

THE FORAGES FOR SMALLHOLDERS PROJECT

W.W. Stur¹, P. M. Horne², J. B. Hacker³ and P. C. Kerridge⁴

SUMMARY

The Forage for Smallholder Project (FSP) is a regional project, funded by the Australian Agency for International Development (AusAID), to assist partner governments in Southeast Asia to increase the availability of adapted forages and to improve the capacity to deliver them to smallholder farming systems, in particular, upland systems. AusAID has allocated funds for five years starting in January 1995 and has asked the International Center for Tropical Agriculture (CIAT) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of Australia to jointly manage this project.

BACKGROUND

The Forages, Smallholders Project directly follows the Southeast Asian Forage Seed Project (Jan. 1992 to Dec. 1994); a smaller project which operated in Indonesia, Malaysia, Thailand and the Philippines. The Forage Seeds Project has the aim of identifying adapted forages, particularly for acid soils. Six broadly adapted forage accessions were identified (Stur et al. 1995):

Andropogon gayanus cv. Kent and CIAT 621,

Brachiaria brizantha CIAT 6780,

Brachiaria decurnbens cv. Basilisk (= CIAT 606),

Brachiaria humidicola cv. Tully, CIAT 6369, CIAT 16886 and CIAT 6133 (often referred to as *B. dictyoneura*),

Centrosema pubescens CIAT 15160, and

Stylosanthes guianensis CIAT 184.

Some of these species such as *B. decurnbens* cv. Basilisk and *B. humidicola* cv. Tully had previously been identified as promising by workers in Southeast Asia and their broad adaptation was confirmed in regional on-farm testing. In other cases, new accessions of species, which were superior to those already in use, were identified (eg. *Centrosema pubescens* CIAT 15160).

Other species such as *Arachis pinto*) cv. Amarillo, CIAT 18750 and 18748, *Aeschynomene histrix*, *Centrosema acutifolium* CIAT 5277, *Desmodium heterophyllum* cv.

¹ Forages for Smallholders Project-CIAT, c/o IRRI, P.O. Box 933, 1099 Manila, Philippines.

² Forage for Smallholders Project-CSIRO, c/o Department of Livestock and Veterinary Services, Ministry of Agriculture and Forestry, Vientiane, Lao PDR.

³ CSIRO Division of Tropical Crops and Pastures, 306 Carmody Rd. St. Lucia, Old 4067, Australia.

⁴ CIAT Tropical Forage Program, Apartado Aereo 6713, Cali, Colombia

Johnstone (CIAT 349), *Stylosanthes guinensis* (various breeding lines), *Brachiaria* spp. and *Paspalum atratum* were identified as promising at some sites or for specific purposes, and these need to be tested on smallholder farms to confirm their adaptation and suitability.

Thus, the project highlighted the need for evaluation of promising species on-farm to (i) confirm their suitability to specific farming systems, (ii) enhance adoption of these species in target areas, and (iii) to ensure feed-back of farmers' needs to R&D workers. Once particular forage species are adopted and used by farmers in target areas, the next step is to develop delivery systems (ie. locally developed forage technology including seed production and vegetative propagation systems) to make these forages available to farmers in other areas in the region.

Forages for Smallholders Project

The purpose of the Forage for Smallholders Project (FSP) is to support partner countries to identify adapted forages and to integrate these forages (new species as well as those already identified by partner countries) into smallholder farming systems, with emphasis on upland systems.

Where will the project work? Partner countries are Lao PDR, Indonesia, Malaysia, Philippines, Southern China, Thailand and Vietnam. Target agro-ecosystems differ between countries but emphasis will be placed on agroforestry and other upland systems (Table 1).

Table 1. Target Agro-Ecosystems

	Indonesia	Lao PDR	Malaysia	Phillippines	South China	Thailand	Vietnam
Agroforestry	**	***		**	**	*	**
Upland systems	***	***	*	***	**	***	**
Plantations	***		***	***			*
Grasslands	*	**		*	**		**
Lowland systems	*	**		**			**

Planted forages are only one part of feeding systems involving naturally available forages, crop residues and agricultural by-products. For animal production the challenge is to find forages which fit into farming systems, fulfil a particular nutritional need and contribute significantly to livestock production. In addition to these benefits, the contribution of forages to environmental sustainability through control of soil erosion, weed suppression and soil amelioration can be significant in upland agriculture.

Project management. The project will be jointly managed by CIAT and CSIRO. The Leader of the Tropical Forages Program, CIAT (Dr. Peter Kerridge) and the Leader of the Australian Tropical Forages Genetic Resources Centre (Dr Bryan Hacker) have been appointed Project Leaders with CIAT responsible for overall administration. Two scientists (Dr Wemer Stur, CIAT and Dr Peter Home, CSIRO) have been employed by CIAT/CSIRO who will be responsible for the implementation of the project. Regional project offices will be based in the Philippines (Dr Wemer Stur), and in Lao PDR (Dr Peter Home).

