

Water couch – productive quality grass for acid sulphate soil remediation!

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Water ponding and water couch (*Paspalum distichum*) have been used by landholder Russell Yerbury to reclaim 125 ha (300ac) of acid-sulphate scalded country back to productive farmland.

Acid sulphate soils are a problem in coastal areas when low lying land is drained, water tables fall and acid sulphate layers are exposed to the air. The air reacts with the layer producing sulphuric acid and leaches iron, aluminium and other metals from the soil. This has the dual affect of acidifying the soil and polluting waterways. This water, at a pH of 3 can lead to fish kills in coastal rivers. While exposed to the air, the soil will continue to produce acid.

When Russell came to the property at Clybucca, near Kempsey, on the mid-North Coast, NSW, around 125ha (300 acres) was affected by acid sulfate scald. This looked very much like a salt scald, with no vegetation or organic matter, wind erosion, and white crystals on the surface, though in this case it was sulphidic salts. The scald had been caused by over drainage, acidification and fire removing the peat layers over the soil. By strategic ponding of fresh water Russell created an environment where water couch (*Paspalum distichum*) recolonised the most shallow

areas (10-15cm). This occurred rapidly, presumably from resilient seed stock. Spike rush (*Eleocharis sp.*) colonised the deeper areas (15-50cm).

While many southern farmers consider water couch a weed it is in fact an excellent fodder with test results showing high feed quality (Table 1). Water couch is a native summer growing grass that grows in areas with periodic waterlogging and is found in the flood plain of the Macleay River. In this environment there is a distinct demarcation between the lower wetter areas with water couch and the slightly higher areas dominated by common couch (*Cynodon dactylon*) and the non-waterlogged areas where kikuyu (*Pennisetum clandestinum*) or carpet grass (*Axonopus sp*) grows. Water couch can be grazed in the ponded and dry pond state. With dry conditions in the Macleay, this year, Russell has been able to make silage from dry water couch areas where equipment could get into the paddocks.

Creating the environment where water couch can flourish has enabled an unproductive and environmentally damaging area to become both better for the environment and a productive beef property.

Table1: Forage quality of water couch, spike rush and other pasture plants

	Digestibility % of DM	Crude Protein % of DM	Metabolisable Energy MJ/kg DM	Source
Water couch (December)	70.5 %	19.6 %	10.6	R.Yerbury, 11/12/1995
Water couch (April)	57.7 %	14.9 %	8.2	R. Yerbury, Prograze, 21/04/02
Water couch	61.1 %	15.9 %	—	R.Henderson, Kooragang City Farm
Spike rush (Autumn)	66.5 %	21.4 %	9.6	R. Yerbury, Prograze, 21/04/02
Couch	49.5%	12.9%	—	R.Henderson, Kooragang City Farm
Kikuyu (leaf) (March)	69.0 %	16.1 %	10.1	J. Betts, Prograze, Grafton
Kikuyu (leaf, stem) (Feb)	57.0 %	17.6 %	8.1	J. Betts, Prograze, Grafton



Above: Strategic ponding of fresh water has created an environment where water couch can flourish. Photo: Scott Henderson

Left: Scald caused by over drainage, acidification and fire removing the peat layers over the soil. Photo: Stuart Naylor