (partially confined, Bali and Ongole grades)	Observations on health of cattle Performance of calves in first 3 months
1	Cattle	Pen sanitation to cattle (partially confined, Bali and Ongole grades)	Observations on health of cattle Performance of calves on first 3 months

Some farmers are experimenting to evaluate the effect of supplementation with soybean curd (*taho*) by-product (locally known as *ampas taho*) especially on the performance of goat kids. The plan is to weigh the kids at birth and weaning.

The cattle raised by another farmer group in the hamlet are Bali cattle dispersed by the provincial government for fattening purposes. The cattle are likewise fully confined. The experiments done with the farmers involved treatments like use of *ampas taho* and *Gliricidia* leaves as feed supplements, as well as the effect of proper sanitation in the pens.

Pak Ruslan's farmer group also raise cattle, either for fattening or reproduction. The animals are grazed during the day, then confined and provided with feed at night. The experiments conducted by farmers aim to know the effect of *Gliricidia* leaf supplementation and/or sanitation on the performance of cattle, either those that are fattened or the calves produced by those used for reproduction.

Visit to site in Karang Joang, Balikpapan

Farmers in Karang Joang (Kelompok Karya Lestari) were visited together with the local collaborator (Dwi Ngadianto). Growing and selling vegetables and fruits is a main source of income in the area. Some farmers are likewise raising goats (mixture of native, purebred PE and PE grades) in full confinement. They cut native vegetation (one we saw used a lot of cassava leaves) from vacant areas. Most of the farmers we work with have started planting forages (*Setaria* in lines in between fruit trees like papaya). They have also started planting legumes that have been given by Yacob last March.

One of the farmers we visited was raising about 20 goats that had high percentage (according to him, pure) PE blood. The goats were performing well with his present management. One of the problems the farmer mentioned was occasional occurrence of bloat and mastitis. The farmer buys medicine from Balikpapan to treat his sick animals. One of his does produced 5 kids in one kidding. Obviously, he had to bottle feed the kids, but they all survived.

Another farmer visited had goats of lower PE blood percentage. Housing and management were apparently more inferior compared to the first farmer. A few of his goats were infested with scabies. The need for sanitation was evident.

Visit to site in Suliliran Baru, Kecamatan Pasir Belengkong, Kabupaten Pasir

The collaborator in Suliliran Baru is Sarwono. He is working as PPL and has been assigned to work with the farmer group in Desa Suliliran Baru. The farmer group was able to avail of 25 heads of breeder cattle from the Provincial Dinas Peternakan. These animals are of the Brahman breed that were imported from Australia. Facilities like housing, forage chopper, small silo, as well as budget for the purchase of concentrate feed are provided by the government. The animals were in relatively good condition.

Planned activities in the site include encouraging the expansion of forage planting and utilization by farmers. Performance of the animals from the Dinas Peternakan is also being monitored.

Visit to palm oil mill in Desa Long Pinang, Kecamatan Pasir Belengkong and in Kecamatan Long Kali, Kabupaten Pasir

Two palm oil mills in Kabupaten Pasir were visited. The purpose was to investigate the possibility of using the factory waste as livestock feed. Both were operated by a government agency and had a considerable area planted to oil palm. From the two, only the factory from Long Kali had a decanter. This would enable the separation of the solid portion of the factory effluent. Presently, the factory is starting to experiment on the use of the decanted solid as fertilizer. The usual practice is just to throw the effluent around the factory; often on the sides of the road going into the factory.

One of the possible constraints for the use of the solid decanted portion of the effluent would be the relative inaccessibility of the factory. The factories were both far from the residential area, with rough roads that are only accessible by the big trucks that deliver the palm oil nuts. However, a potential system would be to get the by-product delivered through these trucks.

The first thing that needs to be done is to determine (most likely through literature review) the feed potential of the effluent of oil palm processing. If the potential is good, then these might be tried out with interested farmers.

Visit to site in Padang Pangrapat, Kecamatan Tanah Grogot, Kabupaten Pasir

The collaborator in Padang Pangrapat is Abu Bakar. He is one of the staff of the Dinas Peternakan in Kabupaten Pasir. The farmer group is *Kelompok Tani Trubus Kencana*. The group as well as the rest of the village is engaged in production of *salak*. The *salak* produced is called, *salak pondok*, which has relatively better quality and price compared to the ordinary variety.

Cattle play a vital role in *salak* cultivation at Padang Pangrapat. Most farmers are raising Bali cattle to produce manure for composting. The compost is used as fertilizer for the *salak*. Farmers estimate that compost supplies half of the fertilizer requirement for the *salak*.

The farmers keep their cattle completely confined in pens near their houses. They gather feed for their cattle (mostly native vegetation). A considerable amount of time is spent in gathering the feed. A very common sight in the afternoon is farmers bringing cut feed to their houses for feeding the animals. During the time of the visit, it was observed that the cut forages were often too old and stemmy. This could be an indicator of the relatively low supply of native forages for cut feed. As a matter of fact, most of the farmers have to go to a considerably far area for cutting forages. Most of them go by bicycles or motorcycle for the purpose.

Farmers in the village believe that compost formation is faster when the manure is constantly turned over and agitated. Thus, they adopt the practice of leaving the manure on the flooring of the shed for a long time. The cattle step on the manure, keeping it constantly turned over/agitated. Farmers often just put a layer of cut forage on top of the manure. The manure is not taken out of the pen for at least a week; most of the time the period is longer. Though this might help in hastening compost formation, the animals are left in a state where sanitation is wanting. The Bali cattle, however, are hardy animals. The mature animals are just a bit thin, with some skin diseases. However, the young calves are often the ones that suffer, either from disease or parasitism. Calf mortality is a common problem in the area.

From the meeting with the members of the farmer group, it was learned that the felt problem was the high labor and time requirement in cutting feed. The farmer group has already started establishing forages in a common plot about half a hectare. It will expand forage planting to an area totaling 5 hectares. A major activity in this site is to encourage expansion of forage planting. When farmers have enough forage, then proper utilization of the forages would be the next activity to facilitate.

Visit to site in Saluluang, Kecamatan Babulu

The collaborator in Saluluang is Bambang Suriyadi. He is one of the staff of the Dinas Pertanian, Kabupaten Penajam Pasir Utara (Ibrahim's office). The area is located near the sea and is flat with relatively poor drainage such that there are a lot of waterlogged areas during the wet season. Rice is a major crop in the area.

Farmers raise a considerable number of cattle in the area (between 5 to 25 heads per farmer). These are mainly Bali cattle that are grazed (either loose or tethered) in the relatively abundant vacant areas. These vacant areas are poorly drained, mostly waterlogged and not planted to crops. The farmers we work with have planted *Brachiaria humidicola* and serve as grazing areas for cattle. The areas planted are quite large and adoption is very encouraging.

The cattle are housed in pens at night. During the visit, rice had just been harvested. Farmers were observed to use rice straw (still green) for night feeding of their animals. Supplemental feeding with better quality forages would have a good potential as an option for farmers to try in this area. It was learned in the interactions with the farmers and collaborators that not much good quality indigenous feed resource is available. As such, better quality and adapted forages would have a good prospect. Meanwhile, the on-going activities in the area are testing of forages (mostly legumes) and encouraging expansion of *Brachiaria humidicola*.

Visit to site in Gunung Intan, Kecamatan Petung

The collaborator in Gunung Intan is Oddang. He is one of the staff of the Dinas Pertanian, Kabupaten Penajam Pasir Utara (Ibrahim's office). We work with two groups of farmers in the site. The farmers in both groups were still starting to plant forages.

One group was able to avail of PE goats from the government (4 males and more than 10 female breeders). These animals are fully confined and fed with cut forages and tree leaves. The farmers also use by-product of tofu (*ampas tahu*) from time to time. The goat house was in good condition and was well-designed. During the visit, the goats had good body condition and fed with good quality forages and tree leaves. The farmers reported some incidence of scabies in these animals. The most alarming problem that they reported was very high mortality rates of the kids. Accordingly, out of the 24 kids produced in the past year, only two survived. The symptoms include diarrhea, odorous feces and sudden death. It was agreed with the field worker that close monitoring will be done especially for kids.

The other group visited was able to avail of crossbred Brahman from the provincial Dinas Peternakan. The animals were also housed together and provided cut-feed and concentrates by the farmers. The animals were tethered from time to time, mostly to provide exercise. The cattle were in good condition and already started producing calves. The house was well-designed and sanitation was good. The farmer group had started establishing forage in a communal area, mostly Napier grass. The group also started out establishing tree legumes.

In both groups, the main activity will be to encourage forage planting and expansion.

Final Meeting with Yacob

This meeting was held to develop an action plan for Yacob and/or Ibrahim (if Ibrahim feels this is still possible) for the next six months. This action plan will be based on the plans of the local partners.

Visit to sites in Central Kalimantan

Farmers in Kecamatan Besarang were visited together with the field workers. Four farms and the nursery of Kecamatan BPP were visited. *Brachiaria humidicola* is continuing to spread and expand from farmer to farmer in the whole of Kabupaten Kapuas. Among the recently introduced forages, the following were growing well in farmers' fields:

- a) Stylo 184
- b) *Aeschynomene histrix* CIAT 9690
- c) *Setaria splendida*
- d) *Brachiaria* hybrid Mulato

In the nursery area of BPP Besarang, the forages were fertilized. The following species were growing well:

- a) Stylo 184

- b) *Aeschynomene histrix* CIAT 9690
- c) *Centrosema macrocarpum*
- d) *Flemengia macrophylla*
- e) *Andropogon gayanus*
- f) *Brachiaria brizantha*
- g) *Brachiaria decumbens*
- h) *Brachiaria* hybrid Mulato

The plots in the nursery area were well-maintained. Collaborators were advised to harvest *Aeschynomene histrix* as there were no more seeds available, and the species was growing (and seeding) well.

The Head of the Dinas Pertanian of the Kabupaten (Chalinja) joined in the visits. Plans were discussed with him and the other staff present. The main plan at this stage is to continue facilitating testing and expansion by farmers.

Another interest expressed by the Dinas was to find species that are easy to establish. Presently, farmers often have to spend for labor in establishment of forages because they have to plant the forages in elevated bunds (*sorjan system*) due to too much water. In this connection, it was learned that there are existing species that can actually be established without need for *sorjan*. These species include *Hymenachne*. Farmers were actually cutting *Hymenachne* and using it as cattle feed.

Visit to sites in South Kalimantan

The provincial (South Kalimantan) Dinas Peternakan was very supportive of the project, most likely due to existing working relationship with the DGLS. The office provided for transport and assigned a staff to join in the visit. The Kabupaten Dinas Peternakan of Tanah Laut was also very supportive of the activities.

It was learned that Talin (our collaborator from Kabupaten Dinas Peternakan) has already linked with the local PPL assigned in the sites. The PPL was involved in facilitating the establishment of forages in a common area (one each) of four farmer groups. These farmer groups have existing livestock projects.

The forages were established and maintained by the farmer groups. Some fertilization was done. The species that have been observed to grow well include:

- 1) Stylo 184
- 2) *Gliricidia sepium*
- 3) *Erythrina fusca*
- 4) *Indigofera anil*
- 5) *Centrosema macrocarpum*
- 6) *Aeschynomene histrix*
- 7) *Brachiaria brizantha*
- 8) *Brachiaria* hybrid Mulato
- 9) *Brachiaria ruziziensis*
- 10) *Brachiaria decumbens*
- 11) *Paspalum atratum*

The plan is to get the species fully established and use them as source of planting materials for farmers to grow in their farms. It was also planned to send the PPL to the next training.

Annex 1. Participants of the meeting in Samarinda on 26 July 2004-08-03

Name	Position and Office	Site
Abu Bakar	Staff, Animal Nutrition Division Dinas Peternakan Kabupaten Pasir	Desa Padang Pangrapat Kecamatan Tanah Grogot Kabupaten Pasir
Ardiansyah	PPL Kecamatan Muara Wahau, Kabupaten Kutai Timur	Kecamatan Muara Wahau Kongbeng 8 Telen Kabupaten Kutai Timur
Bambang Surijadi	Staff Dinas Peternakan Kabupaten Penajam Paser Utara	Tanjung Jumlay Kecamatan Saluluang Kabupaten Penajam Paser Utara
Dwi Ngadianto	Staff Dinas Peternakan Kota Balikpapan	Desa Karang Joang Kota Balikpapan
Eddi Supiono	PPL Kantor Peternakan Kota Samarinda	Desa Bukuan Kelurahan Palaran
Heriyanto	PPL Kecamatan Sepaku Kabupaten Penajam Paser Utara	Kecamatan Sepaku Kabupaten Penajam Paser Utara
Sarwono	PPL Kecamatan Pasir Belengkong Kabupaten Pasir	Desa Suliliran Baru Kecamatan Pasir Belengkong Kabupaten Pasir
Jumiati	PPL Kantor Peternakan Kota Samarinda	Desa Makroman Kota Samarinda
Mahmud	PPL Kecamatan Samboja Kabupaten Kutai Kartanegara	Kelurahan Tanjung Harapan Kecamatan Samboja Kabupaten Kutai Kartanegara
Oddang	PPL Kecamatan Babulu Kabupaten Penajam Paser Utara	Kecamatan Babulu Kabupaten Penajam Paser Utara
Dadang Sukarya	Dinas Peternakan Propinsi Kalimantan Timur	
Drh. Retno Dwi Murni	Animal Health Division Dinas Peternakan Propinsi Kalimantan Timur	
Drh. Dyah Angraini	Animal Health Division Dinas Peternakan Propinsi Kalimantan Timur	
Ir. Ludy K. Kristianto	BTPP Sempaja, Samarinda	

Savannakhet, Lao PDR, 12 - 19 August 2004

Phonepaseuth Phengsavanh

Objectives

- Organize a workshop on forage agronomy and management
- Monitoring visit to sites

Traveling people

Bounthavone Kounavongsa LLSP-LAO project coordinator.
Phonepaseuth Phengsavanh LLSP Sub-regional coordinator
Soukanya Chanhdeng FLSP technical assistant

People met

- Mr. Khamchanh Sidavong, Deputy head of PLFS
- Mr. Bounmy Pheowankham, Head of Livestock production unit
- Phoulien Sihavong, District extension worker
- Workshop participants (17 district extension workers)

Itinerary

12 Aug 04	Travel from Vientiane to Savannakhet
13-15 Aug 04	Workshop on forage agronomy and management
16-17 Aug 04	Field visit
18 Aug 04	Work with provincial and district staff on planning for the rest of the year
19 Aug 04	Return to Vientiane

Summary

The trip was organized in order to conduct training course on forage agronomy and management and visit collaborating farmers at LLSP sites.

The training course ran for two days and was followed by a field visit. 17 DAFO staff participated in the course. Topics included forage development in Lao PDR and SE Asia, forages and their benefits, forage establishment and management. The field visit was organized for the participants to experience and see different forages on farms and practice some cutting management.

After the course, the LLSP team went to visit 12 farmers in three villages. 7-8 farmers manage their forages well; some others had problems with establishment and management of forages. Mulato and Stylo 184 are the best varieties for farmers because of good germination and fast growth. Two other varieties (Gamba and Guinea) are not so promising to farmers this time, however, the evaluation of forages with farmers will continue as forages just re-grow from period of drought in July.

Detailed activities

Training course on forage agronomy and management

The training was conducted for 2 days followed by a field visit to the LLSP site in Outhoumphone District. A total of 17 participants were involved (Table 2). The participants include staff from 7 DAFO, Provincial Livestock and Fishery Office and 1 participant from

Belgium-Lao Rural Development Project. All of participants were mostly working as development workers on livestock production.

The following topics were discussed in the training:

- a) Forage Development in Lao PDR and SE Asia
- b) What are forages
- c) Benefits from forages
- d) Ways of growing and using forages
- e) Forage selection based on climate and soil
- f) Establishment of forages
- g) Management of forages
- h) Case studies of successful farmers in forage development in Northern Laos

The participants were well selected from a specific district, which can be useful to expansion of LLSP activities or forage development in the province. The timing also enabled the participants to see how forage establishment is done by farmers in the field. During the field visit, the forages sites visited were well established, but some needed weeding and some were sown too densely; there was also some in waterlogged areas, practice cuttings for legume and grass with farmers.

Field visit to existing sites in Outhoumphone district

Three villages and 12 farmers who have started establishing forages this year near their houses and some near rice fields were visited. All farmers planted 4 forage varieties of *Andropogon gayanus* 'Gamba', *Brachiria* hybrid 'Mulato', *Panicum maximum* 'Simuang' and *Stylosanthes guianensis* 'CIAT 184'. Mulato and Stylo 184 had very good initial establishment. Gamba and Guinea seedling did not look so healthy and had low germination rates. The evaluation of forages with farmers will continue throughout the year, as forages just re-grow from hard period of drought in July.

Even though in July there was drought in Savannakhet and the young forage seedlings struggled, 7-8 farmers from total 12 farmers managed their plots well and have started to cut and use the cut forage for feeding of goats. At this early stage, farmers preferred Mulato and Stylo 184 mainly because of good germination and fast growth.

A few farmers had problem with weeding and as a result the forage did not look as good as other farmers.

There is a need for more frequent monitoring at this stage to help the farmers learn how to manage their forage especially cutting and weeding in some plots in order to maximize survival and production.

