

## SOIL-BORNE MOSAIC NURSERY

The nursery contained 92 entries in 1991. Disease reaction data from field trials at Lincoln, NE and Urbana, IL are included.

Also included are data provided by R. M. Hunger and J. L. Sherwood, Oklahoma State University, from both field symptomatology and enzyme-linked immunosorbent assay (ELISA) reactions. Entries in the SBMV Nursery were planted in a field with history of severe SBMV infection on 9/26/90 and replicated twice (SRPN entries were replicated three times). The field was fallowed the previous year and irrigated at emergence to facilitate infection by *Polymyxa graminis* Led. Nurseries were evaluated for SBMV symptoms and foliar samples collected the week of 3/14/91. Visual scores were as follows: 0 = no stunting or mosaic; 1 = slight stunting and/or slight mosaic; 2 = moderate stunting and/or moderate mosaic; 3 = severe stunting and/or severe mosaic; and Seg = segregating. ELISA values indicate presence or absence of SBMV capsid (coat protein) in the sample. Values <0.10 indicate little or no capsid present, and values >0.50 indicate capsid was present. Intermediate values (between 0.10 and 0.50) indicate some accumulation of SBMV capsid. The ELISA test is extremely sensitive and as few as one infected plant in the row can result in an ELISA value >0.10. ELISA values of foliage from the resistant cultivars Hawk or Newton sometimes are >1.0, which indicates that cultivars can support virus replication even though they are considered resistant to SBMV. Positive ELISA values frequently occur in combination with visual assessments indicating resistance. Interpretation of ELISA values and decisions of resistance or susceptibility should be considered in relation to visual assessments and other information available. Additional information regarding the ELISA testing procedures can be obtained from: Hunger, R. M., Sherwood, J. L., Smith, E. L., and Armitage, C. R. 1991. Symptomatology and enzyme-linked immunosorbent assay used to facilitate breeding for resistance to Wheat Soilborne Mosaic. *Crop Science*. 31(4):900-904.

1991  
Soilborne Mosaic Nursery

Entry No.	Variety or Pedigree	Sel. No.	Source	Urbana, IL		Lincoln, NE
				Rep 1	Rep 2	
				-- 0-9 --		1-3*
1	Pawnee	CI11669	Check	7	8	2
2	F29-76/T105//Csm	OK88767	Oklahoma	5	7	2
3	Csm*3/3/Newton/Largo//2*Csm	OK88W833	"	7	7	3
4	TX78V2154/Siouxland	TX88V4636	Texas	9	9	3
5	Vona/TX71D4889-V3	TX84V1418HF	"	7	7	2
6	Karl Resel.	TX88V5440	"	2	1	1
7	TX78V2154/Siouxland	TX88V4635	"	9	9	3
8	TAM-105/3/NE70854/BBY/Bow's	TX87V1613	"	9	9	2
9	NE78696/Payne	TX88V4524	"	8	8	2
10	Concho	CI12517	Check	3	5	1
11	TAM-200//TX38949-2/TAM-107	TX89V4138	Texas	9	9	3
12	Karl Resel.	TX88V5433	"	2	1	2
13	TX82D4651//Amigo/TX71A106-5	TX88D3424	"	9	9	3
14	TX73165/Sandy	C0860086	Colorado	7	8	2
15	NE76667/Hawk	C0860094	"	7	7	2
16	Bulk Selection	KSSB-369-7	Kansas	3	5	3
17	Bulk Selection	KSSB-192-3	"	3	5	2
18	2162 sib/W6430C//W9519A	HBC197F	"	3	5	2
19	Norkan/TAM-108	KS88H12-1	"	2	5	2
20	Bison	CI12518	Check	9	9	3
21	Norkan/TAM-108	KS88H12-2	Kansas	2	4	2
22	Nwt/2/Wrr*5/Agent/4/TAM-105/3/Larned					
	//Eagle/Sage	NE87409	Nebraska	7	5	1
23	NE68513/NE68457//Ctk78/3/Brule	NE87451	"	7	7	2
24	Arkan/Colt//Chisholm sib	NE88595	"	7	7	2
25	Bennett/TAM-107	NE88427	"	7	7	3
26	Quantum Hybrid Wheat	XH900	HybriTech	5	5	2
27	Concho	CI12517	Check	5	3	2
28	Quantum Hybrid Wheat	XH1322	HybriTech	3	3	3
29	"	XH1514	"	2	3	1
30	Pawnee	CI11669	Check	9	8	2
31	Bulk Selection	WI88-083	Agripro	6	6	2
32	NS2630/Thunderbird	WI88-024	"	7	7	3
33	TAM-108/TX78V2154	T19-3	Trio	7	7	3
34	2165/Vona	T67	"	7	6	3
35	TAM-108/Lancota	T21-3	"	1	2	1
36	HRW Hybrid	TH901	"	1	3	2
37	HRW Hybrid	TH902	"	4	3	2
38	Sage/Bsk	SD88218	So. Dakota	9	9	3
39	Brule/Dawn	SD88201	"	9	9	2
40	Concho	CI12517	Check	5	5	1
41	Brule/Dawn	SD88192	So. Dakota	7	9	2
42	Gent/TX78A3630	SD88120	"	8	9	3
43	TX78A3630/Lco	SD88137	"	7	9	2
44	SD76501-28-4/Brule	SD88240	"	9	9	2
45	Sxl/Lco	SD88148	"	7	7	2
46	Rri/Sxl	SD88171	"	9	9	1
47	Dawn/4/Butte*2//NW7125/3/SD76705	SD88250	"	5	3	2
48	Wnk/SD6914//Siouxland	ND8844	No. Dakota	9	7	3
49	Mvr/KS79397//Nsr/3/Siouxland	ND8892	"	8	6	2
50	Bison	CI12518	Check	8	7	1
51	T. Diccocoides/Brule//Arkan	NE88536	Nebraska	9	8	3
52	Agent/4*Scout//Hand/3/TAM-105/4/Sxld	NE88635	"	4	5	2
53	"	XNH1419	HybriTech	7	6	2
54	"	XNH1469	"	8	6	3
55	"	XNH1486	"	7	7	3
56	Colt*2/Chisholm	NE87513	Nebraska	6	5	2
57	Centura//Sage/Arthur (KS79H70)	NE87522	"	7	7	3
58	Newton//Wrr*5/Agent/3/NE69441	NE87612	"	8	7	3
59	NE76668/4/TAM-105/3/Larned//Eagle/Sage	NE87613	"	6	7	2

