

MAKING BETTER
DECISIONS

2001 Dry Bean Variety Performance Trials



Agricultural Experiment Station

Colorado
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University

KNOW YOUR DRY BEAN IMPROVEMENT TEAM

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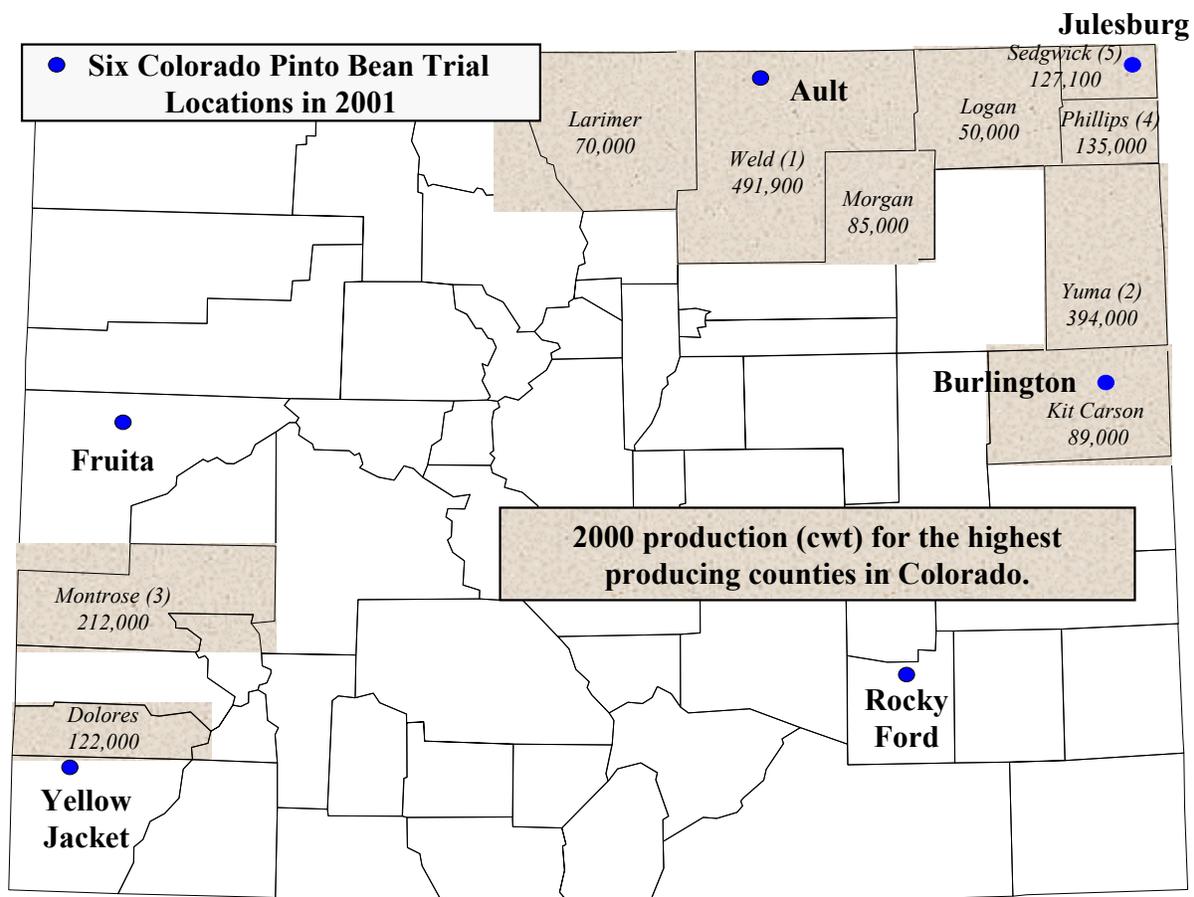
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2001 COLORADO DRY BEAN PERFORMANCE TRIALS

Introduction

Colorado producers invest over \$5 million on pinto bean seed every year, which means that the bean variety decision is extremely important. The average yield performance of varieties over multiple locations is a powerful tool and unbiased, reliable performance results from a uniform variety trial help Colorado dry bean producers make better variety decisions. 2001 was the third year that the uniform variety trial was planted at six locations (Ault, Julesburg, Burlington, Rocky Ford, Fruita and Yellow Jacket). The trial at Fruita suffered from severe and highly variable salt damage. There was extreme variability of variety results over replications due to salt damage and the results could not be used. The results from Burlington are shown in the summary table but are not used to compute the average variety yield over locations due to severe blossom drop and poor pod-filling that resulted from prolonged high temperatures and water shortage during flowering and pod-fill. The uniform variety trial serves a dual purpose of

screening new CO lines emerging from CSU's bean breeding program, allowing fast and reliable selection of promising new, high yielding and disease resistant lines. The uniform variety trial is made possible by funding received from Colorado dry bean producers via the Colorado Dry Bean Administrative Committee.

