

**TROPICAL PASTURES FOR BEEF AND MILK PRODUCTION IN THE
WOODFORD-BELLTHORPE DISTRICT, SOUTH-EAST QUEENSLAND
FIELD MEETING—JUNE 13, 1970**

INTRODUCTION TO THE WOODFORD-BELLTHORPE AREA

by

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My introductory remarks are concerned mainly with the area from Woodford to Bellthorpe and the continuation of the Conondale Range from Bellthorpe to Jimna. It encompasses parts of three Shires, Landsborough, Caboolture and Kilcoy. In this area we are concerned with three main industries, timber, dairying and beef.

Dairying is the most important rural enterprise in the more accessible country and within a five mile radius of Woodford there are 30 dairy farms. The size of these holdings varies from 70 to 700 acres with an average of 250 acres. When this country was first opened up it was not surveyed where it was very steep, because the rugged range country was considered unsuited to farming and has mainly remained as State Forest. Grazing is carried out under fairly extensive conditions on the rises from Woodford up the range to Bellthorpe and on the south-west from Kilcoy rising up to Bellthorpe. Some of this is freehold, while the remainder is forestry lease.

On the relatively flat land on the top of Bellthorpe a number of blocks were opened up. However, over the years with declining fertility and the ingress of inferior species and weeds there has been a progressive decline in dairying. Brandon Timbers Ltd. bought up some of the freehold land, and at the moment there are only 10 dairy farms remaining at Bellthorpe. They have an average size of slightly less than 200 acres.

Seven out of these 10 farmers supply cream, but around Woodford 90% of farmers supply milk. They either supply cheese milk to Woodford or market milk and cream to Caboolture.

Timber

The range country including the Conondale range stretching from Bellthorpe almost 20 miles north to Jimna is one of the most important belts of timber in the State. About 18 million super feet are cut out of the area each year. The area is a most important source of timber for a number of south-east Queensland mills. These include mills at Bellthorpe, Woodford, two at Kilcoy, Yednia, Caboolture, Elimbah and Brisbane.

Well in excess of 20000 acres of State Forest reserve are involved and with proper management a continuing supply of timber is feasible. At the moment the Forestry Department is building roads for access and concentrating on thinning out trees of no commercial value. Experimental plantings of hoop pine are being made. The Forestry Department has pointed out, as there are so few of these good belts of timber available, it is unlikely, except for the poorer stands, that much of the country would be made available for pasture improvement.

Climate

The rainfall in the district is suitable for pasture improvement. Woodford registered 51.49 inches average for 82 years, while the average annual rainfall from 1929-1940 at Bellthorpe was 62.20 inches. The distribution is similar for both.

Average Monthly Rainfall—Bellthorpe 1929-1940

January	9.96	inches
February	9.02	"
March	9.46	"
April	5.78	"
May	4.40	"
June	3.11	"
July	2.64	"
August	1.66	"
September	1.66	"
October	2.87	"
November	5.54	"
December	6.10	"

Over the last two years particularly dry conditions have been experienced at Bellthorpe. During 1969, 37.55 inches were registered at Brandon Timbers Ltd.'s Bellthorpe property, while 43.83 inches were recorded at Woodford. Up to the end of May this year a total of only 19.34 inches have been recorded at Bellthorpe, which is about half the average for this period of the year.

In the Woodford area each winter medium to heavy frosts are experienced. Westerly winds are severe. On the range country frosts are not as severe and on some of the heavily timbered areas and the sides of steep hills little or no frost may be experienced. As the timber is cleared frost incidence increases.

Mean daily temperatures are much lower at Bellthorpe than at Woodford. This is because of elevation as parts of Bellthorpe are approximately 2000 ft above sea level.

Soil Types

The area comprises 75 to 80 per cent forest with pockets of scrub. Alluvial soils occur on the creeks and on the main watercourse of the Stanley River. The soils are generally shallow, infertile and acid with a pH around 5.0 being quite common. The general soil reaction ranges from pH 5.0 to 6.0. The soils are mainly deficient in nitrogen and phosphorus, occasionally potassium and usually very deficient in molybdenum.

Many of the forest ridge soils on Bellthorpe are derived from granite and granodiorite. Some small patches of red brown volcanic (krasnozem) soils derived from basalt occur. Other soils are derived from Bellthorpe andesite and Landsborough sandstone. Because most of the soils are light textured, erosion can be a problem when cultivating the steep country for pasture improvement.

Water Reserves

Permanent stock water is available. Although some of the country lends itself to water harvesting, this is not undertaken. The area is well fed by creeks and the Stanley River. In the area east of Woodford irrigation is not widely practised. There are a number of farmers utilising the Stanley River but this source can be limited in dry weather. There is no substantial underground water for irrigation.