## 1991 Soilborne Mosaic Nursery, Concluded.

Entry No.	Variety or Pedigree	Sel. No.	Source	Urbana, IL		Lincoln, NE
				Rep 1	Rep 2	
				-- 0-9 --		1-3*
60	Pawnee	CI11669	Check	7	8	2
61	NE68513/NE68457//Ctk//Brule	NE87615	Nebraska	7	7	2
62	Bennett/TAM-107	NE88427	"	5	7	2
63	Wrr*5/Agent//Aurora/3/Ctk78/4/Brule	NE88453	"	7	7	3
64	Severodonskaya/Siouxland	NE88526	"	7	7	3
65	Brule//Wrr*5/Agent/3/Agate's'/Colt's'	NE88556	"	8	8	2
66	Centura/Dawn//Colt's'	NE88584	"	7	7	2
67	"	NE88588	"	7	7	3
68	Arkan/Colt//Chisholm's'	NE88595	"	7	8	3
69	TAM-107 x Hawk x Wrr*5/Agent//Ctk78	NE89429	"	8	8	2
70	Concho	CI12517	Check	3	3	2
71	TAM-107 x Larned x Brule sel.	NE89439	Nebraska	7	7	3
72	Sxld/CO725082*2//Rrr/3/Dawn	NE89468	"	7	7	3
73	Sxld/NE7060	NE89479	"	9	8	2
74	"	NE89482	"	9	8	3
75	NE68613/Sage (NE80431)//Migro Archer	NE89504	"	7	7	2
76	Newton/Colt seln.	NE89511	"	6	3	3
77	TX80GH2679/Brule seln.	NE89522	"	7	6	2
78	TX80GH2679/Bennett	NE89523	"	7	6	3
79	Lancota seln./Sxld//TAM-103/KS73167	NE89526	"	8	8	3
80	Bison	CI12518	Check	9	8	2
81	NE80413 x NE78414 x TAM-103/KS73167 x TX792729	NE89529	Nebraska	5	4	2
82	Colt seln.//Colt/Severodonskaya	NE89532	"	7	7	3
83	"	NE89534	"	7	7	3
84	"	NE89544	"	7	7	3
85	TX79A2729/Bennett*2	NE89565	"	6	6	2
86	Sxld/Colt	NE89622	"	5	6	3
87	Colt*2/Partizanka	NE89646	"	7	8	3
88	Brule/3/Pkr*4/Agent//Bel.198/Lcr	NE89657	"	7	8	2
89	TAM-107/Arkan//Brule seln.	NE89665	"	5	3	3
90	Sxld/Arkan//NE77655 seln. x NE82765 x Dawn	NE89671	"	7	7	3
91	NapHal/Lcr//Karlik1/3/NS622/4/Ctk/GK-Tiz//Plv	NE86L177	"	3	1	2
92	Pawnee	CI11669	Check	8	7	1

\* 1 = no symptoms, 2 = mild symptoms, 3 = severe symptoms

1991 Soilborne Mosaic Nursery  
Data provided by Robert M. Hunger and John L. Sherwood,  
Department of Plant Pathology, Oklahoma State University