A randomized complete block field design with three replicates was used in all trials. The seeding rate was approximately 87,120 seeds per acre with plots consisting of two 30-inch wide rows, 50 feet in length. Seed yields, in pounds per acre, are adjusted to 14% moisture content. Disease pressure was low at all test sites during 2001 except for high white mold pressure at Julesburg (see the 2001 White Mold Intensity Report - Table 6b). Note that a record high variety yield (4255 lb/ac) was obtained at Ault with the CSU experimental line CO64342, demonstrating the high yield potential that has been selected and advanced by CSU's dry bean breeder, Mark Brick.

Table 1. Cultural Conditions for Pinto Trials in 2001.

	Ault	Burlington	Fruita	Julesburg	Rocky Ford	Yellow Jacket	
Soil Type		Keith Silt Loam	Youngston Clay Loam	Rago & Kuma Silt Loam	Silty Clay Loam	Silty Clay Loam	Silty Clay Loam
Previous Crop	Corn	Wheat	Corn	Corn	Canola	Barley	Fallow
Fertilization							
N acre ⁻¹	40	80	22	95	10	0	0
P ₂ O ₅ acre ⁻¹	0	50	104	48	50	250	0
Zn acre ⁻¹	0	0	0	0	0	0	0
S acre ⁻¹	0	20	0	0	0	0	0
Herbicide	Eptam Dual II	Dual II Sonalan	Frontier Eptam	Sonalan Eptam	Treflan Eptam	Frontier	None
Insecticide	None	None	None	None	None	None	None
Irrigation	Furrow	Sprinkler	Furrow	Sprinkler	Furrow	Sprinkler	None

Pinto Bean Varietal Descriptions:

Bill Z	A variety release by Colorado State University in 1985. It has a vine Type III growth habit with resistance to bean common mosaic virus and moderate tolerance to bacterial brown spot. It is a productive variety when growing conditions are good, susceptible to white mold and rust, and medium maturity.	CO75944	An experimental line from Colorado State University.
Burke	A medium season variety (USWA-19) released by Washington State in 1996. It has resistance to rust, but is susceptible to white mold.	CO83778	An experimental line from Colorado State University.
Buster	A new variety from Seminis Seed Co. (5051) released in 1999, is resistant to the prevalent races of rust on the High Plains.	CO83785	An experimental line from Colorado State University.
CO64155	An experimental line from Colorado State University with resistance to rust.	CO84086	An experimental line from Colorado State University.
CO64342	An experimental line from Colorado State University.	Grand Mesa	A new variety from Colorado State University (CO75511) released in 2001, with resistance to rust, bean common mosaic virus and semi-upright architecture.
CO73680	An experimental line from Colorado State University.	GTS-900	A full season experimental line from Gentec Seed Co.
CO73740	An experimental line from Colorado State University.	Montrose	A variety released from Colorado State University in 1999 (CO51715) with resistance to rust and excellent seed quality, highly susceptible to white mold.
CO74017	An experimental line from Colorado State University.	Poncho	A variety from Syngenta Seed, Inc. (ROG 179) susceptible to rust, but moderately resistant to some bacterial diseases.
CO75619	An experimental line from Colorado State University.	Rally	A new variety released by Gentec Seed Co. (Gts-Cob-502).
		USPT-73	An experimental line from USDA-ARS, Prosser, WA. It is susceptible to rust.
		Vision	A full season upright variety with resistance to rust, released by Seminis Seed Co.

<http://www.csuag.com/>

*The VegNet
of Colorado State University*

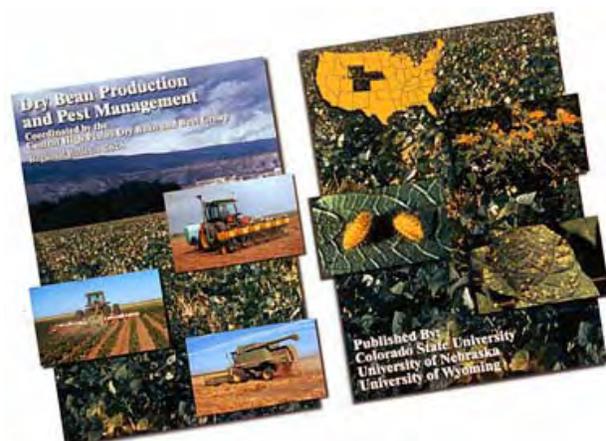


Table 2. Average Pinto Bean Performance over Five Colorado Locations in 2001.

