

## Grazier experience with *Stylosanthes* technology.

### III. Wrotham Park, 1963–1988

GORDON ARNOLD

Mareeba, Queensland, Australia

#### Introduction

Wrotham Park is an aggregation of leases purchased by the Australian Agricultural Company (AACo) in 1963. Two leases, 'Highbury' and 'Drumduff', were sold in 1987, but, for the purposes of this paper, I will talk of the whole area, which totals some 9973 km<sup>2</sup> or almost 1 M ha.

Wrotham Park is located in the middle of southern Cape York Peninsula (Figure 1). It has a double frontage to the Mitchell River of some 160 km, taking in the junctions of the Walsh, Lynd and Palmer Rivers. With the exception of 1965–66, when the Walsh River dried back to one waterhole in its 56km length, permanent water is available in this probably unique natural water system.

Soil types are described as yellow earths (Gn 2.21, 2.61) and yellow podsolic (Dy 3.61). The native pastures are mainly *Sorghum plumosum* (plume sorghum), *Chrysopogon fallax* (golden beard grass) and *Schizachyrium fragile* (fire grass).

#### Infrastructure

The property is run as 4 cattle herds, namely:

- **Wrotham Park**, being the area of the whole of the Walsh River and the eastern or upstream end of the Mitchell River;
- **Gamboola**, which is the area on both sides of the Mitchell River between the Walsh and Lynd River junctions;
- **Highbury**, the area below the Lynd River junction to the Palmer River junction again on both sides of the Mitchell River; and

- **Drumduff**, the Palmer River area, including another very good flat watercourse known as the Yanko.

Until the Brucellosis and Tuberculosis Eradication Campaign (BTEC) and the necessity to fence, it was largely an open-range cattle situation with holding paddocks at each stockyard and 1–2 bullock paddocks on each place. The exceptions are the stylo areas which were fenced and watered at or before establishment.

Wrotham Park is the head station and each outstation was run by a Headstockman-in-charge, responsible to the Wrotham Park Manager.

#### Production system and cattle management

The general practice has been for each outstation, after branding, to move the saleable cattle (meatworks or stores) to Wrotham Park, where the former are freshened up and sent on for slaughter and the stores held for fattening or, in later years, sent to company fattening depots elsewhere.

Wrotham Park homestead is on the business end of the run, being 72 km from the railhead at Mungana and 240 km by road from Mareeba. The roads are available only during the dry season, and, although improving each year, the political will (or lack of it) of governments is preventing them reaching bitumen standard in the foreseeable future.

Most internal and all external cattle movements are by road transport, with droving trips a thing of the past. Time, plus the cost and availability of suitable labour, have much to do with this, but another factor, which has emerged, is the rapid advance of rubber vine. It is physically impossible to cross the rivers anywhere unless a bulldozer cleans a wide pathway on the banks.

Improved control of cattle has come with pasture development. In general, the stylo pastures are fenced into paddocks of 2400 ha, each supporting approximately 1000 head of cattle. They are convenient-sized areas to muster with a stock

