



### INTRODUCTION

Farmers have long debated the value of wet pasture systems in their backswamps. Key questions that needed answers were:

- How much feed is produced?
- How variable is the feed production?
- What is the quality of the feed produced?
- Does productivity vary between floodplains?

Water couch (*Paspalum distichum*) is a common native species in wet pasture systems on the Macleay and Clarence floodplains. This Information Sheet summarises Floodplain Grazing Project research on the production and quality of water couch.

### GROWTH

Water couch produced 12.6 tonnes of dry matter per hectare (t DM/ha) at the Macleay site over its 2006-7 growing season. It grew rapidly from October to late March when temperatures exceeded 20°C. During the hottest part of the year (30-35°C) growth rates peaked at more than 100kg/ha/day when moisture was available.

A similar but differently timed pattern was seen at the Clarence site, with slower growth in January when there were hot conditions and low water levels. (Fig 1)

#### How does this compare with dryland pastures?

In the Macleay, an unfertilized dryland carpet grass / paspalum pasture over the same period produced 2.7 t DM/ha, with peak growth of 9.4 kg/ha/day. Fertilized kikuyu and lucerne have been measured growing at 100kg/ha/day on alluvial soils.

#### Growth pattern

The growth patterns indicate that temperature, depth of ponding and rainfall all influence the growth of water couch. Maximum growth occurred during the hottest months when there was ponded water and/or heavy rainfall. Little or no growth occurred in the cooler months (April to October).

Note, the information for Macleay was collected over a series of drought affected years. The growth pattern of water couch in wet years is unknown.

### VARIABILITY

The growth of water couch is highly variable between years because there is a large variation in temperature, rainfall and water levels. In most years in this region water couch is capable of growth rates of more than 50 kg DM/ha/day from October to April, peaking at 100-150kg/ha/day from December to late February. However, growth slows rapidly if surface water is lost and soil moisture declines. (Fig 2)



Water couch (*Paspalum distichum*)

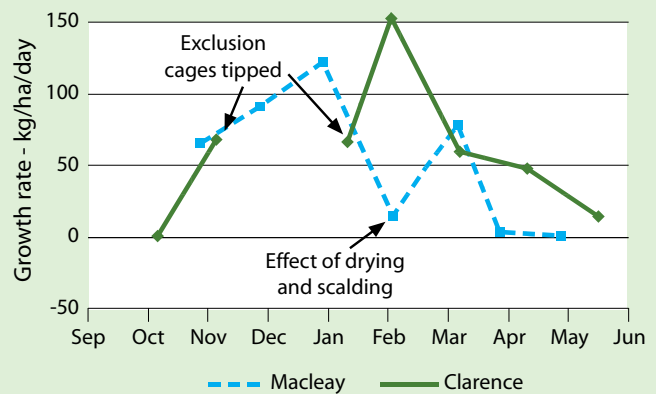


Figure 1: Growth rates of water couch, Macleay and Clarence sites

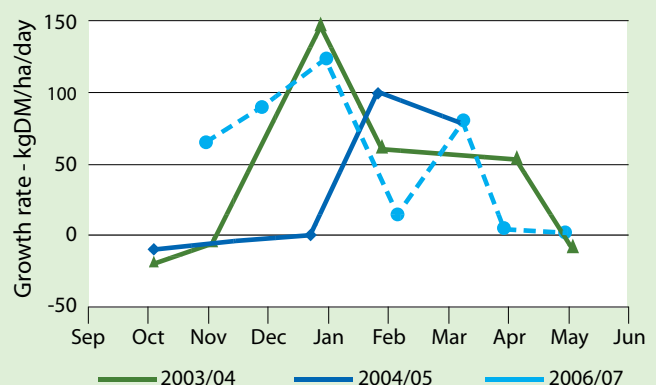


Figure 2: Growth curves of water couch over three summers at the Macleay Floodplain sites

## QUALITY OF WATER COUCH

The quality of water couch was measured using dry matter digestibility and crude protein. Digestibility is a measure of the percentage of a feed that can be utilized by livestock. This is closely related to the energy of the feed. Protein is needed by stock not only for effective rumen function but also for growth and lactation. For cattle, dry matter digestibility of tropical pastures needs to be more than 50% to maintain dry stock and more than 60% for high production.