Variety*	Location					Average**
	Ault	Burlington	Julesburg	Rocky Ford	Yellow Jacket	
-----Yield (lb/ac)-----						
Poncho	3551	1115	2007	3429	2459	2862
USPT-73	3404	840	2275	3478	2142	2825
CO64342	4255	1022	1809	2719	2423	2801
Vision	2963	856	2921	3221	2055	2790
Montrose	3021	955	1522	3950	2328	2705
Buster	3021	1455	2224	3155	2216	2654
CO74017	3730	1228	1929	2913	1973	2637
Bill Z	3343	997	1551	3464	2125	2621
CO73680	3082	1128	2038	3263	2084	2617
CO75619	3254	916	2109	2988	2100	2613
Grand Mesa	2874	1141	2019	2705	2235	2458
CO73740	2947	1400	1653	2970	2220	2448
Burke	2739	843	2118	2698	2151	2426
CO64155	3330	1025	1390	2896	1992	2402
GTS-900	2511	454	2436	2942	1466	2339
Rally	2696	883	2345	2459	1749	2312
CO83785	2639	786	2219	2826	1510	2299
CO83778	2882	662	1457	2887	1550	2194
CO84086	2808	1181	1332	2803	1406	2087
CO75944	2314	796	1702	2640	1092	1937
Average	3068	984	1953	3020	1964	2501

*Varieties ranked by the average yield over five locations in 2001.

**Burlington not included in averages due to severe blossom drop and poor pod-filling that resulted from prolonged high temperatures and water shortage during flowering and pod-fill.

Table 3. Pinto Bean Performance at Ault¹ in 2001.

Variety	Yield	Moisture	Test	
			Weight	Seed/lb
	lb/ac	%	lb/bu	No.
CO64342	4255	13.9	62.0	1112
CO74017	3730	13.8	61.8	1077
Poncho	3551	14.7	62.6	991
USPT-73	3404	13.0	60.7	1011
Bill Z	3343	12.2	61.8	1087
CO64155	3330	14.1	63.0	1049
CO75619	3254	13.1	62.5	1102
CO73680	3082	13.1	61.3	1035
Montrose	3021	13.9	63.3	1049
Buster	3021	14.2	62.0	1091
Vision	2963	14.9	64.0	1220
CO73740	2947	14.4	62.2	1018
CO83778	2882	14.7	62.3	1046
Grand Mesa	2874	12.6	60.9	1123
CO84086	2808	15.4	61.2	1050
Burke	2739	12.8	59.6	996
Rally	2696	14.5	61.4	1082
CO83785	2639	16.1	61.9	1008
GTS-900	2511	15.4	61.6	1102
CO75944	2314	16.1	62.7	1103
Average	3068	14.1	61.9	1068
CV%	10.5			
LSD _(0.30)	276			

¹Trial conducted on the Sylvano Ninos' farm; seeded 6/6 and harvested 9/25.

Table 4. Pinto Bean Performance at Burlington¹ in 2001.

Variety	Yield	Seed/lb
	lb/ac	No.
Buster	1455	1438
CO73740	1400	1472
CO74017	1228	1584
CO84086	1181	1426
Grand Mesa	1141	1618
CO73680	1128	1627
Poncho	1115	1569
CO64155	1025	1579
CO64342	1022	1591
Bill Z	997	1730
Montrose	955	1624
CO75619	916	1633
Rally	883	1419
Vision	856	1557
Burke	843	1624
USPT-73	840	1459
CO75944	796	1547
CO83785	786	1523
CO83778	662	1483
GTS-900	454	1488
Average	984	1549
CV%	23	
LSD _(0.30)	193	

¹Trial conducted on the Ryan Weaver farm; seeded 6/5 and harvested 9/6. Seed moisture at harvest was 9.6%.

Table 5. Pinto Bean Performance at Fruita¹ in 2001.

Variety*	Rep 1	Rep 2	Rep 3	Average
	-----Yield/lb/ac**-----			
Bill Z	992	932	330	751
Burke	83	557	655	432
Buster	64	814	1701	860
CO64155	189	1292	1386	956
CO64342	750	742	1042	845
CO73680	1000	1280	369	883
CO73740	152	864	1636	884
CO74017	83	617	163	288
CO75619	1000	750	780	843
CO75944	27	114	553	231
CO83778	383	1261	167	604
CO83785	924	383	739	682
CO84086	655	636	1140	811
Grand Mesa	716	792	1216	908
GTS-900	473	883	470	609
Montrose	917	311	648	625
Poncho	1250	473	1072	932
Rally	996	1076	883	985
USPT-73	530	739	1970	1080
Vision	292	1015	1197	835

¹Trial conducted on the Western Colorado Research Center; seeded 6/8 and harvested 9/27.

