

The root rot trials are planted north of Prosser on the Roza in a field that has been planted in beans every other year for the past 35 years. The predominate pathogen is Fusarium solani causal organism of Fusarium root rot. Fusarium oxysporum, Phythium, and Rhizoctonia solani are also present. We did not apply any fertilizer except for zinc at 10 lbs/A. Residual nitrogen was 20 lbs/A, and phosphorus 13 ppm. Water was applied at half the normal rate. Thus, this plot represents a prugatory trial which allows us to identify lines and cultivars which adapt well to low inputs, root rot disease, and abiotic stress namely drought.

Note that curly top virus was severe this year, adding an additional stress. Lines with CTV scores of 3 and above show susceptibility to the virus.

Note that the beans are planted by market classes in separate experiments. Some classes were planted in a more stressful part of the field like the blacks and navies or less stressful area like the great northerns.

So comparing the performance of market types or lines between different market types are not valid comparisons.

We use a 1 to 9 rating scale for disease, emergence, seedling vigor, and other traits. Scores of 1=best and 9=worst. Desirability is not recorded on a scale, and the higher the number the better looking the line.

R0001: Roza 2000 Dark Red and White Kidney Root Rot Trial.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability	Growth Habit
<u>Dark Red Kidney</u>						
OT9743-55-1-4	1142	4.3	4.3	1.0	0.3	Bush
H9659-41-2	1110	3.0	3.3	1.3	1.3	Vine
H9659-41-5	981	3.0	3.0	2.0	1.3	Vine
H9659-37-2	977	2.0	2.0	2.0	2.0	Vine
OT9743-55-9	929	2.3	3.3	2.0	1.0	Vine
OT9743-162-7-3	883	3.3	4.0	3.0	1.3	Vine
OT9743-162-7-4	785	4.0	5.0	2.3	1.0	Vine
OT9743-55-1-5	654	6.0	6.3	2.0	0.0	Bush
Montcalm	641	2.3	3.0	2.3	0.3	Bush
OT9743-61-8-1	608	4.0	4.0	1.3	0.3	Vine
OT9743-96-2-6	584	3.0	4.0	3.3	0.3	Bush
OT9743-55-9-4	576	6.0	5.3	2.0	0.3	Vine
OT9743-162-7-1	567	6.0	7.0	3.0	0.3	Vine
OT9743-55-9-3	562	4.0	5.0	3.0	0.3	Vine
H9667-68-7	547	5.0	5.0	3.3	0.0	Bush

ROG-802	536	3.0	4.3	3.0	0.3	Bush
USWA-39	530	3.0	2.3	2.3	0.3	Bush
OT9743-71-2-1	525	5.0	5.0	2.0	0.0	Bush
OT9641-191-1-19	495	3.0	5.3	2.0	0.6	Bush
OT9743-74-6	447	3.0	4.3	3.0	0.0	Bush
H9667-63-2	388	3.0	5.0	3.3	0.0	Bush
OT9743-103-2-2	388	4.0	5.0	2.0	0.0	Bush
OT9743-87-4-1	344	3.3	4.3	3.0	0.0	Bush
OT9743-74-1-4	334	5.0	6.0	3.0	0.0	Bush
SVM-2242	318	2.0	5.0	3.3	0.0	Bush
AC-Calmont	296	3.0	5.3	5.0	0.0	Bush
OT9743-96-3	281	2.3	3.3	4.0	0.0	Bush
OT9743-103-3	272	4.0	6.3	3.0	0.0	Bush
Red-Hawk	177	3.0	5.3	3.0	0.0	Bush

White Kidney

USWA-70	460	5.3	6.0	2.3	0.3	Bush
OT9743-53-1-8	421	5.3	4.3	1.3	0.3	Bush
Lassen	403	5.0	5.3	4.0	0.0	Bush
WK-380	227	5.0	6.3	4.0	0.0	Bush
Beluga	199	5.0	6.3	4.0	0.0	Bush
Mean	551	3.7	4.6	2.6		
LSD 5%	378	1.4	1.9	1.6		
C.V. %	42	23	25	38		