Table 1 shows that water couch stem and leaf are capable of moderate to high stock production. The seasonal variation in quality is shown in Figure 3.

	Digestibility (%)	Crude protein (% DM)
Water couch – leaf	53 - 67	10 – 27
Water couch – stem	53 - 73	3 – 12
Spike rush	41 - 63	6 – 14
Carpet grass	<58	8 - 12
Kikuyu	50 - 65	9 - 13

Table 1: The quality of water couch, with comparison with other pasture species

## CONCLUSION

In answer to the questions raised by farmers:

### How much feed is produced?

Over 10 tonnes of dry matter per hectare over the growing season with growth rates peaking over 100kg DM/ha per day when temperature and water depth are favourable.

### Do wet pastures perform the same way on different floodplains?

Wet pastures in both the Clarence and the Macleay can produce large volumes of feed from water couch.

### How variable is the feed production?

Just as for dryland pastures, wet pasture systems are very variable in their forage production patterns within and between years, depending on temperature, rainfall, water depth and site characteristics.

### What is the quality of the feed produced?

Water couch is a good to high quality feed. The quality of other wetland species has been collected over the 2007-8 growing season and is available in the NSW DPI information sheet "Quality of Coastal Wetland Species".

### Overall

Ponding in coastal wetlands has both environmental benefits and benefits for production of beef cattle feed. The level of ponding of fresh water has a large effect on pasture production. The interactions with other management practices affecting backswamps are not yet known.

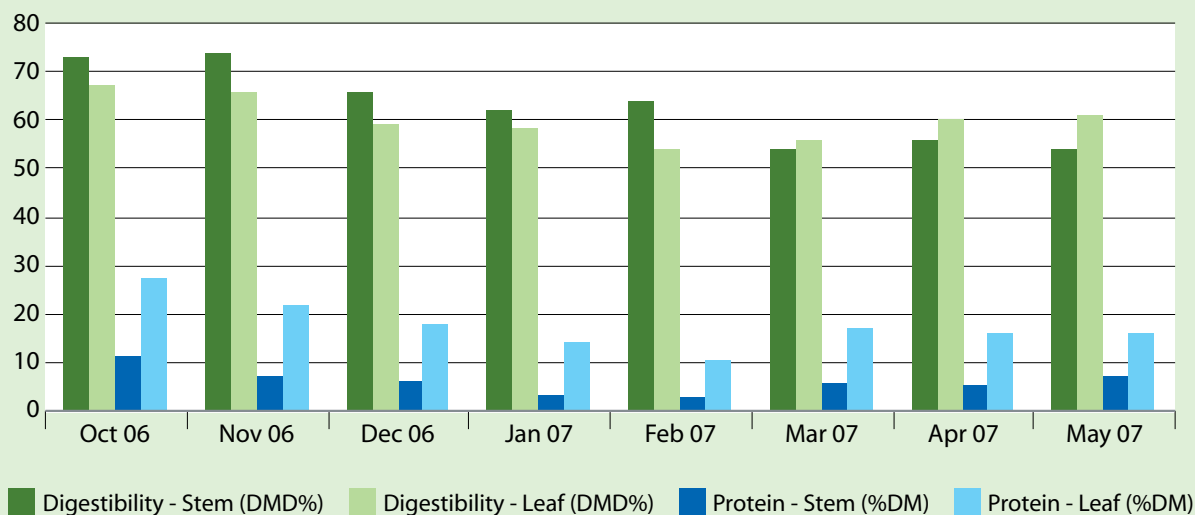


Figure 3: Digestibility and crude protein of water couch across the growing season

## ACKNOWLEDGEMENTS

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