Potato Seed Treatments[1]

With Agri-Mycin 100 and Other Materials

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A potato seed treatment experiment was started at the Potato Research Center Farm, Grand Forks, N. Dak., in 1952 to evaluate some recommended materials and for the testing of several new products being advocated for the treatment of cut potato seed. Certified Red Pontiac seed was used in 1952 and 1953, and certified Irish Cobbler in 1954. The cut seed was planted early for the purpose of encountering adverse growing conditions that might favor blackleg infection and seed piece decay. An insufficient amount of disease during each of these years made it impossible to evaluate the treatments.

Since the principal purpose of conducting this experiment was to obtain a seed treatment that would reduce blackleg infection, seed was selected for the 1955 test that was known to be infected with the bacterium causing this disease. By referring to the North Dakota State Seed Department inspection reports, seed of the variety Sebago was obtained that had 11 per cent blackleg at the last 1954 field inspection. This variety has been more susceptible to blackleg than other varieties grown in North Dakota.

Among the materials included in the 1955 test was an antibiotic preparation known as Agri-mycin 100; the active ingredients being 15 per cent streptomycin and 1.5 per cent terramycin. The 11 treatments, their concentrations and the dates of cutting and treating are shown in Table I. The acid-mercury treatment consisted of 1.5 pounds of mercuric chloride and four quarts of commercial hydrochloric acid in 100 gallons of water. Each of the dip treatments was for three minutes and the dusts were used at the rate of 1.5 pounds per 100 pounds of cut seed. Pyrax was the dilutent used in all the dusts.

Tubers showing blackleg symptoms were not used for seed. Seed cut April 26, was stored in burlap bags in the shipping room of the Potato Research Center. During the two-week period the cut seed was stored in this room, the temperature varied between 50 and 60 degrees F., while the range of relative humidity was 50 to 96 per cent. All the seed cut and treated April 26 appeared to be in good condition when the plot was planted May 10. Each treatment consisted of 50 seed pieces replicated four times in randomized blocks.

In order to determine if any of the treatments were injurious to the cut seed and caused a delay in emergence, a count of the

[1]The author acknowledges the assistance of Herbert Findlen, Horticulturist, and J. C. Hansen, Associate Horticulturist, Quality Maintenance and Improvement Section, Biological Sciences Branch, Marketing Research Division, U. S. Dept. of Agr., East Grand Forks, Minn.

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