Survey observations on lupin seed quality

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Lupin farmers in South Australia have difficulty in producing consistently high quality seed. Hence a small survey was undertaken during the harvest of 1980/81 in the southeast of South Australia. Fifty growers provided both hand and machine-harvested samples of lupin seed, and completed a questionnaire of harvesting details. Seed samples were germination-tested under ISTA conditions (1).

Results and Discussion

Mean percentage of normal seedlings was 88.7 ? 4.7% for hand-harvested samples and 64.4 ? 16.0% for machine-harvested samples.

Moisture content (%) at machine harvest (MC) influenced the percentage of normal seedlings (NS) in the seed sample:

NS = 6.8 + 5.0 MC (P < 0.001, 100R² = 31.6).

To determine if other factors were involved, the data were divided on seed moisture content, thresher speed and concave clearance at harvest (see Table 1). Samples harvested at moisture content above the mean (11.67 ? 1.76%) produced only two poor tests (NS < 70), and these both occurred at close concave settings. Samples harvested at moisture content less than the mean produced 15 poor tests (NS < 70). Concave appeared to have some influence when narrow and wide settings were isolated. However, thresher speed appeared to have little influence, except that the tolerance for a wide concave appeared less when the mean thresher speed (714 ? 164 rpm) was exceeded at low moisture content.

<u>Table 1.</u> Mean germination of normal seedlings (%) for lupin seed samples harvested at different machine settings.

Concave clearance (mm)	Seed moisture content < 11.67% > 11.67%			
	Threshe 450 to 714	r (rpm) 714 to 1000	Threshe 450 to 714	r (rpm) 714 to 1000
minimum < 11;		50.0 ± 7.5*	53.0	31.0
mean < 23		(3)**	(1)	(1)
minimum > 10;	63.8 ± 8.1	61.0 ± 8.6	76.6 ± 3.6	79.2 ± 5.7
11 < mean < 23	(6)	(5)	(7)	(10)
minimum > 10;	69.0 ± 9.5	34.5 ± 9.2	76.0	70.0
22 < mean < 32	(3)	(2)	(1)	(1)
minimum > 10; mean > 31	46.0 ± 9.9 (2)	15.1	5	2

* = standard deviation of the mean

** = number of samples

Although the survey data are limited, and do not isolate cause and effect, they confirm the findings of Goodwin et al. (2) that moisture content at harvest is involved in lupin seed quality. In addition, however, they pose the question that extreme concave settings, or the harvest conditions that require the settings, may also be involved. Further work on machine settings for harvesting lupin seed at a low moisture content is required since harvesting above 11.67% moisture is not often possible.

1. ISTA 1976 .Seed Sci. Tech. 4: 117.

- 2. Goodwin, P.B., Corbin, E., Barua, I., Adegbite, A.A., and Lynbury, J.
- 3. 1980. Proc. Aust. Soc. Agron. 1: 254.