Central Luzon State University, Philippines, 23-29 Aug 2004

Francisco Gabunada Jr.

Objective

Assist in conduct of a trainers training on Integrated Goat Management

Key people met

PCARRD - Ana Marie P. Alo (national coordinator, IFAD TAG 443 Project)

Dr. Emilio Cruz, director of Small Ruminant Center, CLSU

Itinerary

23Aug 04	Departure from Leyte
24-28 Aug 04	Conduct of the trainers' training at CLSU
29 Aug 04	Return to Leyte

Activities

The training was initiated by PCARRD Livestock Research Division (LRD). The LRD has just recently caught up with the participatory modality and has attempted to integrate this modality in their activities (Annex 1). PCARRD is still very much into conventional technology packaging— this initiative is a good indication of its increasing awareness and appreciation of the participatory approaches. This also connotes that LRD had to find support from sources other than those from PCARRD. LRD has done so by asking the participants to pay for registration.

The training was attended by 24 participants from Luzon and one participant from the LLSP site in Mindanao (Annex 2). All the participants were involved in existing livestock activities in their respective offices.

This training is the first of a planned series of trainings: one each for the Visayas and Mindanao will follow. The overall plan is to get some of the participants from the first training to help in the succeeding trainings.

Participation of staff reporting was limited on the first half of the training. It was observed that some participants had good potential as trainers for the succeeding trainings. Integrating the participatory approach in the offices of the participants still has a long way to go. PCARRD and other agencies need to do more follow up activities to towards this end.

The Small Ruminant Center in CLSU has been successfully growing and using the forage legumes from LLSP/FSP for feeding goats. The center is continuing to expand their forage area. They could serve as a good source of forage planting materials for Luzon.

Annex 1. Details of the “Trainers’ Course on the Conduct of the Farmer Livestock School on Integrated Goat Management”

Held August 23 - September 3, 2004 at Central Luzon State University

Rationale

The conventional approach to community development is to transfer packages of technologies from the research stations to farmers. However, our history is plagued by many

failed interventions using this approach. Usually after the researchers have gone and the project is completed, communities revert to their traditional practice.

This failure can be attributed largely to the common practice where the community people themselves were not actively engaged in any of the critical stages of the development process. Most often, they are just considered “inert substrates” upon which development is to be practiced and never as active participants who can bring intellectual contributions to development. This brought forth the realization that the outsiders or researchers’ knowledge is not enough to analyze the realities of local people.

Cognizant of these failures, the ILRI-IFAD-PCARRD project on *Development and Testing of an Integrated Approach to Goat Worm Control* developed modalities that capitalized on the participatory approach to R&D. In these modalities, the technology users occupied the driver’s seat, serving as active technology developers and testers.

One such modality is the Farmer Livestock School (FLS). This is a season-long adult education course, which allows farmers to discover and learn through “farmer experimentations” and testing, until ultimately they develop the right technology-mix suited to their problems, resources and capabilities.

This 10-day course therefore was designed to prepare future FLS facilitators for the daunting task of taking the backseat role as farmers themselves take the driver’s seat in developing an integrated approach to goat management.

Objectives

This Training-of-Trainers (ToT) aims to develop a core of regional facilitators who can echo this FLS to potential community facilitators in specific municipalities in the region. Specifically, after this course, the core facilitators must be able to:

- Improve their competence in conducting a ToT on FLS-IGM; and
- Plan for the implementation of their own ToT in their respective areas of coverage.

Also, community facilitators are expected to:

- Understand the innovative integrated approaches to goat worm control;
- Plan for the implementation of the FLS-IGM in their municipalities along with key stakeholders;
- Undertake a full scale FLS-IGM in their respective municipalities; and
- Apply the participatory tools and techniques in planning, managing and evaluating the FLS-IGM;

Program

Day 1 Monday Aug. 23, 8:00-10:00	Opening Ceremony Invocation Welcome Address Opening Remarks Messages	Ms. Marilyn Lilagan (Balungao, Pangasinan) Dr. Rodolfo C. Undan (President, CLSU) Dr. Patricio S. Faylon (Executive Director, PCARRD) Dr. Reniero Belarmino (Regional Executive Director, DA-RFU1) Dr. Somkiat Saithanoo (ILRI- SEA Team Leader) Dr. Edwin C. Villar (Director, LRD-PCARRD) Dr. Emilio M. Cruz (Director, SRC-CLSU)
8:00-10:00 (cont.)	Evolution and prospects of the FLS The SRC: A Brief Introduction Overview of the 11-day course Getting –to-know you sessions: <ul style="list-style-type: none"> • Introduction of facilitators and trainees • Team building exercises • Surfacing of expectations and generation of house rules LUNCH BREAK	Ms. Anna Marie P. Alo (Senior Science Research Specialist, PCARRD)
1:30-2:30	Minimum requirement in preparing for a ToT on FLS-IGM	Ms. Anna Marie P. Alo
2:30- 4:00	Involving community people in the design of the FLS	-do-
Day 2 Tuesday 8:00-10:00	Facilitating Participatory Processes of Adults: Beyond the principles	-do-
10:00-12:00	Communicating with adults: the necessary facilitation skills	Mr. F.G. Gabunada (LLSP, CIAT)
1:00-2:30	Understanding adults' non-verbal cues	Ms. Anna Marie P. Alo
2:30-3:30	The FLS concepts and practice	-do-
3:30-4:30	Mobilizing the community for action and launching the FLS	-do-
4:30-5:00	Testimonies from an FLS graduate	Mr. Rodrigo Castillo FLS 2 graduate San Joaquin, Balungao
Day 3 Wednesday 8:00-10:00	Village characterization using story maps	Mr. F.G. Gabunada
10:00-12:00	Village characterization using graphical calendars	-do-
1:00-3:00	Village characterization using problem trees	-do-
3:00-4:00	Community action planning	Ms. Anna Marie P. Alo

4:00-5:30	Potentials of goat raising	Dr. Emilio M. Cruz (Director, Small Ruminant Center, CLSU)
Day 4 Thursday 6:30-3:00 3:00-4:30	Field trip to smallhold goat production sites Pen design and construction	Ms. Anna Marie P. Alo
Day 5 Friday 7:30-10:30	Feed resource establishment	Mr. F.G. Gabunada
10:30-12:00	Common disease of goats	Dr. Virginia M. Venturina (Assoc. Prof. and Chair, Pathobiology Dept., College of Vet. Sci. and Medicine, CLSU)
1:00-4:00	Worm diseases and their control	-do-
4:00-5:00	Procedure for fecal analysis	-do-
Day 6 Saturday 8:00-10:00	Stall feeding with tree leaves and shrubs	Mr. F.G. Gabunada
10:00-12:00	Alternatives to traditional grazing management	Dr. Emilio M. Cruz
1:00-5:00	Production of concentrates, UMMB, UTRS and silage	Mr. Francisco G. Gabunada and SRC staff
SUNDAY	FREE DAY	
Day 7 Monday 8:00-12:00	Proper husbandry management	SRC staff
1:00-3:30	Alternatives to traditional breeding management	Dr. Emilio M. Cruz
3:30-5:00	Waste management	-do-
Day 8 Tuesday 8:00-12:00	Goat enterprise building	Dr. Ernesto O. Brown (Sr. Science Research Specialist, Socio-economics Research Division, PCARRD)
1:00-2:30	Participatory technology development and field monitoring	Ms. Anna Marie P. Alo
2:30-3:30	Record keeping by individual farmers	-do-
3:30-5:00	Evaluating impacts of the FLS	-do-
Day 9 Wednesday 8:00-12:00	Evaluating impacts, continued	-do-
1:00-4:00	Evaluating the conduct of the FLS	-do-
4:00-5:30	Planning for tomorrow's field work	-do-
Day 10 Thursday Whole day	Field work	
Day 11 Friday 8:00-2:00 2:00-3:00	Presentation of outputs Graduation and closing ceremonies	

Annex 2. Participants and facilitators of the training

Name of Participant	Designation & Office Address
1. Abrenica, Lemuel M.	Agriculturist II DA-ISS III*, Tebag, Sta. Barbara
2. Adame, Florentino A.	Agricultural Center Chief III DA-RADDL, Sta. Barbara, Pangasinan
3. Agustin, Eva C.	Assistant Information Officer DA-RFU 1, Sevilla, San Fernando City, Ilocos Norte
4. Alcedo, Mary Jane B.	Agriculturist II DA-RFU I, San Fernando City, La Union Tel: 072-888-0341
5. Apigo, Divina Gracia G.	LI/ Agricultural Technologist LGU, Bacnotan, La Union
6. Baja, Evangeline C.	Agricultural Technician II Prov'l Vet Office, Diversion Road, Bolbok, Batangas City
7. Bautista, Nena P.	Agricultural Technologist LGU, Asingan, Pangasinan
8. Beltran, Maria Asuncion G.	Associate Professor IVM, Tarlac College of Agriculture, Malacampa, Camiling, Tarlac
9. Bulatao, Vilma V.	Livestock Inspector MAO, Malasiqui, Pangasinan
10. Cania, Gemma G.	Agricultural Technologist MAO, Manolo Fortich, Bukidnon
11. Castillo, Constancio Ronald D.	Senior Agriculturist Prov'l Vet Office, Diversion Road, Bolboc, Batangas City
12. Cornelio, Erwin M.	Instructor IVM, Tarlac College of Agriculture, Malacampa, Camiling, Tarlac
13. Darang, Sergio T.	Sr. Agriculturist DA-CVIARC-IES, Gamu, Isabela
14. Diamsay, Andres B.	Asst. Prov. Agriculturist DA-Office of the Provincial Agriculturist, Tarlac City
15. Foronda, Susan A.	Agriculturist II Livestock Development Council, Diliman, Quezon City
16. Lacasandile, Alvaro Jade M.	AT/LI LGU-Tagudin, Ilocos Sur
17. Lubguban, Rosabel C.	Agriculturist I Agricultural Training Institute, Elliptical Road, Quezon City
18. Macaranas, Amabelle M	Livestock Inspector MAO, Malasiqui, Pangasinan
19. Maiso, Paterno C.	Agricultural Technologist Provincial Vet Office, Alibago, Ilagan, Isabela
20. Opolinto, Diosdado C.	Agricultural Technologist LGU, Bani, Pangasinan
21. Praxedes, Paul Rhoderick S.	Agriculturist II/ District Vet Provincial Vet Office, Diversion Rd, Bulbok, Batangas City
22. Ramos, Mary Anne	Instructor I Tarlac Agricultural College, Malacampa, Camiling, Tarlac

Name of Participant	Designation & Office Address
23. Serna Jr, Enrique R.	Agricultural Technologist II City Vet Office, Alaminos City
24. Villa, Ma. Delia G.	Market Specialist Provincial Vet Office, Gomburza St., Laoag City, Ilocos Norte
25. Vinagrera, Ruth Asuncion B.	Supervising Agriculturist Prov'l Vet Office, Sports Complex, Alibagu, Ilagan, Isabela

Name of Facilitator	Designation & Office Address
1. Alo, Anna Marie P.	Sr. Science Research Specialist, PCARRD, Los Banos, Laguna
2. Brown, Ernesto O.	Sr. Science Research Specialist, PCARRD, Los Banos, Laguna
3. Cruz, Emilio M.	Director, Small Ruminant Center, CLSU
4. Gabunada Jr, Francisco F.	CIAT-LLSP, FARMI, Leyte State University, ViSCA, Baybay, Leyte
5. Ilagan, Marilyn D.	Agricultural Technologist/ Livestock Inspector MAO, Balungao, Pangasinan
6. Venturina, Virginia M.	Asoc. Prof and Chair, Pathobiology Dept. College of Vet. Science and Med, CLSU
7. Pena, Reniemar B.	Research Assistant, Small Ruminant Center, CLSU
8. Lorenzo, Lohreihleih D.	Research Aid, Small Ruminant Center, CLSU
9. Galamgam, Ariel S.	Research Assistant, Small Ruminant Center, CLSU

Kampong Cham, Cambodia, 23 Aug – 1 Sep 2004

Phonepaseuth Phengsavanh

Objectives

- (1) Conduct training course on forage management and utilization
- (2) Organize field visits and conduct participatory forage evaluation with farmers
- (3) Develop an action plan for the rest of the year

People met

Dr. Sorn San, LLSP National coordinator, DAHP
Mr. Chea Socheat, Provincial coordinator, AHPO, Kampongcham province.
Mr. Chim Si Mach, Technician, AHPO, Kampongcham province.
Mr. So Phal, Technician, AHPO, Kampongcham province.
(8 participants of the training course)

Itinerary

23 August	Vientiane – Phnom Penh
24 Aug	Travel to Kampongcham and field visit in Cheung Prey district
25-27 Aug	Training course on forage management in Kampongcham province and field exercise
28 Aug	Field visit and meeting on planning for the rest of the year
29 Aug	Travel back to Phnom Penh
30-31 Aug	Work with Sorn San
1 Sep	Fly to Vientiane, Lao PDR.

Summary

A training course was organized for two days in Kampongcham province. There were 10 participants, mostly from districts where the LLSP has been working or where work is targeted for next year. Topics included the importance of forages, the need to select the right and best varieties of a species not just any variety; forage establishment; forage management and utilization; cutting management to ensure both quality and quantity; and lastly the nutrient declining in cut-and-carry forage plots and possible solutions for overcoming this problem. The theory was followed by a field visit to enable participants to gain experience with forages and see management issues in the fields.

A 3-day field visit was organized to visit existing LLSP sites in three districts of Kampongcham province. The team visited 7 villages including Pnouv Lek village (Cheung Pray district), Trapieng Rong and Trapieng Raing (Prey Chhor), Kbal Damray, Kong Karng 1 and 2 and Taheav Krom (Pongnea Krek). All visited farmers managed their forage plots very well, but a few farmers had problems with establishment especially in fields that were water-logged. Most farmers prefer three varieties from six introduced varieties: *Brachiaria* hybrid Mulato, *Stylosanthes guianensis* CIAT 184 and *Panicum maximum* Simuang, but the last one only mentioned by farmers with more fertile soils.

A meeting with provincial and district staff was organized in the provincial Animal Health and Production Office to develop a work and action plan for the remainder of the year. This included activities such as individual farmer follow-up at critical times, monitoring and

evaluation with farmers, organization of farmer focus group and village meetings. This action plan will help local staff to implement monitoring the activities.

Details of activities

Training on forage selection and management

The training was conducted for 2 days followed by a field exercise to LLSP sites in Pongnea Krek District. A total of 10 participants were involved. The participants included two staff from the provincial Animal Health and Production Office (both involved in LLSP activities); other participants were from districts where the LLSP is currently working in and has targeted to work in near the future. Most of the participants are working as TOTs (training for technicians and farmers) on animal health.

The following topics were discussed in the training:

1. What are forages?
2. The need to introduce of the best varieties to farmers.
3. How to select these best varieties based on climate, soil and uses.
4. Establishment of forages.
5. Management of forages.
6. Forage utilization.

Emphasis was given to ways of selecting the best varieties for each situation, the importance of building trust with farmers and participatory approaches for successful forage development. Other important issues included forage management and utilization, especially the importance of maintaining both quality and quantity of forages to ensure high livestock productivity.

The participants were well-selected. Each TOT is assigned to a specific district, which will be useful for expansion of LLSP activities. The field exercise enabled the participants to see how forages were established and managed by farmers in the field. Participants could see the problems in the field that have been mentioned during the course, especially site selection, sowing rate, cutting management for legume and grasses (some farmers cut Stylo 184 very low and regrowth was not as good as in fields of farmers who cut higher at about 20-25 cm). Participants were able to learn both theory and practical things in the field.

Field visit to existing LLSP sites in Kampong Cham

The field visits were organized for three days visiting all LLSP sites in three districts in Kampongcham province. The aim of the visits were to provide needed technical information to farmers and to conduct participatory forage variety evaluation with farmers.

The team visited Pnouv Lek village (Cheung Pray district), Trapieng Rong and Trapieng Raing (Prey Chhor), Kbal Damray, Kong Karng 1 and 2 and Taheav Krom (Pongnea Krek). The forage plots in all visited villages were well established (even though there was a drought for about one month in July). Most farmers planted 6 varieties: *Andropogon gayanus* Gamba, *Brachiaria brizantha* Marandu, *Brachiaria decumbens* Basilisk, *Brachiaria* hybrid Mulato, *Panicum maximum* Simuang and *Stylosanthes guianensis* CIAT 184. All varieties grew well in all districts, except *Panicum maximum* Simuang in Pongnea Krek where the soil is sandy and infertile.

Farmers are happy with their forage plots, but there are few farmers have few problems especially those who planted forages in low-lying areas that are prone to flooding and water-logging. Apart from this problem, there were few other common problems which we noticed in farmers' fields. Firstly, (too) high sowing rates and no early weeding in some farmers' fields. Secondly, that some farmers have not cut their forages and let them grow very high with the result of making forages very stemmy. These problems were discussed with farmers and staff have compared seedlings from high and low density row in the plots and demonstrated how to cut different grass varieties and legume.

