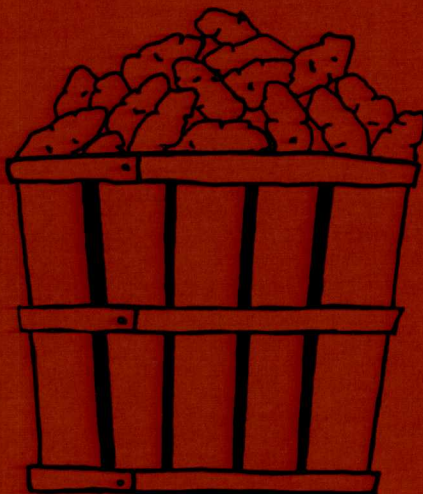


**POTATO VARIETY PERFORMANCE  
ALASKA  
1986**

**D.E. Carling and P. Rissi**



**Agricultural and Forestry Experiment Station  
School of Agriculture and Land Resources Management  
University of Alaska-Fairbanks**

**James V. Drew, Dean and Director**

**Circular 58**

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February 1987

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by

D.E. Carling  
Assistant Prof. of Horticulture

and

P. Rissi  
Horticulture Field Supervisor

"Circular (University of Alaska, Fairbanks.  
Agricultural and Forestry Experiment Station)"  
School of Agriculture and Land Resources Management  
University of Alaska-Fairbanks

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6. Kodiak - Gene Gade (CES), Patricia Lods
7. Noorvik - Lori Restad (Maniilaq Assn.)
8. At Large - Dr. G.A. Mitchell (CES)

## INTRODUCTION

A comparative yield trial with 44 named varieties and numbered selections of potatoes was conducted at the University of Alaska-Fairbanks, Agricultural and Forestry Experiment Station's (AFES) Palmer Research Center during the 1986 growing season. This yield trial is the continuation of a potato variety testing program initiated in 1982. The trial again was conducted at the Matanuska Research Farm, located on Trunk Road near Palmer. Nonirrigated trials have been conducted each year beginning in 1982, but irrigated trials were not initiated until 1985. Results of previous trials are recorded in Circulars 49 and 54, available at the Agricultural and Forestry Experiment Station offices in Fairbanks and Palmer.

As in past years, varieties with long production histories in Alaska (Alaska 114, Bakeking, Green Mountain, Kennebec, Superior) are included and serve as a comparative base for newly developed varieties or older varieties that in the past have escaped testing at this location. Varieties that compare favorably with the above listed standards may warrant some consideration by commercial growers.

In continuance of a program that was initiated in 1985, abbreviated versions of the AFES potato yield trial were conducted at locations in various parts of the state. These off-station trials again were made possible by the willingness of cooperators to plant, tend and harvest the crop. The seven off-station sites include several where comparative testing of potato varieties has not been reported previously.

## MATANUSKA FARM YIELD TRIALS

### Cultural Practices - Environmental Conditions

The irrigated and nonirrigated plots were planted at the Matanuska Research Farm on May 12, 1986. Soil moisture loss was minimized by planting as quickly as possible after plowing, tilling and packing. Four randomly placed replicates of each variety, with twenty two seed pieces per replicate, were planted in rows 36 inches apart. Cut seed was used throughout, with seed piece weight ranging from 1.5 to 2 ounces. Seed pieces were spaced 11 inches apart in the row and covered with 2-3 inches of soil. A single row Iron Age assist feed planter was used. Granular fertilizer (8-32-16) was applied at the rate of 1000 lbs/acre by the planter in bands beside and below the seed. Water requirements for the irrigated plot were determined from tensiometers installed at depths of 6 and 12 inches at various locations in the irrigated plot. Water was applied as indicated by tensiometers.

Plants began to emerge in approximately four weeks. Immediately prior to plant emergence, plots were sprayed with Dinoseb at the rate of one gallon per acre to control broadleaf weeds. Weed pressure was less than usual in the early part of the 1986 season, due in large part to the shortage of moisture in May and June. Supplemental hand weeding eliminated weeds that did appear. Late season weeds were more abundant than usual, perhaps owing to above average rainfall in the last half of the season. In spite of the late season resurgence (principally chickweed) weeds in general had little influence on the 1986 crop.

