

## FIELD MEETING HELD AT BROOWEENA ON 29th NOVEMBER, 1970 IMPROVED PASTURES FOR BEEF PRODUCTION

### THE WIDE BAY DISTRICT

by

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The first settlement by Europeans was in the form of large pastoral holdings. In the 1850's Gigoongan was established which included all the land from Teebar Creek south and west of Gympie. To the north of Teebar Creek there was Teebar Station extending towards Maryborough and west towards Gayndah. Development by these large holdings was followed by a timber industry and in the 1920's by dairying.

The rainfall of this district is about 40 in. a year and moderate frosts do occur. The geology of the district is rather complex but a considerable area is of sedimentary origin. The location of the visit is on the south-western edge of the Brooweena formation which comprises sandstones, siltstones, mudstones, shales, conglomerates and tuff. On the elevated areas the soils are fairly typically grey-brown loam sands to 10-12 in., with usually a stoney profile at 6-12 in. This is followed by a slightly mottled grey clay which forms a barrier to deeper moisture penetration and on these soils there are occasions of excessive wetness and seepage on the lower slopes. I presume this is the reason why we do not find any speargrass on these soils. The tops of the ridges run on to red clay loams over a red-brown clay. Stoniness is a feature of the poor ridge country in this area. A typical soil analysis shows a pH of 5.5, low phosphorus levels, generally 12-15 parts per million of P by the acid extraction method, with a satisfactory potash level although in parts of the districts this may be variable to low.

The vegetation on the hard stoney ridges of the Brooweena formation consists of spotted gum, narrow-leaf iron bark, rusty gum, mahogany, yellow stringy bark, whereas on the flats one finds blue gum and apple tree.

Of the agricultural industries I mentioned before, dairying has played a very useful part in this district in bringing about closer settlement with associated improved amenities. However, as in most of Queensland dairy production has declined since the second world war and I would think that the number of dairy farms in this district now lies somewhere around 15, but these farms are somewhat larger than the average of Queensland—they range from about 450 to 1000 acres and cream from here is supplied to Maryborough. Initially the timber industry was based on hoop pine but Maryborough is now noted for its hardwood and the main timbers are iron bark, spotted gum and blue gum. Ranching initially was over open range conditions, areas becoming smaller as sub-divisions for dairying were brought about. Grazing properties now range from about 4000-6000 acres although a few years ago this figure would have been about 10,000 acres. All the herds in this district were initially entirely Hereford breed but this has now changed and I estimate there would be about 40% of cross breeds. These are mainly Brahman but there is also an infusion of dairy types and the beef enterprises range from breeding only, breeding and fattening to fattening only. Cropping is of little consequence in this area although in the early days there was maize and now there is some sorghum production. In the last few years there has been quite an upsurge in the production of fodder crops and sown pastures. I suspect that the sown pasture interest has been stimulated by the increased range of new species that have become available during the last five to ten years and also on dairy farms as a result of the dairy farmers' pasture subsidy scheme. A succession of recent droughts has helped to sort out the

species which are most likely to succeed in this district and of the grasses I suggest these are green panic on the elevated areas, Callide Rhodes grass and pangola grass on the flats, while Kazangula setaria also shows some promise. The best legumes here are siratro, lotononis, Townsville stylo and fine stem stylo.

The property we are visiting today is Flawndon (1000 acres) which is operated by Mr. Brian Hughes. His home property is Malarga with 6000 acres. Both properties are used as a beef enterprise which consists of the buying of stores and their fattening. Stores are purchased throughout the year and come from as far away as Bowen and Emerald. The ages of the cattle vary from two to four years, but on occasions he has purchased older cattle. Depending on seasonal conditions cattle are turned off as fats after 12 months. He has regular weekly commitments to a Maryborough butcher but also sells to the meatworks, mainly in Maryborough. In recent years the last two months of the finishing period are spent on fodder crops or sown pastures. The pasture programme at Flawndon started five years ago and before sowing pastures fodder crops are usually grown for one year. Flawndon now has about 500 acres sown to improved pastures which mainly consist of green panic, siratro, lotononis, and lucerne on the flats. The aim is to fill the winter and spring fodder gap and the legumes lotononis, fine stem stylo and lucerne are particularly suitable for this purpose.

Mr. Hughes and I have worked out that the development cost of one acre of improved pasture is \$31.54. This consists of \$12 for timber pushing, stacking and burning. The property was not densely timbered and most of the country had been ring-barked as he took it over. Planting is done along contour banks which we estimate to cost \$3.50 per acre. Two ploughings amount to \$5 per acre and the operation of planting and fertilizing \$1.50. For seeds, although prices vary from year to year, I have allowed \$6 and fertilizer is applied at the rate of 2 cwt an acre of molybdenum superphosphate at \$1.77, a total of \$3.54.

