

QUEENSLAND Country Life

New legume capable of persisting in dry times

Iain Hannah^{Agrimix} and Chris Gardiner^{JCU}

01 Apr, 2013 03:00 AM



Steers grazing Progardes Buffel in Central QLD

AS major parts of Queensland are again in the grips of unusually dry conditions, Progardes, a recently released legume is demonstrating persistence in the harshest of conditions.

The North Queenslander journalist saw the result of a small trial plot sown last November on Alister McClymont's Wilburra Downs, Richmond during the recent Rabobank Beef Challenge weigh-in. The Progardes had received just two small rainfall events since December but was thriving.

Agrimix General Manager Iain Hannah and JCU lecturer and researcher used the Richmond weigh-in as an opportunity to check on the progress of the Progardes trial plot.

They are now extremely confident the Progardes will prove to be a fodder that can withstand some very tough conditions.

The legume has proven extremely successful in central and southern Queensland where over 10,000ha have been successfully established. The Progardes has been proven to have 20 per cent protein content in the leaf and up to 12pc in the stem.

Agrimix are now at the stage of commercial production in Central Queensland and with several trial plots across the north-west including a 250ha plot near Hughenden, Mr Hannah is confident it will prove to be a big plus to beef production in the north.

Progardes (www.progardes.com.au) is a perennial tropical legume developed over 20 years of research by Chris Gardiner from James Cook University and in recent years Agrimix, a Queensland based agriculture technology group. Progardes has been bred to be productive and persistent in clay soils and persist in low rainfall semi-arid conditions.

The legume is a highly palatable legume, with high protein content, with good biomass potential, non-thorny and non-toxic, frost and grazing tolerant plant of around waist height.

Progardes has the potential to make significant impacts on animal production and ecosystem function whether it is live weight gains, increased stocking rates, turn off weights and timing, improved wool production, reproductive performance, reduced methane production or sustaining grasslands.

As testament to Progardes's strength, it was observed recently at the Richmond Beef challenge despite the 57mm of rain received all summer, to be about the only plant of value growing and providing protein and quality feed.

Progardes is the result of more than 20 years of work by Chris Gardiner who in the 1990's started to survey legumes in a number of old abandoned trial sites across remote northern and central western Queensland's semi-arid clay soil regions (up to 500mm annual rainfall) and found that various *Desmanthus* trials were the only surviving and thriving legumes of all the species sown in those environments.

The *Desmanthus* had now survived more than two decades, and had been variously heavily grazed, drought affected, flooded, burnt, frosted - the full gambit of climatic and grazing extremes.

The selection and breeding of plants from these survivors and others with subsequent evaluation in field trials have led to the development of new lines.

Agrimix as JCU's commercialization partner, has released Progardes a blend of the superior genetics from Chris Gardiner's work.

Grazing and feeding trials with both sheep and cattle have been undertaken with Progardes. For example steers grazing a buffel grass-Progardes mixed pasture in Central Queensland gained an additional 40kg live weight over a 90 day study period compared to steers on an adjacent buffel grass only pasture during a cool dry winter.

A feeding trial at JCU, Townsville, sheep had a positive N balance and significantly improved intake and weight gains when sheep had access to the Progardes in addition to a flinders grass diet.

Crude protein percentage of Progardes leaf, stem, pods and seeds have been recorded as being 20.2 per cent, 11.9pc, and 17pc respectively and energy levels of the whole plant of some 10.3ME MJ/kg DM.

In recent times Progardes has been sown across 12,000ha in a wide range of environments including: open Downs, cleared Gidgee/Boree and Brigalow land types across Queensland and via a number of sowing techniques including aerial, blade plough, stick raking, broadcast onto cultivated seedbeds in a buffel grass renovation and broadcast onto unprepared native grass pasture. Experience is showing that 2-3 wet seasons may be required for the Progardes to become well established in the harsher drier environments such as on the Mitchell Grass Downs but only one season in the more favourable Brigalow region of Queensland.

Nitrogen is the most limiting element in agricultural production and its 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. Having legumes in a pasture also promotes a healthier soil and legumes have tap roots which can give them advantage over grasses in extracting soil moisture and nutrients from deep in the soil profile and thereby they can stay green longer than grasses.

Progardes also has the potential to ameliorate methane production and potential factors associated with climate change and variability. Preliminary work conducted by CSIRO has indicated that Progardes Desmanthus varieties may reduce methane production by as much as 30pc. For further information contact Iain Hannah, Agrimix 0407 429 924 Chris Gardiner, JCU 0419 203 037 Website www.progardes.com.au

<http://www.queenslandcountrylife.com.au/news/agriculture/general/news/new-legume-capable-of-persisting-in-dry-times/2652519.aspx?storypage=0>