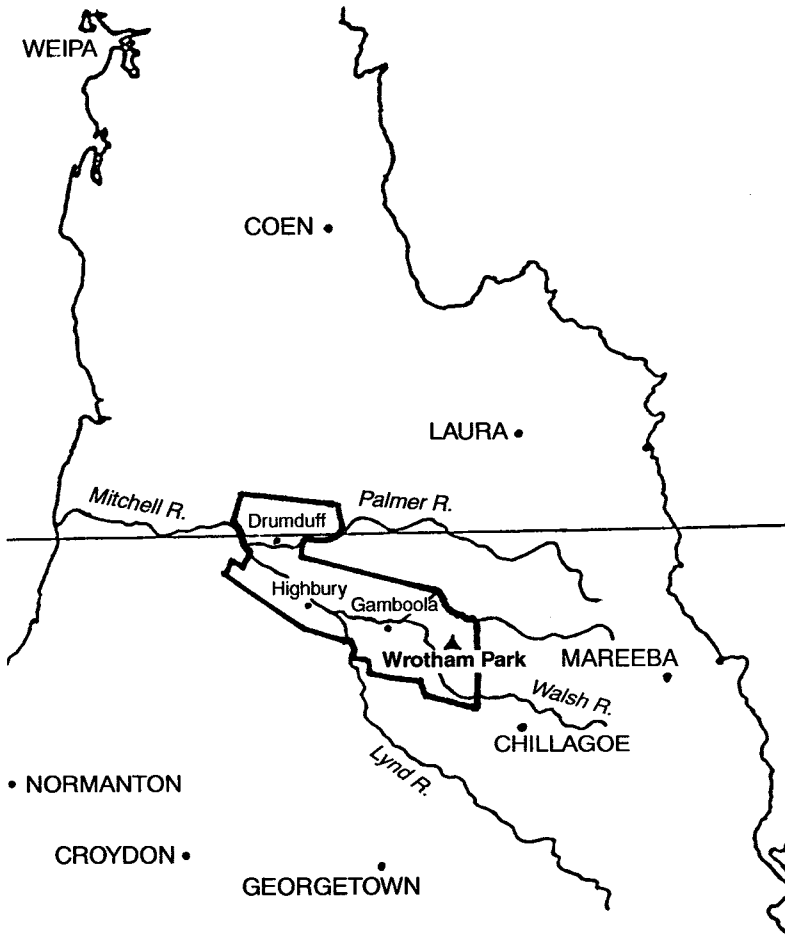


Figure 1. Location of Wrotham Park.

camp of 7–8 men, sometimes with helicopter assistance. Earth dams of 12 000–15 000 m<sup>3</sup> capacity water the paddocks and some are complemented with bores.

### Cattle numbers

Herd numbers have varied over the years. Pre-1987 (sale of Highbury and Drumduff) herd numbers ranged from a high of 49 000 (1976) to a low of 37 000 (1982). These are estimates of course, with the mortality factor the biggest guess. Brandings and turnoff numbers (Figure 2) are the only valid ones.

Rainfall has been extremely variable over the period and has included the lowest (408 mm in

1966) and the highest (1401 mm in 1974) recordings since 1892 (Walsh Telegraph Office records).

As in any other situation, rainfall recorded is not always effective for pasture growth. The yearly average at Wrotham Park is 943mm, representing a 35-year average (*i.e.* 1951–1985) from station records.

### Pasture development

In 1966, with advice from the CSIRO, and particularly the encouragement and enthusiasm of Les Edye, Ray Isbell, Peter Gillard, Don Cameron and others, the company commenced pasture development, initially using *Stylosanthes*