Over ten inches of rain fell at the Matanuska Farm between May 1 and September 30, 1986; (Table 1) more rain than any summer in the last five years. However, early season rainfall was limited, and nonirrigated plants were stressed for moisture by the time adequate precipitation began to fall in July. Less than 0.7 inches of rain fell since May 1 to mid July. At this time nonirrigated plants were noticeably stunted, but drought induced wilting was not observed. Although vine growth of irrigated plants was well ahead of their nonirrigated counterparts in mid to late July, by seasons end there was little overall difference in above ground growth. Temperatures for the season were average to slightly above average throughout.

**Table 1. Climatic data for Matanuska Farm during the 1986 growing season.**

	May	June	July	August	September
Temp. (°F)					
Air					
Daily max.	58.4 (57.7) <sup>1</sup>	65.5 (65.3)	66.7 (67.5)	62.3 (64.9)	56.5 (56.4)
Daily min.	35.6 (36.0)	44.8 (44.0)	48.6 (47.7)	46.1 (45.6)	38.0 (38.5)
Daily mean	47.0 (46.9)	55.2 (54.7)	57.7 (57.6)	54.2 (55.3)	47.3 (47.5)
Soil (4" depth) <sup>2</sup>					
Fallow	44.6	Data not available	59.2	54.4	44.2
Sod	39.5		58.5	55.8	44.7
Precip. (in.)	0.18 (0.72)	0.48 (1.52)	4.16 (2.39)	1.90 (2.55)	3.33 (2.40)

<sup>1</sup> Values in parenthesis represent a 51-year average.

<sup>2</sup> Soil temperatures were recorded at the Palmer Research Center.

Harvest occurred on September 9, 1986. There had been no significant frost damage to the vines at the time of harvest. Soil moisture was somewhat high during harvest, resulting in significant quantities of soil adhering to the tubers.

## Results

1986 was an average production year (Tables 2 and 3). Yields of 12 selected varieties were nearly 50 percent above 1985 yields in nonirrigated comparisons (Table 5), but comparison of the same varieties under irrigation (Table 6) shows a 7 percent decrease in 1986.

Irrigation generally resulted in yield increases, but several varieties (Green Mountain, Acadia Russet, 3-79-280-81, et al) produced greater US #1 and total yields when not irrigated. Percent US #1 figures were generally lower than in the past three years, but higher than 1982. Specific types of gradeout in the 1986 crop are documented for selected varieties in Table 4. Specific gravity levels were good, with irrigated trials reaching slightly higher levels than nonirrigated trials.

## Discussion

More than half (23) of the tested varieties produced greater quantities of US #1 tubers in nonirrigated than in irrigated trials. A lesser number of varieties (12) produced greater total yields in the nonirrigated plots. This is not the type of response one would generally expect to irrigation, and two negative aspects of our 1986 irrigation scheme may partly explain this occurrence. First of all, the pump required to deliver water to our irrigation system failed in mid June, at precisely the time tensiometer readings indicated irrigation should begin. The pump was not back on line until 14 days later, by which time plants were clearly stressed



