

Evaluation of annual medic (*Medicago spp*) for the southern Mallee

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Legume pastures in cereal-livestock rotations provide a realistic opportunity for sustaining and improving cereal and livestock productivity in the Mallee. The development of herbicide resistance in weeds, static wheat yields and in many instances a decline in grain protein content has occurred in association with a general swing towards increased cropping intensity and a decline in pasture legume establishment and management. As well, grain legume crops (lupins, chickpeas, faba beans etc.) store large amounts of nitrogen in the grain, potentially depleting soil nitrogen reserves. Legume dominated pastures substantially increase the nitrogen status of the soil.

It is obvious that the provision of more productive and persistent pasture legume varieties/species in conjunction with economic and sustainable management practices is an immediate and ongoing requirement.

Aim: To assess the potential of medic pastures and compare the productivity and persistence of commercial varieties in the Birchip area.

Results:

Table 1. Summary of medic variety trial conducted by Agriculture Victoria in the southern Mallee in 1996 and 1997 (sown 1996). Establishment data was collected in 1996 and medic regeneration collected in 1997.

Variety	Germination (Plants/m ²)		Herbage yield (t DM/ha)		Seed yield (t/ha)
	1996	1997	1996	1997	1996
Caliph	141	145	3.95	1.81	1.17
Mogul	143	707	4.41	2.76	1.02
Orion	85	231	2.72	0.84	0.77
Parabinga	133	535	4.24	2.52	1.18
Paraggio	144	1065	5.51	2.92	1.52
Santiago	102	318	3.42	1.45	1.39
Sapo	60	683	1.90	2.50	0.82
Sava	129	301	5.52	2.12	1.49
Sephi	137	768	4.84	2.87	1.31
Zodiac	18	320	0.82	0.95	0.26
Lsd. (P=0.05)	36	328	1.070	0.636	0.252

Interpretation: 1996 was characterised by a wet winter, frosts in spring and a dry finish. In this season, all varieties except Orion and Zodiac produced adequate plant numbers. Herbage dry matter (DM) yields were particularly impressive for Sava, Paraggio and Sephi (up to 5 tonnes of dry matter/hectare produced), potentially maximising nitrogen inputs, weed competition and livestock production. Paraggio and Sava produced seed yields in excess of 1.5 tonnes/hectare. This is considered to be exceptional (average dryland medic seed yields are ~ 250kg/ha) for the pasture to endure a cereal rotation with no adverse effect on pasture persistence.

In complete contrast to 1996, 1997 was a dry year. Establishment was adequate for all cultivars in 1997, but herbage dry matter yields were generally about half of that produced in 1996. Sapo produced more herbage in 1997 than in 1996 (indicating that the relative yields of varieties will differ between years). Paraggio and Sephi produced the greatest herbage dry matter yields in 1997.

Paraggio: Productivity and persistence traits from the Birchip site indicate Paraggio is the most suitable commercial medic variety to sow in the southern Mallee. Paraggio has excellent early vigour, seed yield and good persistence in a cropping phase. It has moderate resistance to Blue Green Aphid (BGA) and Spotted Alfalfa Aphid (SAA) and is suited to as low as 250 mm rainfall areas.

Sava: Sava performed well in the trial in both years. It is an excellent hay medic and has excellent seedling vigour and good resistance to most insects (BGA, SAA and Sitona weevil). It is not recommended to the pasture-cereal rotation because of its high hardseed content and unreliable regeneration pattern.

Herald: Herald strand medic, a newly available commercial variety, was not evaluated in this trial. Extensive research in the Mallee indicates that it should be considered for new pasture sowings.