

Cavalcade and Bunday Seed Production

(*Centrosema pascuorum*)

A. G. Cameron, Principal Pastures and Extension Agronomist, Darwin

DESCRIPTION

Cavalcade and Bunday (*Centrosema pascuorum*) are twining pasture legumes which are well adapted to the Top End of the Northern Territory environment. Both cultivars are annuals. Cavalcade flowers first each season, having its first flowers in mid to late March. Bunday flowers a month later. For reliable seed production, Cavalcade should be grown in regions receiving at least 1000 mm of annual rainfall and Bunday in areas with a minimum of 1100 mm of annual rainfall.



SOILS AND SITE SELECTION

Site selection is crucial to achieve a good seed crop. Paddocks should be flat and level, weed-free, fenced-off from animals, protected by firebreaks and free from sticks, stones and sucker regrowth. Although Cavalcade and Bunday tolerate a wide range of soil types, soils for seed production should be deep, well-drained sandy loams, which are trafficable during the wet season.

SEED BED PREPARATION

Land should be cultivated to provide a well-prepared seed-bed. Cavalcade and Bunday crops grown for seed production can also be sown using minimum tillage techniques. Weed management is critical. Weeds should be controlled prior to sowing, either through cultivation or with herbicides.

SOWING

Sowing should occur as early in the wet season as possible to allow good establishment. As these are high value crops, it makes good economic sense to sow them before other, lower value, field crops such as sorghum and maize, which also require early sowing in the wet season. There is generally no need to scarify the seed unless there is a high content of hard seed. In new paddocks, the seed can be treated with Centro inoculum prior to sowing to aid nodulation. Use at least 5 kg, preferably 10 kg, of seed per hectare to ensure a good stand. The sowing rate can be adjusted, depending on the rate of germination and purity of the seed.

FERTILISER

Correct fertiliser recommendations are best made based on soil analysis results and the paddock's cropping history. As a general recommendation, 150 to 250 kg of single superphosphate or its equivalent should be applied per hectare in the establishment year. An annual dressing of 100 kg to 150 kg of superphosphate and 50 kg to 100 kg of muriate of potash will be required per hectare in subsequent years. Zinc and molybdenum may be required on some soils.

WEED MANAGEMENT

Seed production requires rigorous weed control. The selection of a weed-free paddock is an important foundation to ensure minimal weed infestation.

The main weeds which cause problems in seed crops of Cavalcade or Bunday are summer grasses (*Digitaria* spp. and *Urochloa* spp.), Spiny head sida (*Sida acuta*) and Senna (*Senna obtusifolia*). Herbicides are available to use pre- and post-sowing to control summer grasses and sida, but there are currently none which can be used to control Senna. Contact your local Extension Officer for current herbicide recommendations.

While Cavalcade and Bunday seedlings are slow to form a complete and competitive sward, the development and maintenance of a vigorously-growing crop through an adequate plant population and proper fertiliser use will reduce weed competition.

The following factors will greatly improve the success of chemical weed control:

- Ensure that spraying rigs are properly calibrated for the application of the correct rate of herbicide.
- Note that post-emergent herbicides are effective against young actively-growing weed seedlings, but rarely against established plants.
- Do not spray in the heat of the day, as application is invariably more effective in the early morning or late afternoon.
- Do not spray when it is likely to rain, or it is windy.
- Spot-spray larger troublesome weeds or use a wick-wiper to apply herbicide to emerging weeds.
- Slash larger weeds and then wait for them to re-shoot, which may increase their susceptibility to herbicides.

In the case of large weeds that are not killed by herbicides, slashing and hand-pulling are the only possible control methods. Farmers must ensure that weeds do not set seed. Cavalcade and Bunday must be grown either in virgin sites or in rotation with grass crops such as sorghum, maize and grass seed, to permit the control of broadleaf weeds during the crop phase and allow the grass crop to remove the nitrogen accumulated in the soil by the legumes. The accumulated nitrogen encourages and aids the infestation of seed crops by weeds. It is difficult to maintain a weed-free seed crop for more than three years.

INSECT CONTROL

Insect attack is most critical during the flowering and podding stages. Many legume seed crops are lost because insects were not detected or sprayed. Monitoring for insects should be carried out from flowering through to crop maturity. Caterpillars of the moths *Helicoverpa armigera* and *H. punctigera* first damage the crop at flowering by eating the young flowers. They later eat the pods. Pod-sucking bugs, such as *Nezara viridula* (the green vegetable bug), *Piezodorus* sp. and *Riptortus* sp. may also be serious pests. The crop should be sprayed as soon as any of the above pests are observed after flowering commences. Contact your Entomology Extension Officer for identifying the pests and for current insecticide recommendations. It is essential to use a minimum of two sprays, one week apart. The first application kills adult insects, nymphs and larvae and the second spray kills those which have hatched from eggs since the first spray.

A flea beetle (*Pagria* sp.) has been recorded on Bunday and Cavalcade. If this small beetle reaches a plague level, it can seriously defoliate a sward. Control may be necessary in seed crops.

It is often difficult to find insect pests in the field. The best times to scout the crop are early morning and late afternoon. A seed grower needs to become familiar with the common pests and the damage they cause.

Correct spray applications are essential for successful pest control. The following points need to be considered:

- Since Cavalcade and Bunday have dense canopies, hollow cone nozzles will facilitate spray penetration.
- Follow the advice on the pesticide container.

CROP DISEASE

Rhizoctonia, which is a leaf-blight disease, may occur in dense, well-grown crops during humid weather. Only small areas of the crop are affected and control measures are generally not necessary. Recent observations are that Rhizoctonia is worse in high-nitrogen soil conditions where it has accumulated during successive legume crops. Rotation with a grass crop should eliminate this problem.

HARVESTING

The crop may be harvested by a suction harvester or may be mowed and windrowed prior to pod shattering and then picked up and threshed by a conventional harvester.

Suction harvesting will return high yields but it is a slow, dusty and an energy-intensive process.

Harvesting by conventional header requires constant monitoring of the crop in the advanced maturation phase because the time of cutting has to be a compromise between the shattering of early-set pods and the filling of later-set pods. The crop should be cut and windrowed at the point between these two processes when the maximum amount of seed is held on the plant. Once cut, continued monitoring of crop drying is necessary to minimise pod-shattering. The windrows should be picked up with the header as soon as possible. A pick-up front for the header is required to ensure an efficient and effective harvest.

Expected yields vary depending on the harvesting method. Header-harvested crops yield up to 600 kg/ha, whereas suction-harvested crops may yield 1000 kg/ha.

DRYING, CLEANING AND STORAGE

Seed that has been harvested with a header will require drying if there is any green seed or leaf in it. Suitable bins and a fan will be needed for this purpose.

Seed harvested with a suction harvester will be dry, but it will contain a much higher proportion of inert matter, commonly about 30%. The inert matter consists of stones and soil, much of which is of a similar size and density as the seed. This inert matter is difficult to clean out of the seed.



Cavalcade seed

Bunday seed

The seed will need to be cleaned by a commercial contractor if it is to be sold as first quality seed.

For storage beyond a few weeks, an air-conditioned room or cool room is essential to maintain seed quality.

POINT TO CONSIDER

Cavalcade and Bunday are high-value seed crops but they require special care, calling for high capital and labour input. It is wise to limit the seed production area to a size that can be comfortably handled, to ensure the crop receives all the attention it requires.

For further information contact your local Extension Officer.

WARNING

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

For further information please contact your nearest Weeds Branch of the Northern Territory Government, call (08) 8999 5511.

Please visit us at our website:

www.nt.gov.au/d

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