Conclusion

Most of the farm land on the lower country around Woodford has potential for improved pastures and crops. Some of the grazing coming up into the ranges has potential for pasture improvement but the acreage available is strictly limited in view of the value of much of this range country for forestry.

TROPICAL PASTURES FOR BEEF PRODUCTION ON AREAS NOT SUITED FOR TIMBER

by

KEITH BRANDON, Brandon Timbers Ltd., Brisbane.

Brandon Timbers Ltd. owns five sawmills in south-eastern Queensland and northern New South Wales. The sawmill here at Bellthorpe was established in 1937 on a Forestry licence and we have purchased approximately 6000 acres of standing timber to boost production. However, we have about 3000 acres of land on which timber grows too slowly to be economic and we are turning these over to grazing land after the timber has been harvested. We also have some forestry country on lease which we intend to use for breeding and for winter feed.

Pasture improvement was commenced on areas unsuitable for timber production in 1967 on an area of 50 acres (known as White Gum) which was previously thick standing dead timber and a thick cover of mat grass. This was cleared, burnt and ploughed twice preparatory to sowing in November 1967. The mixture used on the wetter area was: silverleaf desmodium (2 lb/ac), greenleaf desmodium (1), Ladino clover (2), Nandi setaria ($\frac{3}{4}$) and Kazungula setaria ($\frac{1}{2}$). For the well drained areas we used: greenleaf desmodium (1), siratro ($\frac{1}{2}$), *Dolichos axillaris* ($\frac{3}{4}$), Kazungula setaria ($\frac{1}{2}$) and Nandi setaria ($\frac{3}{4}$). The area was fertilized with 360 lb of Mo-superphosphate, 75 lb KCl, 5 lb CuSO₄ and 7 lb ZnSO₄ per acre. In July 1968 we applied 4 cwt/ac of Mo-superphosphate-12 and from then on we used the area quite often for cows and calves and as a holding paddock.

The pasture was slow to establish due to dry weather and after applying another 3 cwt/ac of superphosphate in August 1969 it was decided to leave it unstocked for most of the following summer. At this time we also noticed *Amnemos* weevil. However, in March 1970 there were areas with legume growth up to 5 ft high, although some patches were still barely covered. Since April 1970 we have carried on these 50 acres 39 cows and 39 calves up to 5 months old for six weeks and since these were removed 27 cows for two weeks.

The cost of clearing, burning, fertilizing and seeding of this whole area was about \$60 an acre. There have been few timber regrowth problems and the use of Tordon-255 from a knapsack spray will solve these.

Another paddock of 100 acres (Weaner) and one of 70 (Homestead) were planted to pasture after clearing large dead trees. The clearing operations had left the ground fairly well torn up so that it was ploughed only once and seeded at the same time in September 1968. The rough seed bed may have helped to conserve moisture, but it also resulted in an incomplete kill of native grasses. Furthermore, to avoid erosion on steep hill-sides some strips were left unploughed and unplanted. The pasture mixture used for the wetter area was greenleaf desmodium (1 lb/ac), silverleaf desmodium (2), white clover (2), Kazungula setaria ($\frac{3}{4}$), Nandi setaria (1). On the dry ridges clover was replaced by *Dolichos axillaris*. At planting time 7 cwt/ac of Mo-superphosphate-12 and in September 1969 another 3 cwt/ac of superphosphate were applied by aeroplane. We have been very pleased with these pastures, especially with the desmodiums. *D. axillaris* is the weakest legume.

Homestead paddock has not been stocked heavily this year, but it has usually carried up to 25 head of cattle and about 6 horses all the time, with occasional large numbers of cattle for short periods. In March 1970 legume growth was about four feet high. Weaner paddock has been stocked more heavily, and since January 1970 it carried between 85 and 105 cows and calves. As in other pastures here there has been noticeable frost damage since May 10th 1970.

Part of the property (Hills) was an old dairy farm which was overgrown with thick forest and heavily infested with groundsel bush. An attempt to plant slash pine failed and in 1968 we started clearing for pasture. Conventional cultivation was impossible because of the large number of rocks and we designed a machine to fit onto the root rake to broadcast seed and fertilizer using a crawler tractor. The principle was to put out seed and fertilizer when the tractor was going backwards downhill and to cover the seed with a heavy chain.