R0005: Roza 2000 Pinto Root Rot Trial.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
94-1015P	1463	4.0	3.0	3.0	1.0
OT9639-4-10-7	1373	3.0	4.0	3.0	2.0
H9657-66-1	1273	3.0	4.0	2.3	0.3
93-246 P	1147	2.3	3.0	5.0	1.0
Bill Z	1105	3.0	3.3	3.3	1.0
MSU-396	1096	4.0	3.0	2.0	2.3
ISB-5893	1086	3.3	4.3	5.0	1.0
98-224P	1018	3.3	3.0	5.0	1.0
Sierra	950	3.0	3.0	4.0	1.0
CDC-Pinnacle	929	3.3	2.0	4.3	1.3
NW-410	926	2.3	3.0	4.3	1.0
97-409P	924	3.0	4.0	5.0	0.3
DC12498-47-1-1	889	3.0	3.0	6.0	1.0
Z9760-2-1-7	872	3.0	4.0	3.3	1.0
98-199P	830	2.4	2.4	4.5	1.0
94-1009P	820	4.0	3.3	4.0	1.0
CO-75714	815	5.0	3.3	4.0	0.0
CO-74527	809	3.0	3.0	4.3	1.0
Agassiz	807	2.3	2.0	5.0	1.0
CO-64589	800	3.0	4.0	5.3	1.0
WN9803-8	756	4.0	5.0	3.3	0.3
97-194P	743	5.0	4.3	3.3	0.3
CO-74905	722	3.0	4.3	3.3	0.0
H9657-42-2	706	6.0	5.0	3.3	0.3
94-1023P	695	4.4	4.4	3.5	0.0
98-223P	682	3.0	3.0	5.0	0.0
97-395P	673	5.0	4.4	3.5	0.0
98-229P	660	4.4	3.4	5.0	0.5
OT9743-586-6-1	650	3.4	5.0	6.0	1.0
UI-111	645	3.0	3.3	3.0	0.3
Montrose	628	2.3	3.0	3.0	1.0
Pintium	627	3.0	4.0	6.0	0.4
CO-74526	617	3.3	3.0	4.0	0.3
Kodiak	604	3.3	3.0	3.0	1.0
OT9630-17-25	582	3.3	5.0	5.0	0.0
CO-75511	580	4.0	4.0	3.3	0.0

R0005: Roza 2000 Pinto Root Rot Trial.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
H9656-16-3	573	3.0	5.0	5.0	0.0
WYO-166	562	4.3	4.3	4.3	0.0
H9657-66-6	510	3.0	4.3	3.0	0.0
NW-590	508	4.0	4.3	4.3	0.0
DC11711-20-1	501	5.0	4.0	6.0	0.3
Z9760-2-8-2	460	2.3	4.0	6.0	0.3
97-197P	454	4.0	3.0	3.5	1.0
Othello	451	2.3	4.3	5.0	0.0
CO-74518	399	4.3	5.0	4.3	0.0
UI-114	388	3.0	3.3	5.0	0.0
97-247P	372	3.0	3.0	6.0	0.0
98-185P	329	4.4	3.4	6.0	0.0
Elizabeth	327	5.0	5.0	7.0	0.0
93-219P	270	4.0	4.3	8.0	0.0
USPT-73	262	2.3	5.0	5.3	0.0
OT9743-593-1	232	1.0	2.0	7.3	0.0
Burke	227	3.0	3.0	5.3	0.3
CO-75944	207	3.0	5.0	6.3	0.0
Buster	174	4.0	5.0	6.3	0.0
AC-Pintoba	126	4.0	4.0	6.0	0.0
Mean	704	3.3	3.7	4.3	
LSD 5%	516	1.6	1.5	1.7	
C.V.%	45	30	25	26	

