



Di Bella Produce and Farming

Ingham North QLD Australia

Seed sales- tech sheet.



Cowpea

Vigna unguiculata (formerly *Vigna sinensis*) is a fast growing, annual, summer legume used for forage and cover crops.

The crop is well suited as a cover crop as a single species stand or in a mixed fallow cover crop, usually mixed with other species like lablab, Sunn hemp, and soybean.

Positive attributes

- Easy to establish
- Multi-purpose legume that can be used for forage production and as a green manure cover crop.
- Is a legume which can fix atmospheric nitrogen.
- High nutritive value and high for grazing systems.
- Adapted to a wide range of soils.
- Drought tolerant when compared to other cover crops.
- High yields in a short period of time.
- High seed production (with some cultivars).

In a crop rotation program, this legume can be included in crop rotations to build up soil nitrogen as well as to break weed and disease cycles. They are particularly useful for building up fertility in country that has been run down from overcropping. Cowpeas crops that are well nodulated, can fix between 20 to 100 kg nitrogen/ha into the soil (in trials).

Cultivar types

There are many different cultivars available throughout Australia. The most common cultivars grown in Queensland are:

Meringa- This variety has a cream-coloured seed. This is an erect species that has good early growth. The cultivar is mainly grown in sugarcane regions of northern Queensland. The variety is prone to Phytophthora root rot. Flowers are mauve in colour. This variety was selected at the BSES Meringa Sugar Experiment Station outside of Cairns.

Ebony- This variety is a black seeded variety. This is a twining species and is very vigorous when compared to most other cultivars. This cultivar can be used effectively for forage and green manure cropping. The cultivar is resistant to Phytophthora root rot. Flowers are mauve in colour.

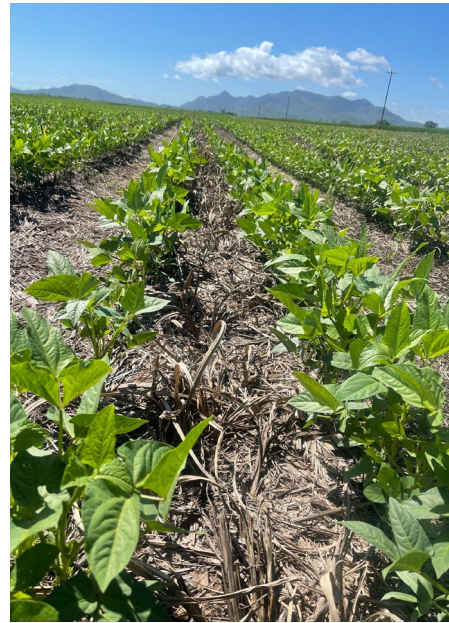
Calypso- This variety is a black seeded variety. This is a twining species with a similar biomass to Ebony. This cultivar can be used effectively for forage and green manure cropping. The cultivar is resistant to Phytophthora root rot. The cultivar can be identified by its yellow flowers.

Caloona- This variety is a red seeded variety. This is an erect species that has early growth, but generally has low biomass when compared to Ebony and Calypso. This cultivar will flower early and set seed early (especially when drought stressed in North Queensland). The cultivar is mainly grown in sugarcane regions of southern Queensland and inland. The variety is very prone to Phytophthora root rot.

Red Caloona- is very similar to Caloona in growth habit and has good resistance to phytophthora root rot, but it matures more quickly than Caloona.

Redloch- This variety is a red seeded variety. This cultivar is identified by its red stem and auricle. This is an erect species that has early growth, but generally has low biomass when compared to Ebony and Calypso. This cultivar will flower early and set seed early when either waterlogged or drought stressed in North Queensland. The cultivar is mainly grown in sugarcane regions of southern Queensland. The variety is prone to Phytophthora root rot but appears to be more resistant than Meringa and Caloona in trials.

Black Stallion- This variety is a black seeded variety. This is a semi-twining species and establishes rapidly when compared to other cultivars. This cultivar is good as green manure crop when planted before the onset of the North Queensland wet season. The cultivar is susceptible-moderate to Phytophthora root rot, when compared to Caloona and Meringa.



Above- Ebony cowpeas direct drilled in sugarcane stubble.

Photo taken by Di Bella Produce and Farming.

Soil type

Cowpeas are suited to a wide variety of soils—from light, sandy soils through to well-drained, heavier-textured soils. They require well-drained soils, to prevent *Phytophthora* root rot.

Sowing

Cowpeas can be sown into a well-prepared, fallowed seedbed that has a good depth of subsoil moisture (at least 75 cm) or direct drilled into existing cover. Seed should be sown at a depth of 4 to 6 cm into moist soil with good seed-soil contact. Use only *Phytophthora* root rot resistant cultivars when direct drill planting into existing cover.

