

***Beta* Germplasm Evaluation in 1995**

Since its creation in 1983, the Sugarbeet Crop Germplasm Committee has made the evaluation of germplasm contained in the *Beta* collection of the National Plant Germplasm System (NPGS) a priority. In 1995, 21 accessions of *Beta vulgaris* subsp. *maritima* were collected in Egypt, and were evaluated for resistance to important sugarbeet diseases (Table 1) and for agronomic and morphological characteristics (Tables 2 - 4). A summary of the evaluation is presented.

These data, and all other *Beta* evaluation data, are available through the Germplasm Resources Information Network (GRIN) of the NPGS. GRIN is the centralized computer database system that manages plant germplasm documentation and movement throughout NPGS. GRIN can be accessed several ways. If you have access to the World Wide Web, the URL is <http://www.ars-grin.gov>. The *Beta* portion of the database also can be down loaded to your PC for easy access in your office. GRIN can also be reached through the Internet with Gopher client software by typing: `gopher gopher.ars-grin.gov`. Once on the ARS Gopher server, go to the National Plant Germplasm System menu for information. You can also dial into the system using a personal computer, modem, and a communications software package. The number to call is: 301-504-6227; after the connect message, press `Enter >`; log in at the login prompt by typing “grin”; log out by typing “q”. Questions can be addressed to the Data Base Management Unit (DBMU) at the email address grin@ars-grin.gov or by FAX at 301-504-5536.

Table 1. Evaluation of 21 *Beta vulgaris* *subsp. maritima* germplasm organized by the Sugarbeet Crop Germplasm Committee in 1995. Curly Top by T. Brown (BSDF), Rhizoctonia and Leaf Spot by E. Ruppel (USDA), Nematode by S. Hafez (U. of Idaho), Root Aphid by G. Michels, (Texas A & M), Rhizomania and Virus Yellows by R. Lewellen (USDA), Root Maggot by A. Anderson (North Dakota State U).

WB CODE	PI Number	Curly Top†	Rhizoctonia§	Leaf Spot†	Nematode#	Root Aphid††	Root Maggot††	Aphanomyces§§
WB 1003	PI 562581	9.0	6.8	9.5	869	1.0	7	4.8
WB 1004	PI 562582	9.0	6.4	9.5	683	1.0	7	4.6
WB 1005	PI 562583	9.0	7.0	9.5	861	1.7	7	4.6
WB 1008	PI 562586	9.0	6.9	9.0	750	2.7	7	3.4
WB 1009	PI 562587	9.0	6.2	9.0	799	1.0	7	3.6
WB 1010	PI 562588	9.0	6.8	9.0	782	1.9	7	5.6
WB 1011	PI 562589	9.0	6.9	9.0	650	2.1	7	5.0
WB 1012	PI 562590	9.0	6.8	9.0	921	1.5	7	3.6
WB 1013	PI 562591	5.5	5.1	5.5	713	2.7	7	6.6
WB 1014	PI 562592	9.0	6.8	9.0	762	2.1	7	4.0
WB 1016	PI 562594	9.0	6.9	8.0	789	2.2	7	4.6
WB 1017	PI 562595	9.0	7.0	9.0	839	2.3	7	3.6
WB 1018	PI 562596	9.0	6.9	9.5	798	2.3	7	4.2
WB 1019	PI 562597	7.5	5.0	5.5	759	2.7	7	3.4
WB 1020	PI 562598	9.0	6.8	9.0	576	2.3	7	4.0
WB 1021	PI 562599	6.5	5.1	5.0	846	2.7	7	4.4
WB 1022	PI 562600	6.0	5.4	5.0	784	1.3	7	7.6
WB 1023	PI 562601	6.5	5.7	5.0	729	1.5	7	6.6
WB 1024	PI 562602	7.0	5.8	4.8	679	2.2	7	4.4
WB 1025	PI 562603	6.5	4.8	5.5	433	2.0	7	4.6
WB 1026	PI 562604	6.0	6.2	5.0	740	2.5	7	3.8
Susceptible Check		6.0	4.7	5.3	594	2.5	7	6.8
Resistant Check		4.5	1.3	3.3		1.3	3	1.0
LSD 0.05		0.7	0.93	0.85	NS	0.60		

† Note: Rhizomania and Virus Yellows evaluation: All lines were very easy bolting and had to be removed in mid-July before hard seed set. They bolted so rapidly that scoring them in the field was difficult. No information on virus yellows reaction was obtained. When removed from the field, the root system was examined and all appeared to be highly susceptible to Rhizomania (BNYVV).

‡ Disease Index is based on a scale of 0 (= healthy) to 9 (= dead).

§ Disease Index is based on a scale of 0 (= healthy) to 7 (= dead).

¶ Disease Index is based on a scale of 0 (= healthy) to 10 (= dead).

Average number of cysts in the root-soil system at harvest.

