

1985
Research Proposal and Budget Requests
Submitted to
Area II Potato Administrative Committee
From
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Potato blackspot resulting from bruise damage continues to be a problem in the San Luis Valley. Russet Burbank is more susceptible than Centennial, but the latter cultivar also has the potential to blackspot. A table is attached that shows the variation in blackspot in the two cultivars from 1979 to 1984. Data on Lemhi is shown for comparison.

The discoloration or blackening is the result of phenolic oxidation. The same reaction will occur slowly on fresh tuber slices and very rapidly on frozen and thawed slices. We evaluated 38 clones for this reaction and a wide variation in browning score was found. A graph is attached that shows the variation.

The objectives of this proposal are as follows:

1. Compare blackspot response of those clones that vary widely in browning scores.
2. Determine levels of mono and diphenols.
3. Determine rate and extent of frozen slice darkening.
4. Determine dry matter, potassium, and ascorbic acid content.

All measurements would be done on a single tuber. Several tubers from each clone would be used in order to obtain the necessary replications for statistical analysis.

Data obtained may be useful in the selections of parents with low browning potential for use in the breeding program.

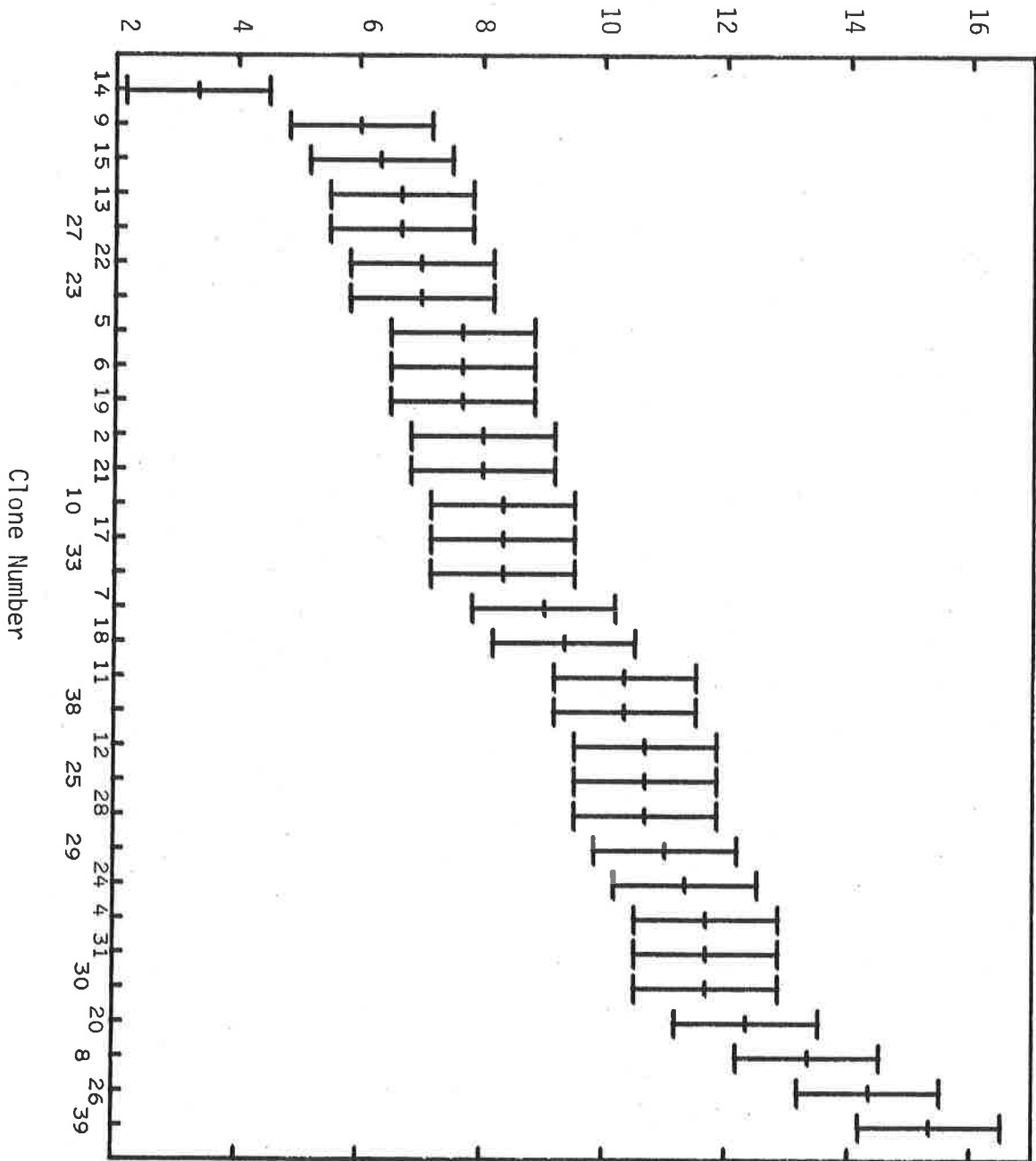
Budget:

Labor, Laboratory and statistical	\$1,000
supplies, etc.	<u>200</u>
	\$1,200

Code No.	Total score
14	3
9	6
15	6
13	7
27	7
22	7
23	7
5	8
6	8
19	8
2	8
21	8
10	8
17	8
33	8
7	9
18	9
11	10
38	10
12	11
25	11
28	11
29	11
24	11
4	12
31	12
30	12
20	12
8	13
26	14
39	15

MEAN ENZYMATIC BROWNING SCORE

MULTIPLE COMP. PLOT, LSD=2.340235



Blackspot Indices 1979-1984

Year	<u>R. Burbank</u>	<u>Centennial</u>	<u>Lemhi</u>	(R+C) <u>Mean</u>
1979(F)	77	19	55	48
1980(S)	94	45	171	70
1980(F)	270	17	333	144
1981(S)	120	7	333	127
1981(F)	107	23	210	65
1982(S)	63	36	225	50
1982(F)	317(S)	126		222
1983(S)	246	122		184
1983(F)	42	125		84
1984(S)	80	0		40
1984(F)	101			
Mean(F)	163	62	199	117
Mean(S)	121	42	243	94

Score Meaning:

0 = No Blackspot

400 = Maximum Score