



Innovative saltbush research spreads far and wide

By Jill Griffiths
Kondinin Group

Above: Researchers, such as Dr Hayley Norman (CSIRO, left) are assessing plants from 600 saltbush families in terms of biomass, nutritive quality and sheep grazing preferences so producers such as Tony York (right) have greater options for the future. (Photo: FFI CRC)

Research into the productive potential and nutritive qualities of many saltbush species is showing the enormous opportunity afforded by these well-adapted local species. FFI CRC sponsored research has involved collaboration among research scientists from a variety of disciplines.

Saltbush grows at the end of spring and through summer and autumn. As such, it has significant potential to cover summer and autumn feed gaps and to be a soil and water management tool. In a changing climate, with lower winter rainfall and higher summer rainfall,

saltbush could have a vital role to play, as it can use summer rainfall – which winter-active annuals cannot.

FFI CRC Program Leader researcher, Dr Ed Barrett-Lennard (DAFWA), considers the recent saltbush research to be ‘rather special’. He said the technological methodology used was innovative and the application of the early results to assess saltbushes from around Australia was a further innovation.

Plant assessment sites

Three major plant assessment sites were established (at Tammin, WA, Condobolin, NSW and Monarto, SA) with the FFI CRC linking related studies run by the CSIRO Livestock Industries and NSW Department of Primary Industries (see boxed story next page).

Seed for the trial was collected from 600 saltbush plants across Australia – called the ‘mother’ plants. Plants grown from seed from each of these ‘mothers’ is referred to as a ‘family’. All three assessment sites have 30 plants from each of the 600 families. This has enabled researchers to

assess the families in terms of biomass, nutritive quality and sheep preferences. It also allows prediction of heritability of these traits.

All three sites were grazed by sheep during autumn 2008. After grazing, plants were scored on a scale of one to five; with one being not grazed and five being completely grazed. Researchers found clear differences in preference, which were consistent across sites. About 80 per cent of plants were only nibbled but 5-10% were completely grazed.



key points

- Collaborative research efforts are investigating saltbush for production, environmental and nutritive values
- Assessments sites have been established in Western Australia, South Australia and New South Wales
- A key focus in current research is to expand the range of commercially available cultivars to support producers across different geographical areas.

RIGHT: Assessment sites across three states provide opportunities for collaborative research outcomes. (Photo: C Fancote)

Preferential grazing

SARDI researcher Dr Alan Humphries said there was a belief that site factors, such as climate, soil and salinity were responsible for differences in palatability, but the research has been proving otherwise.

“We showed there was good agreeance as to which families sheep grazed and didn’t graze across the sites,” Dr Humphries said.

The saltbush research shows that grazing preference of sheep is determined by cultivar rather than site specific factors.

During the trial, sheep grazed grass simultaneously with saltbush, and the grass was not eaten out, which is an important factor in maintaining groundcover during summer and autumn.

From a natural resource management perspective, it is important sheep eat saltbush before they eat out all the surrounding grasses and groundcover.

Future research will select saltbush that is palatable and nutritious.

“There is enormous potential to improve the profitability of saltbush by small increases in palatability or nutrient value,” Dr Humphries said.

Starved for choice

Currently, Australian farmers have a limited choice of commercially-developed cultivars. The task for researchers now is to increase the number of saltbush cultivars available and to ensure they are palatable and profitable through a process of selection.

Dr Barrett-Lennard said the next step is to select those cultivars that are showing the greatest potential, clone them, test the clones and then develop a commercialisation plan so they can reach their maximum potential in the marketplace.

“Within saltbush is the subspecies *nummularia*, also known as old man saltbush, which is a there are truly exceptional plant,” Dr Barrett-Lennard said.

“There are millions of hectares that need to be rehabilitated and the potential market for saltbush is substantial.”

More information

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Argentina submits to the saltbush spell

Interest in Australia’s iconic shrub, old man saltbush, has spread to the deserts of Argentina.

ABOVE: *Atriplex nummularia* planted December, 2007 with frost damage INTA Exp Station Chemical 21 October, 2008. (Photo: J Emms)

During a recent visit to share research on the value of forage herbs and shrubs in agriculture at an international conference, (31st Argentine Animal Production Congress), SARDI pasture researcher Dr Jason Emms viewed extensive testing of the shrubs in the Monte Desert region.

Dr Emms said the Argentine Institute of Agricultural Technology had been testing the shrub and comparing its forage value against the natural vegetation in the dry and arid area of the Monte Desert region as forage for goats.

“Argentinians face similar issues to Australian graziers – a shortage of feed quality and quantity at the end of the dry season – and old man saltbush is a means to fill that gap,” he said.

Dr Emms said the Argentinians used the saltbush as a ‘cut and carry’ fodder, mostly in small subsistence-type farms. He saw some saltbush that had been browsed by goats, but the plants had been stripped.

“Goats could graze old man saltbush, but might need some work as far as management goes,” Dr Emms said.

In the region Dr Emms visited, the annual rainfall is 250-400 mm, most of which falls in the summer when evaporation is high. The winters are dry and can have severe frosts. This could make saltbush

advantageous as can survive frosts, although frost tolerance varies between species and varieties – a potential avenue for research.

In a similar style to that used by Australian researchers in the *Enrich* project, Argentinians may look to their native plants for future fodder species.

“I saw native saltbush in Argentina which may have potential (for Argentinian systems) in the future,” Dr Emms said.

Dr Emms said the Argentinians were also keen to try some legume shrub species being used in Australia.

“The systems I saw completely lacked legumes,” Dr Emms said. “It’s just grasses and (non-leguminous) shrubs.”

Dr Emms said although there were no formal agreements currently in place, the opportunities for collaborative research existed, given the similarities in principles and processes.

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