*Varieties listed in alphabetical order.

**Severe salt damage occurred, unable to draw any meaningful conclusion from trial.

Table 6a. Pinto Bean Performance at Julesburg¹ in 2001.

Variety	Yield	Moisture	Test	
			Weight	Seed/lb
	lb/ac	%	lb/bu	No.
Vision*	2921	19.6	62.2	1353
GTS-900	2436	18.7	61.7	1230
Rally	2345	18.3	62.3	1165
USPT-73	2275	18.7	60.9	1081
Buster	2224	17.5	61.5	1215
CO83785	2219	16.8	60.6	1102
Burke	2118	17.1	59.4	1171
CO75619	2109	16.8	61.0	1227
CO73680	2038	18.6	60.8	1261
Grand Mesa	2019	16.6	59.9	1392
Poncho	2007	17.9	60.5	1283
CO74017	1929	17.9	60.7	1482
CO64342	1809	19.5	62.1	1303
CO75944	1702	18.4	60.9	1152
CO73740	1653	19.2	59.5	1280
Bill Z	1551	17.1	58.8	1338
Montrose	1522	18.1	61.7	1341
CO83778	1457	18.4	62.3	1123
CO64155	1390	18.7	60.0	1362
CO84086	1332	20.0	58.8	1203
Average	1953	18.2	60.8	1253
CV%	14.6			
LSD _(0.30)	246			

¹Trial conducted on the Mike Kimberly farm; seeded 6/12 and harvested 9/26.

*Estimated value calculated on a single plot, two missing values.

Table 6b. 2001 White Mold Disease Intensity Report – Julesburg in 2001

Evaluated by Drs. H. F. Schwartz and M. A. Brick

Variety	White Mold Disease Intensity (%)			
	Rep I	Rep II	Rep III	Average
Bill Z	63.0	66.0	54.0	61.0
Burke	19.0	5.0	29.0	17.7
Buster	7.0	2.0	26.0	11.7
CO64155	84.0	60.0	58.0	67.3
CO64342	53.0	54.0	39.0	48.7
CO73680	35.0	50.0	58.0	47.7
CO73740	Missing plot	42.0	55.0	48.5
CO74017	31.0	32.0	54.0	39.0
CO75619	Missing plot	4.0	49.0	26.5
CO75944	5.0	9.0	3.0	5.7
CO83778	2.0	13.0	18.0	11.0
CO83785	2.0	3.0	2.0	2.3
CO84086	42.0	41.0	49.0	44.0
Grand Mesa	3.0	58.0	6.0	22.3
GTS-900	16.0	17.0	20.0	17.7
Montrose	66.0	64.0	86.0	72.0
Poncho	30.0	51.0	61.0	47.3
Rally	0.0	17.0	8.0	8.3
USPT-73	1.0	0.0	15.0	5.3
Vision	8.0	2.0	33.0	14.3

Disease intensity = percentage of 50 plants infected by white mold, 09/05/01

Table 7. Pinto Bean Performance at Rocky Ford¹ in 2001.

Variety	Yield	Test		
		Moisture	Weight	Seed/lb
	lb/ac	%	lb/bu	No.
Montrose	3950	12.5	59.4	1108
USPT-73	3478	12.1	55.7	1111
Bill Z	3464	12.4	57.7	1165
Poncho	3429	12.1	57.1	1067
CO73680	3263	12.1	56.2	1026
Vision*	3221	13.7	61.6	1137
Buster	3155	13.4	57.7	1064
CO75619	2988	13.5	57.7	1214
CO73740	2970	20.5	57.5	1162
GTS-900	2942	14.0	57.9	1111
CO74017	2913	12.7	55.5	1203
CO64155	2896	11.5	53.5	1202
CO83778	2887	11.1	51.7	1147
CO83785	2826	12.3	53.5	1121
CO84086	2803	14.8	56.5	955
CO64342	2719	18.3	57.1	1226
Grand Mesa	2705	10.0	54.3	1161
Burke	2698	13.5	55.5	1179
CO75944	2640	14.3	57.3	1167
Rally	2459	11.7	55.6	1035
Average	3020	13.3	56.5	1128
CV%	12.0			
LSD _(0.30)	312			

¹Trial conducted on the Arkansas Valley Research Center; seeded 6/5 and harvested 9/26.

*Estimated value calculated on a single plot, two missing values.

