

Pennsylvania Potato Research Report, 2012

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EXECUTIVE SUMMARY

Penn State's Department of Plant Pathology potato research program can be categorized into five areas: 1) variety breeding and evaluation, 2) breeding for disease resistance (focused on early and late blight and powdery scab), 3) biology and genetic variability of potato pathogens (focused on early and late blight and powdery scab), 4) chemical control and 5) integrated pest management of potatoes. Many of these projects are long term and only yearly results are presented here.

1. Variety Breeding and Evaluation

At the Rock Springs location the trials included 68 round whites with a few yellow flesh, 35 red-skinned (a few purple skinned) and 43 russet or long white types. The Lehigh location had 40 lines and Erie location had 40 lines. Breeding lines were contributed by the USDA-ARS, New York, Maine, Michigan, Idaho and a few other sources. See **Progress report - Pennsylvania Regional Potato Germplasm Evaluation Program, 2012 on pages 1-2 and tables from different locations on pages 3-30, and supplemental progress report on pages 36-37 and tables from different locations on pages 38-50.**

2. Breeding for Disease Resistance

There are several projects focused around a cultivated diploid species hybrid population that can be easily intercrossed with common varieties. These are long term projects dealing with early and late blight resistance as well as powdery scab resistance. Results of these projects will not be presented here but results of small trials evaluating soon to be released lines for their reaction to early blight, late blight and powdery scab are presented. In three separate field trials, 72, 35 and 36 varieties and advanced breeding lines were evaluated for disease resistance to late blight, early blight, and powdery scab, respectively.

Kennebec was considered the moderately resistant check and B0718-3 was the resistant check to late blight. Rochdale Gold-Doree, Yukon Gem, NY150, AF3317-15, NYE106-4, Premier Russet, Classic Russet, JOMA, Alpine Russet, Dakota Trailblazer, BNC182-5, LBR3, LBR4, MSP516-A, AWN86514-2, MSQ131-A, A02507-2LB, B0692-4, MSR061-1, AF4122-3, AF3317-15, LBR2, LBR7, A02424-83LB, AF4191-2, AND99362B-1Russ, AF4677-1, AF4329-7, and LBR1 were considered resistant to moderately resistant. See **Evaluation of potato cultivars and breeding lines for resistance to late blight, 2012 page 31.**

Seventeen cultivars/lines were classified as resistant to moderately resistant to early blight, and they are: Premier Russet, Classic Russet, AF3317-15, Dakota Trailblazer, NYE106-4, Kennebec, JOMA, Russet Burbank, BNC182-5, Katahdin, Alpine Russet, Snowden, AF3001-6, Dakota Crisp, Yukon Gem, Superior, and Chieftain. See **Evaluation of potato cultivars and breeding lines for resistance to early blight, 2012 page 32.**

The powdery scab disease pressure was low this year thus making it difficult to separate cultivars/lines into groups (resistant, moderately resistant, moderately susceptible, and susceptible). Based on our past years' data, Kennebec and Shepody should be susceptible, and Russet Burbank should be moderately resistant. Cultivars and breeding lines with less

powdery scab than Dark Red Norland indicate some level of resistance. See **Evaluation of potato cultivars and breeding lines for resistance to powdery scab, 2012 page 33.**

3. Chemical Control of Potato Diseases

In the late blight fungicide trial 14 different treatments were compared to an untreated control. All of the treatments, except for CX-10250 3.0 oz and CX-10440 6.5 oz, significantly suppressed season-long foliar late blight compared to the untreated control. All of the treatments, except for CX-10440 at both the 6.5 oz and 13.0 oz rates, had significantly higher yields than the untreated control. See **Evaluation of fungicides for control of potato late blight, 2012 pages 34.**

In the early blight fungicide trial 5 different treatments were compared to an untreated control. All treatments significantly reduced season-long early blight compared to the untreated control. All of the treatments, except for treatments CX-10440 at both the 6.5 oz 13.0 oz rates, had yields significantly higher than the untreated control. See **Evaluation of fungicides for control of potato early blight, 2012 pages 35.**

Progress Report---December 20, 2012

Pennsylvania Regional Potato Germplasm Evaluation Program, 2012

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The objective of this project is to find new breeding lines that have adaptation to Pennsylvania potato growing regions, and have qualities that are suitable for either processing or tablestock use. We cooperate with the project leaders of several other potato breeding programs from the Northeast US and a few programs from the Midwest US and Canada by evaluating their potato germplasm. Data from this project helps breeders determine which lines to focus on for potential release as new varieties and also allows you to focus on very specific lines that may be released in the near future.

