

The survival of medic seeds following ingestion of intact pods by sheep

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The annual species of *Medicago* (hereafter referred to as medics) are the key to successful cereal crop-pasture rotations in the integrated crop-livestock farming systems on the neutral to alkaline soils of South Australia. Yet many medic stands have deteriorated in recent years. One reason for this is the excessive depletion of medic pods by grazing sheep thus limiting accumulation of medic seed reserves in the soil which are needed to ensure regeneration of a dense medic stand after the cereal crop.

As part of the current research programme on the ecology and agronomy of medics, pen-feeding experiments using pure-pod diets began in 1976 to assess the survival of medic seeds following ingestion of intact pods by sheep (Carter 1978). The results (Table 1) showed large between-sheep differences and a seed survival generally less than 2%. The results for Jemalong barrel medic were similar to those of Vercoe and Pearce (1960) for the then common commercial barrel medic now named cv. Hannaford.

TABLE 1. Survival of medic seed following ingestion of a pure-pod diet by sheep

	<i>M. truncatula</i> (cv. Jemalong)	<i>M. scutellata</i> (Commercial)	<i>M. littoralis</i> (cv. Harbinger)
Pods eaten (g/day)	757	755	555
Seeds eaten (#/day)	85540	18000	65480
Seed output (#/day)	1530	354	876
Seed output/intake (%)	1.79	1.97	1.34

More recent pen-feeding studies in 1978-79 have concentrated on the need to assess seed survival of cultivars and unnamed lines when only small quantities of pods are available. A single feeding of 300g of pods with a standard lucerne chaff diet is adequate to rank seed survival but up to 10 sheep replicates is desirable. Some results are shown in Table 3. The studies are continuing.

TABLE 3. Survival of medic seed following ingestion of pod-chaff diet by sheep

Medic line	Seed survival (% ± S.E.)	Medic line	Seed survival (% ± S.E.)
<i>M. aculeata</i> SA 8600	4.39 --	<i>M. rugosa</i> cv. Paragosa	5.33±0.75
<i>M. blanchiana</i> SA 2340	7.04±1.63	<i>M. rugosa</i> cv. Paraponto	1.75 --
<i>M. intertexta</i> SA 2364	3.60 --	<i>M. scutellata</i> Commercial	1.14±0.29
<i>M. littoralis</i> cv. Harbinger	3.74±0.34	<i>M. scutellata</i> Commercial	3.04 --
<i>M. minima</i> SA 419	8.40 --	<i>M. scutellata</i> cv. Robinson	4.72±2.54
<i>M. orbicularis</i> SA 7829	6.20 --	<i>M. tornata</i> SA 8660	5.42±1.46
<i>M. polymorpha</i> SA 4231	19.75±3.61	<i>M. tornata</i> cv. Tornafield	7.09±0.63
<i>M. polymorpha</i> SA 8208	5.00 --	<i>M. truncatula</i> cv. Ghor	1.92 --
<i>M. rotata</i> SA 5625	4.40±0.67	<i>M. truncatula</i> cv. Jemalong	7.29±0.71
<i>M. rigidula</i> SA 5969	3.94 --	<i>M. turbinata</i> SA 2097	1.63 --

Carter, E.D. (1978). Waite Agric. Res. Inst. Bien. Report 1976-1977 p.73.

Vercoe, J.E. and Pearce, G.R. (1960). *J. Aust. Inst. Agric. Sci.* 36 . 67.