

PASTURE DEVELOPMENT AT "GRANITE VALE", ST. LAWRENCE, QUEENSLAND

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INTRODUCTION

"Granite Vale", a cattle property of 7 400 ha, is located midway between Rockhampton and Mackay and is 20 km from the sea. The rolling country consists of Eucalyptus crebra woodland on the ridges and E. alba and Melaleuca viridiflora on the flats. The soils are duplex, generally infertile and unsuited to cropping. Rainfall is 900 mm per year (MAR) with over 70% falling between November and April.

"Granite Vale" breeds and fattens, and maintains a small Brahman stud. About 400 commercial calves are branded each year and up to 300 yearling Brahman cross steers are bought between January and April each year for growing and fattening. Up to 500 bullocks are fattened and sold each year, the station bred ones as 3 years old and the purchased ones as 4 years old. About 150 cull cows and speyed heifers are fattened as well.

This paper summarises my experiences with pasture development, highlights the successes and failures, and suggests some research needs.

PASTURE IMPROVEMENT

There is no natural fattening country on "Granite Vale". Over the past 28 years trees on about 5000 ha have been ringbarked or tordoned. Carrying capacity of these native pastures was about 5 ha/beast.

In the late 1960's about 900 ha of teatree country were cleared, stickraked, ploughed, planted to Townsville stylo (Stylosanthes humilis) and American buffel (Cenchrus ciliaris) and fertilized with superphosphate. The buffel survived only for one year. The fertilized Townsville stylo pastures were spelled for 3 months in summer and grazed by bullocks at 1.4 ha/beast from April to June then breeders had access to this pasture from the end of June. After 1974 fertilizing with superphosphate was discontinued because of low beef prices. Anthracnose severely affected the Townsville stylo and without superphosphate cattle did not do well on these pastures. A paddock of 65 ha of native pasture plus Townsville stylo is fertilized each year with superphosphate. This carries 60 stud cows which also have continuous access to 16 ha of unfertilized ponded para grass (Brachiaria mutica). A further 260 ha of native grass with some Townsville stylo and fertilized with superphosphate each year provides continuous grazing for 200 selected cows and calves.

In 1978/79 summer, Verano stylo (Stylosanthes hamata) and signal grass were (Brachiaria decumbens) sown on 80 ha following ploughing. This pasture has been fertilized with 350 kg superphosphate since establishment.

The signal grass did not establish, the Verano stand has improved since the dry establishment year.

Pangola grass (Digitaria decumbens) is used on the moister flats where its performance is generally good. Hay is made from surplus summer growth. The main limitations of pangola are difficulty in planting, frost susceptibility and inability to tolerate deep waterlogging.

On "Granite Vale" para grass in artificially ponded areas has been the most successful improved pasture because it has provided nutritious feed during the dry season when the native pasture is of very low quality. The first planting was made 22 years ago in a natural swamp after 80 metres of bank had been constructed. In 1969 another planting of 13 ha was made, followed by 18 ha in 1977 and 36 ha, 28 ha and 24 ha in 1979. Confidence in ponded para grass increased and 400 ha were surveyed and large scrapers constructed 10 000 metres of banks (costing \$24 000) in 1980. An additional \$16 000 was spent on clearing/stickraking in preparation for the earthworks on this 400 ha. Para cuttings were planted into the wet mud and shallow water about every two weeks as the level of the ponded water receded. The planting operations involved a reciprocating mower, a side delivery rake, pitch forks, a truck, a planting trailer attached to a tractor with oversize front tyres and dual wheels at the rear. The actual planting was done by two men sitting on the trailer (filled with para grass cuttings) dropping cuttings in front of the narrow steel wheels which pressed the para grass runners into the mud.

Ponded para grass has been used to fatten bullocks from April to early July at 1 bullock/ha. From July breeding cows have been given access to the para grass from the breeder paddock. Some para grass has been held for weaners from July and stocked at 2 weaners/ha. No animal health problems have been experienced.

Para grass in artificially ponded areas has improved the overall carrying capacity significantly on "Granite Vale". It has made bullock fattening an important and reliable part of the cattle enterprise. Ponded para grass has been important for weaners and breeders after July each year and it also has mitigated against the effects of drought over the past few years.

Para grass has two limitations; it will not grow in deep water and it is frost susceptible. Other grasses like Aleman (Echinochloa polystachya) and Hymenachne amplexicaule are being tested. These are capable of growing in deeper water than para and so extend grazing further into the dry season.

Other pasture types are being planted elsewhere on the property. A 700 ha bullock paddock is now being cleared for planting with a mixture of Verano, Seca (Stylosanthes scabra), Fitzroy (Stylosanthes scabra) and Graham stylo (Stylosanthes guianensis) plus Bothriochloa pertusa. Superphosphate will be applied. A 50 ha paddock of Brachiaria humidicola cv. Tully and a 15 ha paddock of leucaena (Leucaena leucocephala) and green panic (Panicum maximum var trichoglume) have been sown recently. Also it is intended to try Glenn jointvetch (Aeschynomene americana) on the teatree country.

The performance of pasture plants tried at "Granite Vale" in the past can be summarised as follows:-

(i) Successful

Townsville stylo (before anthracnose problem)
Pangola grass
Para grass (ponded)

(ii) Partial success

Verano stylo
Setaria (Setaria sphacelata)
Bambatsi panic (Panicum colaratum)
Callide rhodes (Chloris gayana)
Urochloa mosambicensis

(iii) Failures

Townsville stylo (after anthracnose arrived)
Buffel grass (poor establishment and persistence)
Green panic (poor establishment and persistence)
Siratro (Macroptilium atropurpureum)(poor persistence)
Signal grass (poor establishment)
Rodd's Bay plicatulum (Paspalum plicatulum)(unpalatable)
Schofield stylo (Stylosanthes guianensis)(anthracnose, relatively unpalatable)

RESEARCH NEEDS

Based on the experiences on this property it is considered the most urgent research needs are:

- (i) fertilizer strategies for ponded para grass (types, rates, economics)
- (ii) selection of legumes capable of combining with grasses in the pondage areas
- (iii) selection of frost resistant grasses capable of growing in deeper water than para
- (iv) faster establishing leucaena types
- (v) selection of anthracnose resistant types of stylo.