

SUMMARY RESEARCH PROGRESS REPORT FOR 1988

Submitted to:

SLV Research Center Committee

and

Area II Potato Administrative Committee

TITLE: Physiological and Cultural Studies

PROJECT LEADER: David G. Holm

PROJECT JUSTIFICATION:

Identification of the various strengths and weaknesses in potato clones for various postharvest storage, quality, and physiological disorder characteristics is essential in the selection and release of new cultivars.

The development of improved potato production practices is a key component in maximizing the yield of quality potatoes while minimizing associated production costs.

PROJECT STATUS:

The postharvest evaluations project is an ongoing study. Each year new selections are included in the testing scheme. Selections are generally tested for at least three years.

This year two additional studies are being proposed. The first will examine the enzymatic browning potential of selections included in the postharvest evaluations project. This characteristic is of importance with the concern over the use of sulfites in the food processing industry.

The second study will evaluate the influence of undercutting prior to harvest on shatter bruise.

SIGNIFICANT ACCOMPLISHMENTS IN 1988:

Eighty-seven samples representing 58 advanced selections and 10 cultivars were evaluated for two or more of the following characteristics: specific gravity, blackspot susceptibility, storage weight loss, dormancy, chip color, french fry color, and french fry texture.

Specific gravities were lower in 1988 than in previous years. This may be associated with stress induced from a hail storm which hit the

Research Center on August 7. Twenty-eight advanced selections had specific gravities  $\geq 1.080$ . Specific gravities  $\geq 1.080$  are required for processing selections.

Blackspot indices ranged from 2.0 to 4.9. Thirty advanced selections had little or no discoloration. Selections with severe discoloration were: AC80369-1, AC82693-4, CO08014-1, and W842.

Weight loss ranged from 3.4 to 12.0%. Most selections had greater weight losses in storage than Russet Burbank. Most selections also had shorter dormancy periods than Russet Burbank.

Eleven selections produced french fries with acceptable color and texture. Advanced selections with excellent french fry color and texture were: AC77226-13, AC80369-1, BC0038-1, BC0224-3, CO8195-4, and CO08014-1.

#### OBJECTIVES FOR 1989:

1. Evaluate blackspot susceptibility of advanced selections from the breeding project and Western Regional Trials.
2. Evaluate dormancy and storage weight loss of advanced selections to determine relative storability and potential weaknesses.
3. Evaluate specific gravity, chip color, french fry color and texture of advanced selections to determine processing potential.
4. Evaluations for protein, alkaloids, taste, vitamin C and sugars in will be continued in cooperation with Joe Maga, Department of Food Science and Human Nutrition.
5. The enzymatic browning potential of advanced selections will be evaluated. This characteristic is of importance with the concern over the use of sulfites in the food processing industry. This will be done in cooperation with Joe Maga.
6. The influence of undercutting prior to harvest on shatter bruise susceptibility of AC79100-1 will be studied.

FUNDING: 1988 Allocation: \$5,400.00

#### 1989 Budget Request

Labor	\$4,050.00
Travel	300.00
Supplies	<u>1,250.00</u>
Total	\$5,600.00