



Rhizoctonia Study in Spring Barley



087-0202-SN-SPBL-T

Location:	McGregor Research Station	Seeding Date:	April 8, 2002
Rainfall (Ave.):	18 inches	Soil Texture:	Silt loam
Crop:	Spring barley	% Organic Matter:	2.39
Variety:	Baronesse	pH:	5.6
Rotation:	2001 Spring wheat	Residual N:	62 lbs.
	2000 Winter wheat	Residual S:	9 ppm
	1999 Chem fallow	Residual P:	3.9 ppm (acetate)
	1998 Spring barley	Residual Cl:	30 lbs.

Seeding Conditions

Date seeded	April 8, 2002
Air Temperature	59°
Soil Temperature	51°
Seeding Depth	1 – 1 ½ inches

Treatments	Rate	Yield (lbs./ac.) ¹
1. Protégé	0.375oz. / cwt.	4470 a
2. Protégé	0.75oz. / cwt.	4390 ab
3. CONTROL	-----	4040 de
4. Quadris in seed row	3.3oz. / ac.	4140 bcde
5. Quadris in seed row	6.5oz. / ac.	4270 abcd
6. Maxim	0.08oz. / cwt.	4100 de
7. Zn seed treatment	3.2oz. / cwt.	4110 cde
8. Zn Drill Applied	32oz. / ac.	3920 e
9. Messenger ST	10gm. / cwt.	3640 d
10. Nitropak	6gal. / ac.	4460 a
11. Nitropak + Zn	6gal. + 32oz. / ac.	4370 abc

Note: all treatments received Raxil XT

¹L.S.D. (.10) = 260 lb/ac, C.V. = 4.4%

Comments:

This trial was initiated, in cooperation with the Pacific Northwest Direct Seed Association, to evaluate several approaches to controlling Rhizoctonia root rot in a direct seeded spring barley crop. The trial was conducted on the McGregor Research Station, which has a history of Rhizoctonia.

The previous crop at this location was Alpowa spring wheat (80 bu/ac). The residue was lightly disked in the fall to initiate decomposition and to promote germination of volunteer. There was a significant amount of volunteer on the site in the spring. It was sprayed with Roundup Ultra Max on March 29th. The plot was fertilized with a high clearance Ripper-Shooter™ and seeded with a Great Plains minimum-till drill on April 8th.

Later in the season, as the barley began to grow vigorously, it was apparent, visually, Rhizoctonia root rot was affecting the stand.

The following direct comparisons discuss treatments, which had an affect on yield.

Direct Comparisons:

PROTÉGÉ SEED TREATMENT RESPONSE

Treatments	Rate	Yield (lbs./ac.)¹
3. CONTROL	-----	4040 de
1. Protégé	0.375oz. / cwt.	4470 a
2. Protégé	0.75oz. / cwt.	4390 ab

Protégé is an experimental seed treatment manufactured by Syngenta. This compound is known to be active in controlling Rhizoctonia. Although a completely different formulation, Protégé contains the same active ingredient as Quadris, which is a foliar fungicide used to control rust in cereals. Both rates tested in this experiment produced statistically significant yield responses. In season plant analysis by Dr. Tim Paulitz with the USDA-ARS, Pullman, Washington showed that the Protégé seed treatments did decrease the amount of Rhizoctonia root rot on the plants. Partially due to the results of this trial and similar results in other studies, Syngenta expects this compound to be registered by the EPA for use on our crops prior to spring planting. It will be labeled for the suppression of Rhizoctonia. Control of Rhizoctonia root rot cannot be expected from a seed treatment due to the low amount of active ingredient being applied and the fact that fungicides can only move upward in a plant. However, this material did provide sufficient suppression to allow a statistically significant yield increase well beyond what will be the expected cost of treatment.

QUADRIS SEED ROW APPLICATION

Treatments	Rate	Yield (lbs./ac.)¹
3. CONTROL	-----	4040 de
4. Quadris in seed row	3.3oz. / ac.	4140 bcde
5. Quadris in seed row	6.5oz. / ac.	4270 abcd

The above treatments consisted of applying two rates of Quadris directly in the seed row at planting with a drill kit. There was a trend toward a yield increase, but they were not statistically significant.

NITROPAK STARTER FERTILIZER RESPONSE

Treatments	Rate	Yield (lbs./ac.)¹
3. CONTROL	-----	4040 de
10. Nitropak	6gal. / ac.	4460 a
11. Nitropak + Zn	6gal. + 32oz. / ac.	4370 abc

The above treatments illustrate the yield response obtained from the addition of Nitropak. This is a starter fertilizer material, which is intended to supply the nutrient requirements to the crop prior to the root system becoming established in the deep banded nutrients. Treatment 11 also contained some zinc, which did not improve the yield.

The Nitropak did not control Rhizoctonia, it just increased the nutrient concentration available to the crop during the initial stages of stand development. The Rhizoctonia organism prunes the root hairs off of the plant as it is trying to become established. These root hairs are responsible for nutrient uptake in the soil. By increasing the nutrient concentration around the seed With Nitropak, it allowed the plants to continue growing even in the presence of Rhizoctonia, which resulted in a significant yield response. It would be interesting to test Protégé seed treatment in combination with a Nitropak application.