**Table 2. Nonirrigated yield trial summary, Matanuska Farm.<sup>1</sup>**

Variety <sup>2</sup>	Per-acre yields in tons				Per cent US #1	Tuber Weight <sup>6</sup>	Specific Gravity
	US #1 <sup>3</sup>	Small <sup>4</sup>	Other <sup>5</sup>	Total			
Green Mountain	15.5	1.7	1.7	18.9	82.0	6.9	1.088
Acadia Russet	14.9	1.6	1.6	18.1	82.4	7.1	1.084
3-79-280-81	14.8	1.8	1.7	18.3	78.4	6.2	1.088
3-79-270-81	14.8	1.5	1.5	17.9	82.9	8.6	1.087
Lemhi	14.8	1.8	2.3	18.9	81.0	6.9	1.094
Sangre	14.4	2.0	1.4	17.9	80.7	6.4	1.077
Alaska 114	14.3	1.7	0.9	17.0	84.5	5.6	1.086
Shepody	14.2	0.9	1.3	16.4	87.0	8.3	1.088
Rosa	14.1	2.1	1.0	17.2	82.3	5.9	1.079
Alaska Russet	14.1	1.3	1.5	16.9	82.9	7.0	1.086
Caribe	14.1	1.5	2.6	18.2	77.8	7.0	1.072
6-5	14.1	1.0	1.4	16.6	85.3	7.8	1.087
18-6	14.0	1.5	1.9	17.4	80.7	6.7	1.080
6-78-139-80	14.0	2.4	1.7	18.1	77.2	7.1	1.083
Alaska Red	13.9	2.3	1.4	17.5	79.0	5.8	1.087
B8883-13	13.7	1.1	1.0	15.8	86.3	6.5	1.086
Kennebec	13.6	1.1	4.1	18.9	72.0	8.2	1.085
Snowchip	13.6	2.0	0.6	16.2	83.6	5.9	1.089
13-68-5-72	13.2	1.2	3.0	17.4	76.7	7.4	1.088
Maverick	13.1	2.2	1.5	16.8	77.8	6.4	1.071
Red Pontiac	13.0	1.1	3.2	17.3	76.8	6.9	1.075
10-71-1-74	13.0	1.3	3.6	17.9	72.6	8.5	1.081
26-68-2-71	13.0	2.1	2.6	17.7	73.2	5.8	1.090
3-79-168-81	12.7	2.5	2.6	17.8	71.6	6.5	1.085
Allagash	12.5	1.4	1.6	15.4	81.0	7.5	1.086
Bakeking	12.1	1.0	1.0	14.1	85.7	7.7	1.095
Highlat Russet	12.0	1.6	2.0	15.6	77.3	6.9	1.087
Denali	11.4	1.1	1.8	14.3	80.3	7.0	1.103
Bintje	11.4	3.9	1.5	16.9	67.8	4.9	1.085
Superior	11.1	1.7	3.2	16.0	70.0	6.4	1.078
Russet Burbank	11.0	1.8	1.7	14.5	76.1	5.1	1.095
Nooksack	10.7	1.8	1.6	14.0	75.7	6.8	1.093
Alasclear	10.4	1.6	2.4	14.4	72.2	6.2	1.085
Norgold Russet	10.2	3.0	1.8	15.0	67.7	6.0	1.080
Butte	9.9	1.6	2.4	13.9	68.0	7.5	1.083
Red Norland	9.7	1.0	5.2	16.0	60.6	6.6	1.074
Onoway	9.6	1.6	3.4	14.6	65.6	6.8	1.075
Jemseg	9.4	2.0	1.6	13.0	72.4	6.3	1.080
Norchip	9.3	2.7	2.3	14.3	65.5	6.2	1.085
Alaska Frostless	8.7	2.0	4.7	15.3	56.4	5.1	1.091
Russette	8.5	1.4	2.9	12.7	66.4	6.8	1.088
Nemarus	8.1	1.6	2.5	12.2	66.5	7.0	1.082
Epicure	8.0	2.3	2.2	12.4	63.6	6.1	1.079
Centennial Russet	7.1	2.0	5.1	14.2	49.9	5.9	1.080
Average	12.2	—	—	16.1	75.1	—	1.085
LSD 5% <sup>7</sup>	2.5	—	—	2.2	—	—	—

<sup>1</sup> All figures represent least-square means of 4 replications. <sup>2</sup> Numbered selections originated in the breeding program of C.H. Dearborn. <sup>3</sup> #1 market grade as defined by the US Department of Agriculture. <sup>4</sup> Tubers less than 1.75 inches in diameter. <sup>5</sup> Includes oversize, shatter or growth crack, second growth, green, etc. <sup>6</sup> Average weight of #1 tubers in ounces. <sup>7</sup> LSD: Least significant difference based upon plot-wide variation.