Table 8. Pinto Bean Performance at Yellow Jacket¹ in 2001, Irrigated.

Variety	Yield	Seed/lb
	lb/ac	No.
Poncho	2459	1325
CO64342	2423	1454
Montrose	2328	1456
Grand Mesa	2235	1452
CO73740	2220	1331
Buster	2216	1445
Burke	2151	1432
USPT-73	2142	1164
Bill Z	2125	1486
CO75619	2100	1314
CO73680	2084	1330
Vision	2055	1406
CO64155	1992	1392
CO74017	1973	1465
Rally	1749	1585
CO83778	1550	1414
CO83785	1510	1333
GTS-900	1466	1627
CO84086	1406	1440
CO75944	1092	1426
Average	1964	1414
CV%	11.6	
LSD _(0.30)	195	

¹Trial conducted on the Southwestern Colorado Research Center; seeded 6/7 and harvested 9/26.

Table 9. Pinto Bean Performance at Yellow Jacket¹ in 2001, Dryland.

Variety	Yield (lb/ac)
438*	1128
Cahone	1018
Fisher	977
90432-2-10*	949
432*	925
90432-2-8*	866
410*	865
San Juan Select	858
89721*	848
90436-2-3*	839
439*	789
90436-2-2*	787
UI 126	760
429*	714
UI 114	665
Average	866
CV%	12.3
LSD _(0.05)	153

¹Trial conducted on the Southwestern Colorado Research Center; seeded 6/12 and harvested 9/11. *experimental line

Table 10. Other Market Class Bean Performance at Yellow Jacket¹ in 2001, Irrigated.

Variety	Market Class	Yield	Seed/lb
		lb/ac	No.
L94C356	Pink	2072	1523
90:469	Great Northern	2067	1486
Shiny Crow	Black	1746	2869
Sacramento	Light red kidney	1500	865
Midnight	Black	1403	3071
B340	Light red kidney	1060	890
I9606-6	Black	822	2685
Vista	Small white	672	2635
ND91-117-0502	Small white	438	2607
Average		1309	
CV%		15.9	
LSD _(0.05)		359	

¹Trial conducted on the Southwestern Colorado Research Center; seeded 6/12 and harvested 10/6.

Table 11. 2001 White Mold Demonstration – Yellow Jacket, CO

*Mark Stack, Tom Hooten, and Howard Schwartz
Statistical analysis by Mark Brick.*

Southwest Corner Field – Bill Z Pinto, sprinkler irrigated
[1 spray at 100% bloom, 2nd spray 10 days later, 1.5 lb in 20 gal water/A]

<u>Treatment</u>	<u>Yield (lb/A)</u>	<u>% White Mold</u>
1. Untreated Control	1396.9 b	57.50 a
2. Topsin – 1 spray	2068.1 a	9.25 b
3. Topsin – 2 sprays	2335.9 a	8.75 b

LSD_{.05}, means separated by different letter are significantly different; RCB, 4 reps

Results: This field had a moderate to severe outbreak of white mold. A 48% or 67% increase in yield was obtained with 1 or 2 sprays. Estimated cost per fungicide spray + application = \$25 /Acre. With \$ 15 /cwt pintos, the net return would have been \$ 75 or \$ 90/A for 1 or 2 sprays, respectively.

**Potential Risk of Bean Diseases in Colorado
by Geographical Region**

Howard F. Schwartz

<u>Region/County</u>	<u>Rust</u>	<u>Bacterial* Disease</u>	<u>White Mold</u>
<u>Northeast</u>			
Boulder	Low	Low	Moderate
Larimer	Low	Low	Moderate
Weld	Moderate	Moderate	High
Morgan	Moderate	Moderate	Moderate
Washington	High	High	Moderate
Logan	High	Moderate	Moderate
Sedgwick	High	High	High
Phillips	High	High	High
Yuma	High	High	High
Kit Carson	High	High	Moderate
<u>Arkansas Valley</u>			
Pueblo	Moderate	Low	Low
Otero	Moderate	Low	Low
<u>Western Slope</u>			
Mesa	Low	Low	Moderate
Delta	Low	Low	Moderate
Montrose	Low	Low	Moderate
San Miguel	Low	Low	Low
Dolores	Low	Low	Low
Montezuma	Low	Low	Low

