

**POTATO** (*Solanum tuberosum* 'Russet Norkotah')  
Pink rot; *Phytophthora erythroseptica*

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**Evaluation of foliar and soil applied fungicides and insecticides for the control of pink rot, Colorado potato beetles and potato leafhoppers, 2001.**

This experiment was conducted at the Agricultural Experiment Station farm in Newark, DE in a field previously planted to potatoes. Soil type was a Matapeake silt loam with pH 6.5. Fertilizer was applied at planting at the rate of 1000 lb/A of 10-10-10. Plots were hand-planted on 30 Apr using commercially cut and Maxim treated (0.5lb/cwt) seed-pieces. Furrows were opened and seed placed 10 in. apart in the rows. Rows were spaced 3 ft apart and were 20 ft long. In-furrow treatments were applied to the side of the furrow with a single flat fan nozzle in 10 gal water/A and then the seed covered with the surrounding treated soil. The center row of each plot was inoculated at planting with mycelial fragments and oospores of mefenoxam sensitive *Phytophthora erythroseptica* mixed in vermiculite. The center row of each plot was inoculated again on 8 Jun by placing inoculum at the base of each plant just prior to the last cultivation. Experimental design was a randomized complete block with four replications and each plot was three rows. Lorox DF (1.5 lb/A) plus Dual II Magnum (1.33 pt/A) were applied pre-emergence for weed control. Foliar fungicides were applied with a backpack CO<sub>2</sub> pressurized sprayer at 30 gal/A at 50 psi. Applications were made with a broadcast boom equipped with hollow cone nozzles (D4 disks, #45 cores). Three applications of Dithane DF Rainshield 2 lb/A were made for foliar disease control during the experiment. No foliar diseases were noted until the last week of the test when some early blight was observed. Irrigation was applied weekly at the end of the experiment due to lack of rain. The vines were killed on 2 Aug with 2 pt/A of paraquat. The plots were hand harvested on 6 Aug by digging the center 12 ft of the middle treated and inoculated row. The potatoes were counted, weighed and the percent-infected tubers were determined at harvest. All symptomless tubers were placed in paper potato bags and stored at ambient temperature in a shaded area for one week. At the end of the storage period on 13 Aug, the tubers were weighed again and examined for pink rot. The percent infected tubers and total yield (ungraded) on 13 Aug represents the total number of infected tubers from both dates plus the weight of the remaining healthy tubers.

Weather conditions were favorable for disease development early in the test, but limited rainfall later in the season was less favorable. Sufficient incidence of pink rot was however present at the end of the test. All of the in-furrow fungicide treatments of Ridomil Gold EC 6 fl oz, A12425 1.22SL 9.5 fl oz (Ridomil Gold EC + Platinum), and Zoxium 2F provided very good control of pink rot. The failure of two applications of Ridomil Gold MZ 2 lb to control pink rot can be attributed to dry conditions at the time of application and the lack of movement of enough product to the developing tubers. This has been observed in previous years under similar conditions. Yields were significantly greater at the 13 Aug evaluation for Zoxium 2F 38.4 fl oz/A and the in-furrow Ridomil Gold EC 6 fl. oz treatments including A12425 1.22 SL 9.5 fl. oz. No phytotoxicity was observed for any treatment.

Insect data were taken weekly from May 23 through June 28 from the center row of each plot and included the following: the number of Colorado potato beetle (CPB) adults, egg masses, small and large larvae/5 randomly selected plants in each plot and the number of potato leafhopper adults and nymphs per 5 sweeps. CPB populations were low and leafhopper populations were moderate. No significant differences were observed between the treatments and the untreated control.

