

# Desmodium cinereum

## Scientific name

*Desmodium cinereum* (Kunth) DC.

## Synonyms

*Desmodium luteocanescens* M.E. Jones  
*Hedysarum cinereum* Kunth  
*Hedysarum sericeum* Miller

## Family/tribe

Family: *Fabaceae* (alt. *Leguminosae*) subfamily: *Faboideae* tribe: *Desmodieae* subtribe: *Desmodiinae*. Also placed in: *Papilionaceae*.

## Common names

rensonii (Southeast Asia).

## Morphological description

Short-lived (2-3 years), erect shrub 1-3 m in height. Erect stems have few branches and tend to become woody. Branches densely covered in short white, hooked hairs. Leaves trifoliolate round or ovoid with terminal leaflet slightly pointed. Leaflets usually rather thick, 5-7 cm long, covered in soft hairs lying flat against the lamina; present on both surfaces, but especially underneath. Stipules about 3 mm long, shedding early. Purple flowers borne in many large open panicles, producing seed pods with 6-8 seeds contracted between each; seeds about 4 mm long and 3 mm broad, almost symmetrical. Seeds small and hard, green turning yellow-brown to brown with maturity. About 500,000 seeds/kg.

## Distribution

Native to:

Western Mexico and Central America from Salvador to Nicaragua.

Distributed to south and southeast Asia and popularised in the Philippines.

## Uses/applications

Short-term shrub legume used in contour hedgerows and for alley cropping. Foliage cut for stock feed or used as nitrogen-rich mulch.

## Ecology

### Soil requirements

Moderately fertile, neutral or slightly acid soils. Becomes chlorotic in alkaline soil.

### Moisture

Adapted to the wet tropics with >1,500 mm average annual rainfall and a short, or no dry season.

### Temperature

Lowland tropical species from altitudes 0-1,000 m asl. Requires a mean annual temperature in excess of 20°C and has no frost tolerance.

### Light

No information available.

### Reproductive development

Numerous flowers producing high yields of seed. Flowers and seeds about 7 months after planting, but first season seed yields can be low.

### Defoliation

Regular cutting stimulates multiple stems and increases yields of leaf. If seed production is required, defoliation must be timed to avoid destroying the developing seed crop. Not well suited for grazing or browsing.

### Fire

Unknown, but it would be expected to survive.

## Agronomy

Guidelines for the establishment and management of sown pastures.

### Establishment

Seed germinates quickly (3-4 days) without scarification. In hedgerow systems on sloping lands, *D. cinereum* is direct sown into double

hedgerows with rows 50 cm apart. Plant intra-row spacing should be 2.5-10 cm. Close spacing promotes leaf production and soil erosion control. Seedlings are slow to establish and are sensitive to competition. Should be kept weed-free until well established.

#### **Fertiliser**

Will respond to phosphorus fertiliser on deficient soils.

#### **Compatibility (with other species)**

Generally grown as pure stands in hedgerows, rather than with other pasture species.

#### **Companion species**

Legumes: In the SALT 2 system used in the southern Philippines, grown as a short-term (2-3 years) component of a forage system with *Flemingia macrophylla*, *Gliricidia sepium* and *Leucaena leucocephala*.

#### **Pests and diseases**

Aphids (*Apis craccira*) and mealybugs reported in Guam.

#### **Ability to spread**

Drops large amount of seed but seedlings sensitive to competition.

#### **Weed potential**

Listed as a potential weed risk in the Pacific islands.

#### **Feeding value**

##### **Nutritive value**

Reported to be a high quality feed supplement for ruminants, however no nutritive quality evaluations were cited.

##### **Palatability/acceptability**

Readily eaten by ruminants in southeast Asia.

##### **Toxicity**

None reported.

#### **Production potential**

##### **Dry matter**

Growth rates in humid-tropical Indonesia were higher when *D. cinereum* was cut every 2 months, rather than at longer time intervals, and averaged 1.1-1.9 kg/m row/year DM. Yields declined to 0.5 kg/m row/year DM by the end of the third year of production. Highest yielding of 8 species evaluated in an alley cropping experiment in Nepal.

##### **Animal production**

No animal production data specific to *D. cinereum* were cited. Generally well accepted by ruminant livestock in southeast Asia. In the SALT 2 system used in the southern Philippines, a forage mixture consisted of 55% *D. cinereum*, 20% *Flemingia macrophylla*, 20% *Gliricidia sepium*, and 5% *Leucaena leucocephala* was fed as 50% of the total ration, (the balance of which was concentrate feed), for lactating goats. Excellent economic returns were reported.

##### **Genetics/breeding**

No evidence of genetic evaluations or breeding programs were cited.

##### **Seed production**

Wider plant spacings (2 x 2 m/tree) are recommended for seed production. Plants produce seed about 7 months after sowing, with full seed production in the second year. Mature seed pods are stripped from the stem by hand, dried and seed removed by pounding and winnowing.

On a fertile site, a well-maintained 10 m long double hedgerow can produce 3.5 kilograms of seed per year.

##### **Herbicide effects**

No information available.

##### **Strengths**

- Fast-growing shrub for cutting.
- Suited for hedgerows.
- Good quality feed.

##### **Limitations**

- Short-lived (2-3 years).
- Not drought or cold tolerant.
- Must be planted from seed.

## Other comments

## Selected references

Gutteridge, R.C. and Shelton, H.M. (1994) *Forage Tree legumes in Tropical Agriculture*. CAB International, Oxford, England, reprinted 1998 by Tropical Grassland Society of Australia, St Lucia, Australia.

Home, P.M. and Stür, W.W. (1999) Developing forage technologies with smallholder farmers - how to select the best varieties to offer farmers in Southeast Asia. *ACIAR Monograph No. 62*.

Roshetko, J.M. (1995) Community-based Tree Seed Production with *Desmodium rensonii* and *Flemingia macrophylla*. *Agroforestry Information Service No 13*. Arkansas, USA.

## Internet links

[http://www.ars-grin.gov/cgi-bin/npgs/html/tax\\_search.pl?desmodium+cinereum](http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl?desmodium+cinereum)

[http://www.winrock.org/FORESTRY/FACTPUB/AIS\\_web/AIS13.html](http://www.winrock.org/FORESTRY/FACTPUB/AIS_web/AIS13.html)

<http://www.pcarrd.dost.gov.ph/cin/AFIN/technologies%20-%20salt2.htm>

## Cultivars

Cultivars	Country/date released	Details
'Las Delicias' (CPI 46562)	Philippines	Highly productive variety recommended for use in southeast Asia.

## Promising accessions

Promising accessions	Country	Details
None reported.		



cv. Las Delicias - a fast-growing, short-lived plant, providing a high quality feed supplement.



Softly hairy, trifoliate leaves.



Inflorescences, pods and seeds.



High seed production.



cv. Las Delicias used as hedgerow in Indonesia.



cv. Las Delicias and *Flemingia macrophylla* used together as hedgerow in the Philippines.



Heavily grazed plant in northern Australia.

