

Forage yield and seed bank production with new annual legumes for the dryland conditions in the Araucanía Region in the south of Chile

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Introduction In dryland areas of the IX Region of Chile, with a dry period of 150 days with a negative hydrologic balance beef production is based on natural pasture, with low P soils, which produces a low DM yield. The sown pasture for this area is fescue in mixture with subclover. The subclover, has persistence problems and erratic production (Romero & Rojas, 2001). Hard seeded serradella (*Ornithophus compressus*), soft seeded serradella (*O.sativus*) and biserrula (*Biserrula pelecinus*) are annual forage legumes and well adapted to low P levels in the soil (Oram, 1990). The objectives of the present study were to evaluate the 3 legumes species and different cultivars in terms of dry matter (DM) yield and the ability to form seed banks to improve the persistence of the legumes in a ley farming system for beef production.

Materials and methods During the 2003-2004 growing season different cultivars of the annual *O. compressus*, *O.sativa*, *B. pelecinus* were studied in dryland conditions in the Regional Center-Carillanca, Temuco, Chile (38° 41'S -72° 25' W, Alt. 200 m.s.l.). The sowing was in autumn at a rate of 40 kg/ha, for serradella and 20 kg/ha for biserrulla. The DM yield, and seed production were recorded. The experimental design was a randomised block with three replicates.

Results The highest DM yields were obtained with *O. compressus* cv. Avila and *O. sativus* cv. French and Cadiz ($P \leq 0.05$) (Figure 1). Biserrulla had low DM yields during the first year of establishment. The highest seed pod production was obtained with *O. compressus* cv. Avila (Table 1).

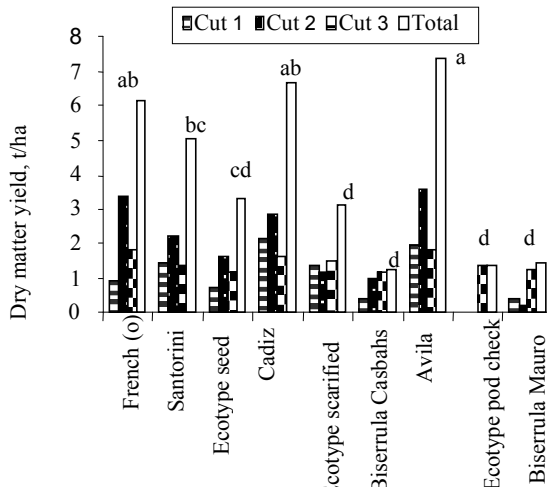


Figure 1 Dry matter yield per cut and total kg/ha

Table 1 Seed production (pods/ha). IX Region. Chile

Legumes species	Distribution of harvested pods kg/ha		
	In the stem	Soil surface	Total pods
<i>O.sativus</i> French	2.993	1.161	4.155 ab
<i>O.sativus</i> cv. Cadiz	2.618	384.0	3.002 ab
<i>O.compressus</i> cv. Santorini	3.252	393.1	3.645 ab
<i>O.compressus</i> ecotype seed without pods	1.789	949.3	2.739 ab
<i>O.compressus</i> ecotype scarified	1.937	384.0	2.322 ab
<i>O.compressus</i> cv. Avila	3.888	850.7	4.739 a
<i>O.compressus</i> ecotype with pods	259	145.1	404 b
<i>B.pelecinus</i> cv. Casbah	501	154.1	655 b
<i>B.pelecinus</i> cv. Mauro	2.674	557.9	3.232 ab

Letters in column indicate significant differences ($P \leq 0.05$)

Conclusions The highest DM yield was obtained with “Avila” and “French and Cadiz serradella” cultivars. Seed production in serradella was high for all the cultivars. Both species of serradella are well adapted to the dryland conditions in the Mediterranean climate of IX Region in the southern of Chile.

References

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