



Wheat Seed Treatment Trials 1994-95

Production Technology - Crops



GENE KRENZER, LARRY SINGLETON, AND PHIL MULDER
AGRONOMIST, PLANT PATHOLOGIST, ENTOMOLOGIST
Division of Agricultural Sciences and Natural Resources
Oklahoma State University

In 1994-95, root rots and barley yellow dwarf mosaic virus were widespread problems in Oklahoma wheat production. This created interest in seed treatments to help reduce these disease problems. Trials were conducted to evaluate both disease situations.

ROOT ROT CONTROL STUDIES

Trials were conducted at Lahoma and Perkins in fields that had been in wheat production for several consecutive years. At both sites, planting date trials were previously conducted and root rot was suspected, in part, as the reason for reduced grain yields with early planting.

Four planting dates, spaced two weeks apart, were used beginning with the last week of August. The three most widely-grown varieties (2180, 2163, Karl 92) were planted. One-half of the seed of each variety was treated with a mixture of four chemicals. These chemicals were chosen to represent the very best root rot control seed treatments. The other half of the seed was left untreated. Therefore, on each planting date there were six treatments (three varieties x two seed treatments).

In May 1995 at both locations, plants were evaluated for root rot incidence and severity. Dryland root rot was the major component of root rot at Perkins, but *Rhizoctonia* was the primary root rot present at Lahoma. Seed treatment had no effect on the incidence or severity of disease. Planting date, however, strongly influenced disease severity ratings. Wheat planted on August 28 and September 11 had a disease severity rating of 68, while ratings dropped to 53 for the latest planting date of October 9. Even lower ratings would be projected with later planting dates, however, they were not used in this trial.

Results averaged across locations and varieties were as follows:

Effect of seed treatment for root rot control on **forage production.**

Seed treatment	Planting date			
	Aug. 30	Sept. 13	Sept. 27	Oct. 11
	----- lbs/a -----			
Untreated	2189	1570	623	28
Treated	2193	1553	686	32

Effect of seed treatment for root rot control on **disease severity.**

Seed treatment	Planting date			
	Aug. 30	Sept. 13	Sept. 27	Oct. 11
	----- Disease severity -----			
Untreated	56.1	63.5	55.2	47.5
Treated	55.6	59.9	55.4	48.6

Effect of seed treatment for root rot control on **disease incidence.**

Seed treatment	Planting date			
	Aug. 30	Sept. 13	Sept. 27	Oct. 11
	----- Disease incidence/10 stems -----			
Untreated	6.0	6.8	5.7	4.4
Treated	5.9	6.3	5.6	4.5

Effect of seed treatment for root rot control on **test weight.**

Seed treatment	Planting date			
	Aug. 30	Sept. 13	Sept. 27	Oct. 11
	----- lb/bu -----			
Untreated	54.4	55.4	56.3	55.5
Treated	54.4	55.5	56.7	55.9

Effect of seed treatment for root rot control on **grain yield.**

Seed treatment	Planting date			
	Aug. 30	Sept. 13	Sept. 27	Oct. 11
	----- bu/a -----			
Untreated	10.7	18.8	24.6	27.7
Treated	10.1	19.1	25.3	28.1

Dividend Trials

Dividend, a new seed treatment from Ciba, is theorized to have some activity against root rots. Trials were conducted with Dividend each of the last two years. No evaluation of root rot was made in 1993-94, and no significant increases in stand, forage, or grain yield were obtained. The following table summarizes results from a 1994-95 trial, including root rot ratings for a control and Dividend treatment. These ratings verify that root rot was quite severe.

Treatment	Stand plants/m ²	Disease		Forage lb/a	Test Wt. lb/bu	Yield bu/a
		Severity	Incidence			
Check	334	54	5.3	1016	56.7	18.1
Dividend 3FS 6g AI	326	-	-	1061	56.9	17.3
Dividend 3FS 12g AI	337	57	6.0	1061	56.3	16.2
Dividend .31FS 12g AI	313	-	-	1098	57.2	22.5
MEAN	334	55.5	5.6	1074	56.7	18.4
LSD (0.05)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

Gaicho Trials

Gaicho is a new seed treatment insecticide soon to be labeled for use in wheat for aphid control. In addition, use of Gaicho may reduce the need to scout wheat fields for greenbugs early in the season. Trials were conducted at Chickasha in 1993-94 and 1994-95. Gaicho treatments did not effect stand establishment in either year.

Effect of Gaicho on greenbug populations (greenbugs per row foot).

Treatment ¹	1993-94			1994-95 ²	
	Oct. 6	Oct. 22	Nov. 3	Nov. 16	Jan 10
Check	-	-	-	16.83	0.67
Vitavax	4.67	5.25	2.50	3.67	3.42
Vitavax + Gaicho @ 0.5	0.25	0.50	0.33	0.33	0.0
Vitavax + Gaicho @ 1.0	0.17	0.33	0.08	0.17	2.92
Mean ³	1.46	1.83	0.88	5.89	1.81
LSD (0.05)	1.75	1.92	1.09	4.4	1.86

The effect of Gaucho on wheat production.

Treatment	Fall Forage		Test Wt.		Yield	
	1993	1994	1994	1995	1994	1995
	----- lb/a -----		----- lb/bu -----		----- bu/a -----	
Check	-	1386	-	55.1	-	24.2
Vitavax	2352	1242	47.6	55.4	8.4	25.9
Vitavax + Gaucho @ 0.5	2287	1418	48.4	54.3	11.3	23.3
Vitavax + Gaucho @ 1.0	2403	1356	48.4	54.7	11.0	26.4
Mean ³	2307	1316	48.6	55.1	10.2	25.2
LSD (0.05)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

¹Gaucho rates are in oz./cwt of wheat seed.

²Greenbug infestations were monitored four additional times; however, insignificantly low populations were obtained for analysis.

³Means in the above table also represent treatments included in the study that did not have Gaucho in the mixture.

Gaucho reduced the number of greenbugs present in both years; however, greenbug numbers were too low to influence wheat performance. There was no improvement in wheat performance, in these studies, with Gaucho.

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