

FABABEANS - A NEW CROP FOR CENTRAL OREGON?

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Fababeans (Vicia faba L.) are an Old World crop that has been grown for centuries in North Africa and Europe for human consumption and animal feed. Other commonly used names include broadbean, horsebean, favabean, and tickbean (1, 2, 3, 4).

Fababeans are a tall, upright, annual legume that is well adapted to cool climates and short growing seasons. Being a legume, nodules of Rhizobium bacteria are formed on fababean roots and fix atmospheric nitrogen which can be utilized by the fababean plant and subsequent crops (3).

Common usage of Fababeans in North America is high protein silage or a grain protein supplement. The plants are indeterminate (flower continuously) and this results in seed pods forming throughout the growing season. Pods containing three or four seeds are borne along the main stem and are found in various stages of maturity. The seeds average 28 to 32% protein (3).

Fababeans are frost tolerant and can withstand temperatures as low as 21 degrees F. For maximum production, a growing season of 100 to 120 days is required. Water usage is somewhat high and irrigation is required in Central Oregon.

METHODS

MADRAS. Three fababean varieties were planted in a randomized block experimental design on April 18, 1983. All seed was inoculated with Rhizobium leguminosarum before planting. Plots consisted of four rows which were 12 inches apart and 12 feet long. Seeds were spaced approximately two inches apart. Plots were not fertilized. The trial was irrigated as needed; 17 inches of water was applied during the growing season. Plots were harvested by hand August 17, 1983. Material was placed in large burlap bags and air dried. All plots were threshed, the seed cleaned, and weighed.

REDMOND. Four fababean varieties were planted in a latin square experimental design on April 18, 1983. Plots were 12 feet long, five feet wide, and contained four rows spaced 12 inches apart. Before planting, all seed was inoculated with Rhizobium leguminosarum. Seeds were spaced about two inches apart and later thinned to four inches. The plots were fertilized before planting with 600 lbs/acre of 0-10-0-14 (NPKS). The plots were sprinkler irrigated weekly and received a total of 30 inches of water. The plots were cut by hand on Sept. 19, 1983. Plot material was allowed to dry for three days, then was bagged and stored inside. Plots were later threshed, cleaned,

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and weighed. No chemical weed control was applied; instead, plots were hand weeded once when plants were approximately 12 inches high.

RESULTS AND DISCUSSION

MADRAS. A severe hailstorm on July 31, 1983, damaged the Madras trial. Leaves were stripped from the plants, seed pods were battered and split open, and a large amount of seed was lost. In spite of the damage, yields averaged more than one ton per acre. The seed weights were lower than normal. Many seeds were shriveled and off-color, which was a result of the hail damage. The fababean plants flowered and set seed through much of the summer. It has been noted at temperatures higher than 80 degrees F, blossom dropping can occur which results in a failure to set seed (2). In trials conducted in the Columbia basin, failure to set seed was a problem.

Two disease organisms were identified in the Madras trial by the Oregon State University Plant Pathology Laboratory. Chocolate spot, caused by the fungi Botrytis sp., was identified. Crop losses because of the reduction in leaf area caused by Botrytis have been observed by others (2). Alternaria leaf spot was also identified. There is little information available on Alternaria and fababeans.

REDMOND. Fababeans appear to be well adapted to the soils and climate in the Redmond area. Plants were not as vigorous or as tall as those grown at Madras. However, yields were the best of any location in the Western region fababean trials. The 100 seed weight for all varieties was approximately 10 grams heavier than the Madras trial, also, the seeds were not shriveled, deformed, or discolored.

Frost had little effect on the fababeans. Four days of severe frost (21, 27, 25, 29 degrees F) in mid-May had no observable effect on the seedlings. Beans were set throughout the entire growing season until late August. Plants in Redmond were about 20 inches shorter than those in Madras. The higher elevation and cooler climate may have influenced the height.

There were no plant diseases observed in the Redmond trial. Also, no insect problems were apparent. Weed control may be necessary in commercial stands. Because of wider row and plant spacings, it is easier for weeds to compete successfully. Hand weeding when the plants were 12 inches controlled most weeds, however, later germinating and grassy weeds were a problem. Early cultivation may also be beneficial.

Further work with Fababeans will continue in 1984. Excellent yields coupled with favorable markets and prices may enable Central Oregon farmers to produce fababeans for profit.

LITERATURE CITED

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Table 1. Madras fababean variety trial, 1983.

VARIETY	YIELD	100 SEED WT.	1ST BLOOM DATE	PLANT HEIGHT	1ST POD HEIGHT
	lbs/acre	gms	mo/day	in	in
Alladin	2584	37.7	6/16	78	24
Herz-Freza	2547	36.6	6/16	80	23
Diana	2383	38.2	6/15	73	20
Average	2505	37.5	6/16	77	22
LSD 5%	NS	NS	--	4	NS

Table 2. Redmond fababean variety trial, 1983

VARIETY	YIELD	100 SEED WT.	PLANT HEIGHT	1ST POD HEIGHT
	lbs/acre	gms	in	in
Alladin	6569	49.6	57	14
Frederick	6095	43.6	60	18
Herz-Freza	5468	44.8	55	16
Diana	4254	46.6	51	17
Average	5597	46.2	56	17
LSD 5%	1173	2.8	3	NS