

**SUMMARY RESEARCH PROGRESS REPORT FOR 1998
AND RESEARCH PROPOSAL FOR 1999**

Submitted to:

**San Luis Valley Research Center Committee
and the Colorado Potato Administrative Committee (Area II)**

TITLE: Metribuzin Sensitivity and Model Evaluation

PROJECT LEADER: Asunta (Susie) Thompson-Johns, Research Horticulturist, San Luis Valley Research Center and Dr. Scott Nissen, Extension Weed Specialist, CSU, Fort Collins

PROJECT JUSTIFICATION:

Many production factors may impact potato yields. Pest management is a critical factor. A partial listing of weeds frequently a problem in the San Luis Valley include wild sunflower, Canada thistle, green foxtail, hairy nightshade, kochia, lambsquarters, redroot pigweed, quack grass, wild oats and volunteer grain. An integrated management approach is typically accomplished through crop rotation, canopy competition mechanical and chemical control.

Metribuzin, the active ingredient in Sencor and Lexone, is one of the most widely utilized chemical weed control agents. It is effective against many weed species and may provide significant partial control of quackgrass and Canada thistle, two perennial species which are difficult to control in a growing crop. Application is achieved by a variety of methods and it works effectively in tank mixes, providing a broader spectrum of weed control.

A limitation of metribuzin is the sensitivity of some cultivars. The current project has a primary objective of screening advanced selections from the Colorado potato breeding program. The information obtained is included in cultivar specific management profiles and provided to producers when first trying a new selection.

PROJECT STATUS: Ongoing

SIGNIFICANT ACCOMPLISHMENTS FOR 1998:

Twenty four advanced selections and named cultivars were screened for sensitivity to a post-emergence application of metribuzin in 1998. The Russet Norkotah line selections 3 and 8 continue to display resistance, as does the standard Norkotah. Shepody, the sensitive check had an average of 33% foliar damage which equated to about a 25% yield loss. Other clones demonstrating foliar damage were CO86218-2, NDC4655-1R,

AC87084-3, AC89653-3 and AC83064-6. Despite the high rate (1 lb./acre ai.) applied post-emergence, many of these selections show foliar symptoms of damage, however it does not equate into a yield loss. Generally clones must have an average of 35% or higher to result in significant yield damage. Only Shepody attained this level of damage.

OBJECTIVES FOR 1999:

1. Continue evaluation of advanced potato selections and recently named cultivars for resistance/susceptibility to metribuzin as a management tool for weed control.
2. Develop a weed management guide for Colorado potato production, specifically related to metribuzin usage. Publish research results related to the model (Idaho program) validation under San Luis Valley production conditions.

FUNDING REQUEST:

1998 Allocation: \$3,000

1999 Request:

Supplies	\$ 300
Travel	800
Support Personnel	<u>1,500</u>
Total	\$2,600