

Title: Evaluation of Sm1 Experimental Spring Wheat Lines for Resistance to the Orange Wheat Blossom Midge (OWBM).

Objective: To evaluate insect resistance and agronomic performance of experimental spring wheat lines northwestern Montana.

Results:

Despite record low rain fall, significant differences were observed for height, test weight, thousand kernel weight, and number of OWBM per spike. The average number of OWBM per spike was 0.03 and ranged from 0.0 to 0.5 OWBM per spike. Plant height averaged 20.0 inches and ranged from 19.3 inches to 21.3 inches. Test weight averaged 55.9 lb/bu and ranged from 54.3 lb/bu for 12401227 to 57.6 lb/bu for 12401424 and 12400038. Thousand kernel weights averaged 25.5 grams, ranging from 21.5 grams for 12400817 to 31.9 grams for Hank.

Summary:

Midge pressure was low at this location. Never the less, Hank, a non-resistant variety, had the greatest number of OWBM larvae per spike in comparison to the cultivars with the Sm1 resistant gene.

Table 1. Materials and Methods - Sm1 Advanced Lines - 2015

Seeding Date:	5/6/2015	Harvest Date:	8/12/2015
Julian Date:	125	Julian Date:	224
Seeding Rate:	80 lb/A	Soil Type:	Somers Silty Clay Loam
Previous Crop:	Spring Wheat	Fertilizer (PP):	23-55-30-22
Tillage:	Conventional	Fertilizer (TD):	1.4Zn-200N
Irrigation:	None	Pesticide:	None

PP: pre-plant, TD: top dress

Table 2. Agronomic data from the evaluation of Sm1 Advanced Spring Wheat Lines, Kalispell, MT - 2015.

Cultivar	HT in	LOD %	YLD ¹ bu/A	PRO ² %	TWT ¹ lb/bu	TKW ¹ g	FN sec	OWBM #/spk
12401424	20.3	0.0	28.3	15.6	57.6	26.0	305	0.0
12400725	20.7	0.0	28.2	15.9	54.4	26.3	486	0.0
12401218	20.3	0.0	28.1	14.7	57.1	24.5	439	0.0
12401117	19.7	0.0	27.7	14.4	56.9	26.5	445	0.0
EGAN	21.0	0.0	27.1	15.6	54.4	25.8	506	0.0
12401161	19.7	0.0	26.8	15.2	55.0	24.3	503	0.0
12401322	20.0	0.0	26.7	16.4	56.9	31.4	456	0.0
12400976	19.3	0.0	26.4	15.9	55.3	24.7	479	0.0
12401236	19.7	0.0	26.4	15.2	56.8	28.8	483	0.1
12401182	20.7	0.0	25.8	15.4	56.6	23.7	473	0.0
12400038	19.3	0.0	25.3	14.8	57.6	25.2	429	0.0
12401502	20.3	0.0	24.8	16.1	55.0	24.9	474	0.0
HANK	20.3	0.0	24.5	15.4	55.2	31.9	428	0.5
12401277	20.0	0.0	24.4	16.8	56.9	25.6	466	0.0
12401227	21.3	0.0	24.2	15.1	54.3	23.2	448	0.0
12401935	19.7	0.0	23.9	15.7	55.2	22.4	455	0.0
12400877	19.3	0.0	23.5	16.2	55.3	22.5	453	0.1
12400592	20.7	0.0	22.4	15.7	55.4	24.4	492	0.0
12400986	19.3	0.0	22.2	16.1	55.5	22.5	479	0.0
12400817	19.7	0.0	21.9	17.0	55.9	21.5	466	0.1
12401161	19.3	0.0	20.4	16.7	56.6	28.7	485	0.0
Mean	20.0	0.0	25.2	15.7	55.9	25.5	459.5	0.03
CV	3.7	0.0	15.4	6.5	2.1	8.1	17.5	424.8
LSD	1.2	ns	ns	ns	1.9	3.4	ns	0.2
Pr>F	0.0318	1.0000	0.4728	0.1724	0.0056	0.0001	0.6918	0.0343

HT: height, LOD: lodging, YLD: yield, PRO: protein, TWT: test weight, TKW: thousand kernel weight, FN: falling number, OWBM: orange wheat blossom midge, ns: nonsignificant

¹ adjusted to 13% moisture, ² adjusted to 12% moisture