

2002 Cooperative Dry Bean Nursery

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Abstract

This report contains the results of the 2002 National Cooperative Dry Bean Nursery Trials. This replicated, small plot trial contains thirty-one varieties of eleven different bean classes. USPT-73, a pinto variety from WSU/USDA-ARS Prosser was the highest yielding variety in the study with a yield above 3600 pounds per acre. Yields, aerial biomass, harvest index, and 100 bean weights are reported in this study.

Introduction

Even when bean prices are down, they 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. An interesting sidelight to the study is that the cooperators are able to look at non-pinto varieties as a potential option for bean growers in the area. And, while the pinto varieties have dominated the high yield category for the past 4 years, the most money could be produced by growing a mix of the bean varieties and selling a '7-bean' soup mix.

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: 3 July 2002

Insecticide:

Irrigation system: Center pivot

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

Harvesting date: 4 October

Climatic data: Average temperature during growing season - 79.0EF, Heat Units 85/56EF = 1926 (83 days)

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), but the quality was good. The trial was planted a week later than the past year and the harvest season at 83 days was shorter than normal.

Table 1 gives some agronomic and physiological parameters for bean varieties grown in the 2002 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 its energies to seed production.

The highest yielding variety in the trial was USPT-73, a pinto bean variety produced by WSU/USDA-ARS Prosser. With a yield averaging 330 pounds higher than the next highest pinto variety. Two of the Great Northern varieties and one Yellow variety yielded over 3000 pounds per acre this year and could be economically produced in the area if there was a market for them.

References

1. Clark, L.J. and E.W. Carpenter. 2002. National Dry Bean Nursery Summary, 2001. Forage and Grain, A College of Agriculture Report, The University of Arizona, Tucson, AZ. Series P132, pp. 83-85.

Table 1. Yields, Harvest Index (Seed Yld/Biomass Yld) and Seed Weight for Dry Bean Variety Trial Grown in Bonita, 2002.

Variety	Type	Seed Yield (lb/ac)	Biomass Yield (lb/ac)	Harvest Index	100 Seed Weight (gm)
USWA-27	Ana	2174	5499	40	29
L95F025	Black	2490	6588	38	18
H9673-87	Black	2169	5990	36	19
B00136	Black	1885	5554	34	17
T-39	Black	1778	6643	27	18
B98306	Black	1520	4519	34	17
USWA-39	Dark Kidney	2042	6371	32	49
H9659-37-2	Dark Kidney	2019	5082	40	44
Nichols	Dark Kidney	1857	5009	37	49
Flor 9623	FM	3173	6098	52	33
98:209G	Grt Northern	3232	6026	54	34
93:208G	Grt Northern	3067	5826	53	35
Matterhorn	Grt Northern	2863	6752	42	33
H9659-23-1	Lt Kidney	2121	4247	50	43
USWA-33	Lt Kidney	2120	6824	31	50
PR95-055-2-1-16	Pink	2544	5990	42	34
USPT-73	Pinto	3653	6806	54	39
Bill-Z	Pinto	3323	6425	52	33
USPT-72	Pinto	3023	7078	43	35
USPT-CBB-1	Pinto	2864	7078	40	35
RC-105	Pinto	2715	5717	47	32
Gr Mesa	Pinto	2636	6643	40	33
Othello	Pinto	2597	4900	53	40
USPT-74	Pinto	2329	5064	46	34
Lebaron	Red	2803	5663	49	34
R93-365	Red	2664	6153	43	36
N97774	Navy	2429	5808	42	23
CPC00125	Navy	2384	6970	34	26
Canario 707	Yellow	3401	7514	45	37
CPC99814	Yellow	2193	5799	38	45
CPC00153	Yellow	1209	5336	23	32
Average		2465	5985	41	34