†† Rating based on: 1 - no nymphs or adults present; 2 - nymphs present, no adults present; 3 - nymphs present, few adults present; 4 - nymphs present, many adults present.

‡‡ Disease Index is based on a scale of 0 (= healthy) to 9 (= dead).

§§ Disease Index is based on a scale of 0 (= healthy) to 9 (= dead).

Table 2. Evaluation of 26 *Beta vulgaris* subsp. *maritima* germplasm organized by the Sugarbeet Crop Germplasm Committee in 1995. Agronomic and morphological characteristics by D. Doney (USDA). Rating descriptors and scales are given in Table 4.

WB Code	PI Number	Num	Grow H	Leaf E	L Pig	Hair	L Thi	Pet L	Pet W	Blad L	Bla W
WB1001	PI562579	26	5	1	2	0	6	40	5 - 7	85 - 100	50 - 65
WB1002	PI562580	12	5	1	2	0	6	40 - 70	5 - 8	80 - 95	50 - 70
WB1003	PI562581	43	5	1	2	0	6	35 - 65	5 - 7	75 - 100	50 - 65
WB1004	PI562582	20	5	1	2	0	6	30 - 75	5 - 7	80 - 110	55 - 75
WB1005	PI562583	20	5	1	2	0	6	35 - 50	5 - 7	65 - 110	55 - 75
WB1006	PI562584	6	5	1	2	0	6	30 - 50	5 - 7	55 - 90	35 - 60
WB1007	PI562585	2	5	1	2	0					
WB1008	PI562586	24	5	1	2	0	6	35 - 60	5 - 8	65 - 105	40 - 80
WB1009	PI562587	24	5, few 1	1, few 8	2	0	6	35 - 60	6 - 7	75 - 105	60 - 75
WB1010	PI562588	44	5	1	2	0	6	35 - 90	6 - 7	75 - 125	55 - 80
WB1011	PI562589	45	5	1	2	0	6	35 - 50	5 - 7	80 - 90	50 - 70
WB1012	PI562590	33	5	1	2	0	6	35 - 50	5 - 8	75 - 95	50 - 80

Table 2. (Continued).

WB Code	PI Number	Num	Grow H	Leaf E	L Pig	Hair	L Thi	Pet L	Pet W	Blad L	Bla W
WB1013	PI562591	37	1, few 3	8	1, few 2	0	4	90 - 260	7 - 14	140 - 270	120 - 180
WB1014	PI562592	10	5	1	2	0	6	35 - 60	6 - 7	85 - 105	60 - 75
WB1015	PI562593	2	5	1	2	0	6	35 - 50	5 - 6	65 - 100	45 - 60
WB1016	PI562594	11	5	1	2	0	6	30 - 60	5 - 8	85 - 100	60 - 65
WB1017	PI562595	23	5	1	2	0	6	40 - 70	5 - 7	80 - 95	60 - 70
WB1018	PI562596	29	5	1	2	0	6	35 - 60	5 - 8	85 - 95	60 - 75
WB1019	PI562597	43	5	1	2	0	5 & 6	45 - 80	5 - 7	85 - 120	65 - 80
WB1020	PI562598	39	5	1	2	0	6	40 - 70	5 - 7	85 - 95	55 - 70
WB1021	PI562599	19	1, few 3	8 & 6	1 & 2	0	4	65 - 250	5 - 14	100 - 290	50 - 180
WB1022	PI562600	36	1, few 3	8 & 6	1 & 2	0	4	70 - 310	7 - 15	120 - 260	70 - 160
WB1023	PI562601	49	2	8 & 6	1 & 2	0	4	60 - 290	7 - 15	110 - 290	80 - 160
WB1024	PI562602	37	2	8 & 6	1, few 3	0	4	75 - 160	5 - 9	75 - 190	35 - 115
WB1025	PI562603	43	1 & 2	6 & 8	1, few 2	0	4	45 - 215	5 - 13	85 - 220	55 - 120
WB1026	PI562604	61	1 & 2	6 & 8	1 & 2	0	4	30 - 150	4 - 13	65 - 275	45 - 150

Table 3. Evaluation of 26 *Beta vulgaris* subsp. *maritima* germplasm organized by the Sugarbeet Crop Germplasm Committee in 1995. Agronomic and morphological characteristics by D. Doney (USDA). Rating descriptors and scales are given in Table 4.