Unimproved pastures in this district are not suitable for fattening and have a carrying capacity of 7-8 acres per beast but after pasture improvement the stocking rate can be increased to 3 acres per beast and the country is then capable of fattening stock.

### INSPECTION OF PASTURES

Mr. Brian Hughes outlined the procedure for pasture improvement. Initially he started with relatively small areas of about 100 acres. These were planted and another block was prepared the following year irrespective of how the first one turned out. The first area was put down about five years ago and planted to 4-5 lb of green panic, 2 lb siratro with 2 cwt of molybdenum superphosphate per acre. One cwt of straight superphosphate per year is used for maintenance. The area first established was grazed reasonably heavily ever since and is presently stocked at about 1 beast to two acres. It has never been burned but has been slashed repeatedly to four or five inches in the flush of the season to control excess growth at a time when one cannot possibly put on enough cattle to eat all the material. This slashing does not harm the siratro in any way but frosts cut back its top growth in winter. The fodder crops sown before pasture planting range from various types of cow pea to forage sorghums and sometimes a mixture of the two. *Dolichos lablab* is recently being used also. Rhodes grass has invaded much of the pasture and Mr. Hughes regards this as a deterioration of the pasture because he prefers green panic as a better fodder grass in this district.

The comment was made that the green panic looked rather yellow for the amount of siratro in the pasture and it was pointed out that the role of the siratro in a pasture like this would be first of all to provide a direct protein diet to the animal, although the grass would get sufficient to grow but not sufficient to increase its protein content to a high level.

An area of about 50 acres was sown about 4½ years ago at a sowing rate of 4 lb per acre of Hunter River lucerne, 3 lb per acre of green panic and 2 lb per acre of siratro plus 2 cwt of molybdenum superphosphate. Green panic did not germinate very well although it has thickened up since. The siratro and the Hunter River lucerne were quite good, although the latter disappeared after the third year. In 1968 over 3000 lb of siratro seed and 2000 bales of hay were harvested from these 50 acres.

Another area was sown to *Vigna marina*, lotononis, and Townsville stylo on the contour banks. The *Vigna marina* had a very short life but the lotononis is quite good and the Townsville stylo has completely covered the contour banks. These legumes were all sown with green panic.

Another pasture legume which is showing promise is fine stem stylo which has been grown in a small area on this property. It is anticipated that its main purpose will be to contribute to filling the gap in winter and spring when the pasture lacks high protein feed. Fine stem stylo is not absolutely frost resistant but it has considerably more frost tolerance than siratro. The legume has good palatability and can stand heavy grazing. Its advantage over Townsville stylo is that it is a perennial and it provides feed at times when Townsville stylo is still germinating. Another advantage of fine stem stylo is that it can be grown in areas that are marginal for Townsville stylo. Mr. Hughes is about to plant 200 acres of fine stem stylo this season in combination with green panic and some lotononis as well as some lucerne and burr medic. A disadvantage of fine stem stylo is its extreme specificity for *Rhizobium* unlike Townsville stylo which nodulates freely with native *Rhizobium* strains. If it is to be sown for seed production the seeding rate should be 4-5 lb per acre but for grazing pastures 1-2 lb per acre was considered sufficient. A registered cultivar by the name of Oxley will be available in the near future. This cultivar was selected by C.S.I.R.O. from plants grown originally at Brian Pastures and it will flower in a restricted time during the summer months. However it was not anticipated that the cultivar Oxley will have any better agronomic features than the commercially available unregistered material of fine stem stylo. Fine stem stylo can be used in native pastures but it is recommended that some cultivation be carried out at planting, both to provide a seed bed for the stylo and to set back competition from the grass. Under favourable moisture conditions it could also be planted into native pasture after heavy grazing or burning. If seed pelleting is to be carried out for establishment it is recommended that rock phosphate be used rather than lime, because there is no evidence that lime pelleting will do it any good and it may in fact be harmful. Rock phosphate pelleting is a good protection for the bacteria and it enables the farmer to mix inoculated seed with acid fertilizers prior to planting.

Hunter River lucerne has been used on the flats of this property for more than eight years without any trouble of bloat. The lucerne is not grazed according to a strict rotational programme and therefore it disappears from the pastures within a few years. Other cultivars of lucerne including Siro Peruvian and African have been outstanding in respect to response to grazing or cutting and in winter production, but in overall production over the year these have not been superior to Hunter River lucerne, which is also more persistent than these newer cultivars.