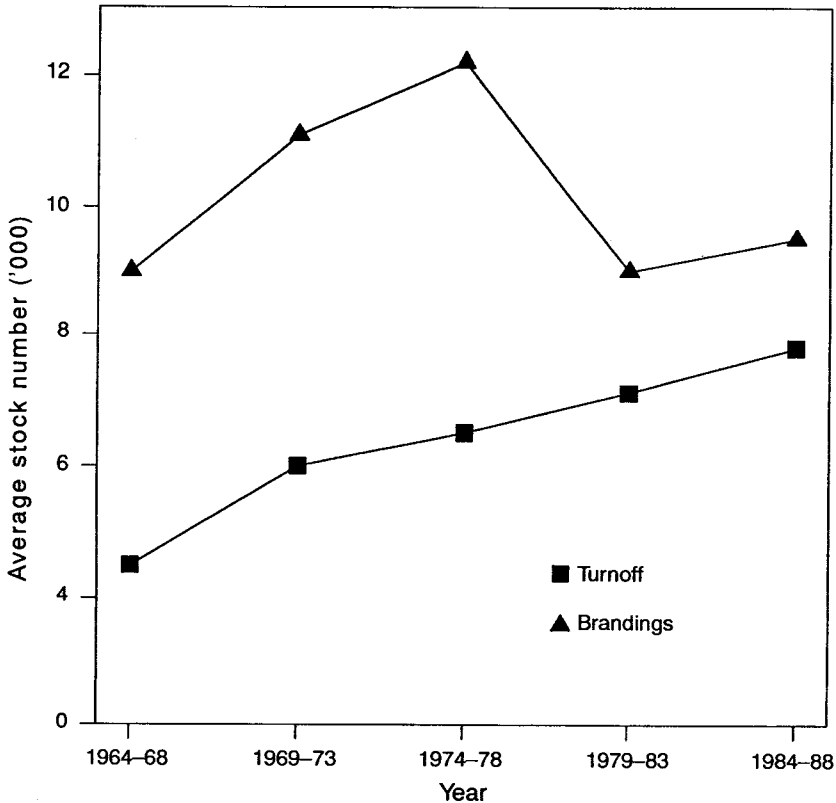


Figure 2. Five-yearly average branding and turnoff cattle numbers from Wrotham Park and its outstations between 1964 and 1988.

*humilis* on mainly thick tea tree country. This was partially cleared and burnt, ploughed, seeded and fertilised with super. At establishment, 4kg seed and 250 kg Mo superphosphate were applied per ha. For the next 2 years, maintenance super was applied at 125 kg/ha/yr.

Results were spectacular and carrying capacity of this 6000 ha jumped from approximately 1 beast/25 ha to conservatively 1 beast/2.5 ha. A 12-month liveweight gain trial comparing Townsville stylo and Verano was carried out in 1972-73 and another 24-month trial followed. These trials carried (fattened) 1 beast/1.4 ha and finally 1 beast/ha (Figure 3).

After anthracnose reduced production and finally decimated Townsville stylo in 1974, Verano was sown in all later plantings. Seca has been mixed with Verano since 1984. The early cleared areas have also been oversown with Verano.

Since 1974, when cattle prices crashed, no clearing has been done and the pastures have been established by aerially sowing into open savannas following burning or heavy grazing.

These areas are stocked as soon as possible after the wet season at 1 beast/2.4 ha, depending on the establishment and the wet season. It is a tribute to either the versatility of stylo, luck or a combination of both that, despite the varying rainfall, establishment of some sort has almost always been achieved. The exception was in 1988 following a practically non-existent wet season in the areas sown.

The areas are used for breeding, weaning and fattening and as convenient holding paddocks. The total area under stylo and in production now is 37 400 ha (Table 1). At 1 beast/2.4 ha this area should carry 15 580 head of cattle. On Wrotham Park and Gamboola, given average rainfall, this stocking rate is conservative.

