

## Potato Harvest and Storage (August 2009)

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None of you need to be reminded of the difficulty of this growing season, and many will no doubt be happy to reach vine killing time. The cool wet season is not only conducive to late blight (foliar and tuber) but also to pink rot and Pythium leak and therefore producers needing to store, should be aware of precautions that should be taken. Having tubers infected with pink rot and or Pythium leak in a storage bin can rapidly turn a bin of beautiful tubers in to an unsalable mess.

The goal of this note is to assist growers in storing healthy tubers long term by providing information from literature (a review for many), data from our research conducted in greenhouse studies, and findings from studies conducted with farm collaborators.

1. Information from the literature on **pink rot** (causal agent *Phytophthora erythroseptica*):

Most of the points below are related to this being a **Moisture driven disease**.

- Avoid excess irrigation late in season.
- Vine kill 2-3 weeks prior to harvest to allow tuber skin set.
- If field (s) have areas that are poorly drained, avoid harvesting these areas if at all possible.
- If possible avoid harvesting when pulp temperature is **above 60°F**
- Storage temperatures:  
Reduce temperatures in a **step wise manner until 55°F**. To reduce condensation issues, temperature between top and bottom of storage pile < **2°F**.
- If you notice suspicious tubers going **into** storage, remove them. See pictures below.
- If post-harvest products are to be used, apply as soon after harvest as possible  
This will be discussed below in more detail.
- Use high airflow to help prevent condensation.
- Constantly monitor potatoes in storage.
- If a problem is observed in the pile, then it may be possible to control disease spread by working with air flow and temperature, but it may also be necessary to quickly market tubers from suspected bins.

2. Information from the literature on **Pythium leak**:

Many of the points above are relevant to controlling Pythium leak, with the exception that infection of tubers **usually** occur **after** harvest and result from wounding at harvest.

- The Pythium organism (which is present in nearly all soils that have grown potatoes) enters the tubers through nicks/damage caused by insects and during rough harvesting.
- Control is therefore extremely difficult as the problem will usually only be evident once the tubers are in storage, but removing seriously damaged tubers from grading belt can help. If serious insect damage is observed on tubers, in future years using insecticides to control this damage should be considered.

3. Data from our research and findings from studies with farm collaborators:

**Pink rot studies**

***Cultivars***

Cultivars can be screened for their response to pink rot in the field, as greenhouse plants or as tubers. Different cultivars do respond differently, however, ranking of cultivars for resistance /susceptibility is not necessarily the same with the three screening methods. Most of the data we have is from screening tubers for their response to the pink rot organism. No cultivars appear to be immune, but some have good resistance, others have some resistance and others are susceptible (see Table 1 below).

Table 1. Response of tubers of different cultivars to inoculation with *P. erythroseptica*, causal agent of pink rot.

<b>Good Resistance</b>	<b>Some Resistance</b>	<b>Fairly susceptible</b>
<i>Allegany</i> <sup>1</sup>	Chieftain	Butte
Andover	Gem Russet	Dark Red Norland
Atlantic	Monona	Genesee
<i>Eva</i> <sup>1</sup>	Nordonna	Lehigh (NY 126)
Keuka Gold	Reba	Red La Soda
Marcy		<i>NY 129</i> <sup>2</sup>
<i>Norwis</i> <sup>3</sup>		NY 138
Pike		NY 139
Superior		Austrian Crescent (fingerling)
NY115		Adirondack Blue
NY140		Adirondack Red
NY 131 (King Harry)		German Butterball
Banana (fingerling)		

<sup>1</sup>When Allegany and Eva were screened under greenhouse conditions they were shown to be quite susceptible to pink rot.

<sup>2</sup>When NY129 was screened under greenhouse conditions it was shown to have good resistance to pink rot.

<sup>3</sup>Growers in the Southern Tier and on Long Island have found Norwis to be susceptible to pink rot.

By seeing whether the cultivars you have grown are in the “good resistance”, “some resistance” or fairly susceptible” category in Table 1 and knowing the water status of your fields, you should have some idea which fields need most of your attention with regards to pink rot management.

*Post-harvest application of phosphorous acids.*

- These are the only products currently labeled for post-harvest application see: <http://vegetablemdonline.ppath.cornell.edu/>
- They should be applied as soon as possible after harvest.

- We have seen problems with Pythium leak in piles to which phosphorous acids were applied.
- If the Pythium species present in your fields are know to be sensitive to Ridomil and it was applied at least in furrow, and pink rot is a concern, a phosphorous acid application with close monitoring of the pile may be warranted.

**Pythium leak**

- Few cultivars have any resistance, though Snowden and Marcy show some resistance.
- By using high air movement and maintaining temperature at 45°F through the pile disease spread may be controlled

**Recording information to assist with planning for next season.**

If either pink rot or Pythium leak occur in your storage having the samples tested for fungicide resistance would be useful (contact Helen, Tom, or your extension educator). Record which field/section and which cultivar was infected. Ideally potatoes shouldn't be grown there for at least two years. If you have to grow potatoes there next year try to use a less susceptible cultivar and discuss with us or your extension educator about a possible management program. If you will be rotating, be aware that some rotational crops may be hosts for pink rot (see Table 2) so try avoiding these if at all possible.

Table 2 Crops and their known response to pink rot.

<b>Not known to be a host for pink rot</b>	<b>Known hosts for pink rot</b>
Alfalfa	Spring wheat
Field and Sweet corn	Spring barley
Oats	Tomato
Rye	



Figure 1. **Norwis** (on Potter muck) infected with pink rot. The black line is characteristic of the disease and aids in differentiating pink rot from *Pythium* leak. Photo: Christy Hoepting



Figure 2. Tuber showing symptoms (water-soaked, darkened region) characteristic of *Pythium* leak. Photo. Tom Zitter.