

National Verticillium Wilt Trial
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Three trials were planted on May 4, 2011. Each consisted of three replications of five-hill units of 48 cultivars and advanced selections from the U.S. potato breeding programs. Trial A was planted on a fumigated field and was used to evaluate yield. Trial B was planted on a nearby field that was inoculated with *V. dahliae* in 2006 and has been maintained as a VW screening plot. This field was used to evaluate disease symptom expression, yield in the presence of *V. dahliae*, and colonization of dying stems. Trial C was also planted on the inoculated field and was destructively sampled during the summer to evaluate colonization of green stems.

On July 26 and August 2, 10, 16, and 24, plots in Trial B were scored for percent foliage expressing Verticillium wilt symptoms. On August 2, stems from all clones in Trial C were collected, surface disinfested, and squeezed in a vice to collect sap for plating. For each plot, 100 ul of sap was plated on selective medium and the plates were incubated in the dark for two weeks. After that, they were microscopically examined to determine the number of colony forming units per 100 ul of sap. On August 29, vines in Trials A and B were killed. On September 7, stems were collected from all clones in the Trial B field and allowed to air dry at room temperature. All main stems from a plot were ground in a Wiley mill and 50 mg per plot was plated on selective medium. On October 6, the seven cultivar standards in Trials A and B were harvested with a single row digger, and tubers from each plot were picked up by hand and weighed.

Symptom and sap data from the trial clones are presented in Table 1. Ranger Russet is the most resistant cultivar check and Russet Norkotah is the most susceptible. Clones with low symptom and sap counts include MSQ086-3, W6360-1rus, CO99053-3RU, A98345-1, AF3001-6, W6703-5y, W6703-1y, W7449-1rus, W8722-1rus, and W8946-1rus.

Table 1. Verticillium wilt resistance scores. AUDPC=area under the disease progress curve, sap = cfu/100 ul sap.

<u>Clone</u>	<u>AUDPC</u>			<u>Sap</u>		
	<u>Rep 1</u>	<u>Rep 2</u>	<u>Rep 3</u>	<u>Rep 1</u>	<u>Rep 2</u>	<u>Rep 3</u>
A01010-1	237	945	805	112	448	2176
A01025-4	1270	1195	1062	4816	3010	2120
A02060-3TE	800	545	490	236	2464	2651
A97066-42LB	420	145	272	1154	404	1208
A98345-1	325	525	475	460	84	328
AC99375-1RU	330	507	330	42	3888	1568
AF0338-17	857	875	1025	971	1598	1807
AF3001-6	852	362	147	392	0	444
AF4125-1	2040	1885	1780	776	772	1400
ATC00293-1W/Y	1005	562	600	8	194	844
Atlantic	1087	805	647	1411	765	3169
BNC201-1	1765	1182	1767	1584	2221	1456
BNC202-7	1890	1645	1245	.	2601	2352
BNC202-3	942	710	1077	692	1696	1755
B2731-11	1255	895	1277	12	740	1220
B2756-7	1367	1955	2325	0	100	1468
CO00188-4W	2417	2102	2250	664	792	720
CO00412-5W/Y	1512	1150	1562	1181	3416	2884
CO99053-3RU	580	325	397	316	856	736
Freedom Russet	477	437	1350	912	72	2047
MN02467	697	435	530	520	644	2249
MN02586	1622	812	880	1469	720	185
MN02588	20	95	110	1656	148	1252
MN02616	2215	1565	2185	1648	1882	1680
MN03339-4	327	520	585	348	1384	1024

MN15620	512	327	257	96	156	2030
MN18747	1925	1777	1987	1300	10640	1816
MN19298	1145	1242	1037	3405	4906	632
MSL007-B	1215	857.5	677	188	648	224
MSL292-A	1035	1877	1552	424	872	104
MSQ086-3	55	237	312	1	0	18
MSQ176-5	800	927	830	3038	652	1844
MSR061-1	727	910	760	1236	528	740
Ranger Russet	760	455	637	206	290	1259
Red Norland	2250	2452	1930	798	1141	1250
Russet Burbank	952	917	817	666	3868	1010
Russet Norkotah	2505	2162	2302	639	2839	1969
Superior	2267	1925	2290	2455	709	737
W6360-1rus	707	182	272	24	268	20
W6511-1R	1500	547	1522	1859	3168	340
W6703-1y	600	455	365	324	476	488
W6703-5y	532	472	365	768	564	488
W7449-1rus	690	400	400	17	564	344
W8722-1rus	910	187	420	528	616	124
W8733-1rus	1082	1105	517	1725	540	1672
W8822-1	737	600	730	2626	1878	764
W8946-1rus	637	562	400	20	0	3
White Pearl	1445	.	650	3309	1951	2195