

# TROPICAL FORAGE SEED PRODUCTION IN SOUTHEAST ASIA: CURRENT STATUS AND PROSPECTS

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## ABSTRACT

The demand for forage seed in southeast Asia has increased in recent years. More than 1,200 tons of seed were produced in Thailand in 1995 with smaller quantities of seed having been produced in China, Lao PDR, Malaysia, Philippines and Indonesia. Large quantities have been produced of *Brachiaria ruziziensis*, *Stylosanthes hamata*, *Stylosanthes guianensis* and *Panicum maximum*. There are good prospects to increase forage seed production and to develop trade between countries in the southeast Asian region. There is a need to increase seed production of widely adapted species, and expand production of forages for other purposes such as turf amenity planting and erosion control.

## KEYWORDS

Forages, seed production, tropical, grasses, legumes; Southeast Asia

## INTRODUCTION

The demand for forage seeds has increased rapidly in recent years. This is related to the expanding beef and dairy production which in turn is fuelled by the ever-increasing human population and the rising living standards in parts of Southeast Asia. Existing feed resources are largely exploited and new feed resources are required to feed the additional animals. Planting forages is one way to substantially increase feed supply and this has been recognized in many countries. Some countries have used vegetative propagation to distribute planting material but this is limited to certain species and is expensive when large areas are to be planted. Thus, the demand for forage seed has increased strongly.

While some countries such as Thailand have a lot of experience in forage seed production, other countries have only recently started to become interested in producing their own seed (Phaikaew, 1996). Approaches to production and marketing differ between countries and many lessons can be learnt from their experiences. This paper summarizes the current status of forage seed production in Southeast Asia and discusses limitations and prospects.

## CURRENT STATUS OF FORAGE SEED PRODUCTION

In all countries, the government plays a crucial role in forage seed production (Table 1). In many cases government agencies produce seed on government stations and utilize the harvested seed in government projects. Thailand has developed a successful contract seed growing system where farmers produce most of the seed. This seed is then bought by the government which processes and markets the seed.

Species of which more than 10 tons of seed were produced in 1995 were *Brachiaria ruziziensis*, *Stylosanthes hamata* cv.

Verano, *Stylosanthes guianensis* CIAT 184 and *Panicum maximum* TD58 (Table 1).

In the past seed was often distributed to farmers free of charge but a

lot of seed was wasted. Nowadays, farmers commonly have to pay for seed although seed prices in Southeast Asia are generally low. For example, *Brachiaria ruziziensis* and *Stylosanthes hamata* seed sell for US\$ 2-3/kg.

## LIMITATIONS AND PROSPECTS

**Production.** Technically, seed production is difficult in the humid lowland tropics near the equator. Many species which grow well in such areas often do not produce seed or seed production is low and risky (e.g. *Brachiaria decumbens*). More suitable areas are sites with a distinct dry season and, near the equator, at higher altitudes. In most countries, labour-intensive harvesting methods are employed which result in good-quality seed. Increasing labour costs will make these methods expensive in future years.

**Marketing.** Demand for seed fluctuates from year to year, making seed production a risky enterprise for farmers. In Thailand, the government has limited the risk for farmers by guaranteeing farmers a contract price for a certain amount of seed. Purchase of excess production is not guaranteed, so farmers carry some risk. There are no examples where farmers carry the full risk of production and marketing. Other limitations relate to poor storage and shipping conditions in humid areas of the region and the lack of skilled personnel in some countries.

Despite these limitations, prospects for expansion of forage seed production in Southeast Asia are good, since current demand for forage seed cannot be met by in-country production. There is a need to develop trade in forage seeds between countries. This would result in seed being produced in the most favourable and suitable environments in the region, and thus overcome technical problems of production. Since there would be a much larger and diverse market, demand for seed may also fluctuate less.

For this to occur, countries in the region must decide on the most useful and widely adapted forage species, so that seed production may be initiated for these species. Additionally, common seed quality standards, seed certification, storage and shipping guidelines must be developed.