Provincial and district staff conducted participatory evaluation with farmers in order to learn which varieties that farmers like and don't like in the wet season and why. The results of evaluation were as the followings: The most promising varieties for most farmers were *Brachiaria* hybrid Mulato and *Stylosanthes guianensis* CIAT 184 because of their good establishment and fast growth. There were some farmers in fertile soil areas who liked *Panicum maximum* Simuang, *Brachiaria* hybrid Mulato and *Stylosanthes guianensis* CIAT 184 and one farmer had already expanded his area from cuttings of *Panicum maximum* Simuang. This evaluation is mid-term and the results from this evaluation can not be summarized yet on which varieties are promising for farmers, because farmers will need to experience with all varieties at least until the end of dry season. Farmers needs differ and thus the purpose of using forages is different; some will need forages for wet season and some will need forages for the dry season. It is important to give farmers time to experience forages throughout the year; this will help them to select the right varieties for their farm condition and need.

Planning meeting for the next 6 months (Oct 04 - Mar 05)

The meeting started with a review of project activities in the past three month (July-September) to discuss progress and identify problem areas. Lorn Sophal, provincial staff in charge of the work in Kampngcham, presented details of implementation of the project; the main activities were follow-up of planting forages with farmers. Staff visited each site often, especially during and after planting time to make sure of good establishment of all forages. As a result of the hard work, 83 of the total of 87 farmers were successful in establishing their forage plots.

During the meeting, the team developed a plan identifying the main activities of follow-up in critical time such as cutting, management in dry season and evaluation; farmer focus group and village meetings until the end of the year. The discussion about more details was on the timing of implementation of each activity and the methodology on how to implement this work.

All the ideas from discussion were put into an action plan which was completed later with Dr. Sorn San and Mr. Chea Socheat in Phnom Penh. The action plan was later shared with provincial and district staff for comments and implementation.

Luang Phabang, Lao PDR, 5 - 12 September 2004

Phonepaseuth Phengsavanh

Objectives

Facilitate cross-visit and experience-sharing of LLSP staff from Cambodia and Savannakhet, Lao PDR with FLSP partners in Luang Phabang, Lao PDR

People travelling

Phonepaseuth Phengsavanh (Laos)
Sorn San (Cambodia)
Chea Socheat (Cambodia)
Viengxay Photakoun (FLSP, Laos)
Bounmy Pheovanhkham (Savannakhet, Laos)
Phoulien (Savannakhet)
Khamphai (Savannakhet)
Bounthavone Kounavongsa (LLSP-Laos coordinator)
Somsy Phimmasan (driver)

People met

Provincial Livestock and Fisheries Section of Luangphabang

- Mr. Sengpasith Thongsavath, head of the section

Forage and Livestock Systems Project in Luangphabang

- Mr. Soulideth, Provincial coordinator of FLSP
- Mr. John Connell, FLSP's extension short term consultant

District Agriculture and Forestry Office staff (See attachment 1)

Itinerary

5 Sep 04	LLSP-Lao team went to Luangphabang by car
6 Sep 04	Seuth and Participants from Cambodia flew to Luangphabang
7 Sep 04	Meeting with provincial and district staff that involve in FLSP
8 Sep 04	Visit Silalek, km11, Km 3, Xieng Ngeun district .
9 Sep 04	Visit Kew Ya, Phonesa Ad and Houahia, Xieng Ngeun district
10 Sep 04	Visit Hadpang, Pak Ou district; Phik Noi and Naxaydonekhoun Luangphabang district
11 Sep 04	Visit Kokwan, Naxao and Muang Khai Luangphabang district Exchange meeting (LLSP – FLSP – Provincial teams)
12 Sep 04	Luang Phabang – Vientiane

Summary

The cross visit of 6 LLSP partners (Dr. Sorn San and Chea Socheat from Cambodia and 4 participants from LLSP-Laos) to FLSP sites in Luang Phabang, Lao PDR was organized successfully. The cross visit consisted of visits to FLSP villages and meetings to share impressions from field trips and lesson learnt.

The LLSP team visited 12 villages where farmers have planted forages and other feed resources for different types of animals (cattle, goats, pigs and poultry) to learn and interact with farmers and district staff about the impact of forage technology development to livelihood of smallholders where farmers are experiencing with impacts from forages on livestock

production systems and their livelihood. The LLSP team was quite impressed with technologies that are used by farmers, especially using Stylo 184 for feeding pigs and poultry.

The LLSP team and FLSP team (Provincial and district staff) met to share and exchange their experiences on both forage technology development and the process of working with farmers. The experiences on the steps of development from FLSP team have been shared and discussed.

Details

Visit to the villages

The team visited FLSP sites in three districts of Luang Phabang, Xieng Ngeun and Pak Ou. The visit enabled the LLSP participants to interact with FLSP staff who have more experience in working with farmers to develop forage and feed technologies, and also to meet with smallholder farmers to learn more about farming systems in the areas, and discuss more details of the innovation process for integrating forages into their farms.

The LLSP team visited 12 villages with different stage of forage development. In Xieng Ngeun and Luang Phabang districts, the team visited villages where farmers have planted Stylo 184 and sweet potato for feeding pigs. Traditional feed for pigs are rice bran, maize cassava and vegetable/weeds available in forest areas. The most important problem for farmers are time and labor for finding enough feed for their pigs, resulting in slow growth pigs. The traditional diet is clearly deficient in protein and this is likely the main reason for the slow growth of village pigs. Stylo 184 and sweet potato vines were introduced to these villages as the options for farmers to overcome this feed shortage in both quality and quantity.

According to the information from farmers, the result of feeding traditional feed (rice bran or maize and cassava roots) as basal diet and supplemented with Stylo 184 and sweet potato leaves shows that the daily weight gain is approximately about 400 g/day compares to 140 g/day by feeding traditional diet with vegetables only.

Most of farmers now use fresh Stylo 184 for feeding pigs but recently some farmers have started to produce Stylo leaf meal for feeding to pigs and chicken.

The team also visited a village where farmers are planting forages (*B. brizantha* Marandu; *B.* hybrid Mulato, *P. maximum* Simuang and *S. guianensis* CIAT 184) for feeding cattle. The team had a chance to discuss with both farmers and district staff about forage development in this village. The team heard how farmers have changed cattle raising approach from free grazing to confined systems. Farmers in this village started planting forages first to overcome problems of feed shortage in dry season, save times and labor for finding feed. After a few years of working with forages and experience with their benefits, farmers have developed new feeding systems that move from free grazing to semi-confining system. In this system, cattle are still allowed to graze in grazing areas, but farmers observe the thin animals and bring these to the village where they feed them with cut forages until they get fat, then the animal is taken back to grazing area again.

The team has also visited another district (Pak Ou), where farmers are planting forages for goats.

Meetings on sharing experiences of forage technology development with farmers in Laos and Cambodia

The meetings were aimed to enable both teams (LLSP and FLSP) to share their experiences on forage and livestock production development in Laos and Cambodia.

The meeting was held after the field visit in the FLSP provincial office. 11 participants (7 from LLSP and 4 from FLSP) attended the meeting. The meeting started with a feedback session by the LLSP team of what they had seen and learnt on this visit. The LLSP team also briefed participants on the main activities in Lao PDR and Cambodia that are still in early stages – testing varieties with farmers and started helping them to integrate into their farms.

Then the FLSP team briefed participants about activities in Luang Phabang, where work focused on not only forages but will also on other feed resources in order to improve productivity of animals.

The Cambodian team was quite impressed with the activities in the field especially feeding Stylo 184 for pigs and poultry. The Cambodian team was also interested in the approach of working with farmers from testing varieties to improving feed resources and how to expand to new villages. Then the FLSP team shared the experiences on how to work with farmers starting with how to select villages, working with farmer during the year to provide technical advices to farmers and facilitate focus group and villages meeting to create an environment for farmers to learn from each other. The methodology for dissemination such as cross visits and field days was discussed as well.

Table 1. List of participants

1. Luang Phabang Livestock and Fisheries office (2)
 - Mr. Sengpasith Thongsavath (Head of Provincial Livestock and Fisheries office)
 - Mr. Soulideth Phraponsay (FLSP coordinator, Livestock Specialist, Provincial Livestock Office)
2. Luang Phabang district (6)
 - Mr. Somsak (Extension Officer)
 - Ms. Thongbay Siesomphone (Extension Officer)
 - Mr. Vongduen (Extension Officer)
 - Mr. Kenchanh (Extension Officer)
 - Ms. Chanhsumone (Extension Officer)
 - Mr. Thavone (Extension Officer)
3. Xieng Ngeun district (6)
 - Mr. Somvanh Phommali (Extension Officer)
 - Mr. Bounthanom (Extension Officer)
 - Mr. Sengphet (Extension Officer)
 - Ms. Sidaphone (Extension Officer)
 - Ms. Keosakhone (Extension Officer)
 - Mr. Vayi (Extension Officer)
4. Pak Ou district (2)
 - Mrs. Chanhsouk (Extension Officer)
 - Mr. Thongkham Vongpralath (Extension Officer)
5. LLSP (5)
 - Mr. Phonepaseuth Phengsavanh (Regional coordinator)

Mr. Bounmy Pheovanhkham (Savanakhet-LLSP-LAO)
Mr. Khamphai (Savannakhet)
Mr. Phoulien Sihavong (Savanakhet)
Mr. Bounthavone Kounavongsa (LLSP- Lao coordinator)
Dr. Sorn San (Cambodia)
Mr. Chea Socheat (Cambodia)

6. FLSP (2)

Mr. Viengxay Photakoun
Mr. John Connell

Leyte and Mindanao LLSP Sites, 6 - 11 September 2004

Francisco Gabunada Jr.

Objective

- Review accomplishments and plan LLSP activities in Leyte
- Assist in preparing the module for the field school session in Cagayan de Oro
- Work with Ed Magboo in the preparation for training of site collaborators

People Traveling

Francisco Gabunada

Eduedo Magboo

Itinerary

- 06 Sep 04 Meeting with collaborators in Leyte
- 07 Sep 04 Departure from Leyte
- 08 Aug 04 Visit Cagayan de Oro site to assist in conducting the field school
- 09 Sep 04 Work with Ed to conceptualize and formulate training plan
- 10 Sep 04 Formulate training plan and make arrangements for the training

People Met

LLSP Collaborators in Leyte

- Lolito C. Bestil – Director, Philippine Carabao Center, Leyte State University (LSU)
- Edwin Balbarino – Director, Farm and Resource Management Institute (FARMI), LSU
- Fatima Balina – staff, FARMI, LSU
- Henry Napoles – Agricultural Technician, DA-LGU Albuera, Leyte
- Nelson Cabanas - Agricultural Technician, DA-LGU Baybay, Leyte
- Inday Patolilic - Agricultural Technician, DA-LGU Baybay, Leyte

LLSP Collaborators from Cagayan de Oro City Veterinary Office

- Perla Asis
- Rey Dapanas
- Fernando La Victoria

Activities

Meeting with collaborators in Leyte

A meeting was conducted to review what has been accomplished, then plan out how to move forward.

The LLSP is working with farmers that have availed of Murrah buffalo from the Philippine Carabao Center. Bulk of the activities at this stage is done with farmers who are starting to milk their buffaloes. There are presently 7 farmers involved in the experiments. These farmers are located in the municipalities of Baybay and Albuera, the impact zone of PCC.

The roles of the collaborating partners are as follows:

- a) Philippine Carabao Center – provides link with their Murrah buffalo dispersal project beneficiaries. The center also provides technical (buffalo production-related) input for the activities. The representative (Lolito Bestil) is the main person involved.
- b) FARMI – provides the participatory approach/methodology-related input for the activities. Three staff are involved (Edwin Balbarino, Fatima Balina and Bernadette Quirol).
- c) DA-LGU Albuera and Baybay – provide 2 technicians each from their offices for the monitoring and other field-related routine activities. These activities are decided by the team (PCC, FARMI, DA-LGU) during meetings. Capability-building activities like mentoring (helping out during the initial monitoring/data gathering activities) have been focused to the technicians.
- d) Buffalo raisers Association – this is the organization composed of the Murrah buffalo beneficiaries from PCC. The beneficiaries have already started (still in small scale) milk collection and processing. The organization is the group targeted for LLSP activities. It has 20 members.

So far, the activities in Leyte are as follows:

- a) Participatory Diagnosis to get a better understanding of the production system
- b) Small experiments on *ad libitum* feeding – this activity involved 7 farmers who were milking their buffalos. Daily milk yield were already monitored by the PCC and the raisers association (milk collection is done by the organization for their milk processing and marketing activity). The initial aim was to ascertain the effect of *ad libitum* feeding (providing feed to a point where the animal has leftover edible feed the next day) on milk yield. The experiment was done for 6 weeks.

The technicians, with initial help from PCC and FARMI were doing the twice-a-week monitoring. Basically, this consisted of visiting the farmers and helping them to do the recording properly.

After a month, the data were reviewed by the team. Since it was observed that most of the farmers were not able to implement *ad libitum* feeding during the first two weeks of data gathering, it was decided that the experiments need to continue for another two weeks.

Another finding from the initial data was that feeding and management varied between farmers. Since this information was captured in the data gathering form from the beginning, it was decided that there might be a need to consider each farmer as a case rather than take average values from a group of farmers.

Technical analysis was done after the data were gathered. These were then presented and discussed with the farmers in a meeting. After which plans were laid out with the farmers. The plans included looking into concentrate quality improvement.

- Training to introduce the concept of forages to farmers – A few weeks after the experiments started, the inadequacy of feed was evident. The option of introducing the forages to farmers was then considered. A 1-day training was conducted for this purpose. The training was attended by all the PCC beneficiaries in Baybay and Albuera. The topics covered include:
 - a. Introduction to the different forage species
 - b. Ways of integrating forages in the farm

- c. Establishment of forages
- d. Management of forages after planting

After the training, farmers were asked to plan out whether they would establish forages in their farms. Seeds were offered to interested farmers. It was learned that there were farmers who: (a) did not have area for forage planting, (b) still could rely on existing native vegetation, and (c) were interested to try the forages (some still had to prepare and others were already bringing small amounts of seed for testing).

During the meeting with the collaborators, the following points were agreed:

- a) there is a need to involve the experimenting farmers more actively in the analysis of the results of their experiments. The analysis shall not only be focused on milk yield; the farmers' reaction on the practicality of the options tried will be included.
- b) instead of getting the farmers to FARMI or PCC to do the analysis, a series of cross-visits will be done to each farmer's farm. The visit will enable the other farmers to see the host's farm and interact with the host to tackle issues on how he manages his buffalo as well as identify practices that are good (that they could try in their farms) and practices that could be improved. It is also during this session that the host farmer will present the results of his experiment and the whole group can interpret/discuss the implications/practicality of the results.

It was agreed that the experiments were not really intended to establish or make conclusive quantitative results because all the treatments involved (*ad libitum* feeding, use of legumes and concentrate) are already known to improve milk yield. Rather the aim of the experiments is for the farmers to appreciate the principles, assess their practicality, and decide whether he will adopt/adapt the practice or not. A desirable result is therefore one where the farmer says, "*I have found out that this practice is good and I will do it*" or, "*Although the practice is good, next time I will modify it*" or, "*The practice is good but I will not be able to do it because ...*".

The task of the team will be to facilitate the process and document the farmer's assessment. The team shall also identify what it can do to facilitate adoption or further experimentation based on the farmers' assessment.

To do this, the team planned to include mind-setting exercises (also called value formation or creativity exercises) in the sessions. These exercises were thought to be necessary input to facilitate farmers' appreciation of the learnings they got from the trials and tickle their imagination/creativity or get them thinking that there are possibilities for them to improve their production system. One example mentioned was to give them a puzzle which is quite difficult such that they would think there is no solution. Before the solution is shown, they will be asked to draw out how they felt and acted out in solving the puzzle (for example, some still keep repeating the same mistake even if they already knew it did not work or some may have stopped trying after a few failed attempts). Then the answer is shown and their comments processed. In the previous example, the synthesis would include: (a) in order to be creative, one has to be on the lookout for other ways of doing things, and (b) most if not all problems have solutions; an occurrence that one considers and accepts as natural (or with no solution), may in fact have a solution.

These activities require facilitation skills to draw out farmers' ideas. The group agreed that that the major hindrances to adoption are: (a) when farmers don't appreciate the value or benefits that he can get from the technology (i.e. farmers only adopt a technology after they appreciate its benefit), and (b) when R&D workers/technicians do not know the farmers'

circumstances, such that wrong technologies are offered, or right technologies are offered but at the wrong time (e.g. when farmers still have other pressing/priority needs they want to address first). It was felt that getting more active participation from farmers would solve this gap.

Visit to Cagayan de Oro

We joined the field school conducted by collaborators in Cagayan de Oro during the visit. The following day, a meeting was conducted with the collaborators to find out what they have accomplished and plan what to do next.

Field School on Goat Raising

We were able to attend the sixth session of the field school in goat raising. The regular sessions were conducted in Tigahon, Dansolihon. However, this particular session was conducted in San Simon because the purpose was to get the participants to observe the results of the small experiments conducted by three goat farmers in this village.

Here are some of observations in the conduct of the field school:

- The facilitators were generally able to get farmers to participate actively, allowing them to express their ideas. This was partly because of the very visible rapport that has been developed between the facilitators and farmers as well as among the farmers.
- Probing skills of the facilitators need to be developed some more. There were times when the facilitators could not hold back from dominating the discussion. This is not surprising because this was their first time to experience the handling of a field school. There is a need to develop the facilitators' skill in drawing out ideas from the farmers, and then just supplementing the ideas; rather than presenting the ideas directly. There were also times when a farmer mentioned a comment which, if followed up by probing, would have revealed more useful learnings/information. For example, one of the farmers reporting his experiment shared that long before, one of the facilitators was already telling him about the benefits of confining his goats and cut-and-carry feeding. However, he just agreed but did not do anything about it. Later on (3 years after), he started adopting the suggestion. A probing question asking what factors made him adopt would have revealed very interesting information.
- Some of the messages were delivered too technically – these topics need to be simplified/laymanized a bit more. This is a skill which facilitators need to learn more about.

