

## POST HARVEST EVALUATIONS RESEARCH REPORT FOR 1986

Submitted by

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### Blackspot

Ten randomly selected tubers each of forty-five clones were bruised on the stem and bud ends with a 150 g weight dropped from a height of 68 cm. Tubers were stored at room temperature for three days prior to evaluation on October 9, 1986. Blackspot susceptibility was evaluated by peeling tubers and rating the extent of bruising.

Blackspot indices ranged from 3.0 to 5.0. Five clones, AC77669-1, AD7267-3, C08190-1, WNC672-2, and Lemhi were significantly more susceptible (blackspot ratings <3.8) to blackspot than Russet Burbank (Table 1). Several clones were more resistant than Russet Burbank (ratings >4.4) to blackspot bruising. Clones receiving a 5.0 rating (no discoloration) were: A74114-4, A74133-1, AC77226-10, AC7869-17, and C08182-1.

### Weight Loss and Sprouting

Ten tubers were randomly selected and weighed into storage on October 10, 1986. The storage was held at 45°F and low relative humidities until late January when a cooler malfunction occurred allowing the temperature to rise to 85°F. Final weight of the tubers was determined on February 9. Sprouting evaluations were made at the same time. All clones exhibited excessive sprout growth as a result of the high temperatures. Therefore, this data is not presented.

Weight loss ranged from 4.5 to 14.1% (Table 1). Centennial Russet and Russet Burbank had weight losses of 8.9 and 7.4%, respectively. Seven clones had weight losses greater than 10%. Clones with less than 6% weight loss were: A74133-1, AC77226-10, AC77669-1, AC80369-1, BR7093-24, C07918-15, C08138-6, C08182-1, and TC582-1.

### Specific Gravity, Fry Color and Mealiness

Thirty-nine potato clones were evaluated for specific gravity, fry color and mealiness. Samples were harvested August 29 - September 2 and stored at 55°F until October 10. At this time, specific gravity, fry color and mealiness were evaluated. The remaining portion of the sample was stored at 45°F until December 19 when fry color and mealiness were again evaluated. This data is presented in Table 2.

The dry matter or solids content of a potato tuber is one of the best indicators of internal tuber quality. Specific gravity is used to estimate the solids content of tubers.

Generally, specific gravities were lower in 1986 than in 1985. Specific gravity ranged from 1.072 (A74212-1) to 1.100 (TC582-1). Eleven clones had greater specific gravities than Russet Burbank.

Twenty-three clones produced acceptable french fries (rating  $\geq 3$ ). Eight clones produced fries comparable to or better than Russet Burbank. Clones with better fry color than Russet Burbank were: A79141-3, AC80369-1, CO08014-1, and WNC672-2.

Mealiness is a measure of the texture of the cooked french fry. The average mealiness rating for Centennial Russet and Russet Burbank was 1.5 and 5.0, respectively. Fifteen clones had excellent mealiness ratings ( $\geq 4$ ).

Table 1. Blackspot, weight loss, and sprouting evaluations for forty-five potato clones.

Clone	Blackspot Rating <sup>1</sup>	Weight Loss (%)
A72685-2	4.4	12.8
A7411-2	4.2	6.8
A74114-4	5.0	8.1
A74133-1	5.0	5.7
A74212-1	4.6	7.4
A76147-2	4.6	7.6
A76260-16	4.2	13.5
A79141-3	4.1	9.1
AC77101-1	4.1	9.8
AC77226-10	5.0	4.9
AC77226-13	4.8	12.0
AC77513-1	4.2	13.0
AC77652-1	4.4	8.9
AC77669-1	3.7	5.5
AC7869-17	5.0	6.0
AC79100-1	4.1	6.3
AC79128-1	4.3	8.5
AC80369-1	4.0	5.4
AC80545-1	4.5	8.0
AC81198-11	4.2	7.8
AD7267-3	3.6	6.5
BC0038-1	4.2	9.6
BC0169-12	4.9	7.8
BC0224-3	4.4	6.4
BR7093-24	4.4	4.5
CO7918-11	4.2	14.1
CO7918-15	3.9	5.9
CO8011-5	4.6	12.2
CO08014-1	4.2	8.3
CO81103-1	4.8	7.6
CO8138-6	4.7	4.7
CO8182-1	5.0	4.5
CO8190-1	3.0	6.3
CO8195-4	4.8	6.3
ND534-4	4.6	7.1
TC582-1	4.4	5.5
TXA17-1	4.2	7.3
W842	3.9	8.7
WNC521-12	4.2	6.2
WNC567-1	4.8	10.2
WNC672-2	3.6	5.8
Centennial Russet	4.5	8.9
Lemhi Russet	3.5	8.8
Nooksack	4.9	7.9
Russet Burbank	4.1	7.4

