

RESERCH PROPOSAL FOR 2003

Submitted to:

**SLV Research Center Committee
and the Colorado Potato Administrative Committee (Area II)**

TITLE: Reducing Weed Control Costs in Potato Production Using Spartan, Valor and Prowl Tank Mixes.

INVESTIGATOR: Dr. Scott Nissen, Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins.

NATURE, SCOPE AND OBJECTIVES:

New herbicide evaluations are designed to identify new, more effective and less expensive products for weed management in potato production and develop data necessary to commercialize these products through IR-4. Technology developed through this research project could reduce weed management costs by \$14/ac, saving the SLV potato industry approximately \$1.2 million annually.

Matrix was the first new herbicide labeled for potatoes in more than twenty years. The wide spread occurrence of ALS resistant weeds and carryover problems to sugar beets have producers and weed scientists concerned. Evaluating new products for weed control in potatoes has been a major focus of my research for the past six years. These research efforts have resulted in finding two very promising herbicides. One of these herbicides, **Spartan**, will have a Section 18 Label for potato weed control for the 2003 field season. The second product, **Valor**, will probably have a full Section 3 Label in 2004. Both products will provide potato growers in the San Luis Valley with cost effective broadleaf weed control. The question is can growers significantly reduce weed control costs by tank mixing Spartan and Valor with Prowl to provide some grass control. These combinations could provide weed control for about \$14 to \$16 per acre.

OBJECTIVE FOR 2003:

- Compare Spartan + Prowl and Valor + Prowl tank mixes to the more established standard treatments of Sencor + Dual Magnum, Matrix + Sencor and Matrix + Dual Magnum. Spartan and Valor will also be evaluated as single treatments. Plots will be evaluated for crop injury, weed control, total yield and graded.

METHODS AND MATERIALS:

This experiment will be established as a randomized complete box design with three replications. Plots will be 6.7 ft by 30 ft and the variety evaluated will be determined. A small plot, backpack sprayer will be used to make the herbicide applications and treatments will be incorporated with 0.5 inches of water immediately after application. The plot area will be approximately 9600 ft² and the only support requested from the SLV Research Center will be to

help with planting, irrigation and harvest. The PI will provide labor for planting, harvest, and grading operations.

RELATIONSHIP TO OVERALL PROBLEM:

Nearly every acre of potatoes in Colorado is treated to control weeds. Herbicides represent a major pest management cost. The proposed research will determine if Spartan and Valor combined with Prowl will provide a viable weed management option at considerable cost savings. Anything that can reduce costs will help producers be more profitable.

POTENTIAL FOR LEVERAGING OUTSIDE FUNDING:

This project is designed specifically to assist the potato industry in Colorado and probably does not have the potential to be funded by an outside granting agency.

TIMELINE:

- May -potato planting
- June -establish treatments at drag-off, evaluate injury
- July -evaluate weed control before row closure.
- August -vine kill
- September -harvest and grading.
- November -data analysis and report writing.

The major short-term goal is to provide growers with the best information possible about potato weed control at the lowest possible cost.

The major long-term goal is to continue to help producers stay profitable by reducing input costs for pest management.

FUNDING REQUEST:

2003 Request: \$4,000

Item	Cost
Field Support Staff	\$3,500
Salaries-technical, student hourly	
-establishing plots	
-herbicide applications	
-handweeding of untreated plots	
-harvest, grading, data analysis	
Miscellaneous Supplies	500
Total	\$4,000

Budget justification: The PI is requesting funds for research associate and student hourly support to conduct the proposed research and to provide support for hourly workers at the research center that assist with field work and potato grading.