## REFERENCES

**Phaikaew, C.** 1996. Current status in prospects for tropical forages seed production in Southeast Asia: Experiences and Recommendations from Thailand. pp. 84-95 in W. Stür, ed. Feed Resources for Smallholder Livestock Production in Southeast Asia. Forages for Smallholders Project, Technical Report No. 1, CIAT Working Documents No. 156, CIAT, Los Baños, Philippines.

**Table 1**

Estimated amount of seed produced, production systems, marketing and main forage species produced in countries in Southeast Asia in 1995.

Country and seed produced in 1995	Production system	Marketing of seed	Major species produced in 1995
China P.R. 20.5 tons	State Farms (government run but operating relatively independently)	Sold directly from the state farms to other government companies or private farms	<i>Stylosanthes guianensis</i> CIAT 184 and cv. Graham, <i>S. scabra</i> cv. Seca, and small quantities of <i>S. hamata</i> cv. Verano, <i>Melinis minutiflora</i> , <i>Brachiaria decumbens</i>
Indonesia 1.6 tons	Government Livestock Stations producing cuttings and seed	Largely for use by government programs. Some cuttings (mainly King grass) are sold to private companies	<i>Leucaena leucocephala</i> , <i>Macroptilium atropurpureum</i> , <i>Sesbania grandiflora</i> , and small quantities of <i>Stylosanthes guianensis</i> cv. Cook and CIAT 184, <i>Paspalum plicatulum</i>
Malaysia 2.4 tons	Department of Veterinary Services (DVS) Livestock Station Sintok Farm. Small quantities for research purposes are produced by the Malaysian Agricultural Research and Development Institute (MARDI).	Seed is distributed free of charge to dairy farmers, beef cattle and sheep rearers, and government researchers. Seed is sold to private companies for road side erosion control (e.g. <i>B. ruziziensis</i> ) and to commercial farms	<i>Brachiaria ruziziensis</i> , <i>Stylosanthes guianensis</i> CIAT 184, and small quantities of <i>Panicum maximum</i> cv. Vencedor and cv. Common, <i>Arachis pintoi</i> cv. Amarillo
Lao PDR 2.7 tons	From 1985-1989, farmers produced seed of <i>Stylosanthes hamata</i> on contract to the Lao-Australian Livestock Development Project. Since then seed has been produced on the government cattle station Nam Suang	From 1985-1989, seed of <i>S. hamata</i> was distributed to farmers free of charge. There was a lot of wastage and seed is now sold to farmers, not given free of charge. Seed is also used by government R&D programs	<i>Brachiaria ruziziensis</i> , and small quantities of <i>Andropogon gayanus</i> , <i>Panicum maximum</i>
Philippines <1.0 ton	a) Government stations b) Farmer production of small quantities organized through two NGOs (Mindanao Baptist Rural Life Center and the Mag-uugmad Foundation of Cebu)	a) Largely for sowing on government stations; small quantities of seed are given free of charge to farmers b) Sold to organizations and farmers directly; seed is usually collected only upon receipt of an order	a) <i>Stylosanthes guianensis</i> cv. Cook and small quantities of <i>Desmanthus virgatus</i> , <i>S. guianensis</i> CIAT 184, <i>Brachiaria decumbens</i> , <i>B. brizantha</i> , <i>Andropogon gayanus</i> b) <i>Desmodium rensonii</i> , <i>Leucaena diversifolia</i> , <i>Flemingia macrophylla</i> ,
Thailand 1,279 tons	a) Farmers produce seed on contract for a guaranteed price for the government b) Animal nutrition stations (government)	Seed is processed and marketed by the government; it is used largely in government projects such as dairy promotion, agricultural restructuring and extension projects; it is sold to farmers and private enterprises at low prices	a) Farmers produced 740 tons or 82% of <i>Brachiaria ruziziensis</i> , 130 tons or 87% of <i>Stylosanthes hamata</i> cv. Verano and 90 tons or 65% of <i>Panicum maximum</i> TD58 b) Stations produced <i>B. ruziziensis</i> , <i>S. hamata</i> cv. Verano, <i>Panicum maximum</i> TD58, and small quantities of <i>Paspalum plicatulum</i> , forage sorghum, other grasses, <i>Leucaena leucocephala</i> , <i>Centrosema pubescens</i> and other legumes