**Table 3. Irrigated yield trial summary, Matanuska Farm.<sup>1</sup>**

Variety <sup>2</sup>	Per-acre yields in tons				Per cent US #1	Tuber Weight <sup>6</sup>	Specific Gravity
	US #1 <sup>3</sup>	Small <sup>4</sup>	Other <sup>5</sup>	Total			
Kennebec	16.9	1.0	2.9	20.8	81.0	7.9	1.088
Caribe	16.3	0.8	1.9	19.1	85.2	7.3	1.071
6-78-139-80	15.7	2.0	2.6	20.3	77.1	5.6	1.087
26-68-2-71	15.5	1.7	3.3	20.5	75.1	5.8	1.092
3-79-270-81	15.4	1.3	2.6	19.3	79.3	8.3	1.090
Red Pontiac	15.2	0.9	4.3	20.5	74.3	6.2	1.081
3-79-280-81	14.8	1.4	3.1	19.2	77.0	6.4	1.093
Superior	14.2	0.8	4.0	19.0	74.7	6.9	1.082
Alaska Frostless	14.2	1.1	1.6	16.8	83.9	4.8	1.092
Alaska Russet	14.1	1.4	1.2	16.7	84.0	5.9	1.090
18-6	13.7	1.1	3.3	18.1	75.6	6.3	1.082
Acadia Russet	13.7	1.9	1.9	17.5	78.6	6.4	1.087
10-71-1-74	13.2	0.9	3.8	18.0	73.2	7.9	1.086
Green Mountain	13.0	1.3	2.8	17.1	75.6	6.2	1.091
Shepody	12.8	0.9	3.5	17.2	73.6	8.9	1.088
B8883-13	12.7	1.1	2.9	16.8	75.5	6.2	1.093
Rosa	12.7	1.8	3.9	18.5	69.0	5.5	1.079
Maverick	12.5	1.8	4.6	18.9	65.6	6.0	1.075
3-79-168-81	12.4	1.9	2.5	16.8	73.7	5.1	1.091
Bakeking	12.3	0.7	2.1	15.1	81.0	7.0	1.097
Denali	12.3	0.7	2.8	15.8	77.2	7.5	1.105
Alaska 114	12.2	1.7	1.4	15.2	79.5	5.9	1.086
Sangre	12.1	1.6	4.1	17.8	67.8	5.9	1.082
Nooksack	12.0	1.1	1.2	14.3	82.5	6.1	1.096
Norgold Russet	11.8	2.1	2.0	15.9	73.9	5.8	1.079
Snowchip	11.7	1.7	3.0	16.3	71.4	5.7	1.096
Allagash	11.5	1.5	2.8	15.8	72.8	6.8	1.088
Alasclear	11.3	1.4	4.1	16.8	66.6	7.1	1.098
Alaska Red	11.3	2.2	4.6	18.2	62.0	5.3	1.089
6-5	11.2	1.4	3.3	15.8	69.3	5.7	1.089
13-68-5-72	11.0	1.0	5.8	17.9	62.3	6.1	1.090
Jemseg	10.9	0.9	3.3	15.1	71.9	6.4	1.077
Lemhi	10.8	2.1	4.9	17.8	60.5	6.9	1.096
Epicure	10.1	1.9	2.7	14.7	68.9	6.0	1.083
Red Norland	9.7	1.1	6.4	17.2	56.1	6.6	1.078
Norchip	9.4	1.1	4.7	15.2	61.8	5.6	1.088
Nemarus	9.2	1.5	2.3	13.0	70.8	7.2	1.085
Onoway	9.0	0.6	5.0	14.6	61.4	6.4	1.073
Butte	8.8	1.5	4.7	15.0	58.7	7.5	1.089
Russet Burbank	8.5	2.0	5.1	15.6	54.0	4.8	1.100
Highlat Russet	8.2	2.4	4.0	14.6	56.4	5.5	1.084
Bintje	8.2	3.0	3.6	14.8	55.2	4.8	1.090
Centennial Russet	7.0	1.7	5.0	13.7	50.6	5.5	1.080
Russette	6.6	1.3	3.6	11.4	57.7	6.0	1.089
Average	12.0	—	—	16.8	70.5	—	1.087
LSD 5% <sup>7</sup>	3.2	—	—	1.9	—	—	—