Meeting with Collaborators of Cagayan de Oro

The field school was on their sixth session. The agreed schedule was every Wednesday, starting in July 28. The following were discussed in the past six sessions.

- 28 July – introduction session (setting house rules, schedules, other arrangements)
- 4 August – discussion on problems experienced by farmers in goat production
- 11 August – practical session on forage establishment (planting)
- 18 August – visit farmers who were planting forages to learn how the forages are used
- 1 September- ruminant digestive system
- 8 September – farmers visited small experiments in San Simon on three methods of feeding management (tethering, fenced grazing, confined feeding)

The sessions are conducted in Tigahon, Dansolihon. Attendance varied from 31 to 49 participants, all goat-raisers. Most of the participants are from Tigahon. There are a few participants from San Simon (4), Tagpangi (2), Mambuaya (2), Cana-an (1), Rest House (2),

Lumbia (2), Pagalungan (2) and Baikingon (2). The participants from outside Dansolihon had to travel to the venue either by transport provided by the collaborators or by their own transport.

The topics were decided based on an initial Participatory Diagnosis (PD) done with goat raisers in Tigahon. The main constraints identified were:

- not enough feed
- low quality feed
- inadequate management
- breeders are not of good quality
- mortality, especially kids

Perla Asis and her staff are the main facilitators of the field school. During the meeting, their plans on the topics to be taken were discussed. It was learned that the group intends to continue the field school until the first week of December. Since that would mean that there will be at least 10 more topics, they were advised to ask the farmers to evaluate the topics that have so far been taken; as well as ask the farmers for suggestions on other topics that they want to be taken. All these are in addition to what they have planned before. This would enable them to focus better on topics that farmers want to know more about as well as get the farmers to decide other topics that they have not thought before.

The facilitators found the use of mind setting exercises useful in getting farmers to more actively participate. They were then provided with suggestions on other mind setting exercises that they might be able to use during the field school.

Ed stressed that the major characteristic with the farmers to be considered in handling the field school are as follows:

- a) Farmers don't read; therefore, reading materials/handouts may not be very useful. However, farmers like to see – thus visuals/pictures or actual specimens would be more appropriate. Writing the farmers' responses in the board for everybody to see is also another appropriate practice.
- b) Farmers remember more if they can relate the topic to something else. Therefore, some technical terms/ideas can not be understood unless they are related to common everyday things. This connotes that translation does not just involve getting the appropriate term for a word; rather translation should aim to find a way for farmers to be able to understand not just the term but the meaning/essence of the term. This is where the use of games or exercises can play a big role – which is facilitating understanding of the meaning of the term or topic discussed.
- c) Our aim in the field school is not just to make the farmers "understand" the topics. The other (often more important and should be the first one to be attained) is to get the farmers to appreciate the value of the topic being discussed in improving their livelihood. Once farmers get the value of the topic, they might even devise techniques by themselves. One example is that farmers should first realize the value of minimizing feed wastage before they will want to know how to make a feeding trough. Creating appreciation should therefore be considered as an important task.
- d) One of the most important factors related to creating appreciation is the person's attitude. Once a person's attitude to a situation is changed, other changes can easily follow. This is where the mind setting exercises play a big role.

The idea of conducting a training for collaborators was accepted by Perla's group. Four collaborators will be attending the training (Perla Asis, Rey Dapanas, Fernando La Victoria and Jerome Pasios). This training was scheduled on 23-24 September 2004.

The scheduled experience sharing session with other sites was also agreed upon with Perla's group. This was set on the first week of December, 2004.

Preparation for a training for collaborating field workers

The design of the training course for collaborators was made with Ed Magboo. The main plan is to conduct a two-day training-workshop. There will only be few topics to be covered. These topics should be ones that are relevant and useful for the immediately upcoming site activities.

The training will address the growing concern that site collaborators will need technical input to be used for their field schools. Moreover, we have observed that there is a chance to improve the way the field schools are conducted.

The topics to be undertaken in the training are as follows:

- How farmers learn
- Creativity/Mind-setting Exercises
- Workshop to discuss information needed and delivery methods for the the following topics:
 - Efficiency
 - Amount of feed
 - Quality of feed
 - Stage of Growth
- Role of facilitators in the field school

It is expected that the trainees will apply what they learned from the training workshop immediately in the conduct of their field schools. A follow-up workshop to share experiences and decide on next topics for training will be done in the first week of December.

Annex 1. Results of farmer experiments in Leyte

**FARMERS' EXPERIMENTATION MONITORING FORM
(Focus: Increasing Milk Yield from Dairy Buffalos)**

Table 1. Milk yield of dairy buffaloes obtained during the 30-day trial on feeding management

FARMER	FEEDING SYSTEM	CUT-AND-CARRY FEED			CONCENTRATE		MILK YIELD (l/day)	OTHER FACTORS
		TYPE	PROPORTION (total of 10)	LEFT-OVER FEED (Y/N)	TYPE	AMOUNT (kg)		
Danilo Grabillo	Tethering + Cut-and-carry	Napier+Sugarcane tops	6:4	N	RB+GC		2.55	<ul style="list-style-type: none"> On 3rd month lactation. Purebred BMB.
		Napier+Cover crop	5:5	N	RB+GC		3.45	
Neng-neng Lim	Tethering + Cut-and-carry	Napier	10	N	None	None	4.70	<ul style="list-style-type: none"> On 4th month lactation. Purebred BMB.
		Napier	10	N	BR+GC	1+1	4.96	
Nolan Fernandez	Tethering + Cut-and-carry	Native Grass	10	N	None	None	3.00	<ul style="list-style-type: none"> On 5th month lactation. Crossbred (F1).
		Native Grass	10	Y	None	None	3.46	
Eddie Nudalo	Tethering + Cut-and-carry	Napier+Cover crop	9:1	N	None	None	2.79	<ul style="list-style-type: none"> On 3rd month lactation. Crossbred (F2).
		Cover crop+Native Grass	1:9	Y	None	None	3.00	
		Napier-Cover crop	9:1	Y	None	None	2.83	
Gregorio Cueco	Cut-and-carry	Napier+Cover crop	4:6	Y	HG	2	6.75	<ul style="list-style-type: none"> On 9th month lactation. Purebred BMB.
		Napier+Cover crop	4:6	Y	HG+ RB	2+3	7.00	
Crispin Lebaresos	Cut-and-carry	Napier+ Corn Stover	5:5	N	BR	1-2 gantas	2.78	<ul style="list-style-type: none"> On 9th month lactation. Purebred BMB. Animal was sick
		Napier+Cover crop	5:5	N	LM+RB	(SAD)	2.62	
		Native Grasses	10	Y	GC + RB		2.25	

Legend: RB = rice bran HG = hog grower
 GC = grated coconut LM = hog lactating mash
 SAD – skip-a-day (2-3 times/week)

Annex 2. Structure of the field school in San Simon (September 8, 2004)

Time	Activity
09:00 AM	Arrival of participants
10:30 AM	Visit to the small experiments
12:00 Nn	Lunch
1:15 PM	Opening <ul style="list-style-type: none"> ▪ Prayer ▪ National anthem ▪ Recapitulation of previous session ▪ Mind-setting exercise
1:45 PM	Reporting and Discussion
3:00 PM	Agreements for next session
3:15 PM	End of session

Annex 3. Common parts of a field school for goat raisers in Cagayan de Oro

Opening Prayer
 National Anthem
 Recap of previous meeting
 Mind-setting exercise
 Technical input
 Planning of next session
 Departure

Savannakhet, Lao PDR, 24 September - 6 October 2004

Phonepaseuth Phengsavanh

Objectives

Assist the LLSP-Lao team to conduct a goat market study in Savannakhet and visit the project sites

Traveling people

- Phonepaseuth Phengsavanh, LLSP Sub-regional coordinator
- Soukanh Keonouchanh, Director of Livestock Research Center

People met

- Mr Khamchanh Sidavong, Deputy head of PLFS
- Mr. Bounmy Pheowankham, Head of Livestock production unit
- Phoulien Sihavong, District extension worker
- Farmers and traders

Itinerary

24 Sep 04	Travel from Vientiane to Savannakhet
25 Sep - 3 Oct 04	Market study
4 Oct 04	Field visit
5 Oct 04	Meeting with provincial and district staff on project activities and planning
6 Oct 04	Return to Vientiane

Activities and outcomes of the study

Goat market study in three main district of goat production in Savannakhet

The details of this study will be described in separate report. A short summary of the aim, methodology and activities is given here:

1. Objectives

The aim of this study were to (i) Gain more information and understanding about current goat production and market situations in the areas so we can use as a one motivating factor for farmers to improve their goat productivities, and (ii) Help farmers to have access on market information for better decision making aimed to gain more benefits from goat production and stimulate the farmer focus group (LLSP) to see the potential for goats in the marketplace.

2. Methodology

The provincial and district staff went to collect secondary information and share the results with the study team. Meeting with local staff was organized to check and analyze secondary information prior the study. The study was conducted in September 2004 by meeting with groups of farmers and traders were organized to gain an understanding of general information on problems and opportunities of goat production-supply chains. The tools used in the study include participatory production-market chain mapping, Calendar of buying and selling goats, problem identification and prioritization. Informal surveys were conducted with a few key farmers in small groups to validate the results from meeting, where more details of goat production and problem and opportunity for marketing were discussed and experiences shared on how to overcome the main problems. A semi-structured questionnaire was used as

the basis to interview farmers and traders. The interview was conducted among selected goat raising farmers in 8 villages in 3 main goat raising districts, Savannakhet province.

3. History of goat market in Savannakhet

The goat market in Savannakhet has been developed since a few years ago especially when the demand for exporting has been increase and this has been the main reason to encourage many farmers in the areas to start raising goats.

Initially, goat meat demand has been increased locally, where it was rejected before because of simply its smell. However, the situation has changed recently the demand for goat meat has gradually increased since the economic crisis occurred and few people were afford to share buying one goat for traditional eve or party with friends as the price of goats was cheap. Also, there are several small beer shops in the town where they serve many kinds of dish from goat meat (roasted meat, traditional food “lab” and other). Increased demand for export started about 5 years ago, firstly to Thailand where the price was double compare to the local, but the export to Thailand gradually declined due to the potentials for Vietnam market has increased. Most of traders mentioned that it has been easier to sell goats to Vietnam then Thailand as firstly Vietnamese traders usually come to collect goats by themselves, where to sell to Thai traders need to bring goats across Mekong river so Lao traders had to pay tax for exporting. Secondly, Vietnamese traders pay higher price.

3.1 Production-market chain

Currently the goats are traded informally, because middlemen buy goats directly from the farmers whereby no tax or commissions are charged by village committee. However, goats are purchased through a so call network that involves farmers, middlemen, local traders and traders from Vietnam and or Thailand (in the past two years there is very little or almost no goats to sell to Thailand). The detail of the chain is described in diagram 1.

Farmers usually sell their goats when their need cash to spend for children to school or buying the necessary things for family and medicines. The middlemen travel to villages to collect enough goats and sell to the traders in the town (There are 5 of them). These traders have organized themselves in the one place with pens for collecting and holding goats. These goats then sell to Vietnamese traders who come to Laos every two days (sometimes depend on the number of goats as well).

According the information from traders (5 traders), the number of goats sold to Vietnam is about 200-300 heads/week, which mean that the traders sell about 800-1200 heads per month to Vietnam. There are about 1/3 of goats sold to local markets and for breeding. The price of the goats weighing of about 25 kg at farmers’ gates is about 15-20 US\$/head, then middlemen sell to traders at 20-25 US\$/head, it means that middlemen get about 5 US\$/head benefit. The traders then sell to Vietnamese traders about 30-40 U\$/head, so they make about 10 US\$/head benefit. The price in Vietnamese side even incredible is about 50-55 US\$/head.

3.2 Problems and opportunities of goat market

Meeting with farmers

The meetings with farmers were organized in 8 villages in three main districts of goat production. The villages and farmers have been selected due to the goats are main animals kept by farmers and also becomes main source of income for smallholders as well.

The results from meeting showed that most of households interviewed mentioned that they are satisfied with the price given by middlemen, quick return comparing to other animal production. They prefer to sell their goats to middlemen rather than bring them to the town as

it will cost more for the farmers and they have other activities to do in the fields. However, it actually will be better for farmers if they can bring their goat to the traders in the town.

The only problems have been mentioned were:

- a. There are not enough animals for sale and
- b. Difficulty to find animals that meet preference of buyers (middlemen or traders).

Meeting with middlemen and traders

The problem has been raised by middlemen was that in the last two years it becomes more and more difficult to find enough goats, which means that they have to travel further and further. The traders found difficulty to find the goats with the preference weight (25-30 kg) for Vietnamese market, because farmers usually sell the young male goats (1-1.5 years) which are about 15-18 kg only, this also mean that traders get less benefit, as Vietnamese traders pay less for small animals even per kg of live weight.

So there are the opportunities for improving goat production in the areas to help farmers to produce good animals and enough number to supply to the market. The diagram 2 describes the demand and supply for current market situation (data from one trader), where the gap between supply and demand is still big and in order to fill this gap there is a need for technical intervention to smallholder goat production system.

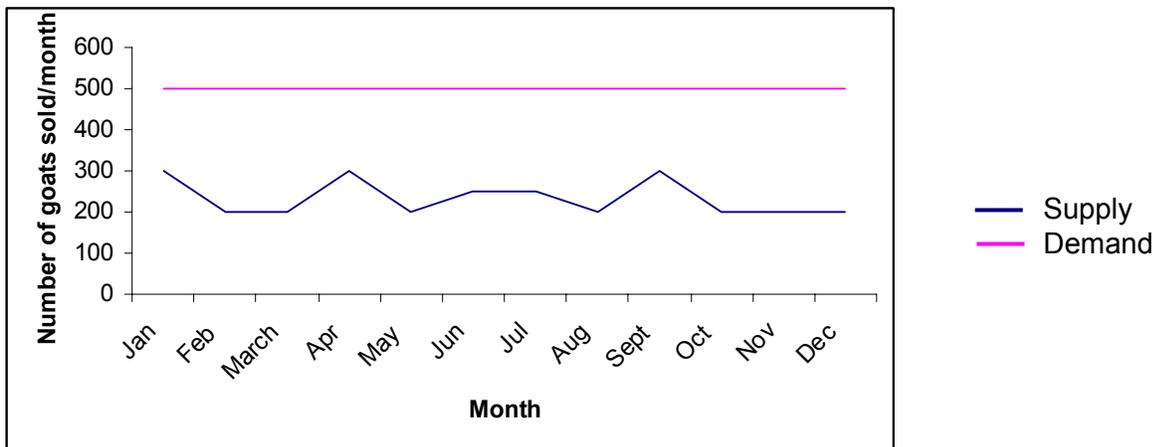


Diagram 2. Supply and demand for goats in Savannakhet

Field visit to existing sites and meeting with provincial and district staff

The team visited three villages and twelve farmers who have started establishing forages this year, four forage varieties of *Andropogon gayanus* 'Gamba', *Brachiaria* hybrid 'Mulato', *Panicum maximum* "Simuang" and *Stylosanthes guianensis* "CIAT 184" grow very well, especially Mulato and Stylo 184 have very good growth. However, about 3-4 farmers did not manage the plots well, because of poor germination of forages in the beginning of wet season and farmers have stopped to take care of their plots.

The meeting with staff was focused on the activities such as the monitoring and evaluation with farmers. Some farmers need help in technical issue especially in term of forage management to make sure that the forages can grow into the dry season.

