SUMMARY RESEARCH PROGRESS REPORT FOR 1993
AND RESEARCH PROPOSAL FOR 1994

Submitted to:

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

TITLE: 1993 Quality and Flavor Evaluations

PROJECT LEADER:
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PROJECT JUSTIFICATION: Both the processor and consumer of potato products are well aware that the composition of a potato can influence functional and sensory properties of the resulting product, as well as its safety. Therefore, it is imperative that promising new potato lines be effectively screened to insure that a safe product having desirable properties are available for distribution and widespread use.

SIGNIFICANT ACCOMPLISHMENTS FOR 1993: A total of 21 potato lines grown by the SLVRC in 1993 were evaluated for percent solids,degree of enzymatic browning potential, total glycoalkaloids, vitamin C, percent protein, and baked flavor properties. Total solids ranged from 16.2 to 22.4%, with several new lines having values over 20%. Several lines were identified that had little or no enzymatic browning after being stored in the cut state at room temperature for up to 150 minutes. All lines had similar levels of glycoalkaloids ranging from 7.7 to 11.5 mg/100g FWB. Vitamin C levels ranged from 32 to 59 mg/100g FWB, while protein levels, on a dry weight basis ranged from 8.0 to 12.3 %. The vast majority of the new lines had very good baked potato flavor properties. Overall, several of the new lines submitted for evaluation had very good properties as compared to already named varieties.

The formation of pyrazine compounds (important flavor compounds) was followed in boiled, baked and fried potatoes using three different lines. All lines were found to have similar types of pyrazines but their levels varied among lines. Lines with higher pyrazine levels were judged to have more characteristic potato flavor. The highest total level of pyrazines was found in the fried product while the lowest level was in boiled potatoes.

The fatty acid composition of the same three lines used for pyrazine analysis was determined and all three forms of processing produced minor changes in fatty acid distribution, especially among the unsaturated fatty acids.

OBJECTIVES FOR 1994: Continue to monitor compositional differences among promising new potato lines as compared to traditional varieties, and to characterize pyrazine types and amounts in other processed forms of potatoes.

FUNDING REQUEST:

1993 Allocation: $3,900
1994 Request: $3,500