<sup>1</sup> All figures represent least-square means of 4 replications. <sup>2</sup> Numbered selections originated in the breeding program of C.H. Dearborn. <sup>3</sup> #1 market grade as defined by the US Department of Agriculture. <sup>4</sup> Tubers less than 1.75 inches in diameter. <sup>5</sup> Includes oversize, shatter or growth crack, second growth, green, etc. <sup>6</sup> Average weight of #1 tubers in ounces. <sup>7</sup> LSD: Least significant difference based upon plot-wide variation.

**Table 4. Type and quantity of gradeout observed among selected varieties in irrigated and nonirrigated trials.<sup>1</sup>**

Variety	Irrig. <sup>3</sup>	Total	#1	Under size	Over size	Shatter crack	Growth crack	Second growth	Other <sup>2</sup>
Acadia Russet	NI	18.1	14.9 (82.3)	1.6 ( 8.8)	0.4 ( 2.2)	0.1 (0.6)	0.1 (0.6)	0.7 ( 3.9)	0.4 (2.2)
	I	17.5	13.7 (78.3)	1.9 (10.9)	0.0 ( 0.0)	0.0 (0.0)	0.1 (0.6)	1.7 ( 9.7)	0.1 (0.6)
Alaska 114	NI	17.0	14.3 (84.1)	1.7 (10.0)	0.2 ( 1.2)	0.0 (0.0)	0.1 (0.6)	0.3 ( 1.8)	0.4 (2.4)
	I	15.2	12.2 (80.3)	1.7 (11.2)	0.4 ( 2.6)	0.0 (0.0)	0.3 (2.0)	0.5 ( 3.3)	0.1 (0.7)
Bakeking	NI	14.1	12.1 (85.8)	1.0 ( 7.1)	0.5 ( 3.5)	0.1 (0.7)	0.0 (0.0)	0.3 ( 2.1)	0.1 (0.7)
	I	15.1	12.3 (81.5)	0.7 ( 4.6)	0.0 ( 0.0)	0.0 (0.0)	0.1 (0.7)	1.9 (12.6)	0.1 (0.7)
Green Mountain	NI	18.9	15.5 (82.0)	1.7 ( 9.0)	1.1 ( 5.8)	0.0 (0.0)	0.2 (1.1)	0.3 ( 1.6)	0.1 (0.5)
	I	17.1	13.0 (76.0)	1.3 ( 7.6)	0.2 ( 1.2)	0.0 (0.0)	1.1 (6.4)	1.3 ( 7.6)	0.3 (1.8)
Kennebec	NI	18.9	13.6 (72.0)	1.1 ( 5.8)	3.3 (17.5)	0.0 (0.0)	0.4 (2.1)	0.4 ( 2.1)	0.2 (1.1)
	I	20.8	16.9 (81.2)	1.0 ( 4.8)	0.2 (1.0)	0.1 (0.5)	1.5 (7.2)	1.0 ( 4.8)	0.3 (1.4)
Russet Burbank	NI	14.5	11.0 (75.9)	1.8 (12.4)	0.0 (0.0)	0.0 (0.0)	0.3 (2.1)	1.4 ( 9.7)	0.1 (0.7)
	I	15.6	8.5 (54.5)	2.0 (12.8)	0.0 (0.0)	0.0 (0.0)	0.5 (3.2)	4.4 (28.2)	0.1 (0.6)
Shepody	NI	16.4	14.2 (86.6)	0.9 ( 5.5)	0.7 (4.3)	0.0 (0.0)	0.1 (0.6)	0.5 ( 3.0)	0.0 (0.0)
	I	17.2	12.8 (74.4)	0.9 ( 5.2)	1.1 (6.4)	0.0 (0.0)	0.9 (5.2)	1.6 ( 9.3)	0.0 (0.0)
Superior	NI	16.0	11.1 (69.4)	1.7 (10.6)	1.8 (11.3)	0.1 (0.6)	0.3 (1.9)	0.8 ( 5.0)	0.2 (1.3)
	I	19.0	14.2 (74.7)	0.8 ( 4.2)	1.8 (9.5)	0.2 (1.1)	1.0 (5.3)	0.7 ( 3.7)	0.3 (1.6)
3-79-270-81	NI	17.9	14.8 (82.7)	1.5 ( 8.4)	0.3 (1.7)	0.0 (0.0)	0.2 (1.1)	1.0 ( 5.6)	0.1 (0.6)
	I	19.3	15.4 (79.8)	1.3 ( 6.7)	0.0 (0.0)	0.1 (0.5)	0.7 (3.6)	1.8 ( 9.3)	0.0 (0.0)
18-6	NI	17.4	14.0 (80.5)	1.5 ( 8.6)	1.7 (9.8)	0.1 (0.6)	0.0 (0.0)	0.2 ( 1.1)	0.0 (0.0)
	I	18.1	13.7 (75.7)	1.1 ( 6.1)	0.7 (3.9)	0.2 (1.1)	1.5 (8.3)	0.8 ( 4.4)	0.0 (0.0)

