Table 13. Reaction of entries in the 1997 Southern Regional Performance Nursery to Soilborne Wheat Mosaic Virus. Data provided by Bob Hunger and John Sherwood, Entomology and Plant Pathology Dept., Oklahoma State University, Stillwater.

Entry	C.I. or SEL. NO.	SOILBORNE MOSAIC VISUAL 1-4	SOILBORNE MOSAIC ELISA O.D.	SOILBORNE MOSAIC ELISA Sdev	GRAIN YIELD GM	1000-KERNEL WEIGHT GM
01	CI1442 ('Kharkof')	4.0	1.38	(0.11)	12.1	22.7
02	CI13996 ('Scout 66')	4.0	1.30	(0.13)	24.0	24.0
03	PI495594 ('TAM-107')	4.0	1.35	(0.23)	8.8	23.7
04	OK93617	4.0	1.38	(0.17)	18.5	25.3
05	OK94P549	3.7	1.31	(0.13)	51.0	29.0
06	OK94P461	1.0	0.06	(0.00)	63.5	31.0
07	TX91D6825	1.0	0.92	(0.76)	137.4	32.3
08	TX91D6856	4.0	1.41	(0.16)	23.6	25.5
09	HBG0358	1.0	0.06	(0.06)	154.3	39.6
10	TX94V2327	4.0	1.42	(0.03)	69.9	24.9
11	TX94V3329	4.0	1.36	(0.14)	40.0	18.0
12	TX95V4926	3.3	1.42	(0.12)	43.3	22.5
13	TX95V4933	4.0	1.36	(0.18)	54.4	20.8
14	TX95V5332	4.0	1.37	(0.13)	27.7	19.9
15	TX94V2130	1.3	1.02	(0.81)	67.1	26.7
16	CO910424	1.3	0.48	(0.76)	109.6	30.1
17	CO920696	4.0	1.42	(0.11)	13.0	19.3
18	CO9940700	4.0	1.33	(0.26)	12.7	18.4
19	KS94H147	1.7	0.17	(0.09)	119.4	30.6
20	KS941064-6	1.3	0.87	(0.72)	77.4	29.5
21	KS940935-125-5-2	1.3	0.48	(0.74)	76.9	31.5
22	KS5W663-11-6-MB	1.3	0.05	(0.03)	109.3	28.7
23	KS84WO63-9-39-3-MB	1.0	0.11	(0.10)	154.4	28.4
24	N95L158	1.7	0.08	(0.12)	78.3	26.1
25	NE93405	4.0	1.40	(0.13)	13.2	27.0
26	NE93427	1.0	0.12	(0.06)	72.9	29.3
27	NE93496	4.0	1.38	(0.11)	11.0	26.3
28	NE94632	3.3	1.37	(0.14)	72.5	22.2
29	W94-042	4.0	1.39	(0.09)	27.7	21.3
30	W94-137	1.0	0.43	(0.71)	84.2	23.8
31	W94-320	1.0	0.53	(0.63)	95.7	30.3
32	W94-245	4.0	1.37	(0.09)	33.4	20.0
33	W94-435	2.3	0.04	(0.04)	76.5	26.6
34	WX94-3504	1.0	0.42	(0.58)	108.1	35.6
35	WX94-1604	1.0	0.98	(0.84)	108.9	31.8
36	XH1877	2.0	0.09	(0.08)	107.9	28.3
37	XH1881	1.0	0.91	(0.78)	134.1	31.8
38	WX95-2401	1.3	0.26	(0.39)	55.1	29.5
39	T89	2.0	1.03	(0.84)	41.6	31.0
40	T86	4.0	1.42	(0.12)	27.9	25.5
41	T93	1.0	0.09	(0.07)	87.0	30.1
42	T94	1.7	0.95	(0.73)	68.0	31.4
43	G1594	1.0	0.10	(0.09)	113.3	29.9
44	G1720	1.3	0.50	(0.80)	65.2	26.6
45	G12017	1.0	0.82	(0.65)	98.3	28.7
LSD (P=0.05)		0.5			39.5	2.8

Table 13. SBMV ratings and experimental methodology.

Reaction to WSBMV was determined for wheat entries in the 1997 Southern and Northern Regional Performance Nurseries. The trial was conducted near Stillwater, OK, in a Norge loam soil. Soil tests were used to insure adequate fertilization (N-P-K) and pH for a production goal of 40 bu wheat/A. The experimental design was a randomized complete block with three replications (three, 2-ft rows per entry). Seeds were planted about 1.0 in. deep at a rate of 24 seeds/2-ft row on 09 Oct 96. Rows of ' Vona' [WSBM-susceptible, wheat spindle streak mosaic (WSSM)-susceptible], 'Sierra' (WSBM-resistant, WSSM-susceptible) and 'Hawk' (WSBM-resistant, WSSM-resistant) were planted between reps to monitor the presence and distribution of WSBM and WSSM. Glean (chlorsulfuron, 0.33 oz/A in 24 gal) was applied on 14 Nov 96 to control weeds, and Tilt (propiconazole, 4 oz/A in 22 gal) was applied on 14 Apr and 10 May 97 to control foliar diseases. Entries were assessed for symptoms on 03 Mar 97 using a visual assessment index of 1-4, where 1=no stunting, no mosaic, 2=slight stunting and/or slight mosaic, 3=moderate stunting and/or slight mosaic, and 4=severe stunting and/or severe mosaic. Young foliage was collected from each row of each entry on 05 Mar 97 for evaluation by ELISA (Hunger, et al. 1991. Crop Sci. 31:900-905). The trials were harvested on 07 Jun (SRPN) and 11 Jun (NRPN).

WSBM was uniformly distributed as indicated by the susceptible checks. WSSMV was detected by ELISA (absorbance values >0.30) in 11 of 39 Vona, Hawk, and Sierra samples. Vona samples (n=32) had Visual indices of 4 and values from ELISA for WSBMV from 1.12 to 1.63 (mean=1.34). Sierra and Hawk samples (n=18) had Visual indices of 1 or 2, and values from ELISA for WSBMV from 0.01 to 0.09 (mean=0.04) with four exceptions (0.13. 0.24, 0.80, and 1.17). Twenty-five RPN entries and seven NRPN entries were resistant to WSBM (Visual ≤2.0 and values from ELISA consistent with no detectable virus or virus concentrations less than those of the susceptible check cultivar Vona).

The 25 SRPN entries identified as WSBMV-resistant had an average yield of 95.5 gm (sd=30.0) and an average TKW of 30.1 gm (sd=3.1) compared to an average yield of 33.1 gm (sd=21.7) and a TKW of 23.1 gm (sd=3.1) for the 20 WSBMV-susceptible entries. The seven NRPN entries identified as WSBMV-resistant had an average yield of 92.5 gm (sd=20.5) and an average TKW of 26.8 gm (sd=2.8) compared to an average yield of 26.1 gm (sd=11.5) and an average TKW of 19.8 gm (sd=2.4) from the 28 WSBMV-susceptible entries. These results indicate a significant affect of WSBMV on yield and seed quality, and also demonstrate the effectiveness of this nursery to screen for reaction to WSBMV.