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 2. Tuber shape, skin type, specific gravity, fry color and mealiness ratings for thirty-nine potato clones.

Clone	Tuber Shape & Skin Type <sup>1</sup>	Specific Gravity	Fry Color <sup>2</sup>		Mealiness <sup>3</sup>	
			6 wks/55° F	6 wks/55° F + 8 wks/45° F	6 wks/55° F	6 wks/55° F + 8 wks/45° F
A72685-2	Ob,R	1.083	2	2	3	3
A7411-2	L,R	1.094	3	4	4	4
A74114-4	L,R	1.090	3	3	3	3
A74133-1	L,R	1.074	3	2	1	1
A74212-1	L-Ob,R	1.072	2	1	2	1
A76147-2	L,W	1.093	3	4	3	3
A76260-16	L,R	1.084	4	4	4	4
A79141-3	Ob,R	1.096	4	5	5	5
AC77101-1	Ob,R	1.088	3	2	3	3
AC77226-10	L,R	1.082	4	3	3	2
AC77226-13	L,R	1.083	4	3	3	2
AC77513-1	L,R	1.087	2	2	3	3
AC77652-1	Ob,R	1.077	1	2	3	3
AC77669-1	Ob,R	1.073	1	1	4	2
AC7869-17	L,R	1.080	3	3	4	4
AC79100-1	L,R	1.094	2	2	2	2
AC79128-1	L,R	1.083	2	3	1	3
AC80369-1	L,R	1.097	5	4	4	5
AC81198-11	L-Ob,R	1.079	1	2	3	3
AD7267-3	L,R	1.081	3	3	4	4
BC0038-1	L,W	1.095	4	4	3	3
BC0169-12	Ob,R	1.079	2	2	1	2
BC0224-3	L,R	1.086	4	3	4	4
CO7918-11	Ob,R	1.076	3	3	3	3
CO8011-5	Ob,R	1.074	3	2	1	1
CO08014-1	Ob,R	1.088	4	5	4	5
CO8138-6	L,R	1.076	4	3	3	3
CO8182-1	L,R	1.077	1	1	4	4
CO8190-1	L,R	1.079	1	2	4	2
CO8195-4	Ob,R	1.088	4	4	5	5
ND534-4	L,R	1.078	3	3	3	3
TC582-1	Ob,R	1.100	3	3	5	5
WNC521-12	Ob-R,W	1.099	4	4	5	5
WNC567-1	L,R	1.085	1	2	4	2
WNC672-2	Ov,R	1.089	5	5	5	4
Centennial Russet	Ob,R	1.083	1	1	2	1
Lemhi Russet	L,R	1.095	3	3	4	3
Nooksack	Ob,R	1.091	3	3	5	5
Russet Burbank	L,R	1.089	4	4	5	5

<sup>1</sup>Tuber Shape: R = Round; Ov = Oval; Ob = Oblong; L = Long.  
Skin Type: R = Russet; W = White.

<sup>2</sup>Fry color was rated on a 1 to 5 scale, with 5 being the lightest or best color.

<sup>3</sup>Mealiness was rated on a 1 to 5 scale, with 5 indicating the cooked flesh is dry, with 1 representing a soggy, wet texture.