

Tropical Forages

Centrosema pubescens

Scientific name

Centrosema pubescens Benth.



Synonyms

Bradburya pubescens (Benth.) Kuntze; *Centrosema galeottii* Fantz; *Centrosema schiedeanum* (Schtdl.) R.J. Williams & R.J. Clem.; *Clitoria schiedeana* Schtdl.

Family/tribe

Family: *Fabaceae* (alt. *Leguminosae*) subfamily:
Faboideae tribe: *Phaseoleae* subtribe: *Clitoriinae*.

Morphological description

Perennial, trailing-climbing herb with strong tendency to root at nodes of trailing stems. Leaves trifoliolate, leaflets ovate to orbicular, ca. 3 cm long and 1.3–2 cm broad, shortly acuminate and finely pubescent. Young leaflets and terminal portions of stolons are typically reddish. Stipules triangular-elongated, persistent. Inflorescence an axillary raceme with 3–5 lilac to bluish-violet flowers, each flower subtended by two striate bracteoles. Calyx campanulate, 5-toothed; standard orbicular, approx. 2 cm in diameter; wings and keel much smaller than standard, directed upwards. Pod linear, compressed, approx. 13 cm long and 5–6 mm broad, straight to slightly bent and beaked, containing up to 15 seeds. Seeds transversely oblong to very slightly reniform, approx. 5 mm long, yellowish-greenish with dark mottles. 36,000 seeds per kg. (This description refers to the *C. pubescens* form as represented by cv. Belalto.)



Leaves trifoliolate, leaflets ovate to orbicular; inflorescence an axillary raceme (Mexican form)



Vegetative growth; reddish-brown tips and young leaves (cv. Belalto)



With *Megathrysis maximus* cv. Makueni, North Queensland Australia (cv. Belalto)



Susceptible to *Cercospora* leaf spot (cv. Belalto)

Note: There are three *C. pubescens* forms according to geographic origin:

- (a) Mexico and Honduras: coarse, rather big leaves, from higher altitude, soil fertility demanding.
- (b) Costa Rica and Panama: smaller-leafed, stoloniferous form as represented by cv. Belalto, mainly from higher altitudes.
- (c) Llanos Orientales, Colombia: low-altitude germplasm, less stoloniferous, good adaptation to acid, low-fertility soils, disease susceptible.

Similar species

C. pubescens: bracts 6–9 × 3–6 mm, sericeous; pedicels 3–6 mm at anthesis; bracteoles 10–16 × 6–9 mm; seeds yellowish green.

C. molle: bracts 4–6 × 1–2 mm, puberulous; pedicels 6–9 mm at anthesis; bracteoles 6–9 × 4–6 mm; seeds brownish black.

Common names

Because of the confusion between *Centrosema pubescens* Benth. and *Centrosema molle* Mart. ex Benth. in much of the literature, there are no specifically unique common names for either species, although most should be applied to the more common species, *Centrosema molle*.

Distribution

Native:

Northern America: Mexico (Campeche, Chiapas, Colima, Federal District, Guerrero, Hidalgo, Jalisco, Mexico, Michoacán, Morelos, Nayarit, Oaxaca, Puebla, Querétaro, Quintana Roo, San Luis Potosí, Tabasco, Veracruz, Yucatán)

Central America: Costa Rica; El Salvador; Guatemala; Honduras; Nicaragua; Panama (w.)

South America: Colombia (Llanos Orientales only)

Uses/applications

Forage

Grazed pastures in mixture with a grass, legume-only protein bank, cut-and-carry.

Environment

Potential also as soil cover.

Ecology

Soil requirements

Non-Mexican germplasm is in general better adapted to acid, less fertile soils than common centro ([Centrosema molle](#)); requires well-drained soils.

Moisture

Subhumid to humid tropics with rainfall >2,000 mm/year.

Temperature

Good growth in cool season (Australia).

Light

No information available.

Reproductive development

Like common centro, an indeterminate legume; flowering is induced mainly by photoperiod (short days) but is also favoured by water stress. In Colombia, accession CIAT 5161 (from Panama) is very late flowering.

Defoliation

Because of stoloniferous habit, shows good regrowth and persistence.

Fire

No information available.

Agronomy

Guidelines for establishment and management of sown forages.

Establishment

Essentially the same as common centro ([Centrosema molle](#)).

Fertilizer

No reports, probably not too different from *C. molle*; like *C. molle*, responds to inoculation with *Bradyrhizobium* strains CB 1923 and CB 2947.

Compatibility (with other species)

No information available.

Companion species

Reports restricted to *Megathyrus maximus*; otherwise probably not too different from *C. molle*. 'Belalto' centro persisted with proper fertilization and stocking management for at least 10 years in the humid tropics of Australia.

Pests and diseases

In Australia, 'Belalto' centro less affected by *Cercospora* leaf spot and spider mites than common centro. In Colombia, Colombian germplasm was severely affected by *Pseudomonas* bacterial blight.

Ability to spread

Limited.

Weed potential

Unknown, but probably low.

Feeding value

Nutritive value

Similar to *C. molle*. Accession CIAT 5161, means of 7 cuts, 3-month old leaf: 24% CP, 53% IVDMD, 0.19% P, 0.83% Ca; accession CIAT 5920 (Mexico), young leaf tissue (= 6 months after planting): 26% CP, 71% IVDMD.

Palatability/acceptability

Considered to be similar to that of common centro (*C. molle*).

Toxicity

None reported.

Production potential

Dry matter

cv. Belalto 12.8 t DM/ha/year in North Queensland; accession CIAT 5161: 7.6 t DM/ha/year under cutting in Quilichao, Colombia.

Animal production

550–650 kg LWG/ha/year gain possible in humid Queensland, Australia ('Belalto' in mixture with *Megathyrsus maximus*).

Genetics/breeding

$2n = 22$.

Seed production

Up to 350 kg/ha under experimental and 107 kg/ha under commercial conditions.

Herbicide effects

No information available.

Strengths

In comparison with common centro (*C. molle*):

- Cool-season growth of 'Belalto' in Australia.
- Stoloniferous growth habit (Panama and Costa Rica germplasm only).

Limitations

In comparison with common centro (*C. molle*):

- Low seed production.
- Lack of competition with low-priced, imported seed of common centro.

Selected references

Fantz, P.R. (1996) Taxonomic notes on the *Centrosema pubescens* Benth complex in Central America (*Leguminosae: Phaseoleae: Clitoriinae*). SIDA, Contributions to Botany 17:321–332. [jstor.org/stable/41967213](https://www.jstor.org/stable/41967213)

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Schultze-Kraft, R. and Clements, R.J. (eds). (1990) *Centrosema: Biology, agronomy, and utilization*. CIAT Publication No. 92. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia. hdl.handle.net/10568/54383.

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Cultivars

'Belalto' (Q 8333) Released in Australia (1971). Origin Costa Rica; good cool-season tolerance.

Promising accessions

CIAT 5161 Selected in Colombia. Origin Cañas Gordas, Panama (8°43' N, 1,060 m asl, rainfall 3,300 mm); particularly stoloniferous.

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