Section III: Field Crop Pests

WINTER BARLEY

(Valent USA 2010 Winter Barley Trial at Central Ferry Washington)

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Seeded 09/15/2009 at WSU Central Ferry using the Hegi Cone Seeder Drill on a 7 row by 20 feet pattern of 4 replicates for treatments in a RCB format for a total of 12 treatments listed below. Variety Kold winter barley. Goal: early season insect management to increase barley stand density and measurement of Treatments for crop long factors e.g. CLB, RWA, etc. compared to an untreated check. Crop was rated for insect damage again on May 15 with no economic thresholds of pests crossed. Ladybird Beetle Adults arrived around May 6 and consumed low CLB and RWA populations which did not reoccur. Harvest was done by Dr. Stephen Guy, using a Winter-Steiger Plot Combine on July 30, 2010.

Treatments		Rates/Acre
A	UTC	NA
B	Raxil-Allegiance	1.5 gmai/hkg + 0.01 fl oz cwt
C	Raxil-Allegiance + Gaucho 600	0.260 fl oz cwt
D	Raxil-Allegiance + Gaucho 600	0.800 fl oz cwt
E	Dividend XL Extra	5 fl oz cwt
F	Dividend XLE + Cruiser	0.250 fl oz cwt
G	Dividend XLE + Cruiser	0.750 fl oz cwt
H	V-10304	5.00 fl oz cwt
I	V-10304	7.50 fl oz cwt
J	V-10305	4.5 gmai/hkg
K	V-10305 + Nipsit inside	0.250 fl oz cwt
L	V-10305 + Nipsit inside	0.750 fl oz cwt

Experiment 1 - Yield

LSD All-Pairwise Comparisons Test for barley yield in lbs/acre

Treatment	Mean Yield in lbs/acre
E	3544.0 A

H	3269.0	B
L	3168.3	C
D	3049.3	D
C	3038.0	D
G	2735.3	E
F	2729.5	E
J	2721.5	E
I	2720.7	E
A	2717.0	E
B	2717.0	E
K	2559.5	F

Alpha: 0.05
Standard Error for Comparison: 14.784
Critical T Value: 2.028
Critical Value for Comparison: 29.983

There are 6 groups (A, B, etc.) in which the means are not significantly different from one another.

These yields for Kold Winter Barley are exceptionally good for lower Garfield County. I can't explain the lower than check yield for treatment K other than winter goose feeding cut down on stand for this treatment. Replicates were similar in yield but I expect goose feeding to be non-Poisson. All replicates for treatment K were lower in yield than the UTC and the letter "E" treatments. Fungicide treatments were better in yield and stand so I doubt if wire worm really impacted the winter barley. Once winter barley is emerged and jointing it just grows to harvest unlike wheat which has many controlling factors.

Experiment 2 – Plant Stand
LSD All-Pairwise Comparisons Test Plant Stand 10 per ¼ Meter Sq at 10 DPE

Treatment	Mean	
G	28.750	A
H	21.500	B
E	20.750	B
L	20.500	B
C	15.500	C
D	15.500	C
A	14.750	D
B	14.750	D
F	14.750	D
I	14.250	D
J	14.250	D
K	13.250	D

Alpha: 0.05
Standard Error for Comparison: 0.8975
Critical T Value: 2.028
Critical Value for Comparison: 1.8203

There are 4 groups (A, B, etc.) in which the means are not significantly different from one another.

Comments: Winter barley does not tiller as well as wheat so a stand count of 20 + plants at 10 DPE is desired. Then the other "nibblers" affect the stand including killing frost on October 12, 2009 followed by goose predation. Some plant disease may have occurred in the muddy, cold spring. No other insects reached economic injury thresholds during the crop cycle.

One-Way AOV for: A B C D E F G H I J K L Plant Stand 10 DPE

Source	DF	SS	MS	F	P
Between	11	3859674	350879	802.72	0.0000
Within	36	15736	437		
Total	47	3875410			

Grand Mean: 2914.1
CV: 0.72

Homogeneity of Variances	F	P
Levene's Test	19.4	0.0000
O'Brien's Test	12.4	0.0000
Brown and Forsythe Test	7.59	0.0000

Welch's Test for Mean Differences

Source	DF	F	P
Between	11.0	18459.5	0.0000
Within	13.8		

Component of variance for between groups: 87610.6
Effective cell size: 4.0
Observations per Mean: 4
Standard Error of a Mean: 10.454
Std Error (Diff of 2 Means): 14.784