

RESEARCH UPDATE

2004-1

Evaluation of Fosphite as a Postharvest Disease Management Treatment For Potato Diseases Control

Investigators:

Dr. Nora Olsen, Ext. Potato Specialist, University of Idaho, Twin Falls
Dr. Jeff Miller, Potato Pathologist, University of Idaho, Aberdeen
Lynn Woodell, Support Scientist, University of Idaho, Kimberly
Dr. Lyndon Porter, Post-Doctoral Fellow, University of Idaho, Aberdeen

Objective: To evaluate the effectiveness of Fosphite against *P. erythroseptica* and *P. infestans* inoculated tubers when used as post-harvest treatments.

Results:

Table 1. Efficacy of Fosphite on late blight and pink rot incidence and severity. Means with the same letter within a column are not significantly different at $p \leq 0.05$.

| Treatment [rate/ton tubers] | Late Blight | | Pink Rot | |
|---------------------------------------|-------------|------------|-----------|----------|
| | Incidence* | Severity** | Incidence | Severity |
| Untreated | 72.4 a | 51.9 a | 99.6 a | 98.6 a |
| Oxidate (1:50 dilution) | 48.8 b | 33.5 b | 93.8 b | 95.6 a |
| Fosphite (1:20 dilution, 3.2 fl. oz.) | 6.7 c | 10.9 c | 0.0 c | 0.0 b |
| Fosphite (1:10 dilution, 6.4 fl. oz.) | 1.7 c | 0.3 c | 1.7 c | 11.3 b |
| Fosphite (1:5 dilution, 12.8 fl. oz.) | 1.7 c | 0.3 c | 0.0 c | 0.0 b |

*Percentage of inoculated tubers developing symptoms of disease.

**Average tuber area affected. Only tubers showing symptoms of disease were used for this assessment

Discussion:

Late blight and pink rot incidence in the untreated control was relatively high in this study (Table 1). Late blight incidence and severity, and pink rot incidence were significantly lower with Oxidate applications compared to the untreated control. All treatments with Fosphite applications resulted in significantly less disease compared to the Oxidate treated and the untreated tubers.

Fosphite at all three dilutions was effective in suppressing late blight and pink rot development when applied as a postharvest treatment in controlled studies as shown in Figure (1) and (2). Fosphite was effective when applied as low as 3.2 fl. oz. per ton tubers (1:20 dilution). No visual Phytotoxicity symptoms were seen on the Fosphite treated tubers. These results are for treatments that occurred 1 hour after inoculation. A greater delay from inoculation to treatment may provide different results.



Potato Pink Rot



Pink Rot Oospores



JH Biotech, Inc.
Biotechnologies for Safer Agriculture

4951 Olivas Park Drive - Ventura, California 93003 USA
Phone: (805) 650-8933 - Fax: (805) 650-8942
E-mail: biotech@jhbiotech.com - <http://www.jhbiotech.com>

Figure (1):

Effect of Fosphite Postharvest Treatment on Potato Pink Rot

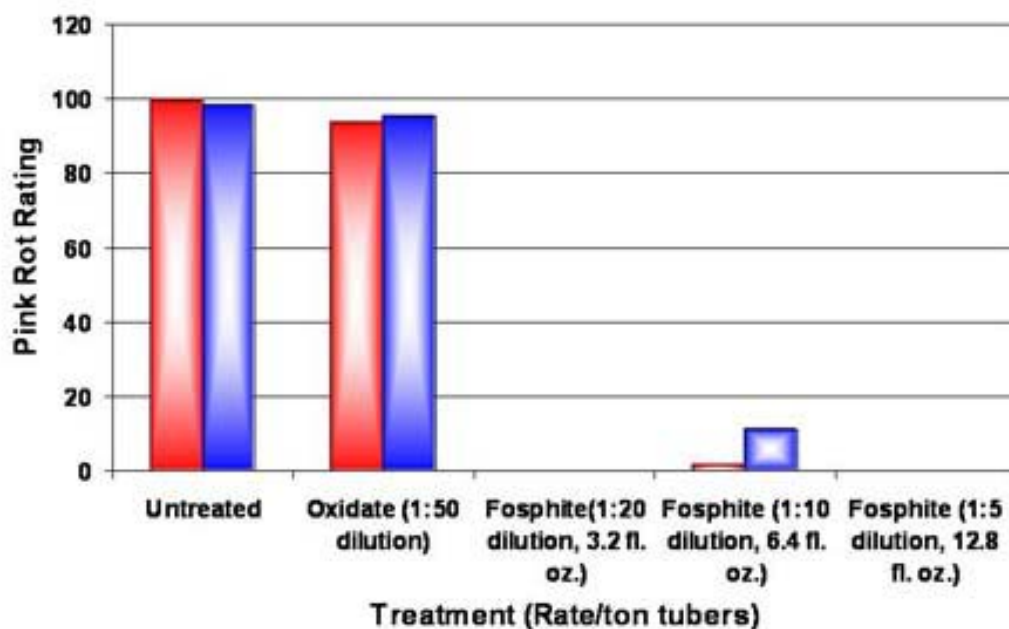


Figure (2):

Effect of Fosphite Postharvest Treatment on Potato Late Blight