*Complex of Halo Blight, Brown Spot, &/or Common Bacterial Blight

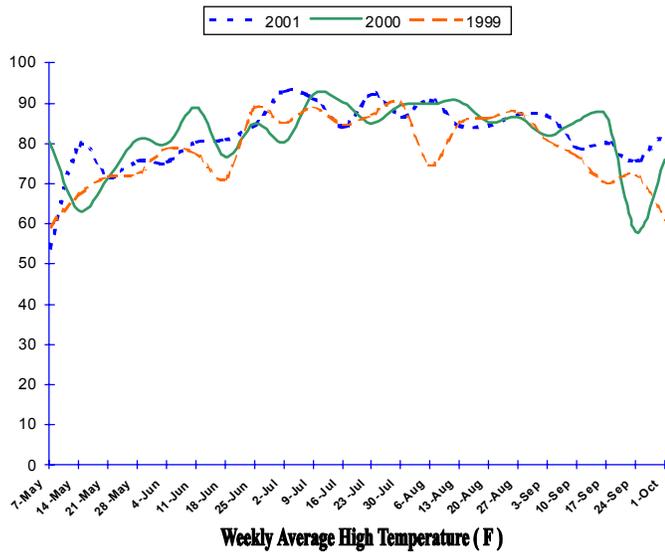


2001 VegNet Summary - Ault, CO

Cumulative Monthly Rainfall (inches)

Month	1999	2000	2001
May	1.49	2.12	2.64
June	0.93	0.71	0.97
July	0.84	0.51	1.06
Aug	2.06	0.21	0.13
Sept	1.69	1.11	0.37
Total	7.00	4.66	5.17

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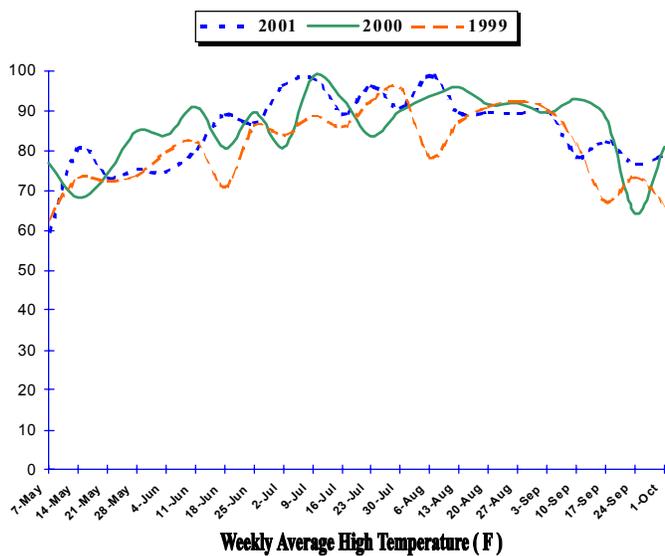


2001 VegNet Summary - Burlington, CO

Cumulative Monthly Rainfall (inches)

Month	1999	2000	2001
May	2.24	0.50	2.48
June	4.15	1.25	0.71
July	1.86	2.99	1.67
Aug	2.87	1.41	0.79
Sept	0.98	0.58	1.23
Total	12.10	6.73	6.88

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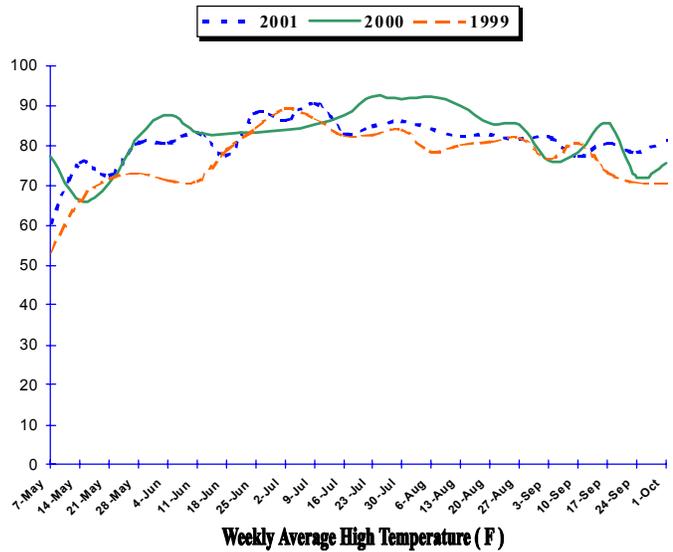


2001 VegNet Summary - Dove Creek, CO

Cumulative Monthly Rainfall (inches)

Month	1999	2000	2001
May	1.09	0.37	0.53
June	1.13	0.12	0.23
July	1.29	0.35	0.41
Aug	2.46	1.60	2.32
Sept	0.54	0.40	0.18
Total	6.51	2.84	3.67

