

Letter to the Editor

Concerns with the worldwide survey of successful adoption of tropical legume technology recently published in *Tropical Grasslands*.

The special issue of *Tropical Grasslands* (2005) Volume 39 No 4 is entirely devoted to papers commissioned to survey the successful adoption of tropical legume technology around the world.

I have some concerns with certain historical aspects of the "overview paper", but my main concern is that in the entire suite of papers, there is not a mention of successful adoption of vine legume/semi-erect grass pasture systems in large-scale projects in the humid tropics of Australia, SE Asia and the Pacific Islands. Most were established during the 1960s and 1970s and some examples have sustained profitable levels of animal production for more than 30 years.

The pasture system generally consists of mixtures of centro (*Centrosema pubescens*), puero (*Pueraria phaseoloides*) and calopo (*Calopogonium mucunoides*) grown in association with various cultivars of *Panicum* and *Setaria* and less frequently with cultivars of *Brachiaria* and *Paspalum*. In cooler upland areas such as the Atherton Tableland of Australia, Tinaroo glycine and Greenleaf desmodium were more popular legume components.

Planners of the survey determined that, for adoption to be considered successful, at least 50 000 ha of the pasture system had been planted in farmers' fields. I have personally had professional contact with plantings of centro/puero/calopo-grass pastures in Australia, PNG (Papua New Guinea) and the Philippines, which readily satisfy this criterion. I have also sighted successful adoption of the technology in large projects managed by GRM and others in the Philippines and Malaysia. Additionally, centro/puero/calopo mixtures have been widely used in a number of countries for grazing under coconuts and to a lesser extent for grazing under oil palm and rubber.

Most of the commercial examples, with which I have been associated, were planted in the 1960s and 1970s. I still maintain contact with some projects in Australia and PNG and can confirm that there are commercial examples in both countries, which have sustained commercial beef production for 20–30 plus years. I have lost contact with projects in the Philippines and Malaysia and there could also be examples of sustainability there.

There have been few plantings of vine legume/semi-erect grass pasture systems in Australia and PNG since the early 1980s. The following three systems became more popular:

(1) *Leucaena* pastures became conceptually popular following reports of superior growth rates from cattle grazing them. However, *leucaena* has not been a success in the wet tropics of Queensland, where acid soils and vigorous weed populations are endemic.

(2) Robust pasture systems based on *Brachiaria decumbens* and *Brachiaria humidicola* became particularly popular on farms, which participated in the expansion of the sugar and banana industries. Robust systems, which required less attention to fertiliser and grazing management, were attractive to farmers, who gave highest priority to cash crops. However, with the steady depletion of soil N levels with time, these pastures became progressively less productive and less competitive against weeds. Additionally, until the increased sugar price this year (2006), farmers were becoming aware that cattle fattening on some of the higher-input pasture systems was more profitable per hectare than growing sugar cane.

(3) Grass-N fertiliser systems have become a preferred option following commercial demonstrations of sustained high production and bio-economic analyses of individual farming enterprises. At prices of beef and N fertiliser, which have been encountered since the early 1980s, bio-economic analyses indicate that grass-N pastures grown on suitable land classes are capable of significantly higher profits per hectare than other pasture options. Assessments of land capability and the objectives of individual enterprises are important components of the bio-economic analysis.

Despite a lower priority rating over recent years, the fact remains that vine legume/semi-erect grass pasture systems were successfully adopted over sizeable areas in the Australasian wet tropics and provided profitable levels of sustainable production for many years. This pasture system could again become a favoured option in the region, if there were changes in the relative prices of beef and N fertiliser. Apparently, this situation already exists in Brazil where, as reported in the survey paper by Valentim and Andrade, some 480 000 ha of puero-grass pastures have been established in the Amazon region.

A review survey, claiming to be a world-wide analysis of the successful adoption of tropical legume pastures, should surely have provided a reliable assessment of the past and potential contribution of vine legume/semi-erect grass pasture systems in the high rainfall tropics.

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