

531
E 22

Duplicate

AGRICULTURAL EXPERIMENT STATION of The Alabama Polytechnic Institute, Auburn, Ala.

M. J. Funchess, Director

BLUE LUPINE CULTURE IN SOUTHERN ALABAMA

E. F. SCHULTZ, Associate Agronomist

D. G. STURKIE, Agronomist

Blue lupine (Lupine angustifolius L.) is a winter legume that has gained considerable popularity in southern Alabama in recent years. In tests during the last 4 years, 1942-45, it has produced more green material than any other winter legume tested.

Blue lupine is also popular because it produces abundant seed crops in the southern part of the State. In contrast, Austrian peas and the vetches almost always fail as seed producers. By growing lupine the farmer can save seed for future plantings, thus reducing or eliminating necessary cash outlays for winter legume seed.

Where to plant. Blue lupines are not sufficiently winter hardy for use in all sections of Alabama. Their greatest use is in the southern-most counties of the State. Plantings north of Butler County very frequently fail due to killing by cold. This should be considered by farmers if they plant the crop extensively in central and northern Alabama. Losses due to killing by cold are not uncommon in the counties adjoining northern Florida.

How and when to plant. Land on which blue lupine is to be planted can be prepared as for Austrian peas or vetch. It is fertilized with 300 to 400 pounds of 0-14-10, or with 200 to 300 pounds of superphosphate and 50 to 70 pounds of muriate of potash per acre.

Blue lupine can be planted in southern Alabama any time during the month of October; when grown in central Alabama, it is planted in September (Table 1).

The seed should be plentifully inoculated with a special lupine culture.

Blue lupine may be seeded with a 1-, 2-, or 3-row planter, a grain drill, a knocker distributor, or it can be broadcast and disked in lightly. Rates of 60 to 80 pounds of seed per acre are recommended. High yields of green matter and of seed were obtained in all tests conducted during the 1941-42 season when these rates of seeding were used (Table 1). The seed are covered shallowly.

Turning for green manure. Blue lupines are turned when 25 pounds of green weight can be cut from a 100 square foot area, and 2 to 3 weeks before the summer crop is planted. Lupine usually produces sufficient growth for turning by March.

Table 1. Green Weight and Seed Yields of Blue Lupine as Affected by Rates, Dates, and Methods of Seeding, 1942

Date planted	Rate of seeding per acre	Method of seeding	Green weight per acre			Seed yields per acre	
			Headland	Fairhope	Brewton	Headland	Brewton
			3/28	3/9	3/23		
	Pounds		Pounds	Pounds	Pounds	Pounds	Pounds
October 1	40	drilled	8,625	5,554	11,401	967	2,797
October 1	60	drilled	10,498	8,494	15,031	1,307	2,904
October 1	80	drilled	11,413	11,064	18,105	1,359	2,733
October 1	80	broadcast	10,542	17,119	17,166	1,411	2,007
October 1	100	drilled	17,163	12,981	16,481	1,965	2,733
Nov. 1	80	drilled	22,564	-----	14,817	1,542	3,203
Dec. 1	80	drilled	11,108	5,576	4,206	1,045	2,487
Dec. 29	80	drilled	-----	1,089	-----	-----	-----

Table 2. Comparison of Blue Lupine and Other Winter Legumes as Green Manure Crops

Winter legume	Average annual yields of green material per acre for years shown					
	Auburn	Headland	Fairhope	Monroeville	Brewton	Prattville
	1942-45	1942-45 ^{1/}	1942-44	1942-45	1942-45	1942-45
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Hairy vetch	9,142	11,817	4,776 ^{4/}	8,592	10,264	7,829
Austrian winter peas	9,144	14,295	7,910	9,304	12,409	11,091
Monantha vetch	10,510	18,049	13,244	8,908	12,708	13,936
Willamette vetch	9,089	12,180	4,230 ^{4/}	7,298	11,054	7,256
Crimson clover	3,862 ^{2/}	7,674	5,984 ^{4/}	4,274	11,480	5,621 ^{2/}
Blue lupine	15,534 ^{3/}	24,433	20,262	15,016	20,752	17,712

^{1/} Average 1942, 1944, and 1945 only.

^{2/} Average 1942, 1943, and 1945.

^{3/} Killed by cold 1937 to 1941 inclusive.

^{4/} Average 1943 and 1944.

Seed harvesting. The seed of blue lupine mature in May and early June in Alabama. The seed shatter readily after they reach maturity; therefore, they must be harvested as soon after maturity as possible. They may be harvested with a combine, or cut with a mower, or pulled by hand and threshed. The cut or pulled plants may be flailed over a wagon box. Some farmers harvest the seed by picking the mature pods by hand.

As soon as the seed are threshed, they should be cleaned to remove trash and green immature seed. Immature seed causes heating. The cleaned seed are then spread on a floor in a layer not over 12 inches deep. They are stirred occasionally until they are thoroughly dry. They are then sacked and stored on a dry plank floor (not on concrete).

Diseases and insects. Blue lupine is subject to attack by certain diseases and insects, which in some years almost entirely destroy the stand. No methods of control of such diseases and insect attacks are known.

The most common disease of blue lupine is a Fusarium wilt, which may attack the plant at any time from seedling stage until maturity. Affected plants become noticeably wilted before dying, and the inner portions of the stems and roots become blackened in much the same manner as in the case of cotton plants infected with cotton wilt (caused by another species of Fusarium). Other diseases, such as Southern blight and certain seedling diseases, sometimes attack blue lupine severely.

A fly maggot (Hylemyia sp.) frequently attacks blue lupine seedlings in the fall. The insect destroys the internal tissue of the stems and roots near the ground level, resulting in the death of the plant.