R0007: Roza 2000 Small Red Root Rot Trial.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
OT9743-348-11-6	2551	3.0	2.3	2.3	0.3
UI-239	2203	3.0	3.0	2.0	0.0
NW-63	2086	3.0	4.0	3.0	0.0
88-310-R	2032	3.0	3.3	2.3	0.0
OT9743-309-5-6	1842	3.3	3.0	3.0	1.3
OT9743-388-1-2	1735	4.0	3.0	3.0	1.0
PS98-261-14	1650	5.0	3.0	1.3	1.0
PS98-261-9	1587	5.0	4.0	1.3	1.0
UI-259	1580	4.0	4.0	2.0	0.0
OT9743-407-3-7	1541	5.0	4.3	2.0	0.0
OT9641-84-2-8	1493	3.0	3.0	3.0	1.0
Rufus	1489	4.0	4.0	2.0	0.0
OT9641-32-2-9	1428	5.0	4.3	1.3	1.0
OT9743-309-5-11	1382	6.0	4.3	3.0	0.0
H9655-135-20-16	1367	4.3	3.0	4.0	1.0
R93-365	1365	5.0	3.3	2.0	0.0
R97-017	1323	4.0	3.0	2.3	0.0
AC-Earlired	1312	3.0	4.0	2.0	0.3
OT9743-309-1-4	1258	2.3	2.3	3.3	1.0
OT9743-376-1-1	1210	4.3	3.3	2.3	0.0
Ember	1162	4.0	4.3	2.0	0.0
H9655-135-20-10	1141	5.0	4.3	5.0	0.3
LeBaron	1130	4.0	5.0	2.0	0.0
PS98-260-4	1129	5.0	5.0	1.3	0.3
LB1-2110-28	924	3.0	5.0	2.0	0.0
Z9760-32-2-11	846	4.0	4.0	2.3	1.0
Mean	1508	3.8	3.6	2.3	
LSD 5%	740	1.6	2.0	1.5	
C.V. %	30	25	34	42	

R0004: Roza 2000 Pink Root Rot Trial.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
Roza	2178	2.3	2.0	2.0	1.0
UI-537	2010	2.3	3.3	2.0	1.0
ROG-312	1672	2.0	2.0	2.0	1.0
Sutter-Pink	1384	3.0	4.0	3.3	0.0
Z9760-26-8-1-7	1367	3.0	2.0	4.0	1.0
PS98-284-5	1362	4.0	3.3	3.3	0.3
Viva	1359	3.3	5.0	3.0	0.0
PR95-055-2-1-19	1347	3.0	4.0	2.0	1.0
OT9743-529-1-6	1293	3.0	3.3	3.3	0.0
ND-837	1227	5.0	5.0	3.3	0.0
Harold	1216	3.0	3.3	4.0	0.0
PR95-055-2-1-1	1162	3.0	3.3	2.0	0.3
PS98-285-5	1136	2.3	3.3	3.3	0.0
PR95-055-2-1-16	706	2.0	4.0	2.0	0.0
OT9743-500-1	676	2.0	4.3	5.0	0.3
L94C356	466	2.3	2.5	5.9	0.4
OT9743-524-3	323	3.3	4.3	5.3	0.0
Mean	1244	2.8	3.3	3.2	
LSD 5%	607	1.6	1.5	1.1	
C.V. %	30	35	27	28	

