

Forage and Grain Cowpeas

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DESCRIPTION

The cowpea (*Vigna unguiculata*) is a herbaceous annual legume which has a number of plant types and uses. It can be used as a green bean (snake bean), a pulse (black-eye peas) or as a fodder, forage and cover crop.

This Agnote deals with those cowpeas that can be used as forage crops for grazing animals, but are generally grown as cover (green manure) crops or fodder. This type of cowpea can also be grown as a seed crop or in vegetable gardens during the wet season to improve soil quality.

The varieties that are suitable for Katherine and areas north to Darwin are Arafura, Meringa and Palmyra. All varieties have a prostrate and twining growth habit and grow to a height of 50-100 cm.



SOILS

The recommended varieties will grow on a wide range of soil types. Although they will tolerate intermittent waterlogging, these cowpeas will not grow well if the soil is waterlogged for extended periods.

SEED BED PREPARATION

Land preparation prior to sowing is identical to that for other field crops. After an initial ploughing early in the wet season, cultivate when necessary to control weeds until the crop is sown.

Zero tillage is a recommended alternative method where sowing is directly into a grass, legume or crop stubble. The cowpea has a large vigorously growing seedling and is well suited to zero tillage.

SOWING

Cowpeas can be sown during the wet season between early December and early February near Darwin, but should be sown between mid December and mid January near Katherine to avoid the risk of crop failure.

A seeding rate of 20-30 kg/ha should be used to obtain a population of 150 000-250 000 plants/ha, which is needed to obtain optimal dry matter and seed yields. The seed can either be broadcast or planted with a combine seed drill in 18 cm or 40 cm rows.

Seed can be inoculated with cowpea inoculum CB756 before sowing to ensure effective nodulation for nitrogen fixation, but this is not necessary if cowpeas or other legumes (mung beans, peanuts, stylos) have previously been grown in the same area.

Seedlings will begin to emerge from the soil three to five days after sowing.

FERTILISERS

Superphosphate at 100-200 kg/ha and muriate of potash at 50-100 kg/ha should be applied at or immediately prior to sowing. It is generally not necessary to apply potash when sowing on Tippera soils.

WEED CONTROL

Pre-planting cultivation is an adequate control measure for hay and green manure crops, as cowpeas are vigorous twining legumes which smother and choke out weeds if the recommended sowing rates are used, resulting in well established crops. When growing cowpeas as a seed crop, it is advisable to apply herbicides to control grasses and some broad-leaf weeds.

DISEASE

Cowpeas have not experienced any serious disease problems in the Northern Territory. However, diseases such as powdery mildew, cercospora leaf spot, cowpea aphid borne mosaic virus, rust and legume little leaf have been recorded in cowpeas. Control measures are normally not necessary or practicable.

PESTS

- a. Bean fly (*Ophyomyia phaseoli*) is normally only a pest of cowpeas in areas north of Adelaide River. It can cause seedling mortality. Cowpea crops should be sprayed three to four days after seeding emergence for bean fly control. A further spray seven to 10 days after emergence may occasionally be necessary.
- b. Bean podborer (*Maruca testulalis*) can reduce seed yield by damaging flowers and developing pods. Cowpea crops grown for seed should be sprayed once or twice during the early flowering period. Typical symptoms of maruca damage include flowers, pods and leaves webbed together and stalks devoid of flowers or pods.

Other bean podborers which may be present are euchrysops (*Euchrysops njeus nidas*) and eublemma (*Eublemma dimidialis*). By themselves neither of these two are likely to be of economic significance.

- c. Birds of the parrot family, including corellas, galahs and red wing parrots can pull-up emerging seedlings and also feed on developing green pods. They have been a major problem on cowpea crops grown under irrigation during the dry season.

HARVESTING

- a. **Hay Crops.** The ideal time to cut a cowpea crop for hay is at peak flowering, which occurs 70-90 days after sowing. Crude protein levels in hay cut at this stage can be 17-20 percent of dry matter.

Quality of hay declines as the crop matures, with crude protein decreasing to 10-15 percent at mid pod filling, the stage at which dry matter yield reaches its maximum. After this stage (80-110 days after sowing), delays in cutting for hay results in reduced dry matter yield and much reduced quality, caused by the rapid loss of leaves as the crop matures.

Most cowpea crops will mature at the same time whether sown early or late. Those crops sown earlier have the opportunity to produce higher hay yields because of a longer growing season.

Cowpea hay crops grown in the Top End should be cut between mid March and mid April to ensure good quality hay. Hay yields are generally 3000-5000 kg/ha, equivalent to 100-165 standard small square bales/ha.

- b. **Cover Crops.** This type of crop can be incorporated at any time when sufficient green material is available, but it is best done at the time of peak flowering when the material is of high quality and will break down quickly in the soil. In the home garden, chop the plants with a spade and then turn the material in.
- c. **Grain or Seed Crops.** Grain or seed crops should be ready to harvest 120-150 days after sowing. Yields range from 100-1000 kg/ha, but are generally in the order of 200-600 kg/ha. Drum speed of the header must be low (250-300 rpm) to avoid seed damage. Harvesting should be carried out before the crop is too dry in order to avoid damaging the seed.

WARNING

Pasture plants have the potential to become weeds in certain situations. To prevent that, ensure that pasture seeds and/or vegetative materials are not inadvertently transferred to adjacent properties or road sides.

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ISSN 0157-8243

Serial No. 304

Agdex No. 125/10

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