

Planting stylo

Most successful stylo plantings in North Queensland have been done following a fire. The ideal system is to wait for a break in the season – usually December. Burn the paddock and immediately plant the seed into the ash before the next rainfall event.

Large areas are usually planted by aircraft. Usual planting rate is 1-3 kg per ha of seca and verano seed. After planting, spell the area over the next wet season, and introduce the weaners 6 months later.

It is important to exclude fire from your new grass-legume pasture for several years after establishment to allow the legume to seed and thicken up.

Key points:

- Be prepared to spell the paddock after sowing stylo to ensure successful establishment. Seca types will need 6–8 months wet season spell, followed by a light grazing in the dry, and another wet season spell to reach maximum potential.

- Match the stylo seed mix to suit, depending on soil type, grazing / burning management, and rainfall reliability.
- Ensure weaner paddocks are adequate in size.
- Plant legumes into your best country first if possible. Soils below 4 ppm phosphorus will be very slow to establish.
- Don't burn the new pasture for several years after planting.
- Spell paddocks over the wet season.
- Stylo does not reduce the need for wet season phosphorus supplementation in deficient areas.

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New pasture legumes for clay soils in dry environments

Nitrogen is the most limiting element in agricultural production and deficiency reduces the productivity of pastures and animals. Legumes are rich in nitrogen as they have the ability to biologically fix nitrogen and transform it into leguminous protein where it becomes available to the grazing animal and to associated plants such as grasses.

One of the major ways that livestock production can be improved is to increase the legume content within the pasture. In general, legumes provide a higher quality diet for livestock due to higher digestibility leading to higher intakes. Legumes tend to be used more efficiently than grasses and their nutritive value tends to remain higher as plants mature. Grazing livestock always eat more pasture when legumes are present as they tend to leave the rumen faster. These various attributes can all translate into increased animal production. Having legumes in a pasture also promotes a healthier soil. A tap root can allow legumes to have advantages over grasses in extracting soil moisture and nutrients from deep within the soil profile.

In northern Australia the success of incorporating the Stylo legumes, such as Seca and Verano, into native grass pastures on light textured soils is well known. Associated benefits in liveweight gains in the order of 35-65 kg/hd/yr and improved stocking rates and fertility have been identified. However in semi-arid regions with heavy textured soils (often brown or dark clay soils with neutral to alkaline pH) the stylos are not usually well adapted and few other sown legume species have been shown to persist.

Persistence is critical for the success of a pasture legume in our northern environment. For a legume to be persistent it must have:

- Grazing tolerance
- Longevity
- Disease and insect resistance
- A suitable flowering and seed maturity time to cope with our sometimes short and variable wet seasons
- Adequate seed production, and
- Hard seededness for seed soil reserves.

A successful sown legume therefore needs to mimic the adaptability and environmental tolerances of native plants but also be productive, grazing tolerant, non toxic and palatable.

Trials to evaluate many legume species on heavy textured soils in semi-arid environments, originally planted by the DPI and CSIRO in northern and western Queensland in the 1980s, have been re-evaluated by Chris Gardiner at James Cook University. Of the many legumes originally sown various types of the legume *Desmanthus* were found to be the only ones still surviving one to two decades after being originally sown. These survivors have withstood the test of time and the full gambit of environmental tests such as drought, floods, frosts, fire and grazing. These plants have been selected, bred and multiplied up and re sown in new trials across north, central and western Queensland. The seed has been planted, with success, in trials and demo plots in native grass pastures, such as Mitchell and Flinders grass, on Downs country as well as buffel on cleared gidgee/boree country. Some of these newer plantings have now survived and thrived for a decade.

The best of these varieties have been released by Agrimix P/L, JCU's commercialization partner, and are now available as a blend named Progardes™ (see:www.progardes.com). Progardes™ has been sown successfully over the past several years in trials, demo plots and commercial paddock scale plantings from the coast to the NT border and into central QLD across a range of clay soil environments. DAFF and other agencies are also including Progardes™ in their trials in the north, western, central and southern parts of QLD as well as in northern NSW.

Having a well adapted, persistent, good quality pasture legume in our semiarid clay soil regions potentially has a number of benefits for the grazing industry. These include improved liveweight gains, faster turn off, improved herd fertility, improved carrying capacity, less reliance on supplementary feeds and maintained soil fertility (particularly soil nitrogen).

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Progardes growing amongst Mitchell Grass near Cloncurry.



A typical progardes leaf, stem and seed pod.



Progardes growing amongst Buffel Grass in central Queensland.