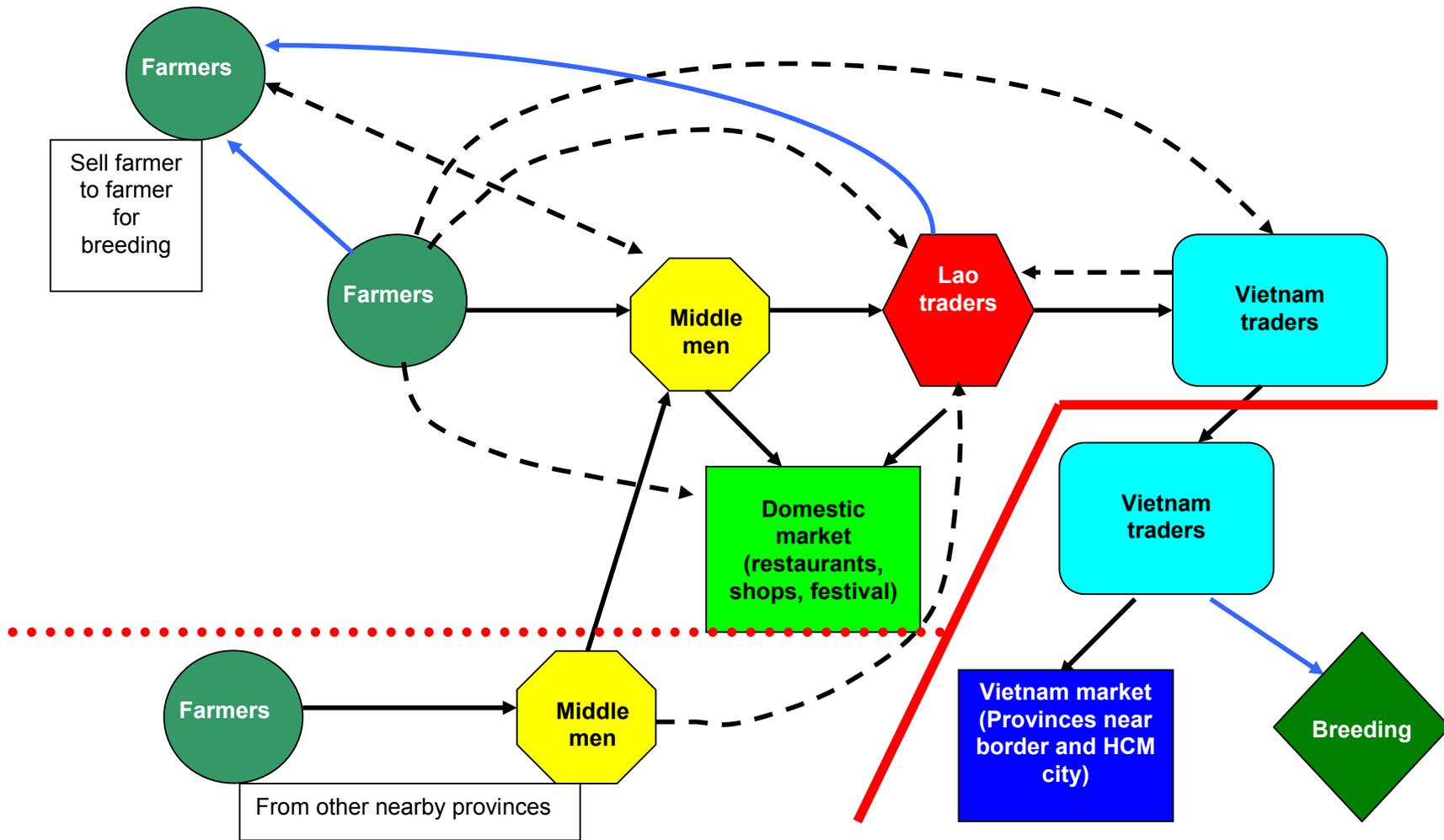


Diagram 1. Production-market chain in Savannakhet

Hanoi, Vietnam, 29 September - 4 October 2004

Francisco Gabunada Jr.

Objectives

- Participate in the Vietnam Livestock Working Group Donors' Conference
- Discuss site plans for Tuyen Quang with Mr. Le Hoa Binh

Itinerary

29 Sep 04	Arrive Hanoi
30 Sep 04	Meet with Mr. Binh and prepare for conference
01 Oct 04	Vietnam LWG Donors' Conference
02-03 Oct 04	Discussion with Mr. Binh
04 Oct 04	Depart Hanoi

Activities

Meeting with Mr. Le Hoa Binh

Ms. Vu Hai Yen in Tuyen Quang was very busy preparing winter feed for their dairy cattle. As such, she could not find time to interact and discuss plans and activities in Tuyen Quang. However, Mr. Binh was able to link up with Dr. Paulo Salgado, an animal nutritionist from CIRAD (*Centre de Cooperation Internationale en Reserche Agronomique pour le Developpement*). Dr. Salgado is involved in building up partnerships that strive to promote sustainable intensification of animal production. Dr. Salgado and Mr. Binh are now working together to look for forage species that are suitable for winter (dry and cold) feed supply to dairy cattle. The sites they work on are located in the provinces of Son La, Tuyen Quang, Hoa Binh and Hanoi. Mr. Binh is planning to get Dr. Salgado involved in the LLSP activities in Tuyen Quang.

Vietnam Livestock Working Group Donors' Conference

The Vietnam Livestock Working Group was formed two years ago in order to bring together the different actors in the livestock projects in Vietnam. It has since organized several meetings and spread information through its mailing list. Most of the members of the group are working in foreign agencies that have livestock-related activities in Vietnam. To date, the group is still a bit loose, with minimal joint activities.

This workshop was organized for the purpose of strengthening relationships and generating an updated overview of donor activities in livestock related projects. The conference served to (a) foster dialogue on both research and extension related livestock activities, and (b) serve as a venue for exchange of ideas that will hopefully lead to joint efforts to improve the livestock production in Vietnam.

The workshop was attended by 40 participants, representing 8 organizations that work in Vietnam. A total of 16 presentations were made during the workshop, one of which was about the LLSP (Annex 1). Booklets 1, 2 and 3 were likewise offered for interested participants.

Visit to Moc Chau District, Son La Province

The CIRAD project site in Moc Chau District of Son La Province was visited. During the visit, people's committee officers in one district of Hoa Binh province were also going on a cross-

visit to Moc Chau. Dr. Salgado was the one who contacted and agreed with the participants about the activity. The intention was for the participants to appreciate the need for forages if they would go into livestock production. The district is planning to establish a beef cattle promotion project.

Topography of the area visited was rolling with some steep portions. Climate is cool due to high altitude. The farmers visited in Moc Chau were raising dairy animals (5-10 cows). They have planted forages (mostly *Brachiaria decumbens*, *Pennisetum purpureum*, *Setaria sphacelata* cv Narok and *Cynodon nlemfuensis*). Among the forages, *Brachiaria decumbens* was planted by most farmers in relatively big areas (0.5 to 2 hectares). The milk produced is collected and processed in a milk factory found in the area.

At the time of the visit, farmers were preparing for winter (cold and dry season). They were preparing hay from Signal grass. The materials used were quite old, such that the resulting product resembles straw (stemmy) more than leafy hay. It was learned that farmers found it difficult to use leafy materials for hay because such would take a long time to dry.

Dr. Salgado and Mr. Binh are working together with farmers in identifying temperate forage species that can be used as feed source during winter. They have established small-plot evaluation trials in three farms within the district. The species were established ten days prior to the visit. Good germination rates have been observed, especially for *Avena* forage grass species.

One major observation was that most of the dairy animals in the farms visited could still be improved in terms of body condition. This could partly be explained by the quite high breed purity of the dairy animals (pure to almost pure Holstein Friesian breed). The animals needed a higher plane of nutrition and management than what they are currently receiving; and are very capable of responding in terms of improved milk production. This would mean that considerable impact could be achieved if nutrition and management of the animals could be improved. Another connotation is that, if farmers' resources are too limited, they might not be able to maintain the dairy animals efficiently. Both this would entail the need to improve the existing production system.

Annex 1. Program of the 2004 Donor Conference on Livestock

Held: 1 October 2004 at the Hilton Hanoi Opera

Registration (8h30-9h00)

Welcome Address and Opening of the conference (9h00-9h30)

Picture and coffee break (9h30-10h00)

Session One: Research (10h00-11h45)

Chair Person Mr. Raf Somers and Patrice Gautier

- Salmonella serotype distribution in slaughtered pigs and human stool samples in Hanoi, Vietnam. Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), Mr. Cedric Le Bas
- Dairy Cattle Development in Vietnam (a project of PRISE platform). Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), Mr. Paulo Salgado
- Overview of Livestock Projects in Vietnam. Australian Centre for International Agricultural Research (ACIAR), Mrs. Misha Coleman
- Development of Diagnostic Techniques for Fasciola in Cattle. Mrs. Bui Khanh Linh
- Epidemiology of Zoonotic Diseases of the Domestic Pig in northern Vietnam. University Development Cooperation - Belgium (UDC Belgium), Mr. Raf Somers
- Strengthening the National Institute of Veterinary Research. Japanese International cooperation Agency (JICA), Dr. Kenjiro Inui

- Efficiency of Smallholder Animal Husbandry depending on Intensity of Management and Genetic Potential of Livestock in Mountainous Regions of North Vietnam. The Uplands Program funded by Deutsche Forschungsgemeinschaft (DFG), Mr. Javier Delgado

Introduction of the round table discussion (11h45 –12h00) by Mr. Patrice Gautier

Session Two: Farmer and (Para) Vet Training (13h30-14h30)

Chair person: Ms Misha Coleman and Mr. Patrice Gautier

- The Thai Nguyen Farmers Training Center. Asian Rural Life Development Foundation (ARLDF), Mr. Nathan L. Henry
- Quang Ngai Rural Development Program (RUDEP). Australian Agency for International Development (AusAID), Mr. Bede Evans
- Agriculture Sector Program Support Small livestock component. Danish International Development Assistance (DANIDA), Mr. Jens Peter Tang Dalsgaard
- Improvement of Cattle Artificial Insemination Technology in Vietnam. Japanese International cooperation Agency (JICA), Mr. Itsuo Shimohira

Round Table Discussion: The Vietnam Livestock Working Group: Today, Tomorrow?
(14h30 –15h00)

Session Three: Improved Organization and Markering (15h15 –16h30)

Chair persons: Ms Misha Coleman and Mr. Raf Somers

- Institution-Building with Local Associations to improve Organization and Management of Collective Services in Vietnam. Groupe de Recherche et d'Echanges Technologiques (GRET), Mr. Patrice Lamballe
- Review of VSF's activities on poverty alleviation through livestock development and on animal health issues. Vétérinaire sans frontiere CICDA (VSF-CICDA), Mr. Patrice Gautier
- Livelihood and Livestock Systems Project (LLSP). Centro Internacional de Agricultura Tropical - Asia (CIAT), Mr. Francisco G. Gabunada Jr.
- Avian Influenza Recovery Project AIERP (WB/FAO). Food and Agriculture Organization of the United Nations (FAO), Mr. Fabio Friscia.
- Making Markets Work Better for the Poor. Asian Development Bank (ADB), Mr. Dominic Smith

Conclusions of the Round Table Discussion (16h45-17h00). Mr. Patrice Gautier and Mr. Raf Somers

Overview of Upcoming Events (17h00-17h15)

Closing Remarks (17h00-17h15), Ms Misha Coleman

LLSP sites in Hainan, PR China, 5-15 Oct 2004

Francisco Gabunada and Werner Stür

Objectives

1. Review with partners the status of activities in the sites
2. Facilitate assessment and planning of activities with farmers in the sites

People Traveling

- Francisco Gabunada
- Werner Stur

Itinerary

05 Oct 04	Arrive Hainan
06-08 Oct 04	Meetings with CATAS collaborators to discuss status of activities
09 Oct 04	Departure of Werner from Hainan; finalization of SEAFRAD News
10 Oct 04	Visit Wentou Village, Baisha County (case study on rabbit)
11 Oct 04	Visit Jiaba Village, Ledong County (case study on seed production)
12 Oct 04	Conduct PD with goat raisers in Qiaotuo town, Chengmai County
13 Oct 04	Writing up and finalization of reports; Planning of next activities
14 Oct 04	Planning of next activities in all sites
15 Oct 04	Departure of Papang from Hainan

Activities

Meetings with CATAS collaborators to discuss status of activities

Mr. Yi Kexian has been appointed as Director of the Subtropical Crops Research Institute of China in Zhangjiang, Guangdong, and was no longer able to coordinate LLSP activities in Hainan. In consultation with Prof. Liu Guodao, Director of the Tropical Crops Genetic Resources Institute (to which the Tropical Pasture Research Center belongs), it was agreed that Mr. Tang Jun will serve as the coordinator. Prof. Yi Kexian and Prof. Liu Guodao will constitute the steering committee. Mr. Tang Jun will handle the day-to-day activities, communication with LLSP management and coordination with farmers and partners. The steering committee shall meet every quarter to discuss progress. In addition, Mr. Tang Jun will also report to the committee regularly. The committee has also agreed that Mr. Tang Jun can approach them anytime if there is a problem.

We would like to thank Mr. Yi Kexian for the excellent leadership and coordination he has provided to the LLSP.

The accomplishments of LLSP in China for 2004 were discussed. The results of the activities were reviewed and plans were laid out for the upcoming activities. A farmer experiment on feeding rabbits was completed in August. The introduced options resulted to better performance compared to the existing practice, but the differences were not very big. As such, it was decided that other options will have to be identified and farmers consulted if they want to do more experiments. Plans were likewise laid to start out activities with farmers raising goats. The farmers to be involved are those from Chengmai county. A PD was planned to be done the following week.

Dissemination and capability building activities were likewise done at the sites. These included planting material distribution, cross-visits and informal training for farmers. Plans for next activities were formulated. Included in the plans is the production of dissemination materials. One of the urgent activities planned was to document successful cases of forage use by farmers. This was planned the following week, to be done by Tang Jun, Xia Wan Liang and Papang. The cases intended for documentation were rabbit production and forage seed production.

Likewise, the last issue (edited by Prof. Yi) of SEAFRAD News was finalized. The next editor is Maimunah Tuhulele in Indonesia. On the last day of the trip, 1,000 copies of the SEAFRAD News were printed out. From these 800 copies were to be mailed to IRRI Office for distribution by Dea Bonilla in the Philippines.

Visit to existing sites with successful cases in using forages

The China-LLSP team came up with an idea of documenting successful cases of farmers using forages. Two cases were identified, as follows:

1. Use of forages for rabbits – the farmer identified was Mr. Gao Qinduo in Wentou Village, Fulong Township in Baisha County. A draft of the documentation is attached (Annex 1).
2. Production of forage seeds for sale – this was identified in Jiaba Village, Zhezong Township in Ledong County. At present, there are more than 100 farmers involved in producing forage seeds for CATAS. The farmer chosen was Mr. Yang Yahang, one of the farmers who have been involved in forage seed production for a long time (about 10 years). A draft of the documentation is attached in Annex 2.

In the case of rabbit production, one major impact in Wentou Village was the increased appreciation by the farmers on the possibility of relying on livestock production for livelihood and income. The farmers are traditionally dependent on rubber and other cash crops for income.

For seed production, a major impact is the emergence of forage as a cash crop that can be cultivated with minimum labor and soil fertility requirement. The case has demonstrated that forages occupy a niche in the farm system that would be difficult for other crops/components to thrive.

Participatory diagnosis with goat farmers in Chengmai County

A participatory diagnosis (PD) was conducted with goat raisers from the township of Qiaotou in Chengmai county. The PD was attended by 23 goat raisers coming from five villages within the township of Qiatou. Mr. Fu Yanfa from the Qiaotou Veterinary Station coordinated the preparations of the venue and farmers. He was quite successful with the task. Moreover, he was observed to possess adequate knowledge of the local situation and visibly had a good rapport with the farmers. These are positive indicators of a good collaborator.

Tang Jun, Mr. Xia Wanliang and Mr. Yang Qiuting from TPRC, CATAS facilitated the actual PD. The output of the PD activity is shown in Annex 3. The main findings of the PD are as follows:

- the farmers involved were raising a good number of goats
- most of the farmers have been raising goats for a considerable period of time
- goats and pigs were second to sugarcane as source of income for the family; although it requires little capital, it also requires a considerable amount of labor for herding and income is not as quick as pigs

- the main method of raising is by herding the goats around the cropped areas – this is usually done by women
- the goats in the area become thin the winter (December to March – cold and dry) as well as at the peak of the wet season (July to August – goats can not be herded out due to too much rain). The farmers sometimes provide cut feed during these periods; but most often these are not enough and goats have to rely on the short grazing periods for nutriment. The peak of the rainy season also corresponds to the time when diarrhea occurs in some goats.
- Occasionally, some goats suffer from skin and respiratory diseases. These can occur at any time of the year.
- Some of the farmers wanted to try planting forages.
- A major activity planned was to get the farmers to visit CATAS so they can see the forages as well as the goat farm of TPRC. This was scheduled in late October.

A visit to some goat farmers in Wenchang Village was also done after the PD. Most of the goats were healthy at the time of the visit. The goats had simple housing, which was adequate to protect the animals from cold and rain. However, improvements could be made in the following aspects:

- Sanitation – this include both provision of slatted floors and keeping the floor clean. Some pens have already floors but in others the goats just sleep on the ground which results in parasite infection and diseases
- Provision of simple facilities to allow separation of animals at different stages (e.g. pregnant, breeders, young and sick animals). This could be one factor that would help control the spread of skin disease.

In relation to the feed problem, options for improvement would include not only the forage species for planting but also the way that the species are integrated on the farms. It was observed that most of the areas are planted to crops. However, the farms had a lot of live fences (mostly the thorny *Mimosa* shrub). Forage species that could perform the same function and can be used as feed may have a high potential in the area.

Another potential option in the area is strategic de-worming. However, before embarking into this option, the extent of damage by internal parasites has to be ascertained. From the interactions during the PD, it was apparent that overall mortality due to parasites was low.

