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FAULTY GERMINATION OF LUPIN SEEDS

By B. J. QUINLIVAN, Adviser, Biological Services Division.

THE number of lupin seed samples tested in the seed laboratory over the last few years has shown a marked increase with the increasing popularity of lupins as a cash crop.

Some five years ago the most common species was the Sandplain (W.A. blue) lupin; now the Uniwhite narrow-leafed lupin predominates.

Although narrow-leafed lupins are grown mainly as a feed grain crop, germination is still important as some seed is normally retained or sold for sowing.

Germination tests

A seed with satisfactory germination is one which produces a healthy seedling. The germination of lupin samples tested in the laboratory has varied markedly. There are some very good lines with germination of 95 per cent. or better. There are, however, far too many lines, with reasonably high viable seed contents, which are incapable of producing more than 50 to 70 per cent. sound, healthy seedlings.

The main reason for the low germination is the presence of a high proportion of broken or malformed seedlings. The seeds themselves appear normal with no cracks on the seed coat. Early in germination, however, the emerging root fractures, preventing the germinating seed from developing into a normal plant.

Harvesting damage

Seedling malformation of this type is normally due to a faulty harvesting technique, although seed moisture content at harvest may also play a part. Open-fronted headers appear best suited for lupin harvesting and the setting and speed of the threshing drum is critical.

At the Mount Barker Research Station, the Manager, Mr. D. Rowe, has produced lupin seed with a germination in excess of 95 per cent. He uses a low drum speed between 400 and 500 r.p.m., with the concave fully open at the rear and closed sufficiently at the front to allow satisfactory threshing. Elevators are kept tight and the clearance between the auger and the tray is adjusted to prevent pressing or cracking the seeds.

Germination standard

The Seeds Act Regulations fix a minimum of 80 per cent. germination for seed being offered for sale. This figure will apply to certified seed of the newly released Uniharvest narrow-leafed lupin which will be available in reasonable quantity this summer from merchants and producers. With care and attention to detail there should be little difficulty in producing seed of this standard or better.

LUPIN ACREAGE

An estimated 45,000 acres of Uniwhite narrow-leafed lupin is being grown for grain this year in W.A., compared to 31,000 acres in 1970. The 1970 acreage was a dramatic increase over the 12,000 acres grown in 1969. This year's crop is expected to yield about 16,000 tons of seed.

Farmer plantings of the fully non-shedding variety Uniharvest total 600 acres and about 12,000 bushels should be harvested this year. It will be available to buyers as certified seed.
Abnormal seedlings caused by bruising or fracturing during harvesting. The emerging root fractures soon after germination and there is little prospect of a normal plant.

Normal seedlings which will, in time, result in healthy plants.