By May 1969, 50 acres had been planted with the following mixture: Bentland oats (20 lb/ac), Kangaroo Valley rye (3), Nandi setaria (1), lotononis (4), New Zealand white clover (3), and Ladino clover (1). The area was fertilized with 2 cwt/ac of a mixture containing 28% nitrogen and 12% phosphorus. In July 1969, 2 cwt/ac of nitram (34% N) and in September 1969, 4 cwt/ac of Mo-superphosphate-12 were applied by aeroplane. Between June and September 1969 we received 10 inches of rain and all species except lotononis and setaria established well. Lotononis was resown by hand in March 1970. There is a big weed problem here, which is aggravated by the rocky nature of the land. The first cattle were put on in July 1969 and the area carried 35 cows and 41 calves and weaners for over four months. So far in 1970 it has carried 40 cows and 40 calves for two weeks in March and 59 weaners and heifers for four weeks in April. We were especially pleased with the Kangaroo Valley rye and the white clover.

Another 15 acres (Front Paddock) was planted to 1½ lb/ac of Gatton panic and 5 lb/ac of *Dolichos axillaris* in December 1969. So far it has only been grazed by 59 weaners and heifers for three weeks in May 1970.

Another area (Blacks) consists of 300 acres of good soil with patches of non-commercial trees and patches of good timber. The area is undulating but not rough and almost free of rocks. It was intended to clear everything which had no commercial value but we have now decided to push everything that can easily be pushed, leaving the commercial timber and trees that are difficult to push over. All useless trees till then be poisoned and the millable trees taken out. The pushed material and the poisoned trees will be left to dry and with the co-operation of the Forestry Department the area will be burnt. We will then consider seeding and fertilizing the whole area by aeroplane in the summer of 1971.

There is a further area of about 1000 acres (Jimna Road) which is rough and extends to the flat at Conondale. Kangaroo grass is the main grass here and the area is considered quite good winter carrying country. It is mainly used for young breeders which can handle even parts that are difficult to ride on horseback. It is our intention to use Brahman type bulls, sell the bull calves off the mother and keep the heifer calves to be mated eventually with Santa Gertrudis bulls. We realize that more Brahman blood in the breeding herd will reduce the tick problem and thereby reduce handling costs. At the present all unmarketable timber is being poisoned on approximately 800 acres at about \$6 an acre and we expect a good response from the kangaroo grass. This rough country has been burnt nearly every year for many years for safety reasons as well as to obtain young blady grass shoots. We have been advised that this will eventually result in elimination of kangaroo grass leaving mostly blady grass. Now we are attempting to manage our cattle numbers to keep grass growth under control. When the kangaroo and blady grasses become over mature we intend to use supplements in order to graze the material down rather than to burn it, which will only be resorted to for safety reasons.

TROPICAL PASTURES FOR DAIRY PRODUCTION

by

R. A. CHAMBERS, Woodford.

The property covers 383 acres but much of it is in steep hillsides. It carries at present 190 head of cattle, 80 of which are milkers.

The first tropical pastures were established in 1968 and they consist of Nandi setaria, greenleaf and silverleaf desmodium, fertilized with 4 cwt/ac of Mo-super-phosphate at planting, followed by maintenance dressings of the same amount. Since then the area under pastures has been gradually increased and now covers about 90 acres. The cost of seeding, fertilizer and cultivation was about \$32 per acre. In recent plantings I have added 1 lb/ac of white panic as a cover crop. Six weeks after planting the cows were put in to graze the white panic. I also include 1 lb/ac of Rhodes grass now because of its drought tolerance in relation to setaria.

Grazing is done in rotation with no set regularity. Since I started to put in tropical pastures the carrying capacity of the property has been increased from 75 to 190 head. The improved pastures are grazed together with a small paddock of forest country. Another area of 50 acres on the river will be planted this year to the same mixture. The ground is well cultivated, sometimes 4 to 5 times, to get a good firm seed bed. The seed is broadcast and rolled in.

As far as production is concerned I am disappointed with milk production per cow. You would expect, with the amount of pasture available and hand feeding grain in the milking bale, that 3 to 4 gallons a day would be possible. I can achieve this, but only when the cattle graze oats or white panic. On tropical pastures the animals average only about 2 gallons a day, but this includes half-dry cows.

Beef production is different. I have had to use beef cattle to keep the pastures down and they have done very well. I have been asked why I don't change over to beef production but I have invested a large sum in machinery and sheds for milk production.

The point is, that I am disappointed with the milk production because with all the praise of tropical pastures I expected more. The quality of the milk has improved since I went in for pasture improvement and my total output has also. I used to milk only 45 cows on this property. With improved pastures I have been able to maintain the milk supply during the drought. The only trouble with animal health has been a supposed attack of milk fever just before and after calving on short green pasture.