Annex 1. Notes on the interview of a successful rabbit farmer in Wentou village

Case Study : Rabbit Raising

Name : Gao Qingduo

Location : Wentou Village, Fulong Township, Baisha County

Age : 45 years

Children : 3 (2 males – 22, married + 18, student; 1 female – 20 university graduate)

August 2000 – the FSP started working in the village

- Village was also site where the CATAS Poverty Alleviation project was working
- Village is not very far from CATAS (23 kms)
- 11 forage varieties were tested by farmers for feeding their buffaloes
- Mr. Gao was one of the 5 farmers that tested 11 forage species for their buffaloes
- In 2000, it was observed that the forages were underutilized and not well-managed the farmers sold their buffaloes because they had to spend money to help improve

their houses, since the village site was transferred and the government provided them with houses. At present, only two farmers are raising buffaloes in the village (one buffalo each)

- Discussion with Mr. Yi – farmers have no more buffaloes; wanted to have animals so they can utilize the forages more
- Planned to obtain rabbits through FSP (both farmers and CATAS staff decided – rabbits are cheap and multiply quickly)

June 2001 – each of the 5 farmers were provided a starting stock of 5 rabbits (1 male : 4 females)

- Mr. Zhou Hanlin visited regularly (weekly) to provide technical assistance
- Farmers built bamboo cages for the rabbits
- Farmers did not have knowledge on how to manage the rabbits
 - e.g. what feed to give, how to take care (just fed with sweet potato leaves and King Grass 3/day; did not know how much to give (give forage only 1 time per day; Mr. Gao did not have stylo)
 - disease was prevalent (diarrhea); rabbits did not produce so much offspring
 - Mr. Gao went on a 9-day trip; when he came back, all the rabbits died
 - 3 months after starting rabbits, all rabbits in village died
 - farmers were disappointed

November 2002 – Mr. Yi gave rabbits again (8 = 1 male + 7 females)

- Farmers agreed to do a cross-visit to Laogen, Danzhou (Mr. Jiao Guishan)
 - Learned how to make cage, prevent and control diseases
 - Built cages out of wood
 - Cleaned the pens every 2 days
 - Provided feed 4 times a day
 - Provided adequate amount of feed at regular basis
 - More careful with management
- Managed the mother rabbit after giving birth to produce more milk (fed Soybean seeds, ripe papaya)
- Separate the babies from the mother – this he learned from Mr. Jiao, a farmer from Danzhou which he was able to meet in one of the cross-visits)
- Of the 7 females, only 5 produced offsprings – sold the 2 unproductive females
 - 1 mother, first birth, 1 baby – enough milk
 - 2nd birth, 14 babies – not enough milk (asked for advise from his neighbors; gave soybean seeds (bought from market), water with sugar and papaya – babies survived)
 - average no. of baby rabbits/birth = 5-7
 - a few give birth 1-2 or up to 14
 - started improving the pens (increased number of pens; made from bricks) because he wanted to expand. He learned about using pens made of bricks from Mr. Jiao in Lao Gen, Danzhou during the cross-visit which he joined.
 - During the cross visit, he also learned that Mr. Jiao gave medicine to his rabbits monthly to prevent disease. Mr. Gao experimented with giving wild banana leaves as feed once a month, a practice he learned from his neighbors. He obtained successful results from the practice.
 - Mr. Gao now plants 0.5 mu to Stylo for his rabbits

Table 1. Comparison of Mr. Gao's rabbit management practices before and at present.

BEFORE	NOW
only feed and water (1/day)	4/day
no experience	more experience
not know how to control disease	know about disease control; good skills
rabbits die from disease – diarrhea, change in weather conditions	better management, cage
bamboo cages	now improve : bricks, wood and wire mesh 16 cages to house 1 male, 4 females and their offsprings

Pregnancy – 28 days

Weaning age = 15-20 days

Mate again – 4 days after giving birth

Selling age – 3 months (traders come to the farm)

- 2 kg/hd at Y16/kg
- sells up to 40 heads/mo

Feeding method:

7 AM – native vegetation (especially wilted sweet potato leaves). These are gathered by Mr. Gao's wife, most of which are used for feeding pigs.

12 Noon - native vegetation (especially sweet potato leaves)

4 PM – leftover rice, rice bran, wheat pollard (cost/kg of rice bran RMB0.5/kg and wheat pollard RMB 1.2/kg)

9 PM – wilted forages (King Grass + stylo). The stylo are wilted to prevent diarrhea especially in younger rabbits, which can become thin and even die from diarrhea.

Labor use – 3 hours per day – any available family member

Management of Young Animals:

- separate from mother
- put in cage with cloth to keep warm
- bring mother to babies to provide milk 2 times a day (AM, PM)

Benefits :

- cash from sale – used to help pay school needs of child
- source of food
- learned to appreciate that livestock raising can be a livelihood source

Other Notes:

1. Mr. Gao was born in the village. All the people in the village are Li minorities.
2. Before FSP, his source of income and livelihood include rubber, rice, sugarcane, betel nut, pig production and cassava. When FSP came, he still relied on the main source of income but rabbits were added as income source– rabbits are gaining importance and contributing more income.
3. Mr. Gao and 2 other farmers are now raising rabbits in the village. Mr. Gao has 45 rabbits while the other two raise 10 and 20 rabbits, respectively.
4. Forages are feed only at night because the farmers consider them to be more nutritious than other feed, and could sustain the rabbits for longer time (throughout the night).

5. Mr. Gao feels that the forages he planted (King Grass-0.5 mu and Stylo-0.5 mu) are adequate for his rabbits.
6. Mr. Gao obtains an estimated income of RMB 1,000 per month. This he obtains from the sale of 30-40 rabbits a month at a price of RMB30 per head. Each rabbit is sold at a Liveweight of 2 kg, at the price of RMB 16/kg.

Annex 2. Notes of interview of successful forage seed production farmer in Ledong county.

Case Study : Stylo Seed Production

Name : Yang Yahang (Li minority)

Location : Jiaba Village, Zhezong Township, Ledong County

Age : 70 years

Wife: Yang Kaling, 67 years old

Mr. Yang Yahang has lived all his life in Jiaba village. It was in this village where he grew up, married and raised his children. Now all his children have married and have their own families. He and his wife are living in their house. From time to time, they visit their children and grandchildren who are living nearby.

All these times, Mr. Yang and his family relied on crop farming for a living. The family cultivated their 12 mu of cropland. About half of their land is planted with irrigated rice (5 mu, 2 crops/year). The rest of their land is slightly sloping and thus can not be planted to rice. In this portion, they plant sweet potato, cassava, sugarcane, vegetables and other crops.

Mr. Yang has observed that with time, crop production in their sloping area has declined. Thus they had to put in more fertilizer to get reasonable crop yields. Moreover, he observed that more weeds grow in the field, especially during the wet months, which is also the growing period for their crops. With the help of the children, they were able to manage the increasing weed pressure.

As the children got married and lived their own families, Mr. Yang gave each a share of his land to the sons. When all got married, Mr. Yang and his wife were left with 5 mu to cultivate. These were the sloping ones with least fertility. He planted it to sweet potato but the yields were low and he had to do a lot of weeding.

In 1994, Mr. Yang learned from his neighbor Mr. Yang Wenzhen about the program of CATAS on farmer forage seed production. He got interested and obtained planting material. At that time, they were trying to produce seeds of *Stylosanthes guinensis* Reyan 2 (Stylo 184). The arrangement was that Mr. Yang enter into a contract with CATAS to sell the seeds produced. CATAS provides seeds and technical assistance (through Mr. Yang Wenzhen).

Mr Yang regularly consulted Mr. Yang Wenzhen to ask for technical advice on how to manage his new crop. He started planting forages in an area of 2 mu. With time, he learned how to manage his crop better. Other farmers in the village later became interested and also joined the forage seed production project. Mr. Yang observed that the Stylo crop did well despite the low fertility of his farm. Because the crop established quickly, he found that he only needed to do one weeding, unlike sweet potato where he had to weed more. The seeds were bought by CATAS at RMB 20/kg. Mr. Yang was very happy and continued with the venture year after year.

With time, Mr. Yang learned and obtained more skills with stylo seed production. He was happy of the performance of the crop and its lower management and weeding requirement. These suited to the low amount of labor (only he and his wife) available. He has obtained reasonable yields of 50 kg/mu. At 20 RMB/kg, he obtains (1000 RMB/mu/yr). In addition to Stylo, he has also tried planting other forage species like *Macroptilium*, *Setaria* and *Stylosanthes scabra*. All these he contracted for seed production with CATAS.

Mr. Yang continued to plant the same area to forage. With this, he observed that the seed yields of his forages declined. He initially tried fertilizing his forages with cattle manure. However, he stopped the practice because he was afraid that the applying manure would increase the occurrence of pests in his forages. Thus he started using complete fertilizer (14-14-14 NPK). He uses 30 kg/mu (RMB 0.50/kg) of complete fertilizer, applied as a side dress at transplanting the Stylo seedlings.

Mr. Yang also observed that flower-eating insects infest and cause damage to his forages. This led him to use insecticides, which improved seed yield. Moreover, with the dwindling amount of labor, he started using herbicides when labor is not enough for weeding. What usually happens is that he and his wife do one weeding one month after transplanting the seedlings; after which, he sprays herbicide when he feels it necessary. Weeding usually takes 10 days for him and his wife to complete. Pesticides would cost him RMB 10/mu for every cropping.

His typical forage crop activities start with nursery sowing in May. He and his wife spend a few hours for seed sowing. The seedlings are maintained daily and watered when necessary. Then in June, he spends 1 day for land preparation on his 2 mu land area. Then he and his wife apply fertilizer and transplant the seedlings for one day.

One month after transplanting, weeding is done by Mr. Yang and his wife. The activity lasts them ten days. Then he visits his farm regularly, observing his crop. He sprays herbicide whenever he observes that the weed pressure is too high.

In November to December, Mr. Yang and his wife start harvesting their forage crop. They do the harvesting every morning for two hours. This is done to avoid incidence of seed falling out, which occurs when they harvest later in the day (plants and seeds are drier). Harvesting usually lasts seven days for the Mr. Yang and his wife.

Mr. Yang also uses some of the herbage from Stylo after seed harvest. He dries the herbage and then stores them as hay. He uses the hay at periods when he is busy and in times when feed is inadequate for his buffaloes. Mr. Yang raises two buffaloes, which he uses for draft.

Mr. Yang's farm consists of :

Rice = 5 mu

Stylo = 2 mu

Other crops = 5 mu

Annex 3. Participatory Diagnosis with goat farmers conducted at Wenchang Village, Quiatou Township, Chengmai County on 12 October 2004

Farmers attending Participatory Diagnosis:

Name	Gender	Village	No.of goats
Wu Duoming	M	Juli	28
Wang Yujie	M	Sipeng	10

Name	Gender	Village	No. of goats
Wu Wenji	M	Toubiao	19
Wu Yunlong	M	Wenbing	10
Wu Yunping	M	Wenbing	10
Fu Yuqiong	F	Wenbing	9
Wang Aihua	F	Wenbing	15
Zhang Qionghua	F	Wenbing	20
Wang Shuying	F	Wenbing	20
Xu Aimei	F	Wenbing	7
Wu Yunqiong	M	Wenbing	12
Wu Yunhua	M	Wenbing	10
Wu Wenbi	M	Wenbing	10
Fu Longsheng	M	Wenchang	16
Fu Longxin	M	Wenchang	10
Fu Yunqiang	M	Wenchang	10
Fu Yanfa	M	Wenchang	40
Fu Tingkun	M	Wenchang	20
Fu Longxue	M	Wenchang	26
Fu Chaoliang	M	Wenchang	8
Fu Longwei	M	Wenchang	22
Fu Tingyong	M	Wenchang	10
Fu Tingche	M	Wenchang	10

Facilitators:

Name	Office
Fu Yanfa	Qiaotou Veterinary Station
Tang Jun	CATAS
Xia Wanliang	CATAS
Yang Qiuting	CATAS
Francisco Gabunada Jr.	LLSP

Experience in Raising Goats:

No. of Years	No. of Farmers
1	6
2	6
3	1
4	1
more than 4 years	9

Reasons for raising Goats:

- Makes it possible to utilize areas around sugarcane, fallow and shrub areas (near sea)
- Provides income (goats sold at 2-3 months or at 1 year) – farmers sell when they need money (support the fee for school, fertilizer, manure)
- Little capital needed

Farmers' prioritization of their sources of income and livelihood, Qiaotou, Chengmai

Priority	Activity	Reasons
1	sugarcane	can thrive without irrigation traditional source of income
2	goats	get income quickly low investment/capital required need labour for herding
2	pigs	provide income quickly (higher than goats) need higher capital than goats

Priority	Activity	Reasons
4	irrigated rice	need labor for feeding for food
5	vegetables	sell excess production for income source of food
6	cattle	sell for income Draft
7	working for hire	sell during times of need provide income
8	rubber	for income not many farmers raise
9	rabbit	for food not many farmers raise

Performance of goats:

- 3 kiddings every 2 years
- 1-3 kids/kidding (commonly 2 kids)
- kid survival is 100%
- weight of goats when sold:
 - small – 10 kg (2-3 months)
 - big – 25-30 kg (1 year)
 - price = RMB 19/kg
- buyer go to the farmers to buy

Daily Calendar of Activities for Goats

Time	Activity	Person Involved
8-11 AM	Herding the goats to graze	W > H > C
11 AM – 3 PM	Come back to rest near house	
3 PM – 6 PM	Herding goats to graze	W > H > C

Problems with goat raising

PROBLEM	COMMENTS
diseases – skin, orfs, respiratory	occur in some goats; occur any time of the year
lack of feed	goats are thin at certain times of the year; goats can not feed during periods of long rains not enough vegetation during the dry season reduced area for grazing – more fallow areas are planted to crops; more people are raising goats
lack of knowledge in planting forages	some farmers have some area and labor available
lack of technology in raising goats	farmers don't know what to do when goats are sick

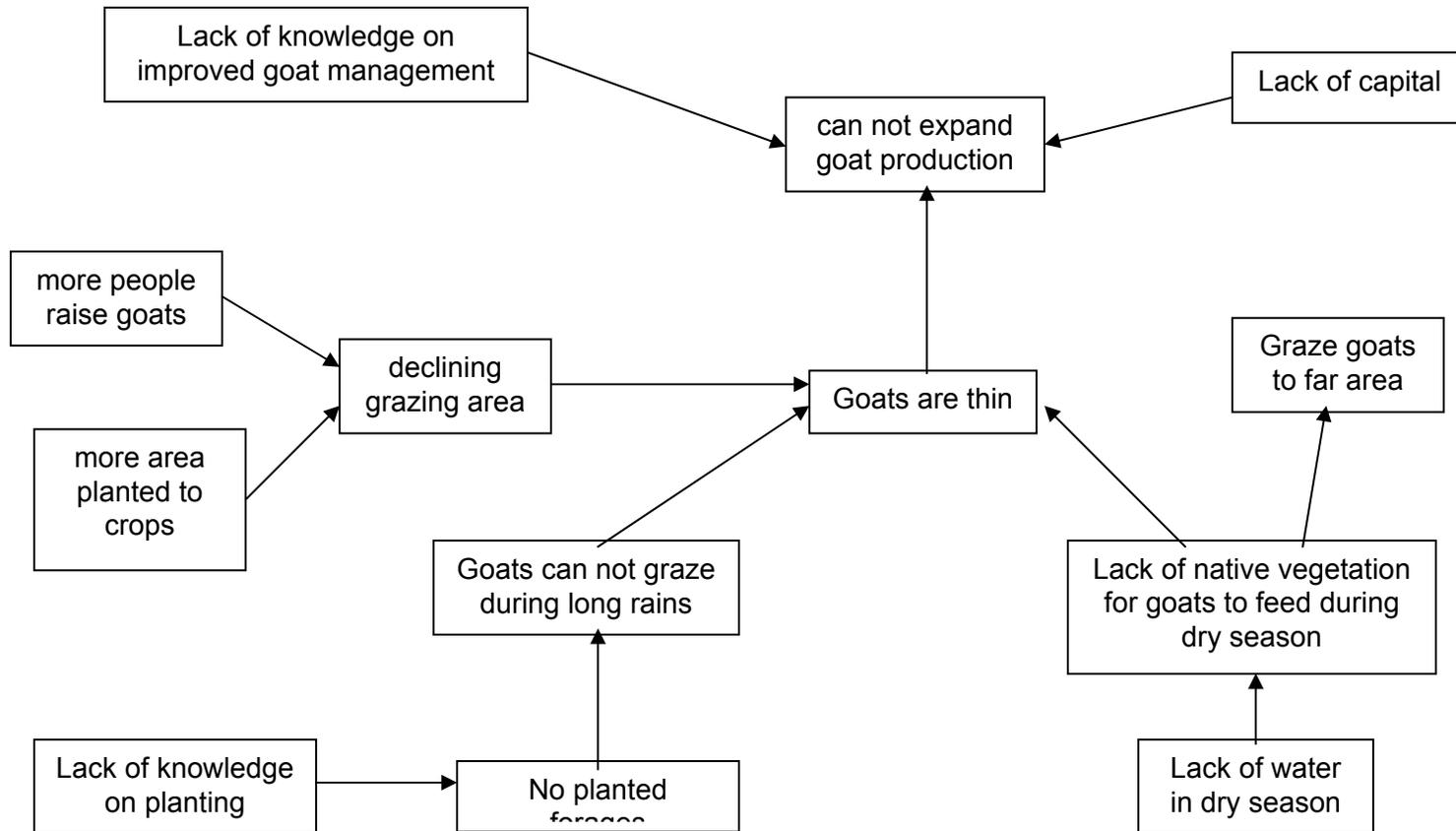
Plans of farmers:

Activity	Schedule	Comments
plant forages	March – April 2005	LLSP provide planting materials; LLSP and Fu provide technical assistance; farmers provide area and labor
training on goat production	March – April 2005	LLSP, CATAS and Mr. Fu provide trainers and training-related expenses
cross-visit	October 2004 March – April 2005	LLSP, CATAS and Mr. Fu make the arrangements

Seasonal Calendar, Qiatou goat farmers:

Activity	J	F	M	A	M	J	J	A	S	O	N	D
Rainfall Pattern	1	1	0	2	3	6	10	10	7	4	1	1
Harvesting sugarcane	X	X										
Planting rice, sugarcane and cassava			X	X								
Weeding, fertilization and crop management					X	X						
Harvest rice, planting second rice crop							X	X				
Grazing animals	X	X	X	X	X	X	X	X	X	X	X	X
Harvest rice							X			X		
Land preparation, planting vegetables											X	X
Period when grazing time for goats is short						X	X	X	X			
Goats kept in pen when rains are long (sometimes fed cut indigenous fodder)						X	X	X	X			
Period when goats are thin	X	X	X				X	X				X
Occurrence of diarrhea (in some goats)							X	X				
Period when goats are fatter									X	X		
Occurrence of respiratory problems (some goats only)	X	X	X	X	X	X	X	X	X	X	X	X
Occurrence of skin disease and orf (some goats only)	X	X	X	X	X	X	X	X	X	X	X	X

Analysis of farmers' problems in raising goats at Qiaotou Township, Chengmai county, Hainan Province



Impact study in Yasothon, Thailand, 15 Oct - 4 Nov 2004

Jindra Samson and Phonepaseuth Phengsavanh

Objectives

- To assist Thai collaborators to conduct study on impact of selling fresh forages to farmers' livelihood in Yasothon province, Thailand.

