

The use of Fodder shrubs in the Farming System

Key Message

- New fodder shrub species have been successfully trialed in the UN
- Perennials, including fodder shrubs will increase pasture production on poor, degraded soils
- Grazing animals require a balanced diet with a variety of pasture species to ensure the correct balance of energy, protein and minerals
- High stocking pressure for short periods is necessary to maximize pasture production of both the fodder shrubs and inter-row pasture.

Background

Fodder shrubs, particularly Oldman saltbush have been used as a fodder source for many years. There have been mixed results and performance of the fodder shrub stands regarding, establishment production and utilization.

The Erich program has been researching alternative fodder shrub species to determine the most appropriate species, spacing's and management to maximize production and use of these fodder shrub systems. Data from the Enrich sites in the Upper North and Eastern Eyre Peninsula has identified a number of alternative species to Oldman saltbush. These may not necessary replace Oldman, but will provide an alternative, often more palatable feed source. Some of these fodder shrub species have been planted in larger demonstration areas with a range of row spacing depending on the situation and intended use of the fodder shrub systems. These demonstrations are part of a federal government funded "Caring for Our Country" project. This project is investigating where and how perennials, including fodder shrub species can fit into our farming systems and the benefits they can have on production and sustainability.

The greatest benefit has been obtained on poorer, degraded soils where crop and pasture production is very low. Often these areas are no longer viable to crop and landholders have decided to remove them from cropping; however pasture production is often also poor.

Fodder Shrub Species

Species	Survival	Edible biomass	Palatability	Digestibility	Comments
River saltbush (<i>Atriplex amnicola</i>)	~ 75%	Low - medium	medium	medium	Excellent edible biomass and ability to recover from grazing
Grey saltbush (<i>Atriplex cinerea</i>)	~ 75%	low	medium	medium	Readily grazed and performed well on saline areas
Oldman saltbush (<i>Atrilpex nummularia</i>)	~ 72%	medium	low	medium	Sheep avoid grazing when first introduced; excellent edible biomass and capacity to recover from grazing; good shelter.
Silver saltbush (<i>Atriplex rhagodioides</i>)	~ 95%	Low - medium	low	medium	Low grazing preference; excellent edible biomass and capacity to recover from grazing.
Creeping saltbush	~ 65%	low	medium	medium	Sheep readily grazed when first introduced;

<i>(Atriplex semibaccata)</i>					relatively short lived , but regenerates readily from seed
Ruby saltbush <i>(Enchylaena tomentosa)</i>	~ 95%	Very low	medium	low	Sheep readily grazed when first introduced; average edible biomass with good capacity to recover from grazing.
Mealy saltbush <i>(Rhagodia parabolica)</i>	~ 95%	Low - medium	low	high	Sheep avoid grazing when first introduced; average edible biomass with good capacity to recover from grazing; good shelter

Inter-row Pastures

Grazing animals require a balanced diet with a variety of pasture species to ensure the correct balance of energy, protein and minerals. In the past many fodder shrub systems were planted very densely to maximize fodder shrub production, however pasture production between the shrubs was significantly reduced.

Even in a shrub based system the bulk of the biomass eaten by livestock will come from a productive inter-row pasture or understorey. Shrubs typically only make up one-quarter to one-third of the dry matter intake of sheep. In autumn when inter-row pasture is of poor quality and in low quantity intake of shrub material may increase to half.

Selecting Inter-row Species

A range of inter-row species have been trialled in the Upper North and Eyre Peninsula. Cereals have given the most production and are relatively cheap and easy to establish. Annual legumes, such as vetch and annual medic provide high quality feed, however early growth is relatively slow. Dense regenerating annual medic stands can provide high early production in seasons with an early break. Mixtures of cereal and vetch provide good early feed or high production for later grazing.

Native perennial grasses (Curly windmill grass and Wallaby grass) provide reasonable quality feed and will respond to out of season rainfall. Early growth is very slow and most stands take 6 to 8 months to get established. Care is needed to ensure stands are not over grazed. Once established, stands can be over-sown with annual legumes to improve feed quality and quantity.

Lucerne has been used in areas with wide row spacing's (> 10m) between fodder shrubs and sown 1.5 to 2 m away from the fodder shrubs. When lucerne is sown close to fodder shrubs the plants tend to compete reducing the production of both the fodder shrubs and lucerne.

These sown pastures are generally far more palatable than the fodder shrubs and will be eaten out first. Moderate – high grazing pressure and moving animals into new areas allows them to adapt their grazing behaviour and incorporate shrub foliage into their diet before the inter-row pasture is grazed out.

When first introduced to fodder shrubs it may take 4 or more days before the shrubs become a significant part of their diet. Once stock have had experience grazing shrubs they will preferentially graze the shrubs much sooner, and within a few days it could make up 50 % or more of their diet.

Time of Grazing

When selecting the best inter-row species to sow, it is important to determine the time of year you intend to graze the fodder shrub system.

Winter grazing

Dry sow a cereal / legume pasture mix and graze early growth.

Dual purpose cereals could be grazed several times throughout the season and still be harvested.

Late Spring grazing

Early sown cereal or cereal / legume mix can be grazed when grain has developed, but before stubbles become available.

Autumn grazing

Cereals sown early (dry) and left as a standing crop.

Native grasses (C3 and C4 mix) would provide good feed.

These areas could be used as confinement feeding or for lambing in poor seasons with supplementary feeding.

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