

NATIVE PASTURE IDENTIFICATION, ESTABLISHMENT AND MANAGEMENT IN NORTHERN VICTORIA



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Summary



- My Background
- Native Pasture Identification – Common native pasture plants, key characteristics
- Native Pasture Establishment at Omoperema- Natural regeneration, direct seeding, undersowing , seed collection, niche seeding.
- Native Pasture Management- Pasture stress avoidance, beneficial pruning, reducing fire risk.
- Sheep management in native pastures- Filling feed gaps, pasture quality, pasture diversity, sheep health.
- Ecological processes in Native Pasture Management- Pests and disease, Droughts, Floods

Native Pasture Identification- Common Grasses, Herbs, Shrubs in native pastures in Northern Victoria



Poaceae (Grasses)

- *Rhytidosperma* (Wallaby Grass)
- *Austrostipa* (Spear Grass)
- *Aristida* (Wire Grasses)
- *Chloris* (Windmill Grass)
- *Enterapogon* (Spider Grass)
- *Panicum/Walwhalleya* (Panic Grass)
- *Themeda* (Kangaroo Grass)
- *Eragrostis* (Love Grass)
- *Dichanthium* (Queensland Bluegrass)
- *Diggitaria* (Summer Grass)
- *Enneapogon* (Bottle Washers)
- *Eriochloa* (Cupgrass)
- *Eulalia* (Brown Top)
- *Bothriochloa* (Red Grass)
- *Elymus* (Native Wheatgrass)
- *Poa* (Tussock Grass)
- *Paspalidium* (Box Grass, Warrego Summer grass)
- *Lachnagrostis* (Blown Grass)
- *Amphibromus* (Swamp-wallaby Grass)



Broad-leaf Wallaby Grass (*Rhytidosperma bipartita*)



Spear Grass (*Austrostipa spp*)

Which Windmill Grass?

Spider Grass, Rigid Panic, Spreading Summer Grass, Plains Lovegrass, Yakka Grass, Windmill grass, Native Millet, Hairy Panic, Silky Umbrella, Arse Grass, Witch Grass, Blown Grass



Spider Grass (Also known as Umbrella Grass, Curly Windmill Grass)

Enteropogon acicularis

- ❑ Volunteers on my farm because of wind dispersal
- ❑ Long-lived Perennial (decades)
- ❑ Grows on all soil types.
- ❑ C4, Warm Season Grass
- ❑ Rapid growth from summer thunderstorms
- ❑ Once established will eliminate summer weeds.
- ❑ Dry tussocks and roots are tough and protect the soil from erosion.
- ❑ Flood Tolerant.
- ❑ Don't graze heavily when the plant is growing.





Kangaroo Grass (*Themeda triandra*)



Oat Kangaroo Grass (*Themeda avenaceae*)



Tall Windmill Grass (*Chloris ventricosa*)



Silky Brown-top (*Eulalia fulva*)

Ferns

- Nardoo MSOffice1



Slide 12

MOffice1 Need photo of Nardoo plant
, 19/03/2012

Sedges/Rushes

- ❑ Spikerush (picture right)
- ❑ Bullrush
- ❑ Nutgrass (picture below)
- ❑ Fringe rush (picture below, right)



Polygonaceae

- Lignum (picture, right)
- Spiny Lignum
- Docks (picture below)
- Knotweeds



Chenopodiaceae

- ❑ Atriplex (Saltbush)
- ❑ Bluebush/Cottonbush (both picture on right)
- ❑ Enchylaena (Ruby Saltbush)
- ❑ Einadia (Climbing Saltbush)(picture below)
- ❑ Rhagodia (Hedge Saltbush)
- ❑ Chenopodium (Goosefoot)
- ❑ Sclerolaena (Copperburr)



Amaranthaceae

- Joyweed
- Ptilotus (Mulla Mulla) (picture)



Brassicaceae



- Mustards
- Cress
- Peppergrass

Fabaceae (Pea Family)

- ❑ Swainsona (picture top right)
- ❑ Eutaxia
- ❑ Trigonella (picture below right)
- ❑ Cullen
- ❑ Dillwynia
- ❑ Glycine
- ❑ Glycyrrhiza
- ❑ Acacia



Geraniaceae

- Erodium (picture)
- Geranium



Oxalidaceae

- Oxalis

Zygophyllaceae

- Dillon Bush
- Twinleaf (picture)



Euphorbiaceae



- Caustic weed
- Plains Spurge

Malvaceae

- Sida (picture)
- Native Hollyhock



Lythraceae

- *Lythrum hyssopifolium*

Myrtaceae

- Eucalyptus
- Melaleuca



Convolvulaceae

- Bindweed
- Rosinweed (picture)



Solanaceae

- Quena (picture below)



Goodeniaceae

- Goodenia



Asteraceae (Daisy Family)

