TWO DIFFERENT APPROACHES TO MANAGING PVY IN THE SAN LUIS VALLEY

Presented by:
Andrew Houser
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EVALUATION OF POTATO CULTIVARS FOR PVY RESISTANCE

- 42 different cultivars (named & experimental)
- Natural spread of PVY via infected aphids
- Plot located in the middle of a Russet Norkotah field (about 40% PVY infection)
- Cultivars evaluated had a low initial infection of PVY (when possible)
- 3 reps, 15 ft of row per plot
- Evaluated twice in summer and at PHT plots in Oahu, Hawaii
## Experimental Design

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<tr>
<th>NK Border</th>
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(Colored cells indicate treatment rows, green cells indicate control rows.)
2014 Evaluation of Potato Cultivars for PVY Susceptibility
(Russet Cultivars cont., SLVRC, Center, CO)

- % PVY (1st summer reading, July 3rd)
- % PVY (2nd summer reading, August 5th)
- % PVY (winter test reading, January 15th)

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>% Number of Plants with PVY</th>
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<tbody>
<tr>
<td>Ute Russet</td>
<td>20</td>
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<tr>
<td>Classic Russet</td>
<td>30</td>
</tr>
<tr>
<td>Innovator</td>
<td>10</td>
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<tr>
<td>Teton Russet</td>
<td>5</td>
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<tr>
<td>Tebina Russet</td>
<td>10</td>
</tr>
<tr>
<td>Fortress Russet</td>
<td>20</td>
</tr>
<tr>
<td>Russet Norkolah sel. 122</td>
<td>80</td>
</tr>
<tr>
<td>Russet Norkolah sel. 8</td>
<td>80</td>
</tr>
<tr>
<td>Russet Burbank</td>
<td>80</td>
</tr>
<tr>
<td>Nk. border 1</td>
<td>30</td>
</tr>
<tr>
<td>Nk. border 2</td>
<td>80</td>
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</tbody>
</table>

Highly Sus.
Susceptible
Mod. Res. Resistant
PVY CULTIVAR SCREENING SUMMARY

- Wide range of susceptibility/resistance to PVY
- Use different cultivars to manage PVY on your farm!
- The cultivar you plant can make your PVY situation better or worse!
EVALUATION OF A FLOWERING CROP MIX TO REDUCE THE SPREAD OF PVY

- In cooperation with Rockey Farms
- 3 different environments (adjacent to flowers, with insecticides, w/o insecticides)
- Russet Norkotah sel 8, Low(0% PVY) High(8% PVY)
- 4 reps, 80 seed pieces per rep
- 20 different species of plants used in flowering mix (including sunflowers, buckwheat, peas, mustards, marigolds, clovers, etc.)
## EXPERIMENTAL DESIGN

<table>
<thead>
<tr>
<th>Flowering Crop Mix</th>
<th>Norkotah Border</th>
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<tbody>
<tr>
<td>Low PVY Rep I</td>
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<tr>
<td>Low PVY Rep II</td>
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<td>Low PVY Rep III</td>
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<tr>
<td>Low PVY Rep IV</td>
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<tr>
<td>High PVY Rep I</td>
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<td>High PVY Rep III</td>
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<tr>
<td>High PVY Rep IV</td>
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</tr>
</tbody>
</table>

### Flowering Crop Mix

- **Low PVY Rep I**
- **Low PVY Rep II**
- **Low PVY Rep III**
- **Low PVY Rep IV**
- **High PVY Rep I**
- **High PVY Rep II**
- **High PVY Rep III**
- **High PVY Rep IV**

### Norkotah Border

- **Low PVY Rep I**
- **Low PVY Rep II**
- **Low PVY Rep III**
- **Low PVY Rep IV**
- **High PVY Rep I**
- **High PVY Rep II**
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- **High PVY Rep IV**

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### Norkotah Border

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- **High PVY Rep I**
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### Flowering Crop Mix

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### Norkotah Border

- **Low PVY Rep I**
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- **Low PVY Rep IV**
- **High PVY Rep I**
- **High PVY Rep II**
- **High PVY Rep III**
- **High PVY Rep IV**
RESULTS – PVY READINGS (LOW INITIAL PVY LEVEL)
RESULTS – PVY READINGS (HIGH INITIAL PVY LEVEL)

![Graph showing percent number of plants with PVY over different dates and treatments.]

- **Insecticides Used**
- **Insecticides Not Used**
- **Flowering Plant Mix**

**Date PVY was Observed**
- PVY Level (June 23, 2014)
- PVY Level (July 22, 2014)
- PVY Level (January 15, 2015)
IMPACTS!

- Potato cultivars have a wide range of susceptibilities to PVY
- The best approach for managing PVY is the use of resistant cultivars
- Planting a flowering crop mix adjacent to potatoes infected with PVY can reduce spread
- PVY is a community disease, we need to treat it that way!
THANK YOU!

- Katy Francis
- Mike Gray
- Rick Haslar
- Steve Keller
- Carolyn Keller
- Rocio Macias
- PCS Staff
- SLV Research Center Staff
- Arthur & Keith Holland
- Blue Sky Farms
- Dr. Robert Davidson
- Bothell Seed
- Price Farms Certified Seed
- Rockey Farms
- Salazar Seed
- Worley Family Farms
- Zapata Seed Company
- CPAC Area II
- Bayer Crop Sciences
- BASF
- Valent
- Frito Lay