PROJECT TITLE: Seed Treatment Dwarf Bunt Control in Winter Wheat

PROJECT LEADERS: Bob Stougaard and Todd Keener, NWARC, Kalispell, MT.

OBJECTIVE: Evaluate Dividend seed treatment for control of TCK dwarf bunt in eight winter wheat varities.

RESULTS:

Four soft white and hard red winter wheat varieties of varying susceptibility to TCK dwarf bunt were selected for the 1991-92 trial. These eight varieties were seeded non-treated as well as treated with 1 oz Dividend per hundred weight. A research plot seeder was used to seed varieties (10/3/91) in four row plots, ten feet in length, at a rate of 60 lb / acre. Seeding depth was 3/4 - 1 inch and row spacing was 12 inches. On October 15, 1991 an inoculum solution was applied to the test area using a research plot sprayer when winter wheat was in the three leaf stage. The TCK inoculum was prepared using screenings and smut balls from infected wheat samples. One bushel of screenings was soaked in 10 gallons water for 15 minutes and then filtered twice through fine mesh cheese cloth to make the inoculum solution. The final application rate of the inoculum solution was approximately 100 gallons per acre. TCK ocular estimations were taken July 10, 1992.

There were 23 days continuous snow cover from Jan 5th - 27th. Total snow cover days were 55 for the 1991-92 winter. Previous total days of snow cover for 1990 and 1991 were 65 and 69, respectively. The environmental conditions were not favorable for TCK infection but the inoculation of the trial proved successful in introducing sufficient infection levels.

SUMMARY:

All varieties were free of dwarf bunt when treated with 1 oz Dividend per hundred weight. The highest infection levels were noted in the untreated hard red entries. Rocky and Judith had 18 and 20% infection, respectively. Yields, test weights, and heading dates did not vary between non-treated and treated entries of the same variety. Height reductions were observed in the treated entries of Luke and Judith. It appears from this trial that Dividend seed treatment may provide effective control of Dwarf Bunt in winter wheat at high infection levels.

FUTURE PLANS:

This study was re-established this fall to evaluate the consistency of these treatments.

Table 1. Agronomic data from the Seed Treatment Dwarf Bunt Study. NWARC - Kalispell, MT.

Variety	Trtmt 1/	Yield Bu/A	Test Wt Lb/Bu	Height Inches	Heading Date	% TCK Count	7/9 * Visual
Luke	Divid. 1 oz	121.3	58.9	34.5	160	0	.1
Nugaines	Divid. 1 oz	112.2	57.4	34.5	158	0	0
Stephens	Divid. 1 oz	114.1	57.4	37.4	159	0	0
Lewjain	Divid. 1 oz	119.7	57.3	33.0	161	0	0
Judith	Divid. 1 oz	123.3	59.2	42.8	155	0	.1
Tiber	Divid. 1 oz	102.4	60.8	46.8	157	0	.1
Rocky	Divid. 1 oz	96.3	57.8	46.3	154	0	.0
Winridge	Divid. 1 oz	98.4	59.2	47.3	159	0	.0
Luke	Untreated	109.9	58.7	30.0	159	1.0	.3
Nugaines	Untreated	115.6	57.9	34.5	158	.7	1.0
Stephens	Untreated	119.0	58.8	36.0	158	.9	.4
Lewjain	Untreated	120.9	57.0	33.0	161	0	0
Judith	Untreated	118.7	58.7	40.4	156	20.0	15.0
Tiber	Untreated	111.6	61.2	45.8	158	6.9	5.8
Rocky	Untreated	91.8	58.3	45.3	154	18.4	19.8
Winridge	Untreated	109.6	60.2	46.3	160	0	0
OVERALL MEAN =		111.5	58.66	39.8	158	.039	2.76
P-VALUE TRTS =		.0012	.0000	.000	.00	.000	.000
LSD(0.05 by t)=		15.52	1.541	2.58	1.1	.059	5.07

1/ Seed treatment for treated varieties was Dividend at 1 oz/cwt

* Percent TCK = % TCK Dwarf bunt per plot. COUNT is determined by average number of infected heads per foot of row.