

# Ozone Benefits for Potato Farmers and Processors



## Growing Potatoes:

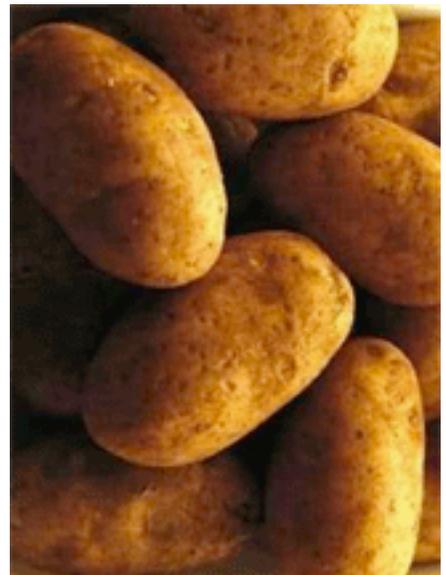
Potato brown rot is caused by a bacterium (*Ralstonia solanacearum*) and can seriously damage potato production. Brown rot is one of the most damaging potato diseases worldwide. The same organism has also caused bacterial wilt disease in tomatoes. It has entered certain watercourses, possibly in industrial or municipal effluents containing potato washings. Transmission to potatoes and tomatoes has then resulted from irrigation with contaminated river water. Reliable control of the brown rot bacterium in potato washings is achieved during treatment of clarified potato washings by dosing with at least 10mg/litre of ozone with a reaction time of at least four minutes (British Potato Council).

## Storing Potatoes:

The use of ozone reduces or eliminates mold and fungus growth that would otherwise occur during periods of storage. Influence of ozone gas on stored potatoes:

1. Ozone kills spores of many fungi (USDA).
2. Ozone at low concentrations greatly reduces the sporulation of green and blue mold (USDA).
3. Low ozone concentrations stop sporulation (USDA)..
4. Ozone is a sprout inhibitor and controls bacteria (Hammer)
5. Ozone stops soft rot and reduces black spot penetration.
6. If "bad potatoes" are controlled, they will not affect adjacent potatoes.

Ozone should be continuously added to the storage area. When the ventilation fans are off, the ozone should be applied to the top of the pile. When the fans are on, the ozone is put in the air plenum down stream from the fans.



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## Processing Potatoes:

Potatoes can be floated out of the storage bins or unloaded from trucks into flumes. They are then washed and scrubbed with well or city water that has been disinfected by adding ozone to the water.



Ozone is superior to using chlorinated water because it does not leave a residue. When chlorine reacts with organic matter, it forms trihalomethanes (THM), which is a toxic residue. The USDA is currently testing a TurnKey ozone unit for washing produce. They have indicated that 1.5 ppm of ozone can achieve similar levels of sanitation as 200 ppm of chlorine. Chlorine will affect taste, smell and color, but this is not the case with ozone.

The processing area, conveyers, hoppers, walls, floors, and work tools should be sanitized with ozonated water. This will kill *Listeria*, as well as all other bacteria, fungus, mold and mildew. Worker's boot and fork truck wheels can be sprayed at checkpoints with ozonated water to minimize the effect of transporting the bacteria around the plant. Ozone hand drier units can be used in restrooms and other wash stations to improve the hand sanitation process.



## References:

British Potato Council. 2002. "Monitoring and Control of the Potato Brown Rot Bacterium in Industrial Potato Washings"

USDA-ARS Horticultural Crops Research. April 2000. "Effects of Ozone Gas on Fruit & Vegetable Quality". D.A. Margosan, and J.L. Smilanick.

Hammer, Martin. Idaho Potato Cellars. <<http://www.dsaarch.com/potatocellars.htm>>. As viewed on 2003

Mountain Valley Produce. <<http://mvproduce.com/whtour.html>>



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