WB Code	PI Number	Pet C	Hyp C	Root C	Fl C	Root S	St P	MS	Germ (no./ball)	Leaf vein color	Bolt % - Date
WB1001	PI562579	2	3	1	1	7	2	1	3 & 4	Red, Green	100 - 22/6
WB1002	PI562580	2	3	1	1	7	2	1	3 & 4	Green, Red	100 - 22/6
WB1003	PI562581	2	3	1	1	7	2	1	3 & 4	Green	100 - 22/6
WB1004	PI562582	2	2 & 3	1	1	7	2	1	2 & 3	Green, Red	100 - 22/6
WB1005	PI562583	2	3	1	1	7	2	1	2 & 3	Red	100 - 22/6
WB1006	PI562584	2	3	1	1	7	2	1	3 & 2	Green, Red	100 - 22/6
WB1007	PI562585	2		1	1	7	2	1	3 & 4		100 - 22/6
WB1008	PI562586	2	3	1	1	7	2	1	2 & 3	Green, Red	100 - 22/6
WB1009	PI562587	2	3	1	1	7	2, few 1	1	2 & 3	Green, Red	100 - 22/6
WB1010	PI562588	2	3	1	1	7	2	1	3	Green, Red	100 - 22/6
WB1011	PI562589	2	3	1	1	7	2	1	2 & 3	Green, Red	100 - 22/6
WB1012	PI562590	2	3	1	1	7	2	1	3 & 4	Green, Red	100 - 22/6

Table 3. (Continued)

WB1013	PI562591	1, few 2	2	1	1	7 sl. swollen	1, few 2	1	3, 4 & 5	Green	6 - 22/6; 100 - 20/7
WB1014	PI562592	2	3	1	1	7	2, few 3	1	4 & 3	Green, Red	100 - 22/6
WB1015	PI562593	2	3	1	1	7	2	1	3	Green	100 - 22/6
WB1016	PI562594	2	3	1	1	7	2, few 3	1	3 & 2	Green, Red	100 - 22/6
WB1017	PI562595	2	3	1	1	7	2	1	3 & 2	Green, Red	100 - 22/6
WB1018	PI562596	2	3	1	1	7	2	1	3	Green, Red	100 - 22/6
WB1019	PI562597	2 & 1	3	1	1	7	2	1	3 & 4	Green	100 - 22/6
WB1020	PI562598	2	3	1	1	7	2	1	3 & 4	Green, Red	100 - 22/6
WB1021	PI562599	1, few 2	2 & 3	1	1	7 sl. swollen	1, few 2	1	2 - 5	Green	25 - 22/6; 100 - 20/7
WB1022	PI562600	1, few 2	2 & 3	1	1	7 sl. swollen	1	1	3	Green	40 - 22/6; 100 - 20/7
WB1023	PI562601	1, few 2	2 & 3	1, few 4	1, few 4	7 sl. swollen	1, few 3	1	3	Green	50 - 22/6; 100 - 20/7
WB1024	PI562602	1, few 3	3	1, few 4	1, few 4	7 sl. swollen	1, few 4	1	2 & 3	Green	50 - 22/6; 100 - 20/7
WB1025	PI562603	1, few 2	3	1	1	7 sl. swollen	1, few 2 & 4	1	2 & 3	Green	50 - 22/6; 100 - 20/7
WB1026	PI562604	1, few 2	2 & 3	1	1	7 sl. swollen	1, few 2	1	2 & 3	Green	50 - 22/6; 100 - 20/7

Table 4. Rating descriptors and scales for agronomic and morphological evaluation of *Beta vulgaris* subsp. *maritima* germplasm.

Number plants/plot = Num

Growth Habit (Grow H): 1 = Erect 2 = Erect & Procumbent 3 = Procumbent 4 = Erect & Prostrate 5 = Prostrate	Leaf Erectness (Leaf E): 1 = Prostrate 5 = Procumbent 9 = Erect	Leaf Blade Pigmentation (L Pig): 1 = Light Green 2 = Green 3 = Green Red mix 4 = Red	Leaf Hairiness (Hair): 0 = Hairs Absent 3 = Hairs scarce 5 = Hairy 7 = Very Hairy	Leaf Thickness (L Thi): 3 = Thin 5 = Medium 7 = Thick
Petiole Length (Pet L) (minimum - maximum in mm)	Petiole Color (Pet C): 1 = Green 2 = Pink 3 = Red 4 = Mixed 5 = Yellow	Hypocotyl Pigmentation (Hyp C): 1 = Green 2 = Pink 3 = Red 4 = Mixed	External Root Color (Root C): 1 = White 2 = Yellow 3 = Orange 4 = Red 5 = Dark Red	Main Color of Flesh (Fl C): 1 = White 2 = Yellow 3 = Orange 4 = Red 5 = Purple
Petiole Width (Pet W) (minimum - maximum in mm)				
Leaf Blade Length (Blad L) (minimum - maximum in mm)				
Leaf Blade Width (Bla W) (minimum - maximum in mm)				
Root Shape (Root S): 1 = Narrow elliptic 2 = Elliptic 3 = Circular 4 = Broad Elliptic 5 = Narrow oblong 6 = Narrow triangular 7 = Non-swollen 8 = Fibrous	Flower Stem Pigmentation (St P): 1 = Light Green 2 = Green 3 = Green Red Mix 4 = Red	Male Sterility (MS): 1 = Fertile 2 = Semi-Sterile 3 = Sterile	Bolting Tendency (% on given date) First date = 22 June 1995 Second Date = 20 July 1995	
		Multigerm (Germ): Number of germs/seedball		