Replicated and non-replicated plots were established at the following locations: Lehigh Co. (Tables 1- 2), Erie Co. (Tables 3-4) and Rock Springs, Centre Co. (Tables 5-12). The Lehigh location had 40 non-replicated lines. The Erie location had 40 lines non-replicate lines. At the Rock Springs location the trials included 52 round whites with a few yellow flesh, 23 red-skinned (a few purple skinned) and 36 russet or long white types in replicated plots, and an additional 16 whites, 12 red-skinned and 7 russet or long white types planted in non-replicated observational plots. At Lehigh Co. and Erie Co. locations, the seed spacing was 8-inch within a 20-ft plot except for the russets that were at 10-inch. At Rock Springs location, the seed spacing was 8-inch within a 10-ft plot except for the russets that were at 10-inch. At the Rock Springs location, a green mustard manure crop 'Caliente 199' was grown after the wheat harvest. The mustard crop was flail chopped and plowed down to incorporate into the field the previous year. Commercial trials of three varieties (AF3001-6, Markies and Lady Lenora) were conducted at three locations: Lehigh Co., Erie Co. and Rock Springs, Centre Co (Table 13). All other pertinent information for individual trials is found within the data tables or in Table 14. We assessed yield, tuber size, internal defects and external defects, skin color, texture, tuber shape, specific gravity and overall appearance. Chip quality tests and culinary tests will be conducted over the next few months. Management information for each site is provided in Table 14.

To interpret this data, one needs to know the yields for the check cultivars such as Atlantic, Snowden, Katahdin, Chieftain, Dark Red Norland, Russet Norkotah or Superior on your farm. Then compare the typical yield for this year on your farm to the data presented here. The yields tend to be inflated from these small plots but the ranking of the yields over the cultivars/lines usually is fairly consistent. Also the same method can be used to compare specific gravity and some of the other parameters. There are a few lines that will be very specific to certain environments so make the comparison to the location that best matches your own or use the Rock Springs location as a fairly typical area for most of PA.

Results:

Across the three trials there were only a few varieties and lines in common. Of those in common the following had high marketable yields relative to Atlantic yield in each of the locations. These varieties or lines were: NY140 and NY151.

In the Lehigh location the following lines also had marketable yield higher than Atlantic: Snowden, B1992-106, BNC202-3, NY140, NY141, NY148, and NY151. In Erie Co. the following also had marketable yield higher than Atlantic: Yukon Gem, Sifra, NY140, NY151, BNC182-5, CO99045-1W/Y, Opera, B2727-2, NY148, AF4157-6, AF0338-17, Dakota Trailblazer, AF3001-6, and Markies.

Based on data of replicated trials at Rock Springs, there were 5 round white clones with marketable yields significantly greater than Atlantic: Dakota Crisp, Yukon Gem, BNC182-5, NYE106-4, and AF4430-2. There were another 17 round white clones with marketable yields greater than Atlantic: Snowden, AF4013-3, B2731-11, AF4130-7, AF4376-3, B2737-2, B2738-3, NY140, NY141, NY151, ATCO0293-1W/Y, Spartan Splash, Sifra, W2324-1, AF4640-1, AF4852-4, and B2833-16.

Round White Chip-stock:

Based on data from replicated trials at Rock Springs, the following lines had higher yields than Atlantic and have specific gravities suitable for chipstock: Snowden, AF4013-3, B2731-11, BNC182-5, NYE106-4, AF4130-7, B2737-2, and W2324-1.