<sup>1</sup>Weights expressed in tons per acre. Values in parenthesis indicate percent of total yield.

<sup>2</sup>Includes green, rotten, etc.

<sup>3</sup>NI = not irrigated, I = irrigated.

**Table 5. Comparative summary of US #1 tuber yields by selected varieties from 1982 through 1986.<sup>1</sup>**

Variety	1982	1983	1984	1985	1986	Average
Alaska 114	12.0	16.7	14.2	7.2	14.3	12.9
Bakeking	16.5	12.4	12.4	9.3	12.1	12.5
Denali	12.6	13.1	12.6	8.5	11.4	11.6
Green Mountain	20.0	16.7	15.0	9.1	15.5	15.3
Kennebec	19.2	18.4	16.5	9.8	13.6	15.5
Lemhi	13.9	14.1	11.6	8.4	14.8	12.6
Rosa	17.1	—	—	10.5	14.1	13.9
Russet Burbank	9.9	15.2	9.2	8.2	11.0	10.7
Shepody	—	—	14.4	9.4	14.2	12.7
Superior	13.9	9.8	12.4	8.6	11.1	11.2
3-79-270-81	—	16.9	13.1	9.4	14.8	13.6
18-6	19.9	18.0	16.4	9.2	14.0	15.5
LSD 5% <sup>2</sup>	2.5	1.5	1.9	2.1	2.5	
Average	15.5	15.1	13.4	9.0	13.4	13.2

<sup>1</sup> Yields expressed in tons per acre. (— indicates variety not tested). #1 market grade as defined by the US Department of Agriculture.

<sup>2</sup> Least significant difference.

**Table 6. Comparative summary of US #1 tuber yields by selected varieties in irrigated trials conducted in 1985 and 1986.<sup>1</sup>**

Variety	1985	1986	Average
Alaska 114	13.3	12.2	12.8
Bakeking	14.6	12.3	13.5
Denali	13.1	12.3	12.7
Green Mountain	15.2	13.0	14.1
Kennebec	13.8	16.9	15.4
Lemhi	12.3	10.8	11.6
Rosa	14.4	12.7	13.6
Russet Burbank	10.3	8.5	9.4
Shepody	14.3	12.8	13.6
Superior	14.7	14.2	14.5
3-79-270-81	14.8	15.4	15.1
18-6	14.6	13.7	14.2
LSD 5% <sup>2</sup>	2.0	3.2	
Average	13.8	12.9	13.4

<sup>1</sup> Yields expressed in tons per acre. #1 market grade as defined by the US Department of Agriculture.

<sup>2</sup> Least significant difference.

for water. Once irrigation began the moisture deficiency was soon corrected, but plants doubtlessly had been damaged to some degree. The second negative aspect of irrigation occurred in July. On July 12, following two weeks without rain, irrigation water was again applied. One day later approximately one inch of rain fell, followed by three more inches in the next two weeks. The irrigation water, in combination with the nearly four inches of rainfall resulted in an excess of soil water, and very likely was detrimental to plant growth and yield.