People met

- Dr. Chaisang Phaikew, LLSP National Coordinator
- Mrs. Ganda Nakhmanee, LLSP site collaborator, Pakchong Animal Nutrition Research and Development Center
- Mrs. Watanawan Srisomporn, Staff, Thongkoula, Roiet animal nutrition development station
- Mr. Phaiboon Polboon, Head of Animal Nutrition Development station, Yasothon province
- Mr. Sonthaya Nga-Kom, Staff, Bouililum animal nutrition development station.
- Mr. Kasae Lawtae, Provincial Livestock Office, Yasothon Province

Stakeholder groups met

Farmer groups from District

Buyers (beef farmers, traders, cattle breeding farmers)

Itinerary

16 Oct 04	Travel from Bangkok to Pakchong
17-23 Oct 04	Impact Study
24 Oct 04	Depart in Yasothon to Pakchong
25-27 Oct 04	Data analysis in Pakchong Animal Nutrition Research and Development Center
28 Oct 04	Jindra leave from Bangkok for Manila
29-31 Oct 04	Seuth and Ganda continue working on the data analysing and writing report
1-3 Nov 04	Ganda and Seuth visit Experiment sites on Mulato (forage production and seed production) in Pakchong and Roiet.
4 Nov 04	Seuth leave for Lao PDR

The details of the activities and the outcome of study

The detail of this study will be described in the separate report. The following is a summary of the main activities and outcomes of the study.

Study team meeting

The study team consisted of 6 members (Ganda, Phaiboon, Watanawan, Sonthaya, Seuth and Jindra) and met to discuss the objectives and develop a plan for the study. Study team planning meeting in Yasothon Province:

1. Discussion of objectives, activities, tools and secondary data already collected

The team set three main objectives (1) Understanding the current production-market chain in the areas (2) Studying on the impacts of selling fresh forages to farmers' livelihood and (3) Assessing possible interventions of Department of Livestock Development (DLD) to support

forage farmers (eg. training, facilitate linkages between forage farmers and markets through contracts, planning for forage production base on market requirements, market information etc.).

The methodology and tools were discussed and decided on the following:

- Working with farmer group (Participatory Diagnosis)
 - a. Listing of their agricultural activities
 - b. Priority ranking (based on livelihood)
 - c. Seasonal calendar
 - d. Discussion on the history of forage production
 - e. Listing of production cost and income
 - f. Graphing of the forage supply and demand based on farmers perception
 - g. Discussion on impacts brought by planting & selling forages
- Interview key farmers, traders and buyers

After the team meeting, the team also met with staff from Yasothon Animal Nutrition Development Station to get more information about the market and history of development and inform staff about objectives of study and method of study.

2. Fresh forage market study

The studied was carried out with farmers in three villages. The farmer group meeting was use to get general information on agricultural activities, their importance, sources of incomes and forage production in the village. Key farmer and buyer interview was used to gain more detail information of forage production-market chain.

2.1 History of fresh forage market in Yasothon province

Fresh forage production in Yasothon province started way back in 1999, when the Department of Livestock Development started to introduce new working approach of cooperative approach to promote cattle production in the country. Most farmers in Yasothon formed groups to raise livestock, only one small group of farmers in Kwang village thought about feed supply problem that occur in the area, because cattle raisers and traders in their area usually came to the village to buy native grasses to feed animals. So these farmers formed a group to plant forages to sell for other farmers and traders. The group consisted of 13 farmers, who at first planted on small plots and only a few farmers were really enthusiastic, and only after one year when the forage selling business became promising the other farmers in the group became so active.

Initially, the market for the fresh forages was not so popular and often the officer from Yasothon Animal Nutrition Station helped to introduce the fresh forages to market such as the livestock market, sell on the road side and bought by government projects. After the hard works of farmers and staff from Animal Nutrition Station and provincial livestock office, the market has expanded and number of farmers planted forage for sale has also increased year by year. In 2002, a total numbers of farmers involved in this business were 228 farmers.

In the meantime, the DLD has seen the success of these farmers as the opportunities to support other farmers through a provision of a one-time revolving fund worth 434,770 Baht per group to help the farmer groups to improve their forage production (training, seeds, fertilizer and machinery) so they can start the business.

Forage production has become a major cash crop for many farmers in the areas and starts to expand to other villages in the district. Now, more and more farmers are shifting from rice

cultivation to forage production because of the greater income farmers get from selling forages.

2.2 Production-market chain

The production-market chain and the way of its expansion described by farmers and buyers was illustrated below:

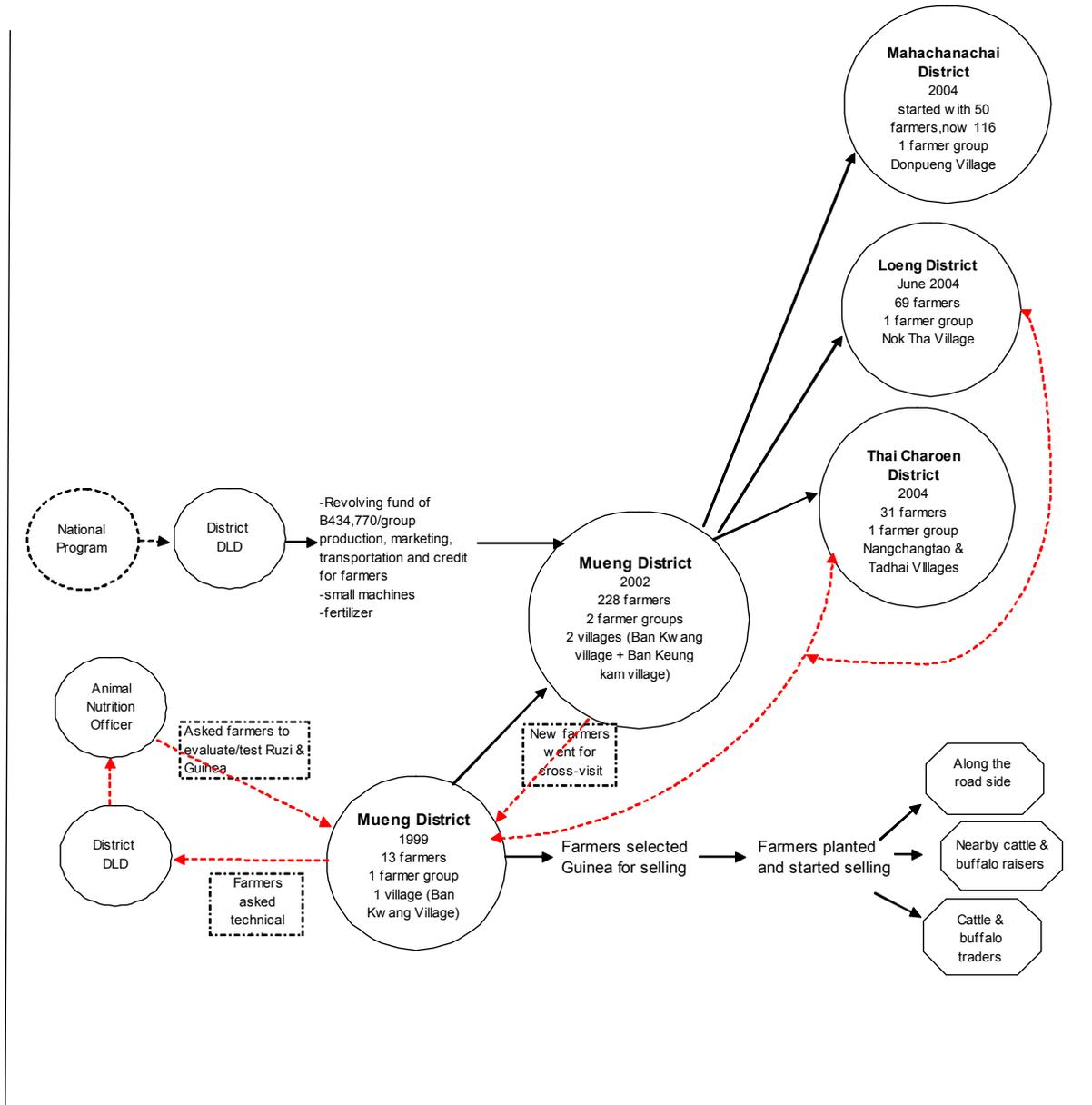


Diagram 1. Production-market chain

Initially the market for fresh forages was directly involved only farmers and buyers (animal keepers and animal traders). Farmers cut forages and bring to the roadside and sell it.

Farmers sometimes take forages to animal markets in the district where animal traders buy for feeding their animals. However, the selling forages is depend on amount of production and seasonal feed availability as well (see the diagram 2 below). During the wet season, when forage production is very high and native forages are also available, it is the difficult time for selling, but it turns to create an opportunity for other farmers to act like a middlemen. These farmers buy forages from forage planting farmers and carry on the pick up to other villages where they have problem with feeding especially in flooding areas.

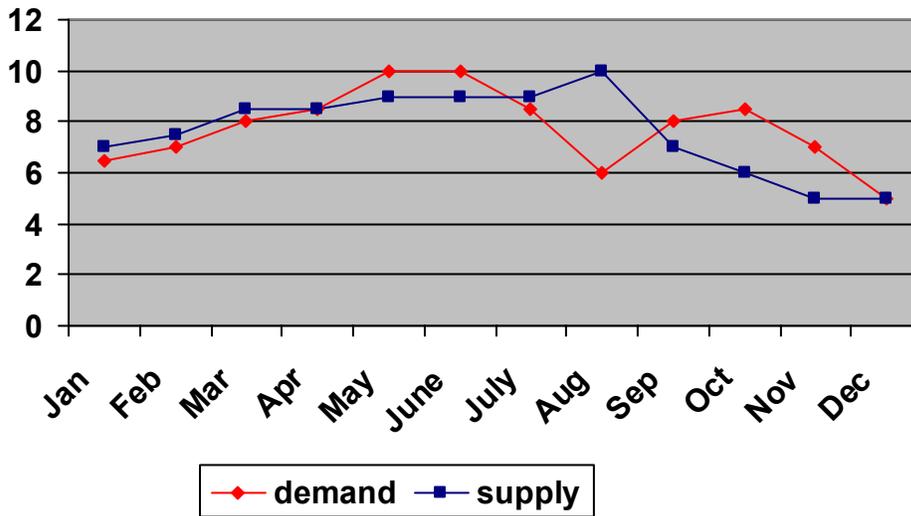


Diagram 2. The demand and supply of fresh forages throughout the year

The price of the fresh forages is varied depend on the yield of forages especially in dry and wet season. In wet season the price is about 1 Baht/1kg or less, but in the dry season is about 0.6-0.7 Baht/kg. However, the sale of forages not by kg but by bundle (1 bundle is about 10-13 kg in wet season and 6-8 kg in dry season).

Apart from main buyers of livestock farmers and animal traders, the government programs also buy, especially when the flooding occur in some areas this relief program will buy forages and supply to farmers in suffering areas.

2.3 Impact from selling fresh forage to farmers 'livelihood

Forages play important roles in improving of farmers' livelihood in term of generating income and creating new opportunities for doing other jobs. The income earning from selling forages help farmers to improve their live such as build a new house, buy pick up, send children to school and have more opportunities for children to get higher education. The most important thing is to help farmers to pay the debt from bank where farmers borrow money for doing other agricultural activities.

Many farmers now buy cattle for fattening, especially when there is plenty of forages and the price is low, these farmers will use for feeding their animals and sell animals later to get more income.

Some young people that use to work in the city by selling their labor now starting to come back to villages and plant forages, the benefit that they get from this activity not only better income but also have time with family.

Savannakhet, Lao PDR and Pakchong, Thailand, 5-11 Nov 2004

Werner Stür and Phonepaseuth Phengsavanh

Objective

- Monitor and review LLSP activities in Savannakhet, Lao PDR
- Review the results of the Impact Study of the sale of fresh forages in Yasothon, Thailand (WS only)

Persons Met

- Mr. Bounmy Pheowankham, Head of Livestock production unit
- Farmers collaborating with the LLSP in Savannakhet
- Dr. Chaisang Phaikaew, DLD
- Ms. Ganda Nakamane, DLD

Itinerary

- 5 Nov 04 Car from Vientiane to Savannakhet
- 6 Nov 04 Visit to LLSP sites
- 7 Nov 04 Discussions with site partners and return to Vientiane
- 10 Nov 04 W. Stür: Vientiane-Bangkok-Pakchong; field visit in Pakchong
- 11 Nov 04 Discussions on Impact study; return to Bangkok

Activities

LLSP sites in Savannakhet, Lao PDR

The landscape is a mix of lowland rice (not irrigated – 1 crop per year, poor sandy soil) and upland shrubs. Not other crops are grown except in home gardens. There are quite a lot of shrubs and small trees which are eaten by goats. The main problems identified by farmers are difficulties with grazing goats during the wet season when most of the area is planted with rainfed, lowland rice. Goat keepers are responsible for damage done by their animals. One district has just introduced a regulation restricting free grazing during the cropping season which has put further pressure on farmers to find alternative feed resources. It takes farmers a long time (up to 18 months) to grow kids to sale weight for the Vietnamese traders (min. 18 kg, if possibly 25 kg). Also kid mortality is high (30-60%). This is likely due to internal parasites. No de-worming practiced. Does usually give birth 2 times per year in Nov and May, mostly twins.

The main activities in 2004 were

a) Testing of forages with farmers:

- Simuang, Gamba, Mulato and Stylo with 13 farmers in Ou Thoum Phone district
- Mulato, Gamba and Stylo grow very well. Simuang poor in most situations but grows well in areas with higher soil fertility or where farmers applied manure. Even Mulato looked a bit yellow (drought or fertility?); it was better when cut or grazed recently.
- Goats prefer Stylo, then Gamba and Simuang. Mulato not preferred and most farmers decided to give to cattle and buffalo instead. It is eaten by goats, though.
- Farmers also received seedlings of Gliricidia (distributed 6,000 seedlings) planted in September
- Gliricidia seedling growth is slow and in many situations looked poorly. Some farmers applied manure (or grew in vegetable garden) and in these cases grew very well. It obviously needs more fertility. In some cases, it was grazed which affected its growth.

- The grasses grew very well during the wet season when farmers need feed so the intervention has been successful, however, soil fertility is going to be an issue.
- b) A training course on PD, forage agronomy and a cross visit to Luang Phabang
- c) A study of the production to market chain for goats in Savannakhet
- need info as a basis for planning in the province
 - feedback to farmers to stimulate their interest and produce the 'right type of animal' for the market
 - a lot of animals go to Vietnam (previously Thailand but no longer)
 - prices are very high (Baht 1,000 for 18 kg goat at farm gate; Baht 1,500 at Lao trader selling to Vietnamese trader)

The main issues and plans for 2005 are:

- Need to feedback market study results to farmers in a village meeting
- There is a need to apply manure for cut-and-carry plots and *Gliricidia*, which may lend itself to farmer experimentation
- Need to protect forages (particular *Gliricidia*) from grazing animals
- Grazing plots should not contain lots of different varieties
- Managing internal parasites
 - strategic de-worming
 - better housing (currently very poor)
 - better grazing management to minimize re-infection with internal parasites. Some farmers have areas where they always tether goats in the wet season which is perfect for re-infection (Doug gRay referred to this as 'worm farms')
- "Worm-management" is very knowledge intensive and may lend itself to a Farmer Field School.
- Need to do farmer experimentation on de-worming to show the dramatic effect. Farmers already have better feed BUT they can do other things to also help manage worm burdens – these are housing and grazing management, particularly in the wet season.
- We should aim at >90% survival of kids and finishing goats for sale (>20 kg) within a 6 months period.

