

Pastures under adverse conditions - Too expensive?

The cost of establishing a good pasture -Part B

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"The Plains" Nyngan

The Plains" is situated south of Nyngan and fronts the western side of the Bogan River. The soil types are duplex grey clay of which approximately 2000 ha is flooded regularly. The remaining 8000 hectares of land is mainly sandy red brown earths of which 4000 ha grew bimbale box and buddah scrub and the remaining 4000 ha was timbered with dense mallee and Cyprus pine.

The annual average rainfall of this area is approximately 450mm, which is spread evenly throughout the summer and winter. The rainfall can vary from 150mm per year to 400mm per month. These heavy falls of rain and subsequent flooding sometimes lead to a rapid plant population decline.

"The Plains" is operated as a family partnership of four brothers. Our main enterprise is wheat and barley production, of which 3000 of the 4000 ha is sown annually. Cattle are the only livestock, with 500 Braford breeders. Their calves are grown out and sold at 20 to 24 months of age.

Crop Rotation

The basic rotation at "The Plains" generally consists of three wheat crops and one barley crop after initial land development. The reason for this length of cultivation is to remove timber regrowth and discourage woody weed seedling growth. After this initial crop phase, a legume based pasture is established and remains in for 3 to 4 years before being fallowed during winter to control grass seed set and disease. The second and subsequent cropping period is usually two cereal crops with the second crop being undersown to pasture.

Pasture mix

The usual pasture mix planted on the property consists of 1 kg/ha of a winter active lucerne, with preference to a Pioneer brand either L69 or 5929. Also 500 g/ha of Caliph barrel medic and 500 g/ha of Hykon rose clover. The flooded country is sometimes undersown with snail medic. Future pastures may include some perennial summer grasses.

Pasture establishment

Seedbed preparation for pasture establishment is treated the same as for cereals. One pass with a

chisel plough or with offset discs and one or two light passes with a cultivator. Chemical weed control is utilised whenever possible. Pasture is sown under barley or one of the short season wheat varieties such as Sunstate, Janz or Sunland. These varieties are chosen to reduce spring moisture stress on small pasture seedlings. Seeding rates for the cover crop are 22 kg/ha and DAP or DAP Sulphur is applied at 60kg/ha at sowing.

Between 1000 to 1500 ha are sown each year by using a small seed box on an airseeder. The seed is broadcast behind the last row of tynes and covered using a prickle chain. Crops which are sown using moisture seeking equipment are undersown using a small seeds box and distributor pipes to every sowing tyne and press wheel. The seed is directed at the press wheel from about 300m away, allowing some seed to be buried in moist soil, up to 50mm deep in front of the press wheel, the remainder to fall behind the press wheel thus allowing the seed to be buried 5 to 20mm deep. This latter seed generally germinates on the next rainfall.

In recent years small areas have been direct drilled to pasture using a Shearer trashworker, fitted with spear points and press wheels, with excellent results. This method of establishment will be used in the following autumn/winter to top up low plant populations when required after the initial undersowing.

Direct drilling of pasture requires weed control before sowing. Glyphosate at a rate of 800ml/ha before planting is sufficient to control most in-crop weeds.

What does pasture cost?

Using prices of:

- Lucerne seed and inoculum - \$5.50/kg
- Rose clover and inoculum - \$3.50/kg
- Barrel medic

Undersown pasture costs

- Seed - \$ 9.00/ha
- Broadleaf weed control - \$15.00/ha

Table 1 shows yield and protein for a 1000 ha paddock of mallee country that was cleared in 1986/87.

Year	Crop	Yield (t/ha)	Protein (%)	Gross Income	
1988	Wheat	2.0	10.5	\$240.00	
1989	Wheat	1.8	10.0	\$216.00	
1990	Wheat	2.0	9.0	\$235.00	Natural pasture
1991	Lucerne			\$50.00	\$25.00
1992	Lucerne			\$50.00	\$25.00
1993	Lucerne			\$50.00	\$25.00
1994	Lucerne/Fallow			\$25.00	\$12.00
1995	Wheat	1.2	15.2	\$191.00}	
1995	Barley	1.3	14.5	\$195.00}	
1996	Wheat	2.8	11.8	\$378.00	
Three and half years of lucerne =		\$175.00			
Three and half years of pasture =		\$87.00			
Difference		\$88.00/ha			

Income based on ASW at \$120/t, AH at \$135/t, PH at \$150/t for wheat and grazing income based on \$300.00/head for 12 month old animals.

- Total - \$24.00/ha

Direct drilling pasture costs

- Roundup @ (800ml/ha) - \$10.00/ha
- Seed - \$9.00/ha
- 25 kg D AP - \$11.25/ha
- Seeding costs - \$15.00/ha
- Total - \$45.25/ha

Benefits of pasture improvement

Our mallee country, if cleared and uncropped only grows spear grass (*Stipa* spp.), wiregrass (*Aristida* spp.) And some beneficial native grasses. This only allows a carrying capacity of approximately 1

cow and calf to 12 ha. This same country once sown to a legume based pasture can sustain a carrying capacity of one cow and calf to 6 ha. Other benefits include higher protein and yields in future crop rotations. Some soils having produced only ASW wheat and a low yield are now producing both higher yields and AH or PH wheat.

The goals to be achieved from lucerne based pastures include improved soil structure, nitrogen production, trace element recycling, cereal disease reduction and increased grazing opportunities.

Conclusion

Good pasture establishment is paid for in one or two years of grazing. Wheat yield and protein increase are added bonus.