R0008: Roza 2000 Great Northern Root Rot Trial.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
Belneb-RR-1	4100	4.0	2.3	1.3	0.0
98-169G	3964	6.0	5.6	1.2	1.0
OT9743-667-4-4	3806	6.0	5.0	2.3	1.0
MSU-399	2666	6.0	4.0	2.3	1.0
Matterhorn	2616	5.0	3.3	2.3	1.3
UI-465	2583	5.0	3.0	4.3	0.0
98-194G	2509	5.0	5.1	1.2	0.4
98-209G	2496	5.5	3.1	1.2	0.4
OT9743-636-3	2485	5.0	2.3	2.0	2.0
98-193G	2469	6.5	4.5	1.6	0.4
MSU-687	2409	6.0	4.3	2.0	1.0
CDC-Crocus	2372	3.0	1.0	2.0	1.0
PS98-295-3	2309	6.3	4.0	2.3	1.0
OT9743-672-3	2293	4.3	4.0	2.0	1.0
OT9737-8-9	2250	5.3	4.0	1.0	2.0
OT9743-638-5	2064	5.3	5.0	1.0	0.3
OT9737-9-9	2008	4.3	2.3	2.0	1.3
PS98-295-18	1947	7.3	6.0	3.3	0.3
Beryl	1918	7.0	6.0	2.0	1.0
93-203G	1914	6.0	4.0	2.0	0.0
OT9743-634-5-6	1877	7.3	6.0	1.3	1.0
LB2113-3	1805	5.3	3.3	5.3	0.0
98-192G	1786	6.5	6.0	1.2	0.0
H9657-54-8	1676	6.0	4.0	2.0	1.3
93-207G	1589	6.0	5.0	5.0	0.0
PS98-290-10	1480	6.3	5.0	1.0	1.0
93-208G	1480	6.0	5.0	5.3	0.0
98-163G	1273	7.3	6.3	4.0	0.0
Weihing	1245	6.3	5.3	3.0	1.0
98-164G	920	7.0	6.0	4.3	0.0
Mean	2173	5.7	4.2	2.5	
LSD 5%	827	1.8	2.1	1.8	
C.V. %	23	19	31	46	

R0003: Roza 2000 Light Red Kidney Root Rot Trial.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
USWA-33	798	3.3	2.0	3.0	2.0
H9659-23-1	772	3.0	5.0	2.0	1.3
H9659-27-10	739	3.0	3.0	2.0	2.0
H9659-21-1	652	4.0	3.3	2.0	2.0
H9659-27-7	567	3.0	5.3	4.3	0.0
H9666-9	536	2.0	4.0	5.0	0.3
H9667-65-12	384	2.0	5.0	4.0	0.3
OT9743-6-3-2	375	2.3	4.3	4.0	0.0
H9667-42-2	364	3.3	5.3	2.0	0.0
H9667-86-4	340	2.0	4.0	3.0	0.3
H9659-25-2	312	3.0	5.3	4.0	0.0
Kardinal	299	2.0	3.0	4.0	0.0
PR95-247-2-4	292	2.3	5.0	3.0	0.3
Chinook-2000	275	5.0	5.3	5.0	0.0
PR95-247-2-5	268	3.0	5.0	3.3	0.0
OT9743-1-2-1	222	3.0	4.3	4.0	0.3
CELRK	198	3.0	5.3	8.0	0.0
Foxfire	142	2.3	6.0	7.0	0.0
Red-Kanner	131	4.3	6.0	7.0	0.0
OT9743-6-2-3	98	2.0	5.3	5.0	0.0
OT9743-53-1-2	87	3.3	5.0	4.0	0.0
OT9743-53-1-6	76	3.0	5.0	4.0	0.0
Mean	360	2.8	4.5	3.9	
LSD 5%	286	1.5	1.4	2.1	
C.V. %	49	33	19	32	

R0002: Roza 2000 Cranberry Root Rot Trial.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
OT9743-162-2-3	1417	5.0	1.3	2.3	2.0
OT9743-162-2-1	1199	4.0	1.0	1.0	2.0
OT9743-167-3-1	1162	4.0	1.0	1.3	3.0
G-122	1099	2.0	1.3	2.0	0.3
OT9743-199-6-4	985	3.0	1.0	2.3	2.0
H9678-21-12	798	3.0	2.0	4.0	1.3
PS98-302-3	732	3.0	2.0	4.0	0.3
95-8186C	639	1.3	1.0	2.0	1.0
Cardinal	619	3.3	2.0	4.0	0.3
OT9743-174-6	591	2.3	3.0	5.0	0.6
OT9743-174-4-3	586	3.0	1.3	4.3	0.3
OT9641-281-1-18	569	3.3	1.0	3.0	0.3
UI-686	541	3.3	2.0	2.0	0.3
95-8184C	536	2.3	2.0	3.3	0.0
OT9743-174-7	493	3.0	2.0	5.0	0.0
Hooter	480	2.3	3.0	5.0	0.0
Thort	129	3.0	5.3	7.0	0.0
Mean	740	3.0	1.8	3.3	
LSD 5%	239	1.5	0.8	1.3	
C.V. %	39	30	29	24	

