

Evaluation of potato cultivars and clones for their response to pink rot caused by *Phytophthora erythroseptica*

CORNELL

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PROJECT GOAL: to determine which cultivars and clones from the NY State Potato Breeding have better resistance to pink rot than the susceptible cv. Red LaSoda.

METHODS A. Field Studies:

1. Cultures of *Phytophthora erythroseptica*, causal agent of pink rot, were grown in the laboratory and inoculum prepared with vermiculite and applied at planting and hilling.
2. Field plots were established at Cornell University Freeville NY farm. Soil type is classified as Howard gravelly loam.
3. Clones **NY138**, **NY139** and **NY140** were chosen as they are recent releases from the NY program, cv. **Satina** had good horticultural traits, cv. **Red Cloud** appeared to be a possible replacement for pink rot susceptible cv. **Red LaSoda**, cv. **Yukon Gem** is reported to have good pink rot and late blight resistance, cv. **Classic Russet** is a new release.
4. Healthy and pink rot infected tubers were weighed at harvest and 7 wks after storage at 45F. For each cultivar/clone total percentage of pink rot was determined: (total disease weight/total disease weight + total healthy weight) x 100. Data was analyzed with the statistics program SAS.

B. Laboratory Studies:

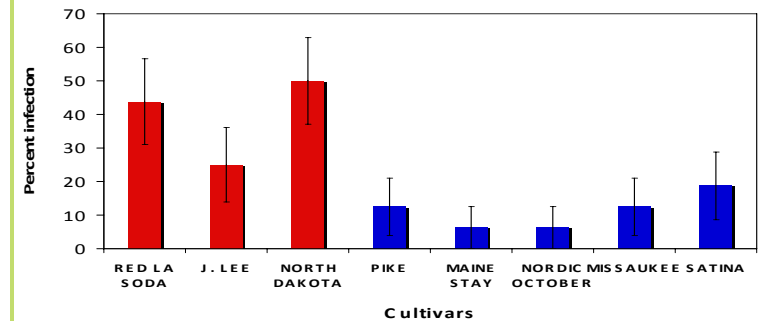
1. Due to limited space in the field study and a small number of tubers available for some cultivars these were screened in the laboratory (figure 1). North Dakota clone was **ND 7818-1Y**, and J. Lee was cv. **Jacqueline Lee**.
2. Tubers were inoculated with *P. erythroseptica* spores and incubated at 25C for 14 days in a humid environment.
3. The tubers were cut and exposed to air for 30 minutes before scoring for presence of pink color.

Table 1. Final marketable yield and percentage tuber rot due to pink rot from field study.

Cultivar/Clone	Final marketable yield (lb) per 20ft row	% rotten tubers due to pink rot
NY 138	47.0 abcd	2.40 cd
NY139	39.9 cde	5.9 bcd
NY140	60.6 a	0.48 d
Yukon Gem	55.6 ab	2.3 cd
Red LaSoda	33.9 de	19.5 ab
Satina	49.9 abc	13.4 abc
Red Cloud	28.4 e	29.6 a
Classic Russet	43 bcd	5.8 bcd
Standard Error	3.1	4.29

Within a column if means are followed by the same letter there is no significant difference at $P=0.05$, with the Tukey-Kramer test. For percentages the values were transformed prior to analysis. Means with colored letters are significantly different from the susceptible cv. Red LaSoda.

Figure 1. The percentage of tubers infected by Pink Rot observed in a laboratory study



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