Round White Tablestock:

Based on data from replicated trials at Rock Springs, the following lines had higher yields than Atlantic and had specific gravities suitable for tablestock: Dakota Crisp, AF0338-17, AF4376-3, NY140, NY141, Spartan Splash, and Sifra.

Red-skinned:

Based on data of replicated trials at Rock Springs, there were 1 red-skinned or purple-skinned clones with marketable yields significantly greater than Chieftain: MSS576-05SPL. There were another 5 red-skinned or purple-skinned clones with marketable yields greater than Chieftain: BCO01044-2, MI Purple Sport, A99331-2RY, NDA050237B-1R, and AF4815-1

Russet-skinned or long white:

Based on data of replicated trials at Rock Springs, there were 1 russet-skinned clones with marketable yields significantly greater than Russet Norkotah #3117: Classic Russet. There were another 14 russet-skinned clones with marketable yields greater than Russet Norkotah #3117: Alpine Russet, Dakota Trailblazer, AF3001-6, AF4172-2, AF4113-2, AF4320-17, AF4185-1, AC00395-2RU, Markies, AF4430-1, AF4749-5, AF4749-14, and CO99045-1W/Y.

The Pennsylvania Potato Research Program and a USDA grant funded this research in conjunction with donations. This research is the result of cooperation of growers, industry and PSU staff. The growers hosting the plots provided contributions (land, fertilizer, pesticides, time, etc.). Cornell University, USDA, University of Maine, Idaho, Michigan State University breeding programs and HZPC provided seed. Special thanks to Chad Moore, Bob Leiby, Andy Muza and Sara May who made sure this project was completed.

Table 1. Total yield, greater than 1 7/8" yield, percent of standard, size distribution, percent pick outs and specific gravity for potato evaluation trial in Lehigh County, Forrest Wessner Farm, 2012

Variety/Line	Yield (cwt/A) ¹		US#1	%	Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"				2	3	4	5			
Atlantic	494	447	90	100	33	50	7	0	3	1.076		
Snowden	593	556	94	125	47	44	3	0	0	1.076		
Reba	481	400	83	89	39	34	10	0	7	1.064		
Katahdin	475	417	88	93	34	47	6	0	6	1.058		
Superior	307	262	85	59	44	42	0	0	7	1.059		
Yukon Gold ^{yf}	422	358	85	80	33	45	7	0	11	1.072		
Chieftain	394	269	68	60	44	24	0	0	21	1.051		
AF0338-17	487	442	91	99	31	46	14	0	2	1.076		
AF4013-3 ^{yf}	385	299	78	67	53	25	0	0	8	1.066		
AF4363-5	374	317	85	71	40	41	5	0	6	1.069		
AF3011-34	331	221	67	49	44	21	2	0	16	1.066		
Sifra	641	392	61	88	42	19	0	0	25	1.074		
Harley Blackwell	418	319	76	71	48	26	3	0	4	1.065		
Elkton	551	474	86	106	35	42	9	0	4	1.079		
BNC182-5	409	362	89	81	30	42	17	0	3	1.077		
BNC202-3	659	459	70	103	27	32	10	0	26	1.079		
BNC244-10	254	130	51	29	41	10	0	0	10	1.080		
B2727-2	569	434	76	97	46	30	0	0	12	1.071		
B2589-3	418	319	76	71	56	21	0	0	4	1.064		
NY140	700	589	84	132	29	37	14	4	9	1.080		
NY141	528	455	86	102	37	44	5	0	7	1.064		
NY148	691	631	91	141	31	52	7	2	2	1.085		
NY150	402	212	53	47	45	8	0	0	6	1.070		
NY151	726	606	83	136	24	46	13	0	10	1.056		
H90-4	346	187	54	42	50	4	0	0	0	1.075		
Rochdale Gold-Doree ^{yf}	395	164	42	37	28	14	0	0	47	1.065		
Lehigh ^{yf}	440	367	84	82	26	40	18	0	9	1.068		
ACTO0293-1W/Y ^{yf}	566	271	48	61	39	8	0	0	22	1.061		
Modoc	480	275	57	62	40	16	1	0	20	1.058		

