

National Dry Bean Nursery Trials in Bonita, 1998

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Abstract

Results of the 1998 National Cooperative Dry Bean Nursery Trials are reported in this paper. Forty one varieties of nine different classes of beans were included in this replicated, small plot trial. AC Calmont, a dark red kidney variety was the highest yielding variety in the study with a yield over 2800 pounds per acre. Kodiak was the highest yielding pinto variety with a yield over 2700 pounds per acre. Yields, seed per pound, aerial biomass, harvest index, plant population days to 50% bloom and days to 50% pod set are reported for this study.

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In addition to the small plot replicated trial, a pinto variety strip trial was conducted at this site. Nine varieties, including the best varieties from past trials, were tested in this study. ISB 2001 was the leading variety in this study with a yield of 3276 pounds per acre.

Introduction

Beans are a good rotation crop in Cochise County, and bring around \$750,000 in income to the farmers in the southeastern part of the state. In the early 1980's around 1800 acres of beans were grown in the county and the acreage grown each year varies with the price of beans and the rotation needs of the growers. 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

The first trial 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 second trial, the strip trial, was planted adjacent to the first trial with each variety being planted in 8 rows the full length of the pivot. The cultural practices for the plots were the same as the rest of the pivot and are highlighted below.

Crop History:

Soil type: Tubac sandy loam/sandy clay loam complex

Previous crop: Corn

Table 1a. Results of the National Cooperative Dry Bean Nursery in Bonita, Arizona, 1998.

Variety	Yield lb/ac	Aerial Biomass lb/ac	Harvest Index (%)	Seeds per pound	Plants per acre	Days to 50% bloom	Days to 50% pod set
Navy							
Mackinac	2588.7 a-f	7432.4 abc	34.9 e-k	2517.0 b	51183 a-e	48	63
ISB 1814	2043.7 c-k	5363.3 d-j	38.1 d-j	2542.5 b	52272 a-e	45	57
OAC Laser	1973.5 d-l	5907.8 b-I	33.3 f-l	2430.1 c	36482 de	48	59
AC Skipper	1956.1 e-l	5363.3 d-j	36.2 e-k	2172.5 e	46010 a-e	48	60
Vista	1809.6 g-l	6289 b-h	29.5 jklm	2591.1 b	43832 b-e	50	63
AC Compass	1805.4 g-l	4873.3 g-j	37.5 d-j	2295.3 d	34576 e	45	57
OAC Thunder	1384.7 l	5417.8 d-j	25.6 lm	2579.6 b	46283 a-e	48	60
Average	1937.4	5806.7	33.6 0	2446.9	44377	47.4	59.9
Black							
Shiny Crow	2078.5 b-j	6615.7 a-f	31.2 h-m	2260.5 d	51183 a-e	49	61
Midnight	1742.4 h-l	7514.1 ab	23.8 m	2758.1 a	64251 ab	50	63
Average	1910.5	7064.9	27.5	2509.3	57717	49.5	62
Small Red							
USRM-11	2265.8 a-h	4328.8 ij	52.4 a	1242.7 kl	40565 cde	42	57
UI 259	1584.0 I-l	4791.6 hij	32.5 g-m	1441.8 gh	35393 de	42	57
NW 63	1556.9 jkl	4519.4 ij	34.5 e-l	1496.5 fg	46010 a-e	42	57
Average	1802.2	4546.6	39.8	1393.7	40656	42	57
Pinto							
Kodiak	2735.1 ab	6479.6 a-g	42.2 b-f	1259.4 kl	52000 a-e	49	63
USPT-73	2721.3 ab	5499.5 d-i	49.4 ab	1111.5 no	42199 cde	39	57
UI 320	2708.7 ab	5118.3 e-j	53 a	1109.3 no	38387 cde	42	57
Burke	2682.3 abc	5744.5 d-i	47 a-d	1222.2 lm	46010 a-e	42	57
Chase	2616.9 a-e	5608.4 d-i	47 a-d	1293.5 jkl	44105 b-e	49	60
Vision	2610.3 a-e	6506.8 a-g	40.2 c-h	1255.5 kl	48461 a-e	46	60
Ole	2433.8 a-g	5635.6 d-I	43.2 b-e	1211 lm	48188 a-e	43	57
AC Pintoba	2299.4 a-h	5744.5 d-I	39.7 c-I	1239.9 kl	51728 a-e	46	60
ISB 2001	2132.5 b-j	4982.2 f-j	41.8 b-g	1241.3 kl	40565 cde	46	60
Frontier	1807.2 g-l	6724.6 a-e	27.1 klm	1390.2 hi	49550 a-e	49	57
Bill-Z	1435.1 kl	3811.5 j	38 d-j	1400.1 hi	36482 de	42	57
Average	2380.2	5623.2	42.6	1248.5	45243	44.8	58.6
Great Northern							
USWA-12	2630.7 a-d	5935.1 b-I	46.9 a-d	1143.4 mn	49277 a-e	45	57
UI 465	2396.0 a-h	4900.5 g-j	48.8 abc	1320.9 ijk	34576 e	42	60
Glacier	2355.8 a-h	5445 d-I	43.5 b-e	1531.1 f	56628 a-d	49	60
UM2-94-9	2233.9 a-I	6343.4 a-h	35.2 e-k	1368.4 hij	52817 a-e	45	57
US 1140	2095.3 b-j	4982.2 f-j	41.5 b-g	1486.9 fg	35393 de	34	57
Average	2342.3	5521.2	43.2	1370.1	45738	43	58.2