How will the FSP work? It is planned that the FSP will operate:

1. As a resource for Natural Programs

The FSP is designed to be a resource for partner countries. The project will call on germplasm from the genebanks of CIAT and CSIRO, provide information such as the use and performance of forages in other parts of the world, and support forage R&D in partner countries. It is designed to be flexible and responsive to country partner needs.

2. Through farmer participation

The participation of farmers is seen as essential in the process of evaluation and adoption of forages. While initial screening of forage germplasm for adaptation to soil, climate and disease resistance is possible on research stations, further selection of forages for particular farming systems can most readily be achieved by involving farmers in the selection process. Smallholder farmers often have special criteria, such as labour availability at different times, which apply to their farming system and these cannot be "researched" on station. This is particularly important in cases where there are complex farming systems with different crops and with forage being only one of many feed resources. Feed-back of farmers' opinions and requirements will result in the need for more research to help solve these problems and to identify future research needs.

Farmer participation is also seen as an important tool in the adoption of forages. Farmers who make their own choice of species are more likely to have a sense of ownership of the species they select for their farm. These farmers can then become teachers and promoters of the selected species, since other farmers are much more likely to be convinced by one of their fellow farmers than by researchers or extension personnel.

Farmers also play an important role in the development of delivery systems of forages. Once particular species have been identified in a farming system, these species need to be multiplied to make them available to other farmers. This may occur through farmer field days, involvement of farmers in the technology transfer process and village-based multiplication centres. Development of such delivery systems is essential to make adapted forages widely available to smallholder farmers.

3. Through national and international linkages

Exchange of information on successful species, feeding systems, methodology for research and extension, etc. between R&D workers within and between countries is important to maximise the available resources by stimulating discussion and coordinating activities to avoid duplication.

The FSP will hold annual regional meetings to foster linkages between partner countries, review results, and plan and coordinate future activities. Another vehicle for information exchange is the formation of R&D networks. Such a network was initiated at the Third Regional Meeting of the Southeast Asian Forage Seeds Project in Samarinda in October 1994; it was called the Southeast Asian Forage Research and Development (SEAFRAD) network.

The FSP will support this network by assisting with the publication and posting of a SEAFRAD newsletter. It was decided that editorship of the SEAFRAD newsletter will be the responsibility of member countries and will rotate among countries. Two issues will be published per year with the Philippines taking responsibility for 1995. The two FSP scientists will assist with editing. The FSP encourages partner countries to publish in-country newsletters in local languages and it would be possible to send these together with the SEAFRAD newsletter.

Another form of linkage which is particularly important for the FSP is with national and international development projects such as cattle distribution programs. Often animal health, credit and extension personnel are employed by such programs and feed resources quickly become the most limiting factor facing farmers. Finding adapted forage species for such situations is likely to result in quick uptake and spread of these species.

4. Through the building of national R&D capacity

Short-term, practical training of partner country R&D staff and farmers is seen as an important and integral part of the FSP.

Training of staff will be through the "training of trainers" who will then hold a series of in-country training for a larger number of staff. This will allow the trainers to hold in-country courses in the local language and adjust training to the needs of particular groups. There will be two training courses for trainers. These will be on the subject of (i) farmer participatory research methods and rapid rural appraisal, and (ii) forage agronomy, seed production and delivery systems.

Training of farmers in the use and management of forages will also be supported by the FSP. This will include field days, the production of news sheets or technical guides on particular forage species, management of forages and nutritional facts.

LEVEL OF ACTIVITY IN PARTNER COUNTRIES

The level of activity will vary between countries. While all countries will be involved in regional networking, greater project emphasis will be placed on supporting R&D activities in Indonesia, Lao PDR, Philippines and Vietnam. This is because resources for forage research and development are less in these than the other countries in the region. The need for the introduction of new forages into Lao PDR and Vietnam is greater than into Indonesia and the Philippines. The latter two countries have previously identified several promising species which now need to be evaluated by farmers and integrated into smallholder farming systems. Success of these forage development activities will depend on input and mutual support from all forage workers in the region and not only those directly involved in the FSP.

REFERENCE

Stur W.W., Cameron, A.G. and Hacker, J.B. (1995). Forages for Smallholders. Proceeding of the Third Regional Meeting of the Southeast Asian Forage Seeds Project, Samarinda, Indonesia, 23-28 October 1994. CIAT Working Document No. 143, CIAT, Cali, Columbia.