Variety/Line	Yield (cwt/A) ¹		% US#1	% of Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"			2	3	4	5			
Red Sunset	414	341	82	76	46	36	0	0	7	1.055	
NDA7985-1R	593	441	74	99	40	32	3	0	13	1.054	
Russet Norkotah	370	230	62	52	31	26	5	0	31	1.061	
AF3001-6	491	249	51	56	14	21	16	0	38	1.068	
Dakota Trailblazer	454	364	80	81	26	40	13	0	13	1.075	
Premier Russet	264	152	58	34	40	18	0	0	22	1.078	
CO99256-2R	422	232	55	52	43	12	0	0	14	1.055	
Markies ^{yf}	589	306	52	68	44	8	0	0	23	1.071	
Lady Lenora	224	76	34	17	34	0	0	0	39	1.064	
Sylvana ^{yf}	201	149	74	33	34	40	0	0	17	1.046	
Opera ^{yf}	455	142	31	32	28	3	0	0	40	1.072	

¹Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

²Percentage of the standard, Atlantic, for >1 7/8" yield.

³Percentage of total yield according to size class. 2=1.875-2.5 in., 3=2.5-3.25 in., 4=3.25-4.0 in., 5=>4.0 in.

⁴Percentage of total that are pickouts.

Non-replicated trial.

Varieties with colored flesh are indicated by ^{yf} for yellow.

Russets were planted 10-in. apart with 24 seed pieces per 20-ft plot, all other varieties were spaced 8-in. apart with 30 seed pieces per 20-ft plot.

Table 2. Tuber characteristics, internal and external defects for potato evaluation trial in Lehigh County, Forrest Wessner Farm, 2012

Variety/Line	Tuber Characteristics ¹				Internal Defects ²				External Defects ³							
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T
Atlantic	5	6	5	2	5	5	0	0	0	0	0	0	0	0	0	0
Snowden	5	6	5	2	5	5	0	0	0	0	0	0	0	0	0	0
Reba	5	6	6	3	5	5	4	0	0	0	0	0	1	0	0	0
Katahdin	3	6	6	3	6	5	2	0	0	0	0	0	0	0	0	0
Superior	5	6	6	2	5	5	0	0	0	0	0	0	0	0	0	0
Yukon Gold	5	6	6	2	6	5	1	0	0	0	0	0	1	0	0	0
Chieftain	3	3	7	3	4	5	0	0	2	0	0	0	0	0	0	2
AF0338-17	3	6	6	2	5	5	1	0	0	0	0	0	0	0	0	0
AF4013-3	5	6	6	2	7	4	0	0	1	0	0	0	0	0	0	1
AF4363-5	3	6	7	3	6	4	1	0	1	0	0	0	0	0	0	0
AF3011-34	5	5	3	4	7	5	0	0	0	0	0	0	1	0	0	0
Sifra	4	6	6	2	6	5	0	0	1	0	0	0	1	0	1	3
Harley Blackwell	6	5	5	2	6	6	0	0	0	0	0	0	0	0	0	1
Elkton	6	6	5	3	6	5	1	0	0	0	0	0	1	0	0	0
BNC182-5	4	5	5	2	4	5	3	0	2	0	0	0	0	0	0	0
BNC202-3	4	6	5	3	6	5	3	0	0	0	0	2	1	0	0	0
BNC244-10	4	1	7	2	5	5	0	0	0	0	0	0	0	0	0	1
B2727-2	5	6	5	2	5	4	0	0	0	0	0	0	0	0	0	1
B2589-3	6	5	5	2	6	5	1	0	0	0	0	0	0	0	0	0
NY140	5	6	6	3	5	5	0	0	0	0	0	0	2	0	0	0
NY141	6	6	6	3	6	5	0	0	0	0	0	0	1	0	0	0
NY148	5	6	5	2	5	6	0	0	0	0	0	0	1	0	0	0
NY150	5	7	6	2	7	6	0	0	0	0	0	0	0	0	0	0
NY151	6	7	6	3	5	5	0	0	0	0	0	0	2	0	0	0
H90-4	4	2	7	2	6	6	0	0	1	0	0	0	0	0	0	0
Rochdale Gold-Doree	4	7	6	2	6	5	0	0	1	0	0	0	1	0	0	4
Lehigh	4	6	6	3	6	5	0	0	1	0	0	0	1	0	0	0
ACTO0293-1W/Y	4	6	7	3	6	5	4	1	0	0	1	0	1	0	2	1
Modoc	4	2	7	2	6	5	0	0	1	0	0	0	2	0	0	1

