

Section IV
Small Grain Pests

2008 VALENT WINTER WHEAT SEED TREATMENT TRIAL

David Bragg WSU Extension Entomologist
P O Box 190 Pomeroy WA 99247
braggd@wsu.edu
Kurt Tetrick USDA-ARS

Protocol

A RBCD trial of winter wheat seeded 10/09/2007 at Central Ferry Washington included seed treatment rates of Standard Imidacloprid (Gaucho 600 FS, Thiomethoxam (Cruiser 5 FS) , and Chlothianidin (Valent V10170) as a test for rate specificity for Basin Wire Worm (*Limonius canus*) and subsequent crop pests. Ratings of stand per ¼ meter sq indicate fall wire worm stand reduction. Rates are in Grams/Kg active ingredient. A standard CO2 backpack sprayer was used for the Warrior Zeon application 10 days after plant emergence.

Table 1. One-Way AOV for: Cru Gau UTC V5 V7.5 V10 V20 V30 V50 WAR (aerial)

Source	DF	SS	MS	F	P
Between	9	145.900	16.2111	21.61	0.0000
Within	30	22.500	0.7500		
Total	39	168.400			
Grand Mean	15.300	CV 5.66			

Homogeneity of Variances	F	P
Levene's Test	0.81	0.6112
O'Brien's Test	0.52	0.8497
Brown and Forsythe Test	0.43	0.9074

Welch's Test for Mean Differences

Source	DF	F	P
Between	9.0	21.48	0.0000
Within	12.2		

Component of variance for between groups 3.86528

Effective cell size 4.0

Observations per Mean 4

Standard Error of a Mean 0.4330

Std Error (Diff of 2 Means) 0.6

Table 2. LSD All-Pair wise Comparisons Test for plant stand 10 DPE

<u>Treatment</u>	<u>Mean plant stand</u>	
V20	17.750	A
V10	17.500	A
V20	17.250	A
V30	17.000	A
Gau 0.30	15.000	B
V7.5	15.250	B
V5	14.000	C
Cru 0.19	13.250	D
UTC	12.750	D
WAR	12.750	D

Alpha 0.01 Standard Error for Comparison 0.6124

Critical T Value 2.750 Critical Value for Comparison 1.6840

There are 4 groups (A, B, etc.) in which the means

are not significantly different from one another. The group followed by A, B, C had acceptable stands for winter wheat with 14 plants per ¼ sq meter good. No wire worm control was exhibited by the UTC and Warrior treatments. Cruiser at 0.19 continues to be below the desired level of wire worm control at 5 gm/kg.

Table 3. One-Way AOV for: CRU GAU UTC V5 V7.5 V10 V20 V30 V50 WAR

Source	DF	SS	MS	F	P
Between	9	10207.9	1134.21	8.67	0.0000
Within	30	3924.7	130.82		
Total	39	14132.6			

Grand Mean 90.170 CV 12.68

Homogeneity of Variances

	F	P
Levene's Test	1.34	0.2567
O'Brien's Test	0.86	0.5693
Brown and Forsythe Test	1.00	0.4621

Welch's Test for Mean Differences

Source	DF	F	P
Between	9.0	11.95	0.0001
Within	12.1		
Component of variance for between groups		250.846	
Observations per Mean	4		
Standard Error of a Mean		5.7189	
Std Error (Diff of 2 Means)		8.0878	

Table 4. LSD All-Pair wise Comparisons Test of yield in Bu/Ac

<u>Treatment</u>	<u>Mean Yield</u>	
V10	106.63	A
V30	105.53	A
V50	104.53	A
V20	102.10	A
GAU	99.375	A
V5	94.150	A
WAR	80.975	B
V7.5	78.200	C
CRU	72.625	D
UTC	57.600	E

Alpha 0.01 Standard Error for Comparison 8.0878
Critical T Value 2.750 Critical Value for Comparison 22.241
There are 5 groups (A, B, etc.) in which the means are not significantly different from one another.

Yield in Bu/Ac affected by wire worm damage in the seedling stage the SD cutoff rate for V-10170 is 10 grams per hectare. Very obvious SD for UTC, Cruiser at 5 grams, and Warrior spray which is slightly better than the V-10170 5 gram and 7.5 gram rates. I would choose the 10 gram rate rather than 5 or 7.5 for wire worm efficacy expressed as yield since the bump is 12 bu over V10170 5 gram rate. It appears that the Warrior foliar treatment may have enhanced yield through management of Bird- Oat Cherry Aphid vectoring of BYDV in the late fall