| Treatment and rate/A   | Percent Pink Rot   |        | Total Yield (cwt/A) |          |
|--|--------------------|--------|---------------------|----------|
|  | 6 Aug              | 13 Aug | 6 Aug               | 13 Aug   |
| Zoxium 2F 12.8 fl oz in-furrow . . . . .                                     | 2.9 a <sup>3</sup> | 5.5 a  | 332.7 ab            | 294.0 ab |
| Zoxium 2F 25.6 fl oz in-furrow . . . . .                                     | 0.8 a              | 2.3 a  | 330.3 abc           | 301.3 ab |
| Zoxium 2F 38.4 fl oz in-furrow . . . . .                                     | 0.0 a              | 0.5 a  | 330.3 abc           | 307.3 a  |
| Zoxium 2F 51.2 fl oz in-furrow . . . . .                                     | 1.5 a              | 5.8 a  | 330.3 abc           | 295.2 ab |
| Ridomil Gold 4E 6 fl oz in-furrow. . . . .                                   | 0.0 a              | 0.7 a  | 384.8 a             | 348.5 a  |
| Ridomil Gold 4E 6 fl oz in-furrow +<br>Quadris 2.08SC 4.5 fl oz in -furrow + |                    |        |                     |          |
| Ridomil Gold MZ 2.0 lb <sup>1</sup> . . . . .                                | 0.0 a              | 0.0 a  | 363.0 a             | 321.9 a  |
| A12425 1.22SL 9.5 fl oz in furrow +  |                    |        |                     |          |
| Ridomil Gold MZ 2.0 lb <sup>1</sup> . . . . .                                | 0.0 a              | 0.9 a  | 333.8 ab            | 311.8 a  |
| A12425 1.22SL 9.5 fl oz in-furrow . . . . .                                  | 0.2 a              | 0.5 a  | 356.9 a             | 332.7 a  |
| Ridomil Gold MZ 2.0 lb <sup>2</sup> . . . . .                                | 17.6 b             | 21.6 b | 251.7 bc            | 217.8 b  |
| Control . . . . .  | 15.8 b             | 17.6 b | 243.2 c             | 216.6 b  |

<sup>1</sup> Single foliar application made when tubers were nickle-size.

<sup>2</sup> Two foliar applications made when tubers were nickle-size and two weeks later.

<sup>3</sup> Means followed by the same letter are not significantly different (Duncan-Waller K-ratio test).

| Treatment and rate/A   | # CPB SL/5 plants |         | # CPB LL/5 plants |         | # PLH/5 sweeps |
|--|-------------------|---------|-------------------|---------|----------------|
|  | 7 June            | 14 June | 7 June            | 14 June | 14 June        |
| Zoxium 2F 12.8 fl oz in-furrow . . . . .                                     | 2.5a <sup>3</sup> | 3.0 a   | 0.8 a             | 6.8 a   | 3.3 a          |
| Zoxium 2F 25.6 fl oz in-furrow . . . . .                                     | 0.0 a             | 12.3 a  | 0.0 a             | 0.5 a   | 4.0 a          |
| Zoxium 2F 38.4 fl oz in-furrow . . . . .                                     | 0.0 a             | 13.5 a  | 0.0 a             | 4.0 a   | 3.0 a          |
| Zoxium 2F 51.2 fl oz in-furrow . . . . .                                     | 0.0 a             | 6.5 a   | 0.0 a             | 0.0 a   | 3.3 a          |
| Ridomil Gold 4E 6 fl oz in-furrow. . . . .                                   | 0.0 a             | 9.8 a   | 0.3 a             | 3.3 a   | 7.0 a          |
| Ridomil Gold 4E 6 fl oz in-furrow +<br>Quadris 2.08SC 4.5 fl oz in -furrow + |                   |         |                   |         |                |
| Ridomil Gold MZ 2.0 lb <sup>1</sup> . . . . .                                | 0.0 a             | 4.0 a   | 0.0 a             | 6.5 a   | 3.8 a          |
| A12425 1.22SL 9.5 fl oz in furrow +  |                   |         |                   |         |                |
| Ridomil Gold MZ 2.0 lb <sup>1</sup> . . . . .                                | 0.3 a             | 3.5 a   | 0.0 a             | 1.3 a   | 4.0 a          |
| A12425 1.22SL 9.5 fl oz in-furrow . . . . .                                  | 0.0 a             | 7.5 a   | 0.0 a             | 2.5 a   | 3.3 a          |
| Ridomil Gold MZ 2.0 lb <sup>2</sup> . . . . .                                | 0.3 a             | 3.5 a   | 0.3 a             | 1.5 a   | 3.0 a          |
| Control . . . . .  | 0.0 a             | 3.3 a   | 0.0 a             | 2.8 a   | 4.5 a          |

<sup>1</sup> Single foliar application made when tubers were nickle-size.

<sup>2</sup> Two foliar applications made when tubers were nickle-size and two weeks later.

<sup>3</sup> Means followed by the same letter are not significantly different (P = 0.05; Ryan's q test)