R0006: Roza 2000 Black and Small White Root Rot Trial.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
<u>Blacks</u>					
PS98-254-1-9	892	4.0	4.0	5.0	0.3
OT9743-798-3-4	822	3.0	2.3	3.0	1.0
OT9743-802-5-2	800	4.0	3.3	4.0	1.0
H9679-27-9	684	4.0	3.3	6.0	1.0
OT9743-798-3-1	606	3.3	2.3	3.3	1.0
VEN-54	584	4.0	3.3	4.0	1.0
OT9743-824-2	497	3.3	3.0	5.3	1.0
T-39	484	4.0	4.3	5.0	0.0
UI-911	438	4.0	3.0	5.3	0.0
OT9743-836-5	405	3.3	3.3	5.3	0.3
PS98-251-4	360	4.3	5.0	6.0	0.0
H9673-87	347	5.0	4.0	4.3	0.0
OT9743-792-8	342	3.0	4.3	4.0	0.0
OT9743-878-4	327	4.3	3.0	4.0	0.3
OT9743-798-3-2	194	2.3	3.3	5.0	0.0
Shiny-Crow	194	3.3	3.3	5.0	0.0
ICB-10	107	3.0	5.0	6.0	0.0
Jaguars	70	4.3	4.3	7.0	0.0
I9606-6	11	3.0	5.0	7.3	0.0
<u>Small Whites</u>					
ISB-3156	1012	4.0	3.0	3.3	1.3
ISB-1256	900	4.0	3.0	4.0	0.3
ISB-1252	724	4.0	3.0	3.0	1.0
Oac-Thunder	643	5.0	3.0	5.0	0.3
Arthur	521	6.0	5.0	5.0	0.3
OAC-Gryphon	493	6.3	4.3	4.3	0.0
OT9743-992-2	371	4.0	4.0	6.0	0.3
Mackinac	360	4.3	4.3	3.0	0.3
AC-Compass	307	6.3	5.0	5.3	0.0
AC-Mast	262	6.0	4.0	6.0	0.0
OAC-Laser	229	6.0	3.3	6.0	0.0
AC-Trident	181	4.0	4.0	6.0	0.0
Mean	417	4.0	3.7	4.9	
LSD 5%	629	1.8	1.3	1.8	
C.V. %	92	27	22	23	

2000 Cooperative Dry Bean Root Rot Trials.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
<u>Black</u>					
Shiny-Crow	194	3.3	3.3	5.0	0.0
ICB-10	107	3.0	5.0	6.0	0.0
Jaguars	70	4.3	4.3	7.0	0.0
I9606-6	11	3.0	5.0	7.3	0.0
<u>Small White</u>					
ISB-3156	1012	4.0	3.0	3.3	1.3
ISB-1256	900	4.0	3.0	4.0	0.3
ISB-1252	724	4.0	3.0	3.0	1.0
Oac-Thunder	643	5.0	3.0	5.0	0.3
Arthur	521	6.0	5.0	5.0	0.3
OAC-Gryphon	493	6.3	4.3	4.3	0.0
Mackinac	360	4.3	4.3	3.0	0.3
AC-Compass	307	6.3	5.0	5.3	0.0
AC-Mast	262	6.0	4.0	6.0	0.0
OAC-Laser	229	6.0	3.3	6.0	0.0
AC-Trident	181	4.0	4.0	6.0	0.0
<u>Great Northern</u>					
Matterhorn	2616	5.0	3.3	2.3	1.3
CDC-Crocus	2372	3.0	1.0	2.0	1.0
93-207G	1589	6.0	5.0	5.0	0.0
Weihing	1245	6.3	5.3	3.0	1.0
<u>Pink</u>					
L94C356	466	2.3	2.5	5.9	0.4
<u>Pinto</u>					
94-1015P	1463	4.0	3.0	3.0	1.0
ISB-5893	1086	3.3	4.3	5.0	1.0
CDC-Pinnacle	929	3.3	2.0	4.3	1.3
97-409P	924	3.0	4.0	5.0	0.3
94-1009P	820	4.0	3.3	4.0	1.0
Montrose	628	2.3	3.0	3.0	1.0