Sowing time

Cowpeas can be sown when soil temperatures reach a steady 18°C at sowing depth at 9 am Eastern Standard Summer Time (E.S.S.T.) over three or four consecutive days. In Queensland the best sowing time is from mid-October to early January. The earlier sowings usually produce the most feed.

Sowing rate

Seeding rate for cowpeas is 20 to 25 kg/ha for good quality seed under dryland conditions, with 18 to 35 cm row spacings, to give a plant population of around 190-210,000 plants/ha . In irrigated areas and higher rainfall districts, rates can be increased to 20 kg/ha (190,000 plants/ha). Seed can also be broadcast and incorporated into a tilled seed bed.

Inoculation

Seed must be inoculated before sowing with a Group I inoculant.

It is advisable to inoculate only enough seed for each day's planting. Store inoculated seed under cool conditions out of sunlight.

Inoculation will ensure that the legumes nodulate efficiently to produce nitrogen.

Fertiliser

Fertilisation of cowpea crops is usually only considered when growing the crop for forage. It is not recommended to apply nitrogen fertiliser because it will reduce nodulation and the fixing of atmospheric nitrogen.

Sugarcane fallow cover crops are usually not fertilised; however, some micro-nutrients listed below should be considered.

Location, soil type and history of fertiliser application will determine fertiliser needs. The main nutrients that should be considered when growing lablars are phosphorus, potassium, cobalt, molybdenum, and zinc levels should be considered.

Consult your local agronomist for a specific nutrition program for forage crops.

Herbicides and weed control

Weeds can become an issue with cowpea when establishing the crop or when plants are small.

Most summer grasses (such as Summer grass, and Liver seed grass) can be controlled with pre-emergent herbicides like Pendimethalin, Trifluralin. S-Metolachlor or Metolachlor can also be used to control some grass and broadleaf species.

Cowpea is highly sensitive to the phenoxy herbicides such as 2,4-D, M.C.P.A., 2,4-D-B, Tordon-50-D® and dicamba. Do **not** apply these herbicides to or near these crops, as severe damage will occur.

Verdict herbicide can be applied to cowpea crops to control grass species and sugarcane volunteers.

Insect pests

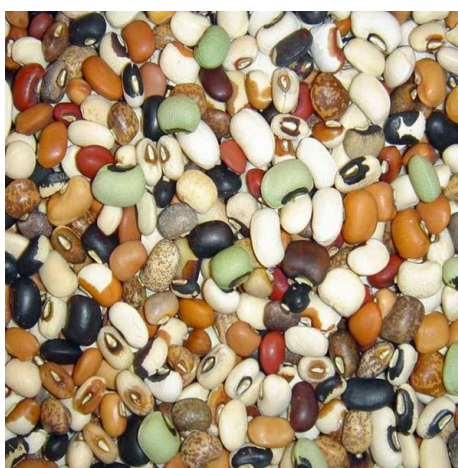
Cowpea crops are vulnerable to serious insect damage from sowing until about four weeks after seedling emergence. Establishing crops are sometimes damaged by cutworm, wireworm, bean fly and cowpea aphid (cowpea and lablab), or by cutworm, wireworm, grass blue butterfly, and armyworm. Control may be warranted if the crop is grown for forage production.

Consult your local agronomist for an integrated pest management options when controlling insect pests.

Diseases

Phytophthora root rot (*Phytophthora vignae*) can be a significant problem in cowpea cultivars, but diseases are not a major problem in this crop.

Leaf diseases (such as bacterial scorch) can affect cowpeas in some seasons, this can be best controlled by grazing. Powdery mildew (*Oidium* sp.) occasionally affects cowpea crops in autumn and can result in premature leaf drop, which can be confused with leaf drop caused by waterlogging.



Above- Different seed colours of cowpeas found throughout the world.



Above: A mixed cover crop with Ebony cowpea and Rongai lablab cowpeas in the Lannercost area, Nth. Queensland.

Photo taken by Di Bella Produce and Farming.

Suitability in a mixed species cover crop

Cowpea is ideal in a mixed cover crop because it:

- Easy to establish.
- Establishes rapidly and early.
- Suitable when soil conditions can be drier.
- Provides good ground cover when conditions are ideal and specific to certain cultivars.
- Forages for residual nutrients in the soil and stores it in plant tissue.
- Cultivars Ebony and Calyspo can climb over erect species like Sunn hemp and sunflower.
- Has a high biomass under drier conditions.
- Captures nitrogen in its nodules.

Purchasing seed to plant.

Contact:



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