Variety/Line	Tuber Characteristics ¹							Internal Defects ²			External Defects ³					
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T
Red Sunset	4	3	7	3	6	5	0	0	0	0	0	0	1	0	0	1
NDA7985-1R	4	2	7	3	6	5	1	0	2	0	1	0	1	0	0	0
Russet Norkotah	4	5	3	4	7	5	0	0	0	0	0	0	1	0	0	0
AF3001-6	4	6	6	5	6	4	5	0	1	0	0	0	1	0	0	0
Dakota Trailblazer	4	5	5	4	6	4	8	0	1	0	0	0	1	0	0	0
Premier Russet	4	5	3	4	7	5	3	0	1	0	0	1	0	0	0	0
CO99256-2R	4	2	7	3	6	5	2	0	1	0	0	0	0	0	0	1
Markies	3	6	6	3	6	5	0	0	1	0	0	0	1	0	0	1
Lady Lenora	3	6	6	2	7	5	1	0	1	0	0	0	0	0	2	1
Sylvana	4	7	7	3	7	5	0	0	0	0	0	0	0	0	0	0
Opera	4	7	7	2	7	5	0	0	2	0	0	0	0	0	0	3

¹Tuber Characteristics: TA = tuber appearance: 1 = very poor, 5=fair, 9 = excellent.

C = skin color: 1 = purple, 2 = red, 3 = pink, 4 = dark brown, 5 = brown, 6 = tan, 7 = buff, 8 = white, 9 = cream.

TX = skin texture: 1 = partial russet, 2 = heavy russet, 3 = mod. russet, 4 = light russet, 5 = netted, 6 = slight net, 7 = mod. smooth, 8 = smooth, 9 = very smooth.

Sh = tuber shape: 1 = round, 2 = mostly round, 3 = round-oblong, 4 = mostly oblong, 5 = oblong, 6 = oblong-long, 7 = mostly long, 8 = long, 9 = cylindrical.

TED = tuber eye depth: 1 = very deep, 5 = medium, 9 = very shallow. TCS = tuber cross section: 1 = very flat, 5 = intermediate, 9 = very round.

²Internal Defects: HH = hollow heart, IB = internal browning. Total number observed out of 8 tubers. 0 = not observed.

³External Defects: R = Rhizoctonia, H = hairline cracks, Gr = growth cracks, K = knobs, G = sunburn, Sc = scab, Sp = sprouts, T = secondary tubers.

Scale = 0-4, with 0 = not observed, 1 = slight to 4 = very severe.

Table 3. Total yield, greater than 1 7/8" yield, percent of standard, size distribution, percent pickouts and specific gravity for potato evaluation trial in Erie County, Mark Troyer Farm, 2012