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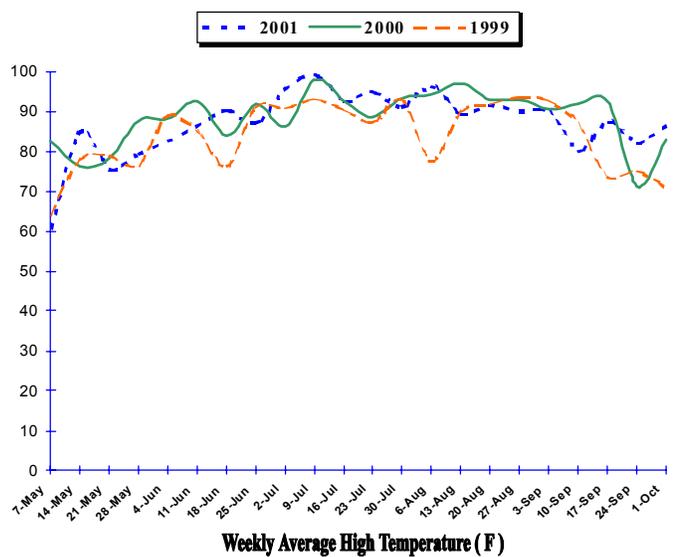


2001 VegNet Summary - Rocky Ford, CO

Cumulative Monthly Rainfall (inches)

Month	1999	2000	2001
May	1.79	0.57	3.64
June	0.85	0.58	1.81
July	2.43	1.13	1.75
Aug	1.01	1.17	0.26
Sept	0.02	0.71	0.42
Total	5.75	4.16	7.88

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BEAN ROOT HEALTH

Colorado State University Plant Health Note

Howard Schwartz and Mark Brick

Soil-borne diseases, environmental stresses and production practices can contribute to reduced plant stands, greater soil compaction, and economic losses of dry beans grown in Colorado and the surrounding high plains states. Profitability of pinto beans (and other market classes) has become more difficult in recent years due to declining bean prices and increasing operating costs. Monitor every aspect of the crop to maintain profitability; this may require cutbacks in some inputs with investments in other inputs to increase plant health and net returns. This Plant Health Note provides a brief review of common soil borne diseases, and 9 steps to enhance bean root health, crop productivity, and net return by at least \$ 25 – 50/Acre.

- Step 1** Soil test prior to planting and carefully plan your fertilizer and *Rhizobium* inoculant needs. In Colorado, the most important nutrients are nitrogen, phosphorus, and zinc.
- Step 2** Use crop rotations in 3 – 4 year cycles to minimize the damage caused by plant pathogens, insects, weeds, herbicide carryover, soil compaction and crop residue; avoid back to back cycles of bean – potato – sugar beet, alternate with small grains and corn.
- Step 3** Reduce soil compaction and improve drainage by deep chiseling or ripping in the fall, and prior to planting or early post-emergence; avoid all field traffic when the soil is wet.
- Step 4** Plant high quality certified seed of a market class and varieties adapted to your farming situation and resources; treat seed with recommended pesticides to reduce seedling damping off and reduced root vigor from soil-borne insects and pathogens.
- Step 5** Control weeds by cultivation and the timely use of herbicides formulated to control the weeds specific to your field and soil type. Minimize direct bean plant (growing point) contact with post-emergence herbicides that could stress beans and delay maturity.
- Step 6** Plant bean seed 2 – 2.5 inches deep in a firm, weed-free seedbed when the morning soil temperature reaches 60 F at planting depth; generally between May 25 and June 15.
- Step 7** Planting rates on 30” wide rows should produce approximately 75000, 85000 and 95000 emerged seedlings/acre for most pinto/great northern, black/navy, and red kidney/yellow beans, respectively.
- Step 8** Irrigate when approximately 50% of the available soil moisture has been depleted; irrigate early and often to avoid stress to plant roots and to refill the root zone (12 – 24” depth) as needed throughout the season.
- Step 9** Inspect bean fields weekly to detect and quickly manage problems associated with soil compaction, nutrient deficiencies, moisture deficiency, salinity, insects, diseases and other factors before they reduce yields.