Pakchong, Thailand (WS)

I visited Ms. Ganda Nakamane and Dr. Chaisang Phaikaew to review the results of the recently conducted impact study on the sale of fresh forage in Yasothon province, northeast Thailand. In particular, we discussed the influence of government support for fresh forage sales, ways for analyzing the impact study results, and the potential impact of new government programs designed to increase beef cattle in Thailand on the fresh forage market.

We also visited and reviewed results of seed production experiments on the *Brachiaria* hybrid 'Mulato 1 and 2' conducted as part of the LLSP. Mulato 1 has a relatively low seed set which is a rather inefficient way of propagation. Mulato 2 seems to have a much higher seed set and looks as if it will have a higher seed yield. This would certainly help farmers a lot. There has been a severe drought in 2004 (the rainy season stopped in September rather than November) which may have a disastrous effect on farmer seed production of Mulato this year.

Mindanao LLSP Sites, Philippines, 17- 20 Nov. 2004

Francisco Gabunada Jr.

Objective

- Attend the closing program of the field school in Manolo Fortich
- Plan activities with Ed Magboo, PCARRD

Persons Met

- Eduedo C. Magboo, Country Coordinator, LLSP-Philippines
- Hon. Socorro O. Acosta, Mayor of Manolo Fortich, Bukidnon
- Municipal Councilors Warlio Guayan and Victorio Dagonlay
- Dr. Perla T. Asis, Collaborator, Cagauan de Oro
- Rosaleo Lorono and Willie Nacalaban, DA-RFU 10
- Staff, DA-LGU Manolo Fortich led by MAO Ernesto Ducusin

Itinerary

- 17 Nov 04 Departure from Leyte
- 18 Nov 04 Arrive Manolo Fortich to assist in preparation of the closing program of the field school
Meeting with Ed Magboo to plan the next activities of LLSP in the Philippines
- 19 Nov 04 Closing program of field school
- 20 Nov 04 Depart for Leyte

Activities

Closing program of the field school

The field school of Manolo Fortich had their closing program on 19 November. The activity was attended by the DA-LGU staff, municipal mayor, two municipal councillors, Perla Asis of Cagayan de Oro LLSP site and two staff from the regional DA. Dr. Edwin Villar was not able to attend; as such only Ed Magboo from the national coordinating agency, was able to come.

A total of 41 farmers were able to graduate in the field school. These farmers were very enthusiastic about the activities and showed high level of responsibility as well as initiative. The farmers themselves prepared the food, the program and the venue. The DA-LGU only provided the sound system and other materials to support the farmers' efforts. All of these farmers have already planted significant areas of forages in their farms, and are using the forages to feed their cattle. More than half of them have availed of dispersed dairy cattle at the growing stage. Most of them had put into practise the lessons they learned in the field school.

The program prepared by the farmers was very good. They were very innovative such that they presented their learnings and impressions in the form of plays. They also composed songs that were related to their experiences during the field school sessions.

The farmers were looking forward to another year of joint activities with the project. Among the things they wanted to do in the future is to have another field school on goats. The local government unit expressed interest to support activities of the farmer group. This was not very difficult as the mayor was formerly a professor in animal science in Central Mindanao University.

A discussion was conducted with the collaborators after the closing program. The main points of the discussion were as follows:

- There is a need to make an evaluation report of the field school. This would include the effect of the field school on the participating farmers. The activity will take a form of a survey among other things. A meeting has been scheduled on December 1 to 3 to get the details of the evaluation planned out.
- Follow-up activities will still include those on dairy cattle. The main idea was to get the farmers to decide what follow-up activities they want. The feedback during the program was apparently superficial since the farmers still have to experience the next phase of the life cycle of their animals (pregnancy and calving). During the program, it was agreed with the farmers that a meeting to plan out their next activities will be conducted in February 2005. It was speculated by the DA-LGU collaborators that by then the farmers will have a better idea on the key issues they would like to address in a future field school on dairy cattle. There will be some cattle that are pregnant, and some will have calved.
- A representative to report the activity during the annual meeting was identified. This was in the person of Cynthia C. Velasco. An alternate in the person of Gemma Cania was also identified, in case Cynthia would decline. These two are the main field school facilitators.

Meeting with Ed Magboo

Dr. Edwin Villar, Director of the Livestock Research Division of PCARRD, was not able to join the trip due to urgent office activities. During the year, many activities had not been implemented on schedule, partly because Ed was sick sometime in October. Ed was planning to conduct an annual meeting in January next year since there may not be enough time to schedule it in December. On December 8, the field school in Cagayan de Oro will also have their closing program.

2004 CIAT Annual Review, Cali, Colombia, 27 Nov – 10 Dec 2004

Werner Stür and Phonpaseuth Phengsavanh

Objectives

- 1) Participate in the CIAT Annual Review and Planning Meeting
- 2) Introduction to other CIAT staff, projects and programs (first visit)
- 3) Represent the LLSP in CIAT Planning Meetings
- 4) Initiate contacts with CIAT staff and section for collaboration

People met

- Dr. Carlos Lascano and staff, Tropical Forages Project
- Dr. Nancy Johnston and staff, Impact Assessment Unit
- Dr. Federico Holmann, Tropical Forages Project
- Various CIAT staff members and management team
- Dr. Yves Savidan, CIAT Board Member

Itinerary

27 Nov	Arrival at CIAT
29 Nov – 4 Dec	CIAT Review and Planning Meetings
3 Dec	Asia Planning Meeting
6 – 7 Dec	Meetings with various CIAT Projects
8 Dec	Review of the Tropical Forages Project Presentation of LLSP achievements in Southeast Asia
9 Dec	Finalize Impact Assessment Agreements
10 Dec	Depart Cali

Summary

The annual meeting provided an excellent venue for reviewing, making new contacts, learn about new ideas and experiences by other CIAT staff. It also provided us an opportunity to showcase the results of the LLSP and present a summary of our work in Asia. There was considerable interest in our work and this has strengthened the support of CIAT to our work in Southeast Asia.

We discussed options for assessing the impact of the Project with Dr. Carlos Lascano and staff of the CIAT Forages Improvement Project and with Dr. Nancy Johnston of the CIAT Impact Assessment Unit. CIAT agreed to allocate three months of time of a senior staff member, Dr. Federico Holmann, to assist the Project with impact assessment. Dr. Holmann is an economist specializing in livestock R&D; he is based in Cali, Colombia on a joint appointment with CIAT and ILRI. A first visit by Dr. Holmann to Southeast Asia was scheduled for February / March 2005 to familiarize him with the Project and to lead a planning workshop on impact assessment of the LLSP.

We were also able to establish links with a number of CIAT projects in forage development, rural innovations and agroenterprise development.

For P. Phengsavanh, the visit an overall picture of CIAT, its activities and the functional/structural niche occupied by the LLSP. The trip also provided an opportunity to meet with other CIAT staff, learn about other programs/initiatives as well as facilities which would be useful to do the work in the area of assignment.

Indonesia LLSP Sites, 4 - 20 Dec 2004

Francisco Gabunada Jr.

Objectives

- Evaluate results of small experiments conducted by farmers
- Assess accomplishments and formulate plans for 2005
- Conduct informal training/mentoring activity with collaborating field workers

Itinerary

05 Dec 04	Manila – Singapore - Balikpapan
06-08 Dec 04	Evaluate small experiments conducted by farmers
09-12 Dec 04	Cross-visit of field workers from other provinces
13-17 Dec 04	Meeting/training of collaborating field workers
18 Dec 04	Meeting with country coordinators and liaison officer
19 Dec 04	Depart for Manila

Activities

Evaluation of experiments conducted by farmers

The small experiments conducted by farmers have been completed. The results were reviewed with Yacob. Each of the farmers doing the experiment was also visited. Additional data to be gathered were identified for Yacob and the field workers to gather. Initial analysis was likewise done with Yacob.

One of the main problems encountered with the experiments was the difficulty to get a control for comparing with the treatments. It was agreed that the field worker and Yacob will look for an animal of similar age, sex and breed in nearby farmers and weigh these animals. Comparisons will therefore be made on final weights of the animals (ADG will not be compared).

Another observation was that field workers needed more skills in facilitating conduct of the experiments. This may not be attainable by formal trainings. An option is to conduct mentoring activities like doing the actual activity with the field worker. Another option is to organize the field workers into teams that would help each other in conducting the activities.

Informal training/mentoring for collaborating field workers

Field workers from the other provinces visited field workers and farmers at LLSP sites in East Kalimantan from 9-12 December. The activity provided the visiting field workers to observe and interact with the host field workers and farmers.

On 13-17 December, a meeting with all field workers involved with the LLSP activities was conducted. The meeting was composed of the following activities:

- reporting of accomplishments for 2004
- technical inputs in animal nutrition, animal health and forage agronomy
- planning of activities for 2005

To help in the discussion of accomplishments, a table with number of farmers at the different stages of the forage development ladder was completed (Table 1). The activities and experiences of the field workers in attaining the accomplishments were discussed.

One of the main concerns at new sites is the supply of planting material to support expansion. It was learned that the intention of the field workers was to provide large amounts of planting material for each farmer. During the discussions, these new field workers realized the value of getting new farmers to start small. Another learning was that new farmers in old sites were already capable of starting in large areas using planting materials existing in the area.

Table 1. Number of farmers at LLSP sites, by stages in forage development

Site	Year Started	Testing Forages	Integrating Forages	Expanding Forages	Increasing Income
South Sumatera	2004	12 (100 m ²)	15 (1250 m ²)	--	--
South Kalimantan	2004	10 (100 m ²)	--	--	--
Central Kalimantan	2004	7 (100 m ²)	--	--	--
Babulo, PPU	2004	4 (150 m ²)	--	--	--
Penajam, PPU	2004	4 (225 m ²)	20 (0.25 ha)	42 (0.25 ha)	--
Berau	2004	23 (100 m ²)	24 (0.25 ha)	27 (0.25 ha)	5 (1 ha)
Palaran, Samarinda	2001	6 (100 m ²)	8 (900 m ²)	4 (0.75 ha)	1 (0.75 ha)
Samboja	1999	30 (150 m ²)	90 (0.25 ha)	67 (0.50 ha)	4 (1 ha)
Makroman, Samarinda	1995	10 (200 m ²)	30 (500 m ²)	20 (0.50 ha)	3 (1 ha)
Sepaku	1995	10 (0.25 ha)	90 (0.50 ha)	150 (0.50 ha)	10 (0.75 ha)

Note: See the Jan-Jun 2004 semi-annual report for details on the forage development 'ladder'.

Technical inputs were provided to the field workers on the second, third and fourth day. The main aim of the sessions was to get the field workers to express what technical information they still need to improve their work with farmers. The sessions often started with a short starter topic from the facilitator. This was then followed with a question-and-answer portion. Mr. Ludy Kristianto of BPTP facilitated the session on animal nutrition. Dr. Retnu and Dr. Diah from the Animal Health Division of Dinas Propinsi handled animal health. Forage agronomy was facilitated by F. Gabunada.

It was realized from the discussions that the collaborating field workers need to improve their technical knowledge considerably to be able to competently carry out project (and other livestock extension) activities. Moreover, an alternative strategy to formal training will be needed for the livestock services offices.

The last day was devoted to formulation, reporting and review of workplans. The plans of the other provinces were submitted to Djodi for review. Ibrahim and Yacob likewise reviewed the plans for East Kalimantan.

Preparation of Annual Report for Indonesia

A meeting was conducted with Ibrahim, Yacob and Djodi. Discussion was focused on preparation of the report for the LLSP Annual Review and Planning Meeting. It was agreed that Djodi will prepare a separate report for the provinces. Yacob and Ibrahim agreed to write up the report for East Kalimantan. Results of the experiments will be analyzed and a draft written up by Papang.

Kampong Cham sites, Cambodia, 21 - 30 Dec. 2004

Phonepaseuth Phengsavanh

Objectives

- monitor progress at field visits
- conduct participatory forage evaluation with farmers
- develop an action plan for the dry season

People met

Dr. Sorn San, LLSP National coordinator, DAHP
Mr. Chea Socheat, Provincial collaborator, AHPO, Kampongcham province
Mr. Chim Si Mach, Technician, AHPO, Kampongcham province
Mr. So Phal, technician, AHPO, Kampongcham province
Other village animal workers in the areas

Itinerary

21 Dec	Vientiane – Phnom Phenh
22-23 Dec	Work with Sorn San in Phnom Phenh Travel to Kampongcham province
24-26 Dec	Field visit and PE with farmers
27 Dec	Meeting on planning for activities in Dry season Preparation and discussion on LLSP annual meeting in Vietnam
28-29 Dec	Travel back to Phnom Phenh Work with Lorn Sophal on planning and guideline for doing PE with farmers
30 Dec	Phnom Phenh -Vientiane

Summary

The visit was aimed to (1) monitor progress at visits, (2) conduct participatory forage evaluation with farmers, and (3) develop an action plan for the dry season.

The field visits were organized for three days to visit existing sites in three districts of Kampongcham province. The team visited 8 villages in 4 districts: Pnouv Lek village (Cheung Pray district), Amphil Chrum (Kampong Siem), Trapieng ROUNG and Trapieng Raing (Prey Chhor), Kbal Damray, Kong Karng 1 and 2 and Taheav Krom (Pongnea Krek). The forage plots in almost all villages are managed well and forages are used as a supplement to natural feed resources. Although there was no rain since September, some forages varieties, “Mulato”, “Marandu”, “Basilsik” and “Stylo 184”, were still green and farmers were very happy. “Gamba” also grows well in dry season but it becomes stemmy very fast as it will be flowering. “Simuang” looks very poor in dry season, particularly on infertile soils. There are about 72 farmers (from the original 83) who have kept and managed their forage plots.

Participatory evaluation with farmers was conducted and the result showed that the most preferred varieties for most farmers were *Brachiaria* hybrid Mulato, *Brachiaria brizantha* Marandu and *Stylosanthes guianensis* CIAT 184. Farmers in areas with more fertile soils preferred *Panicum maximum* Simuang more than other. The reasons for selecting the best varieties were fast growth and the ability to stay green in the early dry season. *Andropogon gayanus* Gamba was selected as a second choice in all areas.

The meeting with provincial and district staff was also organized in provincial animal health and production office to develop plans for the activities in dry season which will focus on (i) Participatory Evaluation with all farmers (ii) Focus group meeting and (iii) Village meeting to prepare and plan for activities in the following wet season. The achievements and lesson learnt were also discussed in the meeting.

Details of visit

Field visit to existing LLSP sites in Kampong Cham

A 3-day field visit was organized to all LLSP sites in three districts in Kampongcham province. The aims of visit were to conduct participatory forage variety evaluation with farmers and also provide needed technical information, especially the management of forages in dry season to farmers.

The team visited Pnouv Lek village (Cheung Pray district), Amphil Chrum (Kampong Siem), Trapieng Rong and Trapieng Raing (Prey Chhor), Kbal Damray, Kong Karng 1 and 2 and Taheav Krom (Pongnea Krek).

Most of the farmers manage their forage plots very well. The forages are cut and used as a supplement to traditional feed resources. Although there was no rain since September, some varieties, “Mulato”, “Marandu”, “Basilsik” and “Stylo 184” were still green and make farmers very happy. “Gamba” also grows well in dry season but it becomes stemmy very fast as it will be flowering. “Simuang” looks very poor in dry season and on infertile soil.

Farmers are happy with their forage plots and would like to expand the area next season. Farmers also said that there are other farmers in the village who visited their plots and would like to start planting forages as well. However, farmers in Amphil Chrum village, Kampong Siem district have not managed their plots at all. The fence was broken and forages were overgrazed. Farmers have told that they need forages only in wet season and so they let animals freely graze the planted forages in dry season. Therefore, they thought that there is no need to protect and manage planted forages in dry season. To overcome this problem, the team will meet with the farmers and explain the need of management for forages in both seasons to maintain forage productivity for the next wet season.

There are about 72 (of the original 83 farmers) who have kept and managed their forage plots. From these 72 farmers, about 40 farmers are doing very well.

Participatory evaluation with farmers

Provincial and district staff have conducted participatory evaluation with farmers in order to learn which varieties that farmers like and don't like in the dry season, and compare this to the results of participatory evaluation conducted earlier in the wet season. The result of evaluations was as follows: The most preferred varieties for most farmers were *Brachiaria* hybrid Mulato, *Brachiaria brizantha* Marandu and *Stylosanthes guianensis* CIAT 184; mainly because of their fast growth and their ability to stay green in the early dry season. Farmers in fertile soil areas also liked *Panicum maximum* Simuang. *Andropogon gayanus* Gamba was selected as the moderate in all areas, many farmers said that *Gamba* grass grows as well as *Mulato* in dry season but it become stemmy too fast. *Brachiaria decumbens* Basilisk was ranked the least preferred species because of slow growth and early flowering (which makes grasses stemmy).

Planning meeting for the dry season

The meeting started with review of the implementation of project activities in the past three months (Oct-Dec) to find out some outcomes and problems have been occurred. Lorn Sophal and Chea Simach – provincial staff informed about the implementation of project, the main activities have been done were mainly follow-ups on forage management and providing technical assistance to farmers.

The team then developed an action plan for the dry season: (i) Participatory Evaluation with all farmers, (ii) Focus group meetings, and (iii) Village meeting to prepare and plan for activities in the following wet season.

At the end of the meeting, there was discussion about the preparation for the 2005 Annual Review and Planning meeting of the Project, especially the achievements and lesson learnt from implementation of project activities and 2004.