- Burr Daisy (picture below)
- New Holland Daisy (below right)
- Plover Daisy (picture, right)



Omoperema

- ❑ Total 605 hectares at Pine Grove and Beauchamp.
- ❑ Approx. 375mm rainfall (350mm average 10/yr- Pine Grove)
- ❑ Natural Grassland, Woodland and Wetlands.
- ❑ Soils mostly heavy clay with some loam areas.
- ❑ Regular cropping until the 1993, very limited since.
- ❑ Cattle grazing until 1994, sheep grazing since.
- ❑ Self replacing merino flock 1994-2009
- ❑ 2009- now 9 month seasonal agistment.
- ❑ Large scale native pasture establishment trials since 1999
- ❑ So far, have established 280 acres of Native/Lucerne based pastures on former cropping land.

Before and After

Seasonal Pasture Production

- ❑ Pastures were all winter annual or winter active perennial
- ❑ Problems with summer weeds
- ❑ Feed quality was poor for half the year.

All year production

- ❑ Pasture mix that is active all year.
- ❑ Feed quality is excellent most of the year, including dry summer/autumn.
- ❑ Summer weeds become extinct.

Native Pasture Development at Omoperema

Stage 1. Observing the effects of the 1994 drought

- Saltbush/bluebush growth in drought.
- Native pastures resistance to wind erosion, even when heavily grazed.
- Native pastures quick response to drought breaking rain
- Looking enviously at the neighbours lucerne paddock.

Stage 2. Experimenting

- Divided the farm from 7 paddocks into 35 to experiment with rotational grazing and kept records of carrying capacity and observed pasture response to different times of grazing and intensity.
- Observed the germination of native pasture species (mainly Chenopods), started collecting seed and growing on a small scale (in pots)
- Refined collecting and direct seeding techniques to the point where larger scale seeding was attempted.
- Planted my first Lucerne/ Atriplex pasture mix in 1997 (Tip from G. Rankin in Landcare magazine)
- Refined seeding techniques with further experiments over the next 4 years, including different cover crops and density.



Stage 3. Drought Testing of New Pastures 2002

- Kept all breeding stock in good condition through entire drought with minimal supplements and no wind erosion.
- Planted diverse native fodder shrubs to enhance a buloke woodland area, inspired by David Millsoms paddock at Mt Hope.
- Learnt a lot about what keeps native pasture healthy and refined grazing techniques further.
- New lucerne/native pasture mix carried 5dse hectare throughout drought.

Stage 4. Rationalizing Management Time

- Increased paddock size again to allow for approximate 10/dse/acre during grazing intervals (2-4 weeks)
- Started introducing more species of summer active grass.
- Started harvesting Wallaby grass for sale.
- Engineered with assistance from a friend a panicle grass harvester
- Increased diversity of sown pasture to 25 species including panicle grasses.

Before

Relaxing in August (if it has rained)



**Hand feeding almost every
Autumn/Winter**



Woodlands before and after

September 2001

A Farm

2 DSE/ Hectare Capacity



September 2008

Habitat for Sheep 2DSE/Hectare Capacity





The response of Spider Grass pastures following 50mm of rain in January in a drought year.

12 year old Lucerne/ Native pasture mix at Pinegrove on hard-setting clay-loam soil





Niche seeded Chenopods within Blackbox Woodland, 3 years after sowing.

Rohlarch's Bluebush

Maireana rohlarchii

- It was almost extinct from my district.
- Collected seed with a hand held vacuum and planted with a Wheat crop.
- Plant is designed for rotational grazing
- Grazed in preference to Lucerne
- Long-lived, year round production.
- Creates a shrub to give pastures structure



Creeping Saltbush *Atriplex semibaccata*

Excellent coloniser of bare ground.

Soil builder

Boosts nitrogen

Prevents soil drift following heavy grazing

Can be sown in conventional seedbox under a crop (Tip from Greg Rankin).

Short lived but heavy seed production

Volunteers once established

Will not tolerate set stocking



Above: Creeping Saltbush protects soil from erosion during drought.



*Gotta spray to get rid of that rubbish! –
Agronomist Advice in the mid 1980's*

Below: The effect of creeping saltbush plants on winter pasture growth.



Weaned lambs grazing Lucerne/Chenopod pastures in 2002 drought.

Undersowing cereal crops with native pasture

- Discovered technique by accident.
- Tested under different crops in different seasons.
- Gradually increased the pasture mix to include up to 25 species.



Barley crop undersown with 25 native species



9 months later



3 yrs later and grazed twice since sowing



Same technique at Kerang 3 years after sowing, grazed twice since sowing.



Niche Seeding

Under canopy niche seeding 3 years after sowing and grazed once each year.



References




Photographs – Copyright Eris O'Brien

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