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LUPIN PRODUCTION IN SOUTH CENTRAL TEXAS

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Summary

Four white lupin (*Lupinus albus* L.) genotypes were evaluated at two different planting dates for adaptability and production at Yoakum in south central Texas in 1994. Lupin pod production was significantly increased when the planting date was 11 November compared to 28 September. Lupin entry 280-P produced the highest pod and foliage production.

Introduction

White lupin has been cultivated for more than 3,000 years and has been carried wherever southern Europeans have migrated (Gladstones, 1970). Lupins have been used for late-winter and early-spring grazing, green manure, and soil improvement.

Most successful lupin-growing areas have growing seasons of at least five months free from severe moisture stress, during which mean monthly maximum temperatures are between 59° and 77°F (Henson and Hollowell, 1960). In winter-growing areas, a period of lower temperature can be tolerated in mid winter if growing periods before and after are long enough to compensate for the retarded growth during cool weather.

With little crop input, lupin could become an economical protein source, much like soybean. Sweet lupin seed can be fed to livestock and poultry because it is low in alkaloid content. However, soybean needs to be heated to kill the enzyme before feeding; thus more processing is required for soybean.

The objective of this study was to determine the feasibility of lupin production in the south central Texas area as well as determine optimum planting date.

Procedure

Four white lupin entries were seeded in 4- to 20-ft long rows spaced 36 in. apart at the Yoakum Agricultural Research Station on 28 September and 22 November, 1994. Entries were arranged in a randomized complete block design with three replications. Soil type was a

Tremona loamy fine sand with a pH of 6.8. Fertilizer (7-18-36) was applied 1 March, 1995 at the rate of 450 lbs/acre.

Lupin harvest date for the first and second planting was 1 May and 11 May, respectively. Plants were harvested at the ground level, pods separated from other plant material, air dried at 160°F for 72 hr, and then pods containing seed and forage were weighed. Pod yields (including seed) were determined on a dry matter basis. Rainfall from the first planting till harvest was 34.5 in. and 17.2 in. from the second planting.

Results

No disease problems were noted with lupins. However, insects were a concern. The first lupin planting was attacked in January and March by the genista caterpillar (*Uresiphita reversalis*). Worms completely defoliated the early planted lupins with the last attack coming prior to harvest. Sevin® 8OS at 1.0 lb product/acre was applied three times during the growing season to control the caterpillar.

These larvae feed on both herbaceous and woody legume species (Little, 1972). Based on entomological records, these larvae are a problem only during the spring (Clyde Crumley, personal communication). The later planting was not bothered by these caterpillars until just prior to harvest.

There were no significant differences between lupin entries within planting date for pod or forage yield (Table 1). Planting date did influence pod yield but not forage yield. With the later planting date, pod yield varied from 675 to 936 lbs/acre, while forage production varied from 1399 to 1821 lbs/acre.

The low yields obtained with the early lupin planting were due in part to the extremely wet October, when over 18 in. of rain fell and to the defoliation of plants by insects during the growing season. White lupin are intolerant to waterlogging, but more tolerant than other lupins (Duke, 1981).

Literature Cited

Gladstones, J. S. 1970. Lupins as crop plants. Field Crop Abstr. 23(2):123-148.

Henson, P. R. and Hollowell, E. A. 1960. Winter Annual legumes for the South. U.S. Dept. Agric. Farmers Bull. 2146:3-12, 17.

Duke, J. A. 1981. Handbook of legumes of world economic importance. Plenum Press, New York 132-135.

Little, V. A. 1972. General and applied entomology. Harper & Row, New York 247-250.

Table 1. Lupin pod and forage production at two planting dates near Yoakum, Texas.

Lupin entry	Pod yield	Forage yield
	lb/Acre	
Planted 28 Sep		
277N	56a[1]	1317a
278N	118a	1356a
280P	111a	1050a
283P	123a	1555a
MEAN	102B	1320A
Planted 22 Nov		
277N	697a	1399a
278N	675a	1413a
280P	936a	1821a
283P	700a	1525a
MEAN	752A	1540A

[1]Values within a column for each planting date followed by the same letter are not significantly different at 0.05 level. Waller-Duncan Multiple Range Test.