

Project Title: On-Farm Comparison of Varietal Preference to Egg-laying by Orange Wheat Blossom Midge.

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Objective: To compare the attractiveness of two commercially available spring wheat varieties for egg-laying preference by the OWBM.

Results:

Previous studies conducted at NWARC have demonstrated that certain spring wheat varieties attract the adult egg-laying midge, while other varieties deter egg-laying. To test this apparent preference trend under a field scale basis, Reeder (non-attractive) and Solano (attractive), were planted at five on-farm locations in Flathead County. Field size ranged from 5 to 16 acres per variety. The locations selected had a previous history of substantial OWBM pressure.

Fields were seeded at 100 lb/A (Reeder) and 135 lb/A (Solano) to achieve a target population of 35 plants per square foot. Planting was delayed until approximately May 1, to insure that heading coincided with peak oviposition (Table 1).

Reeder, a taller variety and therefore prone to lodging, was treated with Palisade, a plant growth regulator, at the 2 node stage to all fields except the Passmore site. The insecticide, Warrior II, was applied at each location when OWBM populations reached economic threshold levels (Table 1).

Despite high OWBM numbers observed at all locations (Table 1), there were no significant differences in the number of larvae found per spike (Table 2). Significant differences were observed in plant height with Reeder being on average 5 inches taller than Solano.

On average, Solano produced 14 bu/A more grain than Reeder. However, yields were confounded by hail damage at three of the five locations. In small nursery plot situations, Reeder usually has far fewer midge larvae than Solano. This in turn translates to higher yields and better quality for Reeder. Either the application of an insecticide negated this advantage, or perhaps this ovipositioning dynamic does not hold when the varieties are grown on a large scale basis. Differential hail damage between varieties further complicates the results. Overall, it seems beneficial to scale-up experiments in an attempt to substantiate preliminary findings.

Table 1.

Location	Seeding	Harvest	Palisade	Insecticide	OWBM	
					#/ trap	Date
HCF	5/6	8/22	6/22	7/6	660	6/24-6/27
NWARC	5/9	9/12	6/21	7/9	1010	6/29-7/1
Passmore	5/1	8/25	–	7/5	161	6/27-7/1
Tutvedt	4/27	9/4	6/19	7/5	1115	7/2-7/4

Table 2. Agronomic data from the on-farm comparison of varietal preference to egg-laying by OWBM - 2013

Location	Plant Density #/sqft		Height inches		OWBM no/spike		Yield bu/A	
	Reeder	Solano	Reeder	Solano	Reeder	Solano	Reeder	Solano
HCF	25	26	28	27	4	7	42	41
NWARC R13	32	23	36	33	5	1	70	100
NWARC Y7	40	30	38	33	6	12	73	85
Passmore	26	28	38	31	1	3	69	88
Tutvedt	19	34	36	28	0	0	97	107
Mean	28	28	35	30	3	5	70	84
CV	25.3		6.2		67.4		10.5	
LSD	12.6		3.6		4.6		14.2	
Pr>F	0.9669		0.0200		0.4466		0.0524	

OWBM: orange wheat blossom midge

Table 2. continued

Location	Protein %		FNa seconds		FNb seconds		TWT lb/bu	
	Reeder	Solano	Reeder	Solano	Reeder	Solano	Reeder	Solano
HCF	17.4	16.7	386	375	451	387	56	54
NWARC R13	14.8	15.3	385	355	353	391	59	60
NWARC Y7	15.7	15.4	345	334	425	356	59	60
Passmore	14.6	15.3	331	401	394	460	62	61
Tutvedt	14.9	14.2	369	354	417	367	60	60
Mean	15.5	15.4	363.2	364	408	392	59	59
CV	3.0		7.6		11.1		1.7	
LSD	0.8		49.1		78.3		1.8	
Pr>F	0.7530		0.9746		0.6052		0.6051	

FNa: falling numbers performed at NWARC, FNb; falling numbers performed at the National Quality Inspection Lab, TWT: test weight