Dry Dean Variety Disease Descriptions, Eastern Colorado & Western Nebraska

Drs. H.F. Schwartz, J.J. Johnson & M.A. Brick - Colorado State University (12/01)

Variety	Origin/Year ¹	Habit ²	Maturity ³	Seed Quality Observation ⁴	Disease Resistance ⁵
<i>Pinto's</i>					
Apache	ISB-96	V	M	**	BC1 / BC2 / CT / RU
Bill Z	CSU-87	V	L	*	BC1 / BC2 / CT
Buckskin	Novartis-94	SU	L	*	BC1 / BC2 / CT / HB / BBS
Burke	USDA-98	SU/V	L		BC1 / BC2 / CT / RU / HB
Buster	Seminis-99	V	L		RU / CT
Chase	UN-93	V	L	**	RU / WM / HB / BBS
Cisco	Novartis-98	V	L	*	BC1 / BC2
Elizabeth	Fox-97	V	F	**	RU
Frontier	NDSU-97	SU	F	*	RU / WM
GTS 900	Gentec-98	V	F		BC1 / BC2 / RU / WM
Hatton	NDSU-95	V	L		BC1 / BC2
Kodiak	MSU-98	SU	L	**	BC1 / BC2 / RU
Maverick	NDSU-95	SU	F	*	RU
Montrose	CSU-98	V	M	*	BC1 / BC2 / CT / RU
Othello	USDA-86	SU	E	*	BC1 / BC2 / CT / FR
Poncho	Novartis-98	V	F	*	BC1 / BC2 / HB / BBS
UI 320	U. Idaho-98	V	L	*	BC1 / BC2 / RU
Vision	Seminis-96	SU	F	*	RU / FR
Winchester	Novartis-95	V	F	*	BC1 / BC2 / RU
<i>Kidney Types</i>					
Enola (yellow)	Proctor-98	B	M		RU / WM
CE-LRK	UC-89	B	M		BC1 / BC2 / RU / WM
Foxfire	Novartis-92	B	M		BC / RU / WM / CB / HB
Sacramento	UC-75	B	M		RU / WM
<i>Black's</i>					
Midnight	SUNY-80	U	F		BC1 / BC2 / FR / PY
Shadow	Novartis-95	U	F		BC1 / BC2 / RU
Shiny Crow	CSU-98	V	L		BC
UI 911	UI-93	U	L		BC1 / BC2
<i>Great Northern's</i>					
Beryl	Novartis-84	V	L		BC1 / BC2 / CT / CB
Harris	UN-80	V	L		BC1 / BC2 / BY / CB / HB
Ivory	Novartis-83	V	M		BC1 / BC2 / CT / HB
Marquis	Novartis-92	V	L		BC1 / BC2 / WM / CB / HB
Matterhorn	MSU-98	U	L		BC1 / BC2 / RU
UI 425	UI-84	V	L		BC1 / BC2 / CT
Weihing	UN-98	V	F		RU / CB

Note 1: CSU = Colorado State University, Fox = Fox Bean of Idaho, Gentec = Gentec Seeds of Canada, ISB = Idaho Seed Beans, MSU = Michigan State University, NDSU = North Dakota State University, Novartis = Novartis Seeds of Idaho, Proctor = Red Beard Bean of Colorado, Seminis = Seminis Seeds of Idaho, SUNY = Cornell University of New York, UC = Univ. of California at Davis, UI = Univ. of Idaho, UN = Univ. of Nebraska, USDA = USDA of Prosser Idaho

Note 2: Growth Habit = V (vine), SU (semi-upright), U (upright), B (bush). Suggested plant populations: V = 75 – 80000, SU = 80 – 85000, U = 85 – 90000, B = 90 – 100000 / acre. Adjust fertility levels in relation to adjusted plant populations for each growth habit; for example, a common suggestion for low fertility soils for vine growth habits at 75000 plants is 75 lb N + 40 lb P / Acre.

Note 3: Maturity Classification = Days from planting to vine cutting in our region; E (Early, 85-89 days), M (Medium, 90-94 days), F (Full Season, 95-99 days), L (Late, 100 or more days)

Note 4: Seed Quality observations from dry bean industry and/or university personnel reflect the general appearance of seed of varieties that is generally light enough for most markets (*) or which may exhibit premature darkening and/or yellowing (**) during the 1st year after harvest.

Note 5: Disease Resistance as defined by the variety release statement, and may range from immunity to tolerance to disease avoidance in our region: BBS = Bacterial Brown Spot, BC1 = Bean Common Mosaic Virus – NY Strain, BC2 = Bean Common Mosaic Virus – Type Strain, BY = Bean Yellow Mosaic Virus – Pea Strain, CB = Common Bacterial Blight, CT = Curly Top Virus, HB = Halo Blight, FR = Fusarium Root Rot, PY = Pythium, RU = Rust, WM = White Mold

Entry Forms for 2002 Trials

Entry forms for 2002 trials may be obtained from the Department of Soil and Crop Sciences, Colorado State University, Cynthia Johnson, C-4 Plant Science Building, Fort Collins, CO 80523-1170; Telephone (970) 491-1914; Fax number (970) 491-2758; or e-mail cjohnson@agsci.colostate.edu or web site <http://www.colostate.edu/Depts/SoilCrop/extension/CropVar/index.html>

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