Entry No.	Selection No.	Visual		ELISA	
		Rep 1	Rep 2	Rep 1	Rep 2
1	CI11669	3	2	0.669	1.829
2	OK88767	2	2	0.651	1.670
3	OK88W833	2	2	0.693	1.851
4	TX88V4636	3	3	0.726	1.331
5	TX84V1418HF	3	2	0.736	1.788
6	TX88V5440	0	0	0.118	0.055
7	TX88V4635	3	3	0.753	1.799
8	TX87V1613	-	3	-----	1.556
9	TX88V4524	3	3	0.780	1.627
10	CI12517	Seg	Seg	0.791	1.089
11	TX89V4138	2	2	1.065	1.846
12	TX88V5433	0	0	0.029	0.029
13	TX88D3424	3	3	1.385	1.890
14	CO860086	2	3	0.799	1.844
15	CO860094	2	3	1.027	1.652
16	KSSB-369-7	2	2	0.831	1.085
17	KSSB-192-3	2	1	0.884	0.014
18	HBC197F	0	1	0.054	0.034
19	KS88H12-1	Seg	1	1.038	1.457
20	CI12518	2	2	0.931	1.044
21	KS88H12-2	0	1	0.080	0.818
22	NE87409	0	1	0.118	0.066
23	NE87451	2	3	0.740	1.491
24	NE88595	2	3	0.772	1.527
25	NE88427	3	2	0.685	0.842
26	XH900	1	2	1.129	1.308
27	CI12517	0	1	0.020	0.740
28	XH1322	1	1	0.856	1.671
29	XH1514	1	1	1.175	1.646
30	CI11669	2	2	1.466	1.760
31	WI88-083	1	0	0.033	0.089
32	WI88-024	3	3	0.877	1.749
33	T19-3	2	3	1.132	1.910
34	T67	2	2	1.035	0.605
35	T21-3	0	1	0.010	0.526
36	TH901	1	1	0.003	0.008
37	TH902	1	2	1.114	1.747
38	SD88218	2	3	0.959	1.611
39	SD88201	3	3	0.958	1.730
40	CI12517	1	1	0.019	0.053
41	SD88192	2	2	1.112	1.226
42	SD88120	3	2	1.040	1.988
43	SD88137	3	2	0.799	1.610
44	SD88240	3	2	1.260	1.652
45	SD88148	3	2	0.872	1.845
46	SD88171	2	2	1.430	1.703

1991 Soilborne Mosaic Nursery (continued)

Entry No.	Selection No.	Visual		ELISA	
		Rep 1	Rep 2	Rep 1	Rep 2
47	SD88250	2	1	1.056	0.317
48	ND8844	3	3	0.947	1.802
49	ND8892	3	3	0.987	1.954
50	CI12518	3	3	1.334	1.739
51	NE88536	3	3	1.572	1.937
52	NE88635	0	0	0.034	0.084
53	XNH1419	2	2	0.932	1.338
54	XNH1469	2	2	1.368	1.848
55	XNH1486	2	2	0.918	1.870
56	NE87513	0	0	0.056	0.061
57	NE87522	2	2	1.520	1.911
58	NE87612	2	2	1.156	1.857
59	NE87613	2	2	1.201	1.667
60	CI11669	3	2	0.982	1.826
61	NE87615	3	2	0.806	1.713
62	NE88427	2	2	1.016	1.930
63	NE88453	2	3	1.223	1.903
64	NE88526	2	3	0.879	1.835
65	NE88556	2	3	1.402	1.859
66	NE88584	2	2	1.819	1.513
67	NE88588	2	2	1.684	1.745
68	NE88595	2	2	1.278	1.885
69	NE89429	3	3	1.296	1.580
70	CI12517	1	0	1.253	0.041
71	NE89439	3	3	1.515	1.844
72	NE89468	3	3	1.009	1.638
73	NE89479	3	3	0.932	2.000
74	NE89482	3	3	0.945	1.648
75	NE89504	3	2	1.571	1.940
76	NE89511	2	0	1.637	0.051
77	NE89522	2	3	1.808	1.762
78	NE89523	3	2	1.568	1.295
79	NE89526	3	3	1.564	1.223
80	CI12518	3	2	1.909	1.961
81	NE89529	1	0	0.038	0.048
82	NE89532	2	2	1.716	1.625
83	NE89534	3	3	0.964	0.959
84	NE89544	3	3	1.677	1.692
85	NE89565	2	1	0.980	0.469
86	NE89622	2	3	1.123	1.683
87	NE89646	2	3	0.925	1.921
88	NE89657	2	3	0.756	1.747
89	NE89665	0	0	0.034	0.021
90	NE89671	2	3	0.983	1.476
91	N86L177	2	2	1.569	1.651
92	CI11669	2	2	1.631	1.810