

2001 Cooperative Dry Bean Nursery

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Abstract

This report contains the results of the 2001 National Cooperative Dry Bean Nursery Trials. This replicated, small plot trial contains forty eight varieties of ten different bean classes. Buster, a pinto variety from Seminis Vegetable Seed Company was the highest yielding variety in the study for the third year in a row, with a yield above 3500 pounds per acre. Yields, aerial biomass, harvest index, and 100 bean weights are reported in this study.

Introduction

Bean prices are better than most other crops grown in the high desert of southeastern Arizona, and beans remain a good rotation crop in Cochise County. Large profits are not possible, but this crop adds fertility and good tilth characteristics to the soil that are beneficial to subsequent crops. This study is to help the bean growers in the high desert areas of the state and also to supply valuable information to the bean industry in the United States and Canada. These plots are grown in cooperation with the National Cooperative Dry Bean Nurseries which have test sites in 20 locations in the United States and 4 locations in Canada.

Materials and Methods

This study was a replicated small plot study planted within a 125 acre pivot on the Haas Farm in the Bonita area of southern part of Graham county in southeastern Arizona. The plots were planted dry with a John Deere 71 flex-planter modified to accept cone-drop hoppers. After planting the plots were watered up using a center pivot irrigation system. The cultural practices for the plots were the same as the rest of the pivot and are highlighted below.

Crop History:

Location: Haas Farm, Bonita, AZ N 32E40', W 109E50'

Elevation: 4300 feet

Previous crop: Corn

Soil type: Tubac sandy loam/sandy clay loam complex

Fertilizer: 190 lbs/ac 11-52-0 + 9 gal 10-34-0 + Zn at planting, 25 lbs/ac N applied via fertigation

Herbicide: Treflan chemigated at watering up

Design: Randomized complete block design 2 rows per plot 30 inch row spacing 25 foot row length

Planting date: 29 June 2001

Insecticide: Sprayed for worms

Irrigation system: Center pivot

Harvesting system: Threshed with a vogle type thresher, 40 square feet harvested

Harvesting date: 1 October

Climatic data: Average temperature during growing season - 76.5EF, Heat Units 85/56EF = 1796 (87 day)

The small replicated bean plots were cut together with the rest of the bean field and then a subsample was taken for harvest. Plants from each plot were counted, weighed, threshed with a Vogel-type small plot thresher and bean weights and aerial biomass determined.

Results and Discussion

Different classes of beans are reported together in the table with varieties sorted by yield within classes. The average yield, across all varieties, was lower than the last two years (1, 2), but the quality was good. The trial was planted a week earlier than the past two years and the harvest season at 87 days was shorter than normal.

Table 1 gives some agronomic and physiological parameters for bean varieties grown in the 2001 regional bean nursery. The yields are in pounds per acre and 100 bean weight in grams, but some of the other terms need explanation. **Aerial Biomass** is the weight of the entire plant above the roots, at physiological maturity, in pounds per acre. **Harvest Index** is the dry bean yield divided by the aerial biomass, and is a measure of the plants ability to partition it's energies to seed production.

The highest yielding variety in the trial was Buster, a pinto bean variety produced by Seminis Vegetable Seeds. With a yield averaging nearly 390 pounds higher than the next highest pinto variety over the past three years of the study, this variety looks pretty strong for the area. Several Great Northern varieties yielded over 3000 pounds per acre this year and could be economically produced in the area if there were a market for them.

References

1. Clark, L.J. and E.W. Carpenter. 2000. National Dry Bean Nursery Summary, 1999. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-124, pp. 141-146.
2. Clark, L.J. and E.W. Carpenter. 2001. National Dry Bean Nursery Summary, 2000. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P-128, pp. 75-77.

Table 1. Biomass, yield, harvest index and seed weight for bean varieties grown on the Haas farm in Bonita, 2001.

Variety	Source	Seed Yield	Aerial Biomass	Harvest Index	100 Seed Wt
Black					
H9673-87	ARS USDA	1909	4792	40.0	18.5
Navy					
CPC 00125	Colusa Prod.	2613	5636	46.5	29.2
ISB 2598	ID Sd Bn	2130	5581	38.2	34.0
Frigate	ID Sd Bn	2057	5091	40.4	18.6
AC Mast	AgCanada	2050	5472	37.8	20.0
AC Trident	AgCanada	1537	4247	36.3	17.5
Great Northern					
UI 465	UI	3156	6398	49.7	34.7
US 1140	UI/USDA	3047	6126	50.7	28.3
UI 59	UI	3034	5608	54.7	35.5
Matterhorn	MWU	2979	5799	51.3	36.4
98:209G	UI	2827	6289	45.5	35.3
ISB 5172	ID Sd Bn	2466	4873	50.6	32.1
93:207G	UI	2437	5227	46.3	32.8
93:208G	UI	2412	5254	46.0	34.4
98:163G	UI	2259	4955	45.7	33.7
Pink					
CDC Rosalee	U Saskatch	2530	5636	45.0	28.3

Table 1a. Continuation of Table 1.

Variety	Source	Seed Yield	Aerial Biomass	Harvest Index	100 Seed Wt
Pinto					
Buster	Seminis	3531	6425	55.6	35.4
UI 320	UI	3258	5908	55.3	40.3
93:219P	UI	3226	5853	55.1	38.8
Buckskin		3173	6017	52.8	36.3
Pancho		3065	6153	49.9	36.2
Othello	USDA-P	3056	5799	52.8	41.1
Montrose	CO St U	3018	5608	53.9	34.7
Apache		3011	5881	51.3	40.9
UI 111	UI	2954	5390	55.0	37.0
UI 114	UI	2937	5853	49.8	36.9
Cisco		2890	5581	51.7	39.6
CO64342	CSU	2878	5227	55.3	36.9
Burke	USDA-I	2862	5336	53.9	38.1
UI 126	UI	2835	5309	53.2	36.9
Bill Z	CSU	2760	4901	56.3	34.9
Marvel		2623	5663	46.3	35.0
ISB 1145	ID Sd Bn	2511	5391	47.2	34.8
CDC Pinnacle	U Saskatch	2490	4356	56.6	39.9
CO75511	CSU	2381	5091	47.1	33.4
CDC Pintium	U Saskatch	1890	4029	48.3	38.1
Red					
R93-365	USDA-P	2498	5009	50.0	35.0
Cranberry					
Hooter	Seminis	1613	4873	33.3	50.8
CPC99814	Colusa Prod	1558	3757	41.6	48.6
Dark Red Kidney					
Nichols	UC-Davis	2023	5445	37.2	47.3
Montcalm	MSU	1821	4547	40.0	47.7
H9659-41-3	ARS USDA	1805	4302	42.0	43.2
H9656-37-2	ARS USDA	1738	3893	45.0	47.1
Light Red Kidney					
H9659-23-1	ARS USDA	2276	5146	44.3	41.0
H9659-21-1	ARS USDA	2041	5744	36.1	49.0
Mexican Yellow					
CPC01406	Colusa Prod	1963	6071	32.4	35.9
CPC00153	Colusa Prod	1878	5227	35.0	35.9
CPC00250	Colusa Prod	1682	4982	34.0	34.7
Average		2493.5	5328.2	46.37	35.8
LSD(05)		468.5	1039.3	4.7	2.2
CV(%)		16.0	16.7	8.5	5.3