

ESTABLISHMENT OF AERIALLY SOWN PASTURES
ON CRACKING CLAY SOILS NEAR WALGETT

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More than 45% of land in western N.S.W. requires treatment to restore degraded vegetation or to control erosion (1). Research into the applicability of aerial sowing as a method of establishing introduced and native pasture species in this area could result in large areas being sown quickly and cheaply (2). Investigations were started near Walgett on grey cracking clays because previous research, near Coolah (3), had shown that aerial sowing could be successful on similar soils.

Methods

Seeds of six pasture species (barrel medic, cv. Sephi; lucerne, cv. Baron; phalaris, cv. Sirolan; Mitchell grass; purple pidgeon grass, cv. Inverell; and Bambatsi panic) were aerielly sown on a fenced area on June 18, before the seasonal break, and on August 18, 1986, after the seasonal break. Broadleafed weeds (mainly turnip weed) were sprayed with Roundup immediately before sowing (2 treatments) and with 2,4-DB after sowing (1 treatment, Table 1). All seeds (spikelets of Mitchell grass) were treated with permethrin to reduce losses from seed-harvesting ants; no fertilizer was applied. Rainfall was: June 0, July 85, Aug. 29, Sept. 95, Oct. 41mm. Establishment (number of plants/4 x 0.25m² quadrats/plot) and botanical composition (% groundcover, visual estimate) were recorded in October 1986.

Results and Discussion

In the nil spraying treatments establishment of lucerne and phalaris was higher ($P < 0.05$) from the June sowing because sown species germinated with the weeds whereas the weeds were already present and competitive at the August sowing (Table 1). Time of sowing had no effect on establishment in the sprayed treatments because lucerne and phalaris germinated with the weeds in both sowings while Mitchell grass, purple pidgeon and bambatsi panic germinated in September (delayed by low temperatures) after the weeds. Plants of lucerne and phalaris were much larger on the June sowings but plants of Mitchell grass, purple pidgeon and Bambatsi panic were largest on treatments sprayed in August. Although the establishment of barrel medic was not influenced by treatment its growth was much greater from the June sowings. Although good establishment was achieved in 1986, all plants died in summer 1986/87. Research continues in the search for a successful establishment technique.

Table 1: Establishment (% viable seed) of sown species and ground cover (% of weeds on October 23, 1986

Time of: Sowing and spraying		Establishment +						
		Barrel medic	Lucerne	Phal- aris	Mitch- ell grass	Purple pidgeon grass	Bam batsi panic	Weed cover
June 18	Nil	18a	7.2a	7.4a	2.4b	0.6a	0.6a	66c
Aug. 18	Nil	15a	2.3b	0.8b	1.4b	1.8a	0.4a	67c
June 18	June 18	16a	5.7a	6.2a	3.6ab	1.5a	0.1a	61c
Aug. 18	Aug. 18	26a	6.1a	6.4a	5.7a	2.4a	0.7a	23a
June 18	Aug. 18	21a	7.9a	7.2a	3.6ab	1.5a	0.6a	47b

+ Values in columns not followed by a common letter differ $P < 0.05$

(1) Anon. (1983) 1st Rep. Joint Comm. Legis. Counc. D. West Gov. Print.

(2) Campbell, M.H. (1986) Proc. AWC Symp Pasture Prodn & Util, Leura.

(3) Campbell, M.H. and Freebairn, R.D. (1987) 4th Aust. Agron. Conf.