

1983

DAVIDSON

COLORADO

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Breeding Program

Characteristics being emphasized in the Colorado program are yield, specific gravity, russeting, and fresh market/process-  
ing qualities. Twenty-three parental clones were selected  
for crossing in 1983. Seeds from 142 combinations were ob-  
tained. Seventy seedling families were grown in the green-  
house producing 10,928 tubers for initial selection in 1984.  
Surplus tubers were distributed to Idaho, Oregon and  
Minnesota.

Seedling tubers were obtained from Dr. R. E. Webb, Beltsville,  
Maryland, Dr. J. J. Pavek, Aberdeen, Idaho, and Dr. R. E. Voss,  
Davis, California. The California seedlings were produced  
from true seed obtained from Colorado.

Selection Program

A total of 29,500 first-year seedlings were planted with 597  
being selected for further observation. Another 441 clones  
were in various stages of preliminary testing. Eighty-four  
of these clones were selected for continued evaluation.

Advanced Yield Trial. Cultural and environmental data are  
summarized in Table 1 for the advanced yield trial. Data  
collected on the 17 advanced yield trial entries is presented  
in Table 2. Advanced russet selections showing promise and  
meriting further testing are: AC77149-2, AC77513-1, AC77514-1,  
AC77652-1, TC2-1, and WNC567-1. Selections TC2-1 and  
AC77652-1 will be entered in the 1984 Western Regional Trials.

Chipping Study. Eleven selections in various stages of devel-  
opment and two standard cultivars were tested for chipping  
potential at harvest and after various storage regimes. Re-  
sults are presented in Table 3. None of the clones tested  
chipped satisfactorily directly out of 40° F storage or with  
reconditioning at 70° F for two weeks. Atlantic, Norchip and  
BR7093-24 produced acceptable chips for all other storage  
regimes. Other clones showing chipping potential include:  
TXA17-1, A70369-2, BC9955-1 and BC9956-2. Clones WNC521-12  
and WNC672-2 did not perform well in this test. However,  
large scale tests indicate processing potential for these  
clones at harvest and after short storage periods. Selection  
WNC672-2 will be released to seed growers in 1984.

Potential Release. Selection WNC285-18, a sibling of Cen-  
tennial Russet, has undergone extensive commercial testing  
and will probably be named within the next year.

Colorado Table 1. Advanced yield trial cultural and environmental data, San Luis Valley Research Center, Center, Colorado, 1983.

- CULTURAL DATA -

Soil Type	- Sandy Loam
Fertilizer	- Nitrogen and phosphorus banded at planting at 120 and 65 pounds per acre, respectively
Planting Date	- May 19
Vines Killed	- Diquat applied at the rate of 0.47 pounds active ingredient per acre on September 5; rotobeat September 13
Harvest Date	- September 16
Irrigation	- 10.1 inches applied by center pivot sprinkler
Weed Control	- Cultivated on June 8 - Lasso applied at the rate of 2.5 pounds active ingredient per acre on June 10
Insecticides	- Monitor applied at the rate of 0.87 pounds active ingredient per acre on July 30.

- ENVIRONMENTAL DATA -

	MONTH				
	May	June	July	August	September
Rainfall (Inches)	0.85	1.71	0.50	1.29	0.53
Temperature ( <sup>o</sup> F)					
Average Maximum	61.8	70.5	80.3	79.7	75.0
Average Minimum	31.8	39.1	46.2	46.5	38.8

Colorado Table 2. Yield, grade, specific gravity, and maturity for advanced yield trial clones.

Clone	Total Yield		U.S. No.1 %	Yield U.S.No.1 >10 oz.		Yield <4 oz. Cwt/A	Yield U.S.No.2 & Culls Cwt/A		Specific Gravity	Vine Maturity <sup>1/</sup>
	Yield Cwt/A	U.S.No.1 Cwt/A		U.S.No.1 Cwt/A	U.S.No.2 & Culls Cwt/A					
AC71861-4	400	262	65.5	31	65	72	1.082	3.5		
AC71997-1	345	219	62.9	26	104	22	1.090	4.3		
AC74226-3	283	178	63.2	9	97	8	1.087	1.5		
AC77149-2	359	298	82.9	60	48	14	1.078	2.5		
AC77513-1	404	323	80.0	59	52	29	1.097	3.8		
AC77514-1	385	331	85.8	74	41	13	1.092	3.0		
AC77652-1	316	254	80.1	52	45	18	1.080	2.3		
BC9668-1	327	264	80.6	38	47	17	1.078	2.5		
TC2-1	403	314	77.9	54	78	11	1.104	3.8		
WNC567-1	367	282	76.5	32	64	21	1.085	2.3		
WNC630-2	343	277	80.6	30	53	12	1.094	3.8		
WNC708-6	319	264	82.4	41	32	24	1.089	2.5		
Centennial Russet	358	289	80.8	72	58	11	1.089	3.0		
Nooksack	311	261	83.9	82	18	31	1.104	4.8		
Russette	396	307	77.5	29	72	16	1.097	3.0		
Russet Burbank	366	221	60.6	23	104	41	1.089	2.5		
Targhee	334	233	69.4	38	76	25	1.093	5.0		
Mean	354	269	75.9	44	62	22	1.090	3.2		
LSD (0.05)	36	46	7.1	26	17	17	-	0.7		

<sup>1/</sup>Vine maturity is based on amount of dead foliage on August 31: 1 = Very Early; 2 = Early; 3 = Medium; 4 = Late; 5 = Very Late.

Colorado Table 3. Chip color<sup>1/</sup> and specific gravity of chipping study entries.

Clone	At Harvest	3 wks @ 70°F	10 wks @ 40°F	10 wks @ 50°F	2 wks/70°F		Specific Gravity
					10 wks/40°F	10 wks/50°F	
Color							
A70369-2	1.0	1.5	4.5	3.0	3.5	2.0	1.097
BC9953-1	3.5	4.0	5.0	5.0	5.0	4.0	1.086
BC9955-1	2.5	1.5	5.0	3.0	4.5	1.5	1.100
BC9956-2	2.0	1.5	5.0	3.5	4.0	2.5	1.094
BC9988-4	3.0	4.0	5.0	4.5	5.0	3.0	1.094
BR7093-24	1.0	1.5	4.5	2.0	4.0	1.5	1.089
C07917-10	4.0	4.0	5.0	4.5	5.0	4.0	1.091
TXA17-1	1.5	1.5	4.5	2.5	3.5	1.5	1.081
TXC802-1	2.0	2.5	5.0	3.5	5.0	3.5	1.076
WNC521-12	3.5	2.5	5.0	4.0	4.5	3.0	1.090
WNC672-2	1.5	2.0	5.0	3.0	4.0	3.0	1.083
Atlantic	1.5	1.5	5.0	1.5	3.5	1.0	1.099
Norchip	1.5	1.0	5.0	1.5	3.5	2.0	1.084

<sup>1/</sup> Chip color was rated using the Potato Chip/Snack Food Association 1-5 scale. Ratings of 2 or less acceptable.