Variety/Line	Yield (cwt/A) ¹		US#1	%	% of Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"				2	3	4	5			
Atlantic	264	237	90	100	26	52	11	0	6	1.080		
Snowden	249	217	87	92	43	40	4	0	4	1.070		
Reba	170	124	73	53	48	25	0	0	11	1.066		
Katahdin	196	139	71	59	38	26	6	0	22	1.062		
Yukon Gold ^{yf}	131	68	52	29	28	24	0	0	40	1.066		
Chieftain	225	187	83	79	59	22	2	0	7	1.063		
Modoc	89	53	60	22	56	3	0	0	4	1.062		
Red Sunset	52	12	24	5	18	6	0	0	16	1.056		
A99331-2RY ^{yf}	363	218	60	92	39	21	0	0	22	1.071		
H90-4	67	20	30	8	30	0	0	0	12	1.061		
CO97222-1R/R ^{pk}	221	146	66	61	53	13	0	0	15	1.065		
HZC 01-6087 ^{yf}	229	174	76	74	33	34	9	0	17	1.072		
Lady Lenora	246	58	23	24	21	3	0	0	55	1.074		
Yukon Gem ^{yf}	357	287	80	121	26	43	11	0	13	1.065		
Sifra	345	252	73	106	31	32	11	0	18	1.065		
CO99053-4RU	156	54	34	23	25	6	3	0	43	1.066		
NY140	460	359	78	152	36	35	7	0	15	1.078		
NY141	248	201	81	85	33	44	4	0	13	1.074		
NY150	145	20	14	8	14	0	0	0	19	1.072		
NY151	325	244	75	103	25	46	5	0	17	1.059		
AF4013-3 ^{yf}	212	186	88	79	58	30	0	0	6	1.073		
BNC182-5	350	294	84	124	33	41	10	0	10	1.077		
AF4363-5	225	206	92	87	41	39	13	0	5	1.074		
CO99045-1W/Y ^{yf}	468	286	61	121	33	20	8	0	26	1.076		
Snowbird	271	161	59	68	26	28	5	0	32	1.071		
Opera ^{yf}	390	284	73	120	47	23	3	0	15	1.083		
B2589-3	321	222	69	94	50	19	0	0	3	1.073		
B2727-2	272	243	89	103	38	43	8	0	5	1.087		
B2731-11	254	218	86	92	37	41	8	0	9	1.077		
NY148	482	420	87	178	18	45	24	0	10	1.083		
AF4157-6	292	247	85	104	51	34	0	0	8	1.077		

Variety/Line	Yield (cwt/A) ¹		% US#1	% of Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"			2	3	4	5			
AF0338-17	323	270	83	114	13	44	26	0	14	1.076	
Russet Norkotah	183	137	75	58	28	30	17	0	13	1.067	
Dakota Trailblazer	388	244	63	103	21	25	16	0	33	1.097	
AF3001-6	373	246	66	104	19	31	16	0	28	1.078	
Premier Russet	172	111	64	47	48	17	0	0	18	1.077	
Markies	446	301	68	127	30	31	7	0	26	1.076	
CO99053-3RU ^{yf}	223	124	56	53	27	18	11	0	34	1.074	
Challenger	375	180	48	76	37	11	0	0	29	1.080	
AF3317-15	241	120	50	51	18	13	19	0	46	1.083	
W2324-1 (Accumulator)	311	179	58	76	11	25	22	0	40	1.079	
Silverton Russet	293	217	74	92	28	33	14	0	18	1.065	

¹Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

²Percentage of the standard, Atlantic, for >1 7/8" yield.

³Percentage of total yield according to size class. 2=1.875-2.5 in., 3=2.5-3.25 in., 4=3.25-4.0 in., 5=>4.0 in.

⁴Percentage of total that are pickouts.

Non-replicated trial.

Varieties with colored flesh are indicated by ^{yf} for yellow, and ^{pk} for pink.

Russets except Silverton Russet were planted 10-in. apart with 24 seed pieces per 20-ft plot, Silverton Russet and all other varieties were spaced 8-in. apart with 30 seed pieces per 20-ft plot.

Table 4. Tuber characteristics, internal and external defects for potato evaluation trial in Erie County, Mark Troyer Farm, 2012

