

Feed intervention >> Fodder production, grassland development and utilization > Improved planted forages

Fodder trees and shrubs



Leucaena inter-planted with food crops in eastern Indonesia



Gliricidia grown along a fence in north-eastern Brazil



Growing *Sesbania grandiflora* on rice bunds in eastern Indonesia



Fattening cattle with leucaena tree leaves in eastern Indonesia

Description

- ✓ Leguminous fodder trees and shrubs exist for a range of environments. Commonly used species include *Leucaena leucocephala*, *Gliricidium sepium*, *Calliandra calothyrsus*, *Sesbania grandiflora* and *Cratylia argentea*.
- ✓ They can be planted as intensive backyard plots, hedgerows or living fences, and in silvopastoral systems and other places that are unsuitable for crop production.
- ✓ All fodder trees and shrubs can be cut and fed to animals, and some, like leucaena and cratylia, can also be grazed by animals.

Key benefits

- ✓ The leaves of these legumes are high in protein and are often used to supplement lower-quality feeds. Even small amounts of 10-30% of diet can increase animal growth rates significantly or reduce the amount of concentrates that need to be fed.
- ✓ Edible yield of trees and shrubs is difficult to describe as they are often grown in rows around fields or as individual trees rather than as a block of trees. In experiments, edible yields of 10-15 t/ha of dry matter were commonly recorded.
- ✓ Leaves of some tree legumes, such as leucaena, are collected and dried for use as a high-protein leaf meal.
- ✓ Several species are very drought tolerant and are particularly useful for areas with long dry seasons.
- ✓ Most fodder trees and shrubs are long-lived and can be harvested for many years.
- ✓ Many species have additional benefits, such as providing fuel wood, shade for animals, demarcation of field boundaries or fences, and acting as wind breaks.

Key limitations

- ✗ They take a long time to establish (6-18 months) and need to be weeded and managed carefully during this period. They also need to be protected from grazing animals.
- ✗ The use of fodder trees and shrubs is more difficult (and expensive) in areas where there is free grazing of animals.
- ✗ The most commonly planted tree legume leucaena is not well adapted to low pH (acid) soils.
- ✗ Some trees and shrubs contain anti-nutritive compounds and use requires a good understanding of their limitations.

TechFit is a tool to prioritize and select animal feed interventions. It was developed by ILRI under the leadership of Alan Duncan. It has been further refined and developed with inputs from many individuals in and beyond CGIAR. This is one of a series of feed intervention 'TechSheets' developed alongside the *TechFit* tool to provide summarized information on different interventions included in the tool. Werner Stür led the development of the TechSheets. This sheet was prepared by Adrian Bollinger, Michael Peters, Werner Stür and Max Shelton. *TechFit* is supported by the CGIAR Research Program on Livestock and Fish. ilri.org/techfit



Gliricidia hedgerows grown in semi-arid north-eastern Brazil.



Gliricidia fed to sheep in north Sumatra, Indonesia.



Grazing of a Cratylia – Mulato grass pasture.



Legume-grass mix.

Leucaena leaf meal.

Where does this intervention fit?

Potential to overcome feed limitations	Score
• Feed scarcity during <i>dry season</i> :	very high
• Feed scarcity during <i>cropping season</i> :	medium
• Low feed availability :	medium
• Poor feed quality :	high

Applicability to livestock	Score
Cattle/buffalo	<ul style="list-style-type: none"> • Breeding (cow-calf) : low • Fattening : high
Sheep/goats	<ul style="list-style-type: none"> • Dairy : very high • Breeding : low • Fattening : high
Pigs	<ul style="list-style-type: none"> • Breeding (sow-piglets) : medium • Fattening : high

Applicability to farming system	Score
• Pastoral (extensive grazing systems) :	n/a*
• Agro-pastoral/extensive mixed systems :	medium
• Intensive mixed crop-livestock system :	very high
• Landless livestock producers :	low

Requirement for resources	Score	
Requirement of	• Land :	medium
	• Water :	low
	• Labour :	high
	• Cash/credit :	medium
	• Access to inputs :	medium
	• Knowledge/skills :	medium

* n/a = not applicable

More information:

- ✓ Gutteridge, R.C., and Shelton, H.M. 1998. Forage Tree Legumes in Tropical Agriculture. www.fao.org/ag/agg/AGPC/doc/PUBLICAT/Gutt-shel/x5556e00.htm
- ✓ Tropical Grasslands - Forrajes Tropicales: www.tropicalgrasslands.info

ilri.org
better lives through livestock
ILRI is a member of the CGIAR Consortium

Box 30709, Nairobi 00100 Kenya
Phone +254 20 422 3000
Fax +254 20 4223001
Email ilri-kenya@cgiar.org

ILRI has offices in:
Central America • East Africa
• South Asia • Southeast and East Asia
• Southern Africa • West Africa

