

Western Innovator: Aiding the fight against pink rot

By BRAD CARLSON
Capital Press

Research by Jeff Miller and other scientists is providing potato growers with more tools to use in controlling pink rot.

The soil-borne disease is caused mainly by the pathogen *Phytophthora erythroseptica*. It infects potato roots, stolons and tubers, and if not controlled can lead to significant losses in potato fields and in storage.

Miller, principal in Miller Research near Rupert, Idaho, worked as a potato pathologist for two years at the University of Minnesota before serving in a similar position with the University of Idaho from 2001 to 2006. The next year, he took over the field and lab enterprise his father, Terry, also a scientist, founded in 1975.

"When I came to UI, it was a huge problem in the state," Jeff Miller said of pink rot, "primarily because growers had had great success using a certain chemical to manage the disease."

But the pathogen was developing resistance to the fungicide, known generically as Mefenoxam.

"During my time at UI, I worked on trying to find alternative chemicals or even better farming practices to manage the dis-



Capital Press File

Jeff Miller, of Miller Research in Rupert, Idaho, holds potato leaves with symptoms of early blight during a field day.

ease," Miller said. "When I left UI to come to Miller Research, I basically brought that with me. ... It has been a great collaborative project through the years."

Finding a new treatment for pink rot proved difficult. Miller kept working on it with scientists from UI, and Washington State, Oregon State and North Dakota

State universities.

Researchers experimented with a common, phosphorous-acid-based fungicide that was safe but relatively weak. They found that it, too, was ineffective at controlling pink rot — until once mistakenly applying about twice as much as intended.

"We found that we were achiev-

ing control," Miller said. "Typically, twofold use would cause problems. But the difference was that these phosphorous acids or phosphites are very safe."

The discovery meant growers who found the pathogen resisting Mefenoxam in their fields could instead use a phosphite. Researchers would go on to determine ideal application rates and methods — and to also find phosphites effective at reducing pink rot and Late Blight while potatoes are stored, if applied when they are going into storage.

Recent work, funded by the Northwest Potato Research Consortium, addresses location-specific treatment.

"So far, we are finding most of the pink rot in the Columbia Basin is still sensitive to Mefenoxam, and in Idaho it is a mixed bag; we have both fungicide-sensitive and fungicide-resistant isolates," Miller said. "Once growers know they have Mefenoxam-resistant isolates in the field, then they can switch to the phosphites."

Other new research looks at pink rot susceptibility by potato variety.

"We are evaluating new varieties, and looking at in-season and post-harvest management, to try to see what is the most effective

JEFF MILLER

Title: President and principal field investigator, Miller Research, Rupert, Idaho

Education: Ph.D., M.S., in plant pathology, Washington State University, B.S., Brigham Young University, botany with emphasis in biotechnology.

Age: 49

Family: Wife Shaura, four boys

Hobbies: Reading, mountain biking, hiking, climbing, camping, Boy Scouts leadership, church activities

management package to give you the most complete pink rot control approach from planting to storage," Miller said.

Some growers recently have asked if they must wait 48 hours to resume irrigation after applying phosphites.

"We are still doing the research, but so far that does not appear to be the case," Miller said. "It probably needs about six hours (to absorb). This research is ongoing, so we may refine this recommendation. But they don't have to worry about having to keep the pivots off for too long."

FARM FAIR RECIPES

Cheesy potato soup

Ingredients

- 1 medium onion, chopped (about 1 cup)
- 1/4 cup celery, chopped
- 1 teaspoon oil
- 2 cups potatoes, peeled and diced bite size
- 2 cups chicken broth
- 1/4 teaspoon pepper
- 3 Tablespoons cornstarch
- 1 1/2 cups nonfat or 1% milk, divided
- 3/4 cup (3 ounces) cheddar cheese, shredded
- 1 Tablespoon bacon bits or 1 slice bacon, cooked and crumbled

Directions

In a large saucepan over medium-high heat, sauté onions and celery in oil until onions are clear.

Add the potatoes, broth, and pepper. Bring to a boil. Reduce heat; cover and simmer until the potatoes are tender, 15 to 25 minutes.

In a small bowl, stir together cornstarch and 1/4 cup of milk until smooth. Add remaining milk. Stir into the potato mixture.

Cook and stir until thickened and heated through, about 5 minutes. Do not boil.

Remove from heat. Stir in cheese until melted. Top with bacon bits. Serve warm.

Refrigerate leftovers within 2 hours.

Oregon State University Food Hero recipe courtesy www.foodhero.org

Superhero Shepherd's Pie

Ingredients

- 2 large baking potatoes, peeled and diced
- 1/2 cup shredded cheddar cheese
- 1/2 cup non-fat or 1% milk
- 1/2 teaspoon salt
- 1/4 teaspoon pepper
- 1 pound lean ground beef (15% fat)
- 1 teaspoon onion powder (optional)
- 3 Tablespoons flour
- 4 cups frozen mixed vegetables
- 1 teaspoon or cube beef bouillon
- 1 cup water

Directions

Put diced potatoes in saucepan; add enough water to barely cover. Bring to boil. Reduce heat and simmer, covered, until soft (about 15 minutes.).

Drain potatoes and mash. Stir in milk, cheese, salt and pepper; set mixture aside.

Preheat oven to 375 degrees.

Brown meat in a large skillet. Add onion powder, if using. Stir in flour, and cook for 1 minute, stirring constantly.

Add vegetables, bouillon and water. Cook 5 minutes until bubbly.

Spoon vegetable mixture into 8-inch square baking dish. Spread potato mixture over vegetable/meat mixture.

Bake 25 minutes, until hot and bubbly.

Refrigerate leftovers within 2 hours.

Oregon State University Food Hero recipe courtesy www.foodhero.org

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