Variety/Line	Tuber Characteristics ¹					Internal Defects ²			External Defects ³							
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T
Atlantic	5	6	5	2	5	5	1	1	1	0	0	0	1	0	0	0
Snowden	4	6	5	2	4	6	0	0	1	0	0	0	1	1	0	0
Reba	4	7	7	3	5	5	0	0	0	0	0	0	1	0	0	0
Katahdin	5	7	7	3	5	5	0	0	1	0	0	0	2	1	0	0
Yukon Gold	5	7	8	2	6	5	0	0	2	0	2	0	1	0	0	0
Chieftain	4	2	7	3	5	5	0	0	3	0	0	0	1	0	0	0
Modoc	6	2	8	2	6	6	0	0	0	0	0	0	0	0	0	0
Red Sunset	6	2	8	2	6	6	0	0	1	0	0	0	0	0	0	0
A99331-2RY	4	2	7	2	5	5	0	0	1	0	0	0	3	1	0	0
H90-4	6	2	7	2	5	6	0	0	1	0	0	0	0	0	0	0
CO97222-1R/R	3	2	7	3	6	5	0	0	0	0	0	0	2	0	0	0
HZC 01-6087	5	2	8	2	6	4	0	0	1	0	1	0	1	0	0	0
Lady Lenora	3	7	7	3	6	5	0	0	1	0	1	1	3	0	0	1
Yukon Gem	5	6	7	3	6	5	0	0	2	0	1	0	1	0	0	0
Sifra	4	7	7	3	5	5	0	0	1	0	1	0	1	0	0	0
CO99053-4RU	4	6	4	4	7	5	0	0	1	0	1	0	1	0	0	0
NY140	4	6	7	3	6	5	0	0	1	0	0	0	2	2	0	0
NY141	5	7	7	3	5	5	0	0	1	0	0	0	2	0	0	0
NY150	4	8	8	2	6	6	0	0	0	0	0	0	1	0	0	0
NY151	6	7	7	2	5	5	0	0	1	0	0	0	2	0	0	0
AF4013-3	5	7	8	2	6	5	0	0	2	0	0	0	1	0	0	0
BNC182-5	4	6	5	2	4	5	0	0	1	0	0	1	1	0	0	0
AF4363-5	5	8	7	2	5	4	0	0	1	0	0	0	1	0	0	0
CO99045-1W/Y	5	6	6	4	5	4	0	0	1	0	0	1	3	0	0	0
Snowbird	4	8	7	3	4	5	0	0	1	0	1	1	3	0	0	1
Opera	5	7	8	3	6	5	0	0	1	0	1	0	2	0	0	0
B2589-3	6	5	5	2	5	6	1	2	2	0	0	0	1	0	0	0
B2727-2	5	7	6	3	6	5	0	0	2	0	0	0	2	0	0	0
B2731-11	6	6	5	2	5	6	3	1	1	0	1	0	1	0	0	0
NY148	5	6	6	3	4	5	0	0	2	0	0	0	2	0	0	0
AF4157-6	5	7	6	2	5	5	0	0	1	0	0	0	1	0	0	0

Variety/Line	Tuber Characteristics ¹							Internal Defects ²				External Defects ³					
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T	
AF0338-17	5	7	6	2	5	5	2	0	1	0	0	0	2	0	0	0	
Russet Norkotah	4	5	3	4	5	5	1	0	2	0	0	0	1	0	0	0	
Dakota Trailblazer	5	5	4	4	7	5	2	0	1	0	1	1	2	0	0	0	
AF3001-6	4	7	7	4	7	5	1	0	0	0	1	0	2	0	0	0	
Premier Russet	3	5	2	3	6	5	1	0	1	0	1	1	1	0	0	0	
Markies	4	7	7	3	6	5	0	0	0	0	1	1	2	1	0	0	
CO99053-3RU	5	6	4	4	6	4	0	0	1	0	0	0	2	0	0	0	
Challenger	4	7	6	3	7	4	0	0	1	0	1	0	2	0	0	0	
AF3317-15	4	6	6	4	6	4	0	0	0	0	1	2	4	0	0	0	
W2324-1	3	6	6	2	4	5	3	0	0	0	0	4	3	0	0	0	
Silverton Russet	5	6	4	4	6	4	0	0	1	0	0	0	0	0	0	0	

¹Tuber Characteristics: TA = tuber appearance: 1 = very poor, 5=fair, 9 = excellent.

C = skin color: 1 = purple, 2 = red, 3 = pink, 4 = dark brown, 5 = brown, 6 = tan, 7 = buff, 8 = white, 9 = cream.

TX = skin texture: 