

Post-harvest Management of Silver Scurf and Dry Rot of Potatoes using Bio-Save (*Pseudomonas syringae*)

Dry rot (caused by *Fusarium sambucinum*) and silver scurf (caused by *Helminthosporium solani*) are two of the most important post harvest fungal diseases of potatoes which lack effective products for their management. These diseases can cause serious damage to the potato crop with losses ranging from 25 to 60%. Bio-Save 10LP and Bio-Save 11LP (*Pseudomonas syringae*) are registered for control of dry rot and silver scurf in the USA. The registrant, JET Harvest Solutions is pursuing registration of the product in Canada.

Fusarium Dry Rot (*Fusarium* spp.): The *Fusarium* species that cause dry rot are soil-borne. Soil adhering to the surface of the harvested tubers is the source of dry rot infection. Infections start in the wounds and bruises which result from planting, harvesting, grading or transport operations. The disease progresses in storage.



Tubers infected with Fusarium dry rot

Silver Scurf (*Helminthosporium solani*): The disease is seed borne and may also be soil borne. It affects the skin of the tubers and is usually seen in storage after harvest. Further infections of healthy tubers may take place in storage.



Tubers infected with silver scurf

What is Bio-Save (*Pseudomonas syringae*)?

Bio-Save (10LP or 11LP) (*Pseudomonas syringae*) is a naturally occurring microbial agent. It is normally present on produce surfaces prior to processing. The bacteria are formulated into a freeze-dried dry powder and used after mixing with water at label rates. The produce is drenched or sprayed with the bacterial suspension.

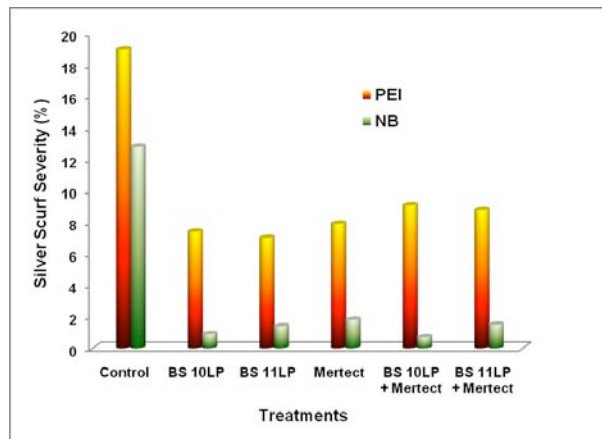
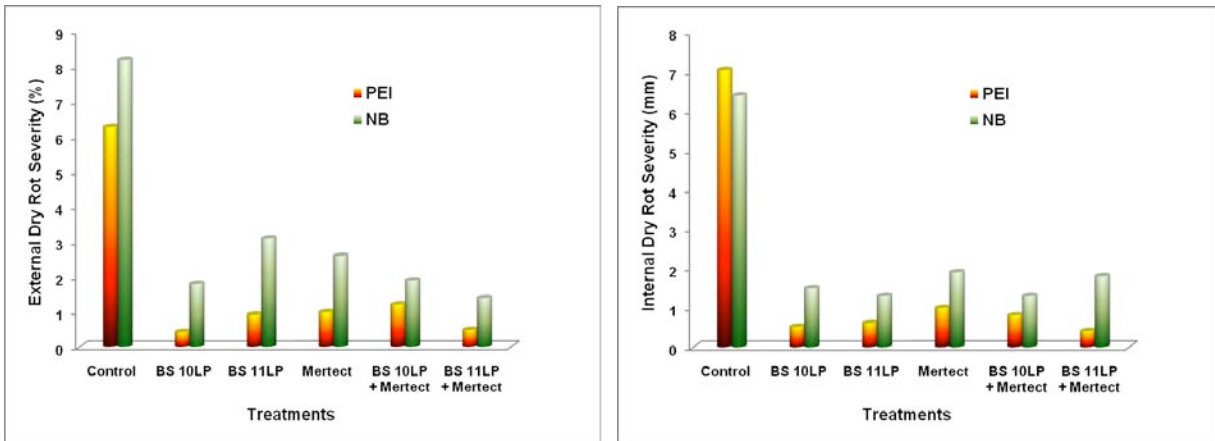
How Does Bio-Save Work?

Bio-save is a formulated *Pseudomonas syringae* applied to the tubers in a liquid suspension formulation. After application, the bacterium enters the tubers through injured tissues where fungal spores live and out-competes them for nutrients. This mode of action by which Bio-Save suppresses the pathogens is called a competitive inhibition. The bacteria interrupt the normal metabolism of the disease causing organism and prevent its growth and multiplication.

Efficacy of Bio-Save 10LP and BioSave 11LP (*Pseudomonas syringae*) against dry rot and silver scurf pathogens under *in vitro* and storage conditions

The efficacy of Bio-Save 10LP and Bio-Save 11LP against *F. sambucinum* and *H. solani* isolates representing NB, PEI and AB were tested *in vitro*. Bio-Save (10LP or 11LP) or Mertect (thiabendazole) applied separately or in combination with each other effectively suppressed the growth of the dry rot and silver scurf pathogens *in vitro*.

Storage trials were conducted in NB, PEI and AB to assess the efficacy of Bio-Save applied to potatoes after harvest against dry rot and silver scurf. Bio-Save or Mertect SC alone (applied at label rate) or in combination with each other significantly reduced the incidence and severity of dry rot and silver scurf in both NB and PEI.



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