Kodiak	604	3.3	3.0	3.0	1.0
Elizabeth	327	5.0	5.0	7.0	0.0
Buster	174	4.0	5.0	6.3	0.0
AC-Pintoba	126	4.0	4.0	6.0	0.0

Small Red

R93-365	1365	5.0	3.3	2.0	0.0
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Dark Red Kidney

AC-Calmont	296	3.0	4.3	5.0	0.0
Red-Hawk	177	3.0	4.0	3.0	0.0

Light Red Kidney

Chinook-2000	275	5.0	5.3	5.0	0.0
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White Kidney

WK-380	227	5.0	5.0	4.0	0.0
Beluga	199	5.0	5.3	4.0	0.0

Mean	664	4.1	4.0	4.9	
LSD 5%	528	1.6	1.5	1.4	
C.V. %	44	28	26	31	

2000 Western Regional Bean Root Rot Trials.

Line	Yield lbs/A	Emergence (1-9)	Early Seedling Vigor(1-9)	Curly Top Virus(1-9)	Desirability
<u>Great Northern</u>					
Matterhorn	2616	5.0	3.3	2.3	1.3
UI-465	2583	5.0	3.0	4.3	0.0
OT9737-8-9	2250	5.3	4.0	1.0	2.0
93-203G	1914	6.0	4.0	2.0	0.0
LB2113-3	1805	5.3	3.3	5.3	0.0
93-207G	1589	6.0	5.0	5.0	0.0
93-208G	1480	6.0	5.0	5.3	0.0
98-163G	1273	7.3	6.3	4.0	0.0
98-164G	920	7.0	6.0	4.3	0.0
<u>Pink</u>					
UI-537	2010	2.3	3.3	2.0	1.0
PR95-055-2-1-11347		3.0	4.0	2.0	1.0
<u>Pinto</u>					
94-1015P	1118	4.0	3.3	3.0	2.0
98-224P	1018	3.3	3.0	5.0	1.0
CO-75714	815	5.0	3.3	4.0	0.0
CO-74527	809	3.0	3.0	4.3	1.0
CO-64589	800	3.0	4.0	5.3	1.0
94-1009P	759	4.0	4.0	4.0	0.3
97-194P	743	5.0	4.3	3.3	0.3
CO-74905	722	3.0	4.3	3.3	0.0
H9657-42-2	706	6.0	5.0	3.3	0.3
98-223P	682	3.0	3.0	5.0	0.0
Montrose	628	2.3	3.0	3.0	1.0
CO-74526	617	3.3	3.0	4.0	0.3
CO-75511	580	4.0	4.0	3.3	0.0
CO-74518	399	4.3	5.0	4.3	0.0
USPT-73	262	2.3	5.0	5.3	0.0
Burke	227	3.0	3.0	5.3	0.3
CO-75944	207	3.0	5.0	6.3	0.0
Buster	174	4.0	5.0	6.3	0.0

Small Red

NW-63	2086	3.0	4.0	3.0	0.0
R93-365	1365	5.0	3.3	2.0	0.0
LB1-2110-28	924	3.0	5.0	2.0	0.0
Mean	1107	4.0	3.8	4.5	
LSD 5%	442	1.7	1.8	1.8	
C.V. %	34	25	28	36	