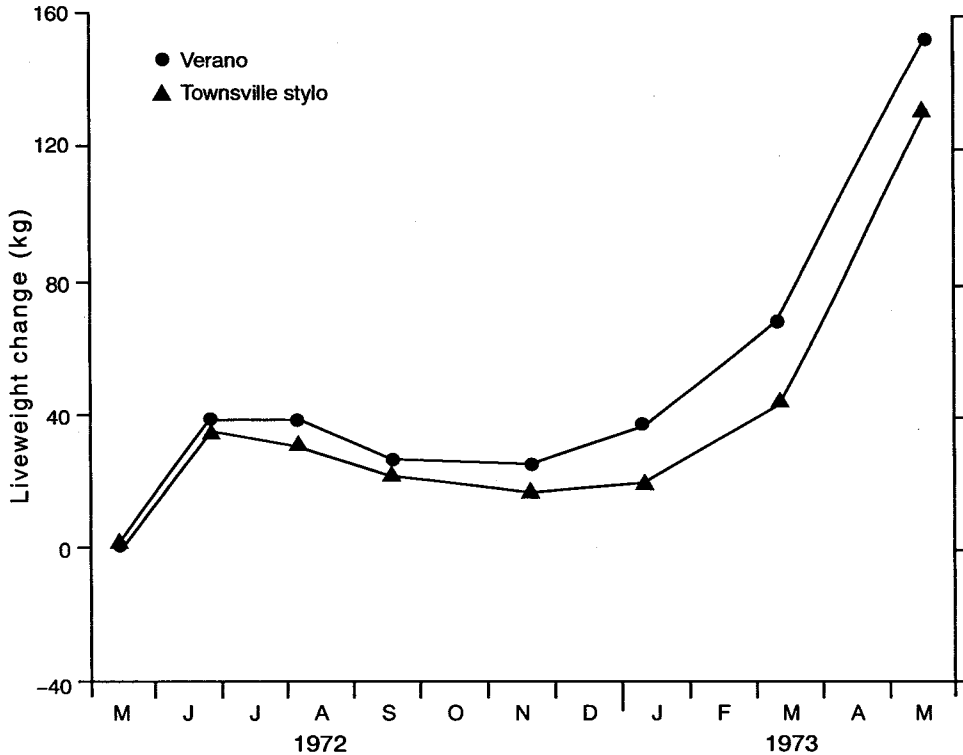


Figure 3. Liveweight gain comparison between cattle grazing Verano stylo and Townsville stylo at Wrotham Park.

Table 1. The total area (ha) under stylo and in production now at Wrotham Park.

Area	Cleared	Uncleared	Total
Wrotham Park	6 250	8 750	15 000
Gamboola	2 400	5 830	8 230
Highbury		12 500	12 500
Drumduff		1 670	1 670
TOTAL	8 650	28 750	37 400

On Highbury, there is a massive phosphate deficiency in the soils where the pastures are established. This deficiency is not obvious in the pastures which look good and probably more than fulfil the protein requirement of cattle. A craving for phosphorus blocks (when supplied) is apparent and this matter will have to be addressed before these particular pastures become properly productive.

Drumduff cattle are doing well on the improved area and, although the low phosphorus story also applies here, it is not as evident as at Highbury.

## Costs

Wrotham Park is reasonably well placed when compared with the top of Cape York or the Kowanyama region but is still remote from markets and served by a seasonal road system. In 1995, road transport costs to Mareeba, the nearest selling centre (240km), were \$13.70/ox and \$12.00/cow at the 4-deck rate (\$1.209/deck/km).

## 1988 Figures

Freight on bulk granulated superphosphate from Cairns to different locations on Wrotham Park varied from \$33–48/t. The product ex Cairns works was \$243.60, so the landed cost was close to \$300.

Seed costs were \$5.50/kg for Verano and \$9/kg for Seca. Aerial spreading averaged \$52/t with seed and superphosphate being mixed on the ground before spreading.

The costs for tank sinking are variable but a reasonable approximation would be \$1/m<sup>3</sup>. Fencing (including line clearing) costs \$1300/km.

Hence, a 6 km × 4 km (2400 ha) paddock to run 1000 head with a 14 000 m<sup>3</sup> earth dam, seeded and fertilised with super, in 1988 costs:

20 km fencing at \$1300/km	\$ 26 000.00
14 000 m <sup>3</sup> dam at \$1/m <sup>3</sup>	\$ 14 000.00
3 kg seed at \$20/ha (1 kg Seca, 2kg Verano)	\$ 48 000.00
300 t super (125kg/ha) at \$343.60/t spread	\$103 080.00
Aerial spraying 7.2 t seed at \$52/t	\$ 374.40
<b>Total</b>	<b>\$191 454.40</b>

*i.e.* \$191.45 per beast area.

Where fencing and water are available from existing improvements, establishment costs would be reduced accordingly.

## Conclusion

To their credit, the AACo committed generous funding to a venture, which, in the late 60s, was still considered somewhat of a risk.

This venture was based almost solely on the advice given by the CSIRO, which has been followed meticulously. Despite setbacks, which included the devastating effect of anthracnose, a grasshopper plague, timber regrowth, weed infestation and variable rainfall, a large area of country with limited or nil capacity has been made most productive. Along with the continuing introduction of Brahman cattle since the late 60s, the herd quality has been upgraded enormously.

Dr Griffith Davies' hypothesis, that "the introduction of a legume into a grass-dominant pasture provides the key to greatly improved animal productivity", has been demonstrated on Wrotham Park and Woodhouse Stations to great effect. We also agree with Dr R.J. Jones, who said that "the simplicity of the principle, however, should be viewed in the light of the complexity of the task".