Several varieties, including Kennebec, Caribe and 3-79-270-81, performed well in the irrigated trial in spite of irregularities in the watering schedule. On the other hand Green Mountain, Acadia Russet, Lemhi and Alaska 114 performed comparatively better in the nonirrigated trials indicating that either they are tolerant of early season drought, or that an excess of water in mid to late season is detrimental.

Peculiarities relative to moisture availability may account for the comparatively low percent of US #1 among varieties in irrigated and nonirrigated plots. The incidence of second growth (Table 4) was much higher this year, indicating that inconsistency of water supply indeed was a factor.

A number of varieties were included in the trial for the first time this season. Among them Caribe, Acadia Russet and Maverick did well in irrigated trials; and Acadia Russet, Sangre and Caribe produced competitive yields in the nonirrigated trials. Nemasus, Bintje and Jemseg did not yield competitively in either trial.

Shepody and selection 3-79-270-81 again did comparatively well in irrigated and nonirrigated trials. In addition to its evaluation in these trials, Shepody was also tested in sub acre sized plots by two commercial growers. Both growers report respectable yields and an acceptable (low) level of damage to tubers during harvest. Storability on a commercial scale and grading characteristics will be determined later in the season. Both growers report Shepody tends to produce oversize tubers, so plant and row spacing must be carefully monitored if this variety is to be grown successfully.

Some interest has been shown by commercial growers this past season in selection 18-6. Although 18-6 did not do well this year as it has in the past, it has ranked among the top varieties over the last 5 years. Based upon current interest, plans call for naming 18-6 in the near future. 18-6 originated in the breeding program of Dr. C.H. Dearborn.

## TRIALS AT OTHER LOCATIONS IN ALASKA

### General Procedures

Seed of ten potato varieties was sent to cooperators at seven locations (Table 7). In one case (Noorvik) the variety list was reduced to seven because of a limited plot size. Plots were planted by hand with rows 36 inches apart and plants 11 inches apart in the rows. Commercial fertilizers were applied at a rate that in most cases was comparable to the rate used at Matanuska Farm. Cooperators planted, maintained, harvested and graded the crop at their respective sites. Yields are summarized in Table 7, while a comparative summary of season lengths is presented in Table 8.

### Specific Site Information

**Ambler** - The Ambler trial was conducted by Lori Restad and John Blower, and was planted in Mr. Blower's garden in Ambler. Planting occurred on June 9 and harvest occurred on September 2. Vines were killed by frost on August 18, although some growth may have occurred after that date. Irrigated water was applied to the extent that water should not have been a limiting factor.

**Copper Center** - The Copper Center trial was conducted by Wayne Kemp and Wayne Gentry on a farm located at Mile 13 Edgerton Highway. The crop was planted May 31 and harvested September 10. A hard frost killed the vines on August 20, and night time low temperatures had been near freezing for a week before that. The growing season was normal in terms of temperature but below normal rainfall limited production. A total of 1.1 inches of rain fell during the growing season, and most of that fell a short time after planting. Normal rainfall at this site is reported to be 3-5 inches.

**Delta Junction** - The Delta Junction trial was conducted by Don Quarberg (CES) at Clearwater, about 5 miles northeast of Delta Junction. The crop was planted May 19 and harvested August 25. A 19°F frost killed the vines to the ground on August 23. The 1986 season was described as warmer than average, and with the exception of the early season, was wetter than normal. Nearly 9 inches of rain fell during the growing season compared to an average 6 inch rainfall.