Table 1b. Continuation of Table 1a.

Variety	Yield lb/ac	Aerial Biomass lb/ac	Harvest Index (%)	Seeds per pound	Plants per acre	Days to 50% bloom	Days to 50% pod set
Light Red Kidney							
RedKanner	2454.2 a-g	6779 a-e	36.6 e-k	1039.6 op	43832 b-e	48	60
CELRK	2266.4 a-h	5962.3 b-I	37.7 e-j	815.1 st	44921 a-e	42	60
USWA-33	2188.9 b-j	6615.7 a-f	35.8 e-k	820.7 st	37298 cde	49	60
Chinook 2000	1995.7 d-l	6425.1 a-h	30.8 h-m	924.3 qr	48733 a-e	48	59
Average	2226.3	6445.5	35.2	899.93	43696	46.8	59.8
Dark Red Kidney							
AC Calmont	2858.2 a	7949.7 a	36 e-k	854.3 rs	65885 a	49	59
2242	2369.6 a-h	6534 a-g	36.3 e-k	911.1 qr	52817 a-e	45	57
Montcalm	2340.8 a-h	6806.3 a-d	36.6 e-k	868.2 rs	44105 b-e	49	60
USWA-39	2329.4 a-h	6642.9 a-f	35.3 e-k	850.7 rs	58806 abc	45	57
Redhawk	2085.1 b-j	5771.7 c-I	35.9 e-k	913 qr	56084 a-e	44	57
Average	2396.6	6740.9	36.0	879.46	55539	46.4	58
White Kidney							
Lassen	2238.8 a-I	6207.3 b-h	36.2 e-k	895.4 rs	46555 a-e	42	57
USWA-70	2098.9 b-j	6887.9 a-d	30.6 I-m	753 t	35120 de	49	60
Beluga	1945.3 f-l	5935.1 b-I	33.1 f-l	984.1 pq	48188 a-e	49	60
Average	2094.3	6343.4	33.3	877.5	43288	46.7	59
Yellow							
Enola	2127.7 b-j	6887.9 a-d	31.0 h-m	1288.0 jkl	50094 a-e	48	63
Mean	2194.7	5933.7	37.7	1434.9	46508.3	45.7	59.0
CV(%)	17.3	16.2	14.5	3.9	17298.2		
LSD(05)	530.2	1345.8	7.7	78.7	26.6		

Table 2. Split and discolored bean evaluations on pinto bean varieties from the National Cooperative Dry Bean Nursery in Bonita, Arizona, 1998.

Variety	Percent Splits	Percent Discolored Beans
Kodiak	2.6 abc	3.0 cd
USPT-73	1.6 cd	5.9 ab
UI 320	0.8 cd	3.2 bcd
Burke	2.7 abc	1.8 d
Chase	4.4 a	4.3 a-d
Vision	1.7 cd	4.0 bcd
Ole	0.9 cd	3.8 bcd
AC Pintoba	2.0 bcd	5.4 abc
ISB 2001	4.7 a	2.9 cd
Frontier	0.1 d	7.0 a
Bill-Z	2.2 bcd	4.0 bcd
Average	2.15	4.15
LSD (05)	2.44	2.71
CV (%)	78.5	45.2

Table 3. Bean yields from a non-replicated strip trial grown beside the small plot trial on the Haas Farm in Bonita, 1998.

Variety	Net Yield per acre	Percent Moisture	Seeds per pound	Percent Splits	Percent Discolored
ISB 2001	3275.7	10.9	1120.0	6.3	2.0
Othello	3151.8	10.17	1067.3	5.6	1.6
Vision	3098.2	9.31	1229.3	7.8	1.6
Bill Z	3089.1	9.89	1342.0	6.7	1.1
Olè	2966.5	11.04	1157.1	4.2	0.8
UI 126	2952.8	10.9	1136.8	2.6	2.0
UI 196	2843.0	10.61	1296.0	9.5	2.0
Hatton	2819.0	11.33	1026.2	4.7	1.2
Olathe	2628.0	10.61	1281.4	6.8	2.4
Average	2980.5	10.5	1184.0	6.0	1.6