

**Summary Research Progress Report and Research Project Proposal for 2000  
Submitted to:**

**SLV Research Center Committee and the  
Colorado Potato Administrative Committee Area III**

**Title:** Potato Pathology Program and Fungicide Efficacy Trials

**Project Leaders:** Rick Zink and Rob Davidson, CSU

**Project Justification:**

The potato industry in the San Luis Valley continues to be faced with serious disease management challenges. Late blight has significantly increased the need for expensive fungicide applications, thus increasing production costs. Early blight continues to be damaging and difficult to control. Seed borne and soil borne diseases such as powdery scab, pink rot, silver scurf, and Rhizoctonia require increasingly sophisticated management schemes. Although cultural practices and varietal resistance are of great value, these diseases will also be controlled to a large extent by fungicides. In addition, work with the cultivar development program and disease reactions is continuing.

Fungicide efficacy trials have been conducted for some time at the San Luis Valley Research Center. In 1999, eighteen different fungicide programs were evaluated for blight control and ten treatments for control of seed piece decay. Fungicide trials have been the basis for registration in Colorado of numerous products, and ongoing trials are essential for maintaining current labels and justifying Section 18, LSN24c, and Section 3 labels for new products. Funds are therefore being requested to continue the labor needed for these trials.

Our project has been collecting weather data and the information necessary for predictive modeling of blight for some time. However, the equipment currently is set up in only one field and remains at that location all year. Given the importance of predicting blight as accurately as possible, it would be beneficial to obtain data from additional locations in the San Luis Valley. For this reason, we are requesting funds to purchase two additional weather stations (see attached cut sheet).

Funds for the purchase of equipment are a one-time request. As noted in 1999, the funds requested for technical support will be matched by outside sources and should be considered to be an ongoing commitment. Matching funds will be provided through the seed potato certification program and the extension potato program. Requests for funds for specific projects may be made as the need occurs.

**Project Status:** On going

**Significant Accomplishments for 1999**

In 1999, eighteen fungicide programs were evaluated for early blight and late blight control. While late blight did not occur in the plot, early blight readings were taken throughout the season. The results of this trial were published in the February 2000 Pomme de terre newsletter. Ten seed piece treatments were evaluated for prevention of seed piece decay and disease at the San Luis Valley Research Center, and three seed piece treatments were used in a trial at Summit Farms. Three fungicide programs were evaluated on-station

for control of pink rot, and additional pink rot studies were conducted off-station. Early Harvest was evaluated as a seed piece treatment and as a foliar spray for disease prevention and decreasing tuber size. Two yellow potato variety trials were conducted, one in the San Luis Valley with fifteen varieties and one in Greeley, Colorado where six varieties were grown.

Aside from field trials, Kocide was evaluated as an agent for control of post harvest soft rot in potatoes. Weather data was collected for blight prediction models throughout the summer. Bulletins were sent out immediately to all growers when late blight was confirmed. Newsletters containing the results of the 1999 trials, methods for disease control, and cultivar specific management strategies will continue to be published to keep growers aware of developments affecting potato production in the San Luis Valley.

Eleven clones were evaluated for leafroll and twenty-one clones were evaluated for ring rot and the storage diseases in 1999. All clones showed adequate symptoms for leafroll and ring rot. Many clones demonstrated high potential for spread of leafroll and should be further evaluated for this tendency.

#### **Objectives for 2000:**

- Initiate studies on the biology and control of powdery scab in collaboration with Dr. Barbara Christ, Department of Plant Pathology, Pennsylvania State University
- Continue blight fungicide efficacy trials.
- Develop economic models for blight control in the San Luis Valley.
- Continue pink rot control studies.
- Continue seed piece treatment efficacy trials.
- Expand data collection for prediction of late blight.
- Provide a timely flow of research reports to the industry through newsletters.
- Continue bacterial ring rot, leafroll and storage disease trials for new clones generated by the CSU cultivar development program.
- Continue studies related to specific management techniques to control *Rhizoctonia* tuber scurf.
- Initiate further studies on PVY management in the San Luis Valley and pull together previous work for the SLV and other areas to develop a working PVY management plan.

#### **Funding Request:**

Labor, Research Associate	\$15,000.00
Equipment, two in field weather stations @ \$3000 each (optional)	\$ <u>6,000</u>
	<b>\$ 21,000</b>

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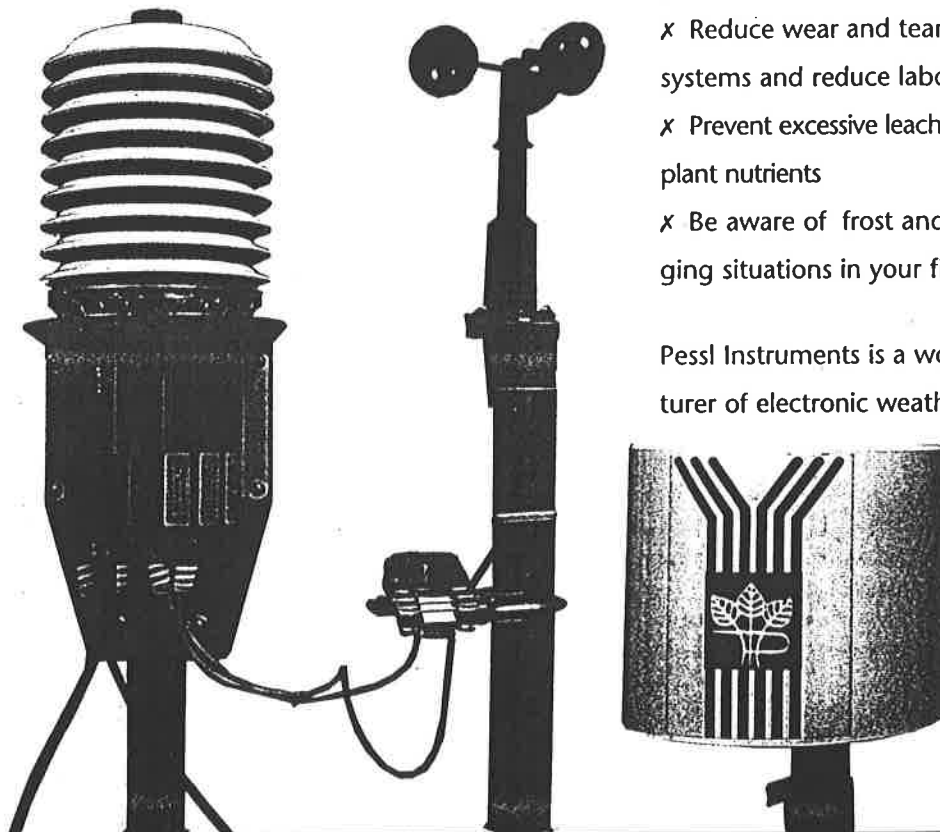
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