**Table 7. Yield trial summary from selected Alaskan locations.<sup>1</sup>**

Variety	Ambler		Copper Center		Delta Junction		Fairbanks		Kake		Kodiak		Noorvik	
	#1 <sup>2</sup>	Total <sup>3</sup>	#1	Total	#1	Total	#1	Total	#1	Total	#1	Total	#1	Total
Alaska Red	5.8	8.7	0.0	2.6	7.6	12.6	18.2	21.5	11.1	16.6	4.6	5.4	0.4	2.3
Alaska 114	6.3	9.1	0.0	1.9	11.0	14.3	11.8	14.6	7.2	15.7	7.5	9.7	1.0	3.5
Bakeking	7.1	9.4	0.0	2.3	11.9	15.5	12.0	14.7	10.9	17.7	5.0	5.7	0.6	3.3
Denali	7.1	9.7	0.0	1.1	11.9	14.0	12.6	14.2	5.9	11.9	5.4	6.0	1.2	3.8
Green Mountain	6.9	10.9	0.0	1.5	12.5	16.6	13.1	16.0	14.8	20.5	10.5	13.3	1.3	3.8
Highlat Russet	3.0	4.6	0.0	1.1	9.3	14.2	15.5	17.9	9.3	15.0	4.6	5.3	—	—
Kennebec	4.2	6.0	0.2	1.2	11.3	14.8	12.9	18.9	9.4	20.7	6.1	7.7	0.9	3.2
Lemhi	3.5	5.3	0.0	1.1	9.1	14.5	9.3	15.0	11.5	16.0	4.1	4.9	—	—
18-6	6.4	8.5	0.0	2.0	15.1	18.4	16.6	19.8	10.8	17.3	7.7	9.0	1.8	4.4
10-1	4.0	5.7	0.3	2.7	11.4	15.3	15.0	17.4	8.9	13.9	5.8	6.7	—	—

<sup>1</sup>All #1 and total yields are expressed in tons per acre. (— indicates variety not tested). Yield figures represent the average of three replications.

<sup>2</sup>#1 market grade as defined by the US Department of Agriculture.

<sup>3</sup>Total yield = #1 plus gradeout. Gradeout includes undersize, oversize, growth and shatter crack, green, etc.

**Fairbanks** - The Fairbanks trial was conducted by Dr. Frank Wooding (AFES) at the Agricultural and Forestry Experiment Station Farm in Fairbanks. The crop was planted on May 16 and harvested on September 4. A 25°F frost killed the vines on August 23. Plants were not stressed at any time by lack of water. Early season temperatures were above average while late season temperatures were slightly below average.

**Kake** - The trials at Kake were conducted by Mr. and Mrs. Chuck Larson in conjunction with a BIA gardening program. Kake is located east of Sitka. Potatoes were planted on June 6, although they could have been planted much earlier, had plans been made. Harvest occurred on October 11, prior to any killing frosts. The season was cooler than normal with overcast skies common. Rainfall was adequate most of the time and more than adequate some of the time. Scheduling did not permit the crop to be hilled, so a disproportionate share of the gradeout was due to greening. Mr. and Mrs. Larson report widespread community interest in the potato variety trial, rekindling thoughts in the minds of many people of days when gardening was important, and families worked together to bring in the harvest.

**Kodiak** - The Kodiak trial was conducted by Gene Gade (CES) and Patricia Lods, in Mrs. Lods garden near Kodiak City. The crop was planted May 10 and harvested October 3. Frost killed the vines on September 25. The growing season was described as cooler than normal. Moisture was not a limiting factor. Weed pressure, principally chickweed, was heavy and may have limited yields somewhat.

**Noorvik** - The Noorvik trial was conducted by Lori Restad at a fish camp a few miles up the Kobuk river from Noorvik. Planting occurred on June 17 and harvesting on September 10. A killing frost is estimated to have occurred on August 27. Scab was common on the harvested crop, as it was on the same site in 1985. Moose damaged several plants of variety 18-6.

**Table 8. Length of the 1986 potato growing season at eight locations in Alaska.**

Location	No. of days from plant to harvest	Killing frost <sup>1</sup>	No. of days from plant to killing frost
Ambler	86	14	72
Copper Center	103	20	83
Delta Junction	99	2(19°F)	97
Fairbanks	112	12(25°F)	100
Kake	128	0	128
Kodiak	147	8	139
Noorvik	86	14	72
Palmer	121	0	121

<sup>1</sup>Number of days prior to harvest that killing frost occurred, followed in parenthesis by the actual temperature if it is known.



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