Comparative production of annual medics in Jordan and South Australia

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A cereal-fallow rotation is still the main farming system in rainfed areas of the West Asia-North Africa region (1). However, pasture legumes can successfully replace the fallow period, improving levels of soil nitrogen and feed supply, thus improving both cereal and livestock production. The research reported here was part of a larger programme to examine the comparative behaviour and potential productivity in Jordan and South Australia of two commercial Australian cultivars *(Medicago scutellata* cv. Sava and M. *truncatula* cv. Paraggio) and two selected regional ecotypes of medic from West Asia (M. *rigidula* Sel. # 716 and M. *rotata* Sel. # 1943).

Methods

Jordan (Mushaga Research Station:Lat. 31?45'N, Long. 33?45'E, Alt. 775m) An experiment was sown on 17 November 1986 on clay-loam soil of pH 7.9 with plots 2m x 5m and 4 replicates in a randomized block design. All seeds were inoculated and sown at rates equivalent to 30 kg/ha of pure germinating seed of Paraggio with 100 kg/ha of triple superphosphate (46% P) broadcast just before sowing. Eighteen wire sampling quadrats (each 40 x 25 cm) were placed on each plot directly after sowing. Herbage harvests commenced 4 weeks after emergence and continued at 14-day intervals. Two quadrats per plot were sampled on each harvest occasion. South Australia (Waite Institute:Lat. 34?58'S, Long. 138?38'E, Alt. 122m). The experiment was sown on 17 June 1988 on a hard-setting, red-brown earth soil of pH 6.5 after liming. The procedures described for the experiment in Jordan were used.

Results and discussion

Table 1. Cumulative production (kg DM/ha) from the four annual medics grown in Jordan (JOR.) and South Australia (S.A.).

Days after	*M. scutellata*		*M. truncatula*		*M. rigidula*		*M.rotata*	
emergence	JOR.	S.A.	JOR.	S.A.	JOR.	S.A.	JOR.	S.A.
21	-	23	-	39	-	34	-	12
28	129	-	143	-	164	-	10_	-
42	155	82	159	103	208	76	167	44
56	171	-	267	-	273	-	197	-
63	-	337	-	514	-	181	-	52
70	497	-	684	-	495	-	469	-
84	722	1483	931	1732	1101	973	1344	363
105	2795	3590	3206	4323	2580	3829	1988	1471
112	4319	-	4071	-	5256	-	4006	-
126	9012	8050	8017	7877	6215	8266	4433	2608
147	-	10334	-	12643	-	13966	-	5184

Differences in productivity of medic cultivars appeared in the early harvests. Although 12 weeks after emergence, M. *rotata* produced the best DM yields in Jordan, its final yield was far less than the other three genotypes in both Jordan and South Australia. Similarly, M. *rigidula* out- produced the two Australian cultivars at 12 weeks in Jordan but finished the season in Jordan well behind M. *scutellata* and M. *truncatula.* However, with a late finish to the season in South Australia, M. *rigidula* continued to produce. The data suggest that both M. *rigidula* and M. *rotata* may have a place in southern Australia, especially in mixtures. Further research is continuing along these lines.

1. Carter, E.D. (1978). Report to the International Agricultural Research Centre, ICARDA, Waite Agricultural Research Institute, 120p.