

1998 MADRAS DRY BEAN VARIETY TRIAL

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Abstract

Twenty varieties of dry bean were evaluated for yield and time to maturity at the Madras experiment station. Yields were high averaging 3680 lb per acre across all twenty lines. The time from planting to maturity averaged 93 days. Data on days to flower, maturity, seed-size and yield are presented for the 20 varieties in the trial.

Introduction

Dry bean (*Phaseolus vulgaris*) is a new crop for central Oregon with several hundred acres (mostly pintos and small red market classes) being planted in the region in 1998. To support this effort it was decided to evaluate different varieties for their adaptation to central Oregon.

Materials and Methods

Twenty varieties of dry bean were assembled with the goodwill of Ken Grafton (North Dakota State Univ.), Phil Miklas (USDA-ARS, Prosser, WA), Kathy Stewart-Williams (University of Idaho), and Ed Lamens (KBC Trading, Othello, WA):

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|-------------|------------|--------------|-----------|
| 1) USRM-11 | 7) AGASSIZ | 13) USPT-73 | 19) UI911 |
| 2) R93-365 | 8) UI537 | 14) GLACIER | 20) UI320 |
| 3) EMBER | 9) OTHELLO | 15) USWA-12 | |
| 4) NW63 | 10) CAMINO | 16) USWA-33 | |
| 5) FLAMINGO | 11) BURKE | 17) CELRK | |
| 6) ROZA | 12) BILLZ | 18) KARDINAL | |

Plots consisted of four rows 6.1 m (20') long with a 0.61 m (24") row spacing. Plots were arranged in a randomized complete block design with four replicates. The herbicides S-ethyl dipropylthiocarbamate (Eptam) and ethalfluralin (Sonalan) were preplant incorporated for weed control. Plots were planted on 16 June 1998 at a population of 215,000 seeds ha⁻¹ (4 seeds per foot of row). Sulfur and N were broadcast at the rates of 55 and 52 kg ha⁻¹, respectively, and tilled into the soil before planting. Aldicarb was applied in the seed furrow at planting at a rate of 8 kg ha⁻¹. Chlorpyrifos (Lorsban) was applied on 9 July 1998 due to problems with insects feeding on the roots of the seedlings. An additional top-dressing of 47 kg N ha⁻¹ was broadcast at flowering as urea. The trial was irrigated to avoid drought stress, and all plots were hand-weeded as necessary.

When plants were fully mature (90 percent or more of the pods turned color), the center 3.05 m (10') of the center two rows were uprooted by hand and, if dry, were bagged immediately or else

left in the field to dry and be bagged later. Some plots had gaps due to damage from maggots prior to emergence. In these plots, damaged areas were avoided, and so smaller areas were harvested while trying to maintain some border around sample areas. Samples were allowed to air dry and then threshed in a stationary thresher (Stevens Equipment Co., Salem, Oregon). Seed samples were screened and stored in paper bags for weighing. Seed moisture content was determined from single samples bulked across replicates for each variety.

Results and Discussion

The weather was relatively cool immediately following planting, and we did not get 50 percent emergence until 10 days after planting. Initially there were severe stand reductions in some plots due to seed maggots that burrowed into germinating cotyledons and young roots. Other than this initial problem the trial went well. Yield data for all the lines, sorted according to market class, are presented in Table 1. The varieties Ember and Agassiz which were produced by area farmers performed well in the trial. Yields obtained on farmers fields were typically around 2600 pounds per acre, whereas the average in this trial was about 40 percent greater than that. Central Oregon is cooler than some other dry bean growing areas. A cooler growing period suggests that beans may provide greater yields and greater seed-size than in warmer areas (Sexton et al., 1994); however, the extended growing period associated with cool weather also implies greater risk of frost.

Literature Cited

Sexton, P.J., J.W. White, and K.J. Boote. 1994. Yield-determining processes in relation to cultivar seed size of common bean. *Crop Sci.* 34: 8491.

Table 1. Days to flower and to physiological maturity, plants per acre, seeds per pound, seed yield and lodging score for 20 varieties of dry bean grown in a variety trial at the COARC, Madras, 1998. Lines are sorted according to market class and yield. Lodging was scored on a 1 to 5 basis with 1 being 0-20 % lodged and 5 being 80-100 percent lodged. Plants were considered as "lodged" if they were leaning over 45° or more.

Variety	Class	Flower (DAP)	Plants Maturity per acre (DAP)	Seeds per Pound	Yield (lbs/acre)	Lodging	
EMBER	RM	42	91	4423 0	1200	4940	4.0
USRM-11	RM	42	89	52820	1220	4350	3.5
R93-365	RM	44	92	41440	1254	4220	2.5
NW63	RM	39	93	47370	1391	3580	5.0
OTHELLO	PINTO	39	91	51460	1146	4880	4.8
AGASSIZ	PINTO	44	88	57950	1117	3930	2.0
BURKE	PINTO	44	97	41430	1098	3700	4.8
CAMINO	PINTO	44	90	53670	1198	3680	2.5
USPT-73	PINTO	42	92	47250	1043	3490	3.8
UI320	PINTO	42	89	57620	993	3370	4.0
BILLZ	PINTO	44	94	44650	1298	3350	4.5
UI537	PINK	42	94	55050	1278	4430	4.8
FLAMINGO	PINK	42	92	47000	1214	3940	5.0
ROZA	PINK	46	97	49010	1423	2660	5.0
CELRK	LRK	41	94	40950	757	4240	1.3
USWA-33	LRK	44	93	49310	790	2840	1.0
KARDINAL	LRK	44	95	54990	777	2590	1.3
GLACIER	GN	46	94	44240	1280	3340	3.0
USWA-12	GN	44	99	43150	1092	2960	4.0
UI911	BLACK	44	95	43830	2370	3080	3.0
Mean		43	93	48370	1197	3680	3.5
LSD (0.05)						916	1.1
CV (%)						17.5	21.6