

## 8. Leucaena use in other countries



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## 8. Leucaena use in other countries

Leucaena is widely used in many tropical countries for forage for feeding ruminants and for other purposes. Even though their livestock feeding systems and scale of operation may be different from Australia, there is still much to be learned from their accumulated experience.

### 8.1 Regional use of leucaena

#### Indonesia

Leucaena or 'lamtoro' has been well known for decades in Eastern Indonesia. On Sumbawa Island, and in the Amarasi District of Timor, smallholder farmers profitably fattening Bali bulls with leucaena.



*Smallholder farmer in Sumba, Indonesia transporting leucaena cut for cattle feeding*

The animals are tethered in pens, and fed high leucaena diets (often 100% leucaena) using 'cut and carry' leucaena from nearby plantings of 0.5–5ha and for feeding 2–20 head).



*Fattening Bali bulls on 100% leucaena diets in Timor, Indonesia*

Farmers say that their cattle initially show mimosine toxicity symptoms such as salivation and hair loss, but they quickly recover in one or two weeks without inoculation with *Synergistes jonesii*.

Subsequent weight gains are near the genetic maximum for this breed of cattle. With support from the Australian Centre for International Agricultural

Research, cattle fattening with leucaena has been strongly promoted. Greatly increased animal growth rates, carcase dressing percentage and meat quality are having a significant positive impact on household incomes and on regional economic growth.

#### Thailand

In Thailand, leucaena is widely available and is fed to meat and milk goats, and to dairy cattle. It is collected from naturalised stands on roadsides and fed fresh, as partially fermented silage or as dried leaf meal.



*Transporting roadside leucaena for feeding goats in northeast Thailand*

Feeding leucaena lowers mortality of young animals and increases the productivity of mature animals.

Goat rearing for meat and milk has long been practiced in Thailand, mostly associated with the Thai Muslim community. Leucaena has gained wide acceptance among goat farmers as a suitable basal feed and is often supplemented with combinations of other feeds which vary between farms and season, for example pelleted concentrate feed and/ or napier grass or corn silage and pineapple waste.



*Feeding goats 100% leucaena diets in Northeast Thailand*

There are no reports of mimosine toxicity symptoms. The main constraint that goat farmers face is seasonal shortages in leucaena forage due to slow growth during the dry season.

### India

The semi-arid climate and intense pressure on limited land resources have increased the importance of tree and shrub fodders for ruminants compared with traditional grasses or grass-legume pastures. Although the woody type of leucaena is a relatively new introduction to India, it has been promoted to meet the needs of rural communities for fuel wood, small timber and forage.

India is one of the major world producers and consumers of paper and pulp products (3–4% of global share).



Growing and transporting leucaena timber for paper pulp in India



The farm forestry plantation program initiated by JK Paper Ltd, Unit CPM (Central Pulp Mills) has engaged some 7,800 farmers who have established leucaena plantations covering an area of 18,400ha in parts of Gujarat, Maharashtra and Madhya Pradesh states. JK Paper Ltd is undertaking a leucaena genetic improvement program to increase biomass and pulp yields.

### Latin America

Over the past 10–15 years, establishment and management of leucaena feeding systems in Latin America have varied between countries. In Paraguay and Argentina, broadacre leucaena is direct seeded in single or double hedgerows with improved grass inter-row alleys 6–8m wide, following Australian practices and is used for beef production.



Beef cattle on leucaena in Argentina

In Mexico, leucaena is also cultivated with *Tithonia diversifolia* (Mexican sunflower), a leafy forage shrub that can reach a height of two to three metres and is rich in protein suitable for ruminants and rabbits.



Beef from leucaena in Mexico

In countries such as Cuba, leucaena has been established as protein banks using single/twin rows with inter-row spacing of 2–4 m for direct grazing by beef, dairy or dual-purpose cattle. Paddock sizes for protein banks and Intensive silvopastoral system (ISS) range between 0.3 and 50ha; broadacre hedgerow pasture systems are generally established over larger areas (20–500ha).

The ISS models are widely promoted in tropical regions of Colombia, Mexico, Cuba, Venezuela and North-east Brazil with a strong emphasis on the contribution to the environment: carbon



*Dairy cattle in an intensive silvopastoral system*

sequestration, reduced methane emissions, improved animal welfare, atmospheric nitrogen fixation and transfer, trees for timber and landscape improvement.

In ISS, leucaena is planted at high density (10,000 trees/ha), in combination with improved tropical

grass and high-value timber tree species (at 200–400 trees/ha), and intensively managed employing rotational grazing.

Despite the significant benefits demonstrated by scientists and innovative farmers, the adoption of leucaena feeding systems remains low across Latin America.



*High-density leucaena in ISS in Colombia*