

# 2000 National Cooperative Dry Bean Nursery

*L.J. Clark and E.W. Carpenter*

## Abstract

*This report contains the results of the 2000 National Cooperative Dry Bean Nursery Trials. This replicated, small plot trial contains thirty eight varieties of nine different bean classes. Buster, a pinto variety from Seminis Vegetable Seed Company, was the highest yielding variety in the study with a yield near 4000 pounds per acre. Yields, aerial biomass, harvest index, and 100 bean weights are reported for this study.*

## Introduction

Currently prices are depressed in beans as well as most other crops grown in the high desert of southeastern Arizona, but beans remain a good rotation crop in Cochise County. Large profits are not possible, but at least 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 32deg29.1' N, 109deg59.4' W

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: 7 July 2000

Insecticide: Sprayed for worms

Irrigation system: Center pivot

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

Harvesting date: 28 November 2000 (delayed a month by rains)

Climatic data: Average temperature during growing season - 76.3EF, Heat Units 85/56EF = 1884 (90 day)

Comments: Rainfall at harvest time damaged quality and delayed harvest

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 higher than in 1999(1), but the quality was considerably lower. Rains came just before the experimental plots were ready to be knifed and more than 5 inches of rain fell before the ground dried enough to proceed with the harvest.

Table 1 gives some agronomic and physiological parameters for bean varieties grown in the 2000 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 more than 400 pounds higher than the next highest pinto variety for the past two years of the study, this variety looks pretty strong for the area. Several Great Northern varieties, a couple of black varieties and the red variety yielded well in the study and were affected much less by the rainy weather than were the pinto varieties. These classes of beans 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.

**Table 1. Bean yields and other agronomic data from bean variety trial in Bonita, 2000.**

Name	Type	Source	Bean Yield (lbs/acre)	Harvest Index	Aerial Biomass (lbs/acre)	100 Bean Wt (g)
Jaguars	Black	Michigan St Univ	3469.3	53.9	6506.8	19.4
Shiny Crow	Black	Colorado St Univ	3311.4	45.7	7296.3	23.9
19606-6	Black	USDA-PWA	3134.9	57.2	5499.5	24.0
CB - 10	Black	USDA-PWA	3038.9	53.6	5798.9	23.5
	Black	Average	3238.6	52.6	6275.4	22.7
AC Mast	Small White	Ag Can-Harrow	3163.1	44.3	7133.0	20.8
Mackinac	Small White	Michigan St Univ	3074.9	47.5	6506.8	20.5
ISB 1252	Small White	Idaho Seed Bean	3073.7	43.7	7043.1	22.1
OAC Thunder	Small White	Univ of Guelph	2983.7	51.7	5935.1	21.0
ISB 1256	Small White	Idaho Seed Bean	2980.7	43.5	6860.7	23.6
ISB 3156	Small White	Idaho Seed Bean	2956.1	48.6	6098.4	26.8
AC Compass	Small White	Ag Can-Harrow	2941.0	51.1	5771.7	24.3
Arthur	Small White	ND State Univ	2470.5	43.8	5771.7	18.0
AC Trident	Small White	Ag Can-Ontario	2100.8	32.8	6316.2	19.4
OAC Laser	Small White	Univ of Guelph	1845.7	38.6	4818.8	20.8
OAC Gryphon	Small White	Univ of Guelph	1617.6	27.4	5853.4	18.4
	Sm Wht	Average	2655.3	43.0	6191.7	21.4
Matterhorn	Great Northern	Michigan St Univ	3661.3	52.8	6942.4	35.4
Weihling	Great Northern	Univ of Nebraska	3490.2	54.0	6887.9	39.1
93:207G	Great Northern	Univ of Idaho	3334.8	50.2	6642.9	39.2
CDC Crocus	Great Northern	Univ of Saskatch	2825.8	48.8	5798.9	39.6
	Grt Nthrn	Average	3328.0	51.5	6568.0	38.3
L94C356	Pink	Ag Can-Lethbrid	2668.0	44.3	6016.7	36.3
	Pink	Average	2668.0	44.3	6016.7	36.3
Buster	Pinto	Seminis Veg Sd	3995.0	54.6	7323.5	39.8
Bill-Z	Pinto	Colorado St Univ	3571.3	47.1	7923.0	39.5
Montrose	Pinto	Colorado St Univ	3529.9	48.1	7378.0	40.6
94:1015P	Pinto	Univ of Idaho	3423.6	51.6	6642.9	40.3
Kodiak	Pinto	Michigan St Univ	3412.2	47.7	7187.4	42.3
Maverick	Pinto	ND State Univ	3408.6	45.2	7541.3	40.3
ISB 5893	Pinto	Idaho Seed Bean	3329.4	53.2	6289.0	39.6
Elizabeth	Pinto	Fox Bean Co	3303.6	54.0	6152.9	41.9
97:409P	Pinto	Univ of Idaho	3256.8	57.3	5826.2	45.4
CDC Pinnacle	Pinto	Univ Saskatch	3095.3	47.3	6561.2	43.4
AC Pintoba	Pinto	Ag Can-Harrow	2866.6	48.0	5989.5	43.0
94:1009P	Pinto	Univ of Idaho	2833.0	49.4	5826.2	42.8
	Pinto	Average	3335.4	50.3	6720.1	41.6
R 93-365	Red	USDA-PWA	3485.4	51.2	6833.5	40.1
	Red	Average	3485.4	51.2	6833.5	40.1
Red Hawk	Drk Red Kidney	Michigan St Univ	2846.2	50.4	5717.3	55.0
AC Calmont	Drk Red Kidney	Ag Can-Harrow	2784.4	47.7	5853.4	53.8
	Drk Rd Kdny	Average	2815.3	49.1	5785.4	54.4
Chinook 2000	Lt Red Kidney	Michigan St Univ	2691.3	51.0	5409.6	50.8
	Lt Rd Kdny	Average	2691.3	51.0	5409.6	50.8
WK380	White Kidney	ASI California	3397.2	54.7	6207.6	28.6
Beluga	White Kidney	Michigan St Univ	3245.9	56.7	5798.9	49.6
	Wht Kdny	Average	3321.6	55.7	6003.3	39.1
Site Mean			3068.9	48.7	6359.5	34.0
LSD(5%)			637.6	12.3	1068.2	5.7
CV%			14.8	18	12	11.9