

SUMMARY RESEARCH PROGRESS REPORT FOR 1990
AND RESEARCH PROPOSAL FOR 1991

Submitted to:

SLV Research Center Committee

and the

Colorado Potato Administrative Committee (Area II)

TITLE: Potato Breeding and Selection

PROJECT LEADER: David G. Holm

PROJECT JUSTIFICATION:

Development of new potato cultivars will help assure that the potato industry in Colorado remains productive and in a competitive position. New cultivars with increased yield, improved qualities and resistance to various physiological disorders, diseases and pests can provide long-term, cost-effective benefits to the potato industry.

PROJECT STATUS: This is an ongoing project.

SIGNIFICANT ACCOMPLISHMENTS FOR 1990:

Thirty-two parental clones were intercrossed in 1990. Seeds from 248 combinations were obtained. Sixty seedling families were grown in the greenhouse for initial field selection in 1991.

A total of 83,250 first-year seedlings were planted, with 840 being selected for further observation. Another 942 clones were in various stages of preliminary and intermediate testing. Two hundred sixteen of these clones were saved for further evaluation. Twenty-five advanced selections (21 russets, 1 red, 3 whites) were saved and will be increased.

Growers evaluated two russets (AC77101-1 and CO80011-5), one chipper (AC80545-1), and one long white (BC0038-1) in 1990. Clones AC77101-1 and BC0038-1 were discarded from further testing. Grower testing will continue on CO80011-1 in 1991. Growers recommend naming AC80545-1. This clone was selected in Colorado and will be jointly released by the Colorado and Idaho Agricultural Experiment Stations and the USDA-ARS.

Colorado will cooperate with the Idaho, Washington, and Oregon Agricultural Experiment Stations and the USDA-ARS in the release of Ranger Russet (A7411-2) in 1991.

Three russets will be released to growers for initial evaluation in 1991. They are AC78069-17, AC81198-11, and CO81082-1.

Forty clonal selections were made from two certified seed lots of Russet Norkotah. These selections will be increased and evaluated for vine vigor and maturity in 1991.

We are in the processing of generating virus tested seed stocks of both the pebble leaf and flat leaf mutations. Once these stocks are on line we will determine if the supposed pebble leaf mutation is genetic or due to PVS infection. With clean seed stocks we hope to also evaluate potential differences in PVS susceptibility.

OBJECTIVES FOR 1991:

1. The potato breeding and selection program will be continued. Advanced clones will be tested in yield trials, out-of-state trials, and by growers.
2. The Colorado Western Regional and Regional Chip Trial will be conducted again.
3. Clonal selections of Russet Norkotah will be increased and evaluated for vine vigor and maturity.
4. Studies comparing the Centennial Russet mutations will be continued. Emphasis will be placed on generating virus tested seed stocks for further studies to determine if the supposed pebble leaf mutation is genetic or due to PVS infection. Also any potential differences in PVS susceptibility will be evaluated.
5. The potato breeding project is in need of additional greenhouse facilities for crossing, production of seedling tubers, and micropropagation research. Formal approval from the SLV Research Center Committee is requested to proceed to determine specifications and cost. No funding is currently being requested for a greenhouse.
6. A draft job description is being prepared for a technician position to work with the potato breeding project. Initially funds will come from other sources for this position. Input from the SLV Research Center Committee will be sought.

FUNDING REQUEST: 1990 Allocation: \$10,800.00

1991 Budget Request

Labor	\$7,450.00
Travel	700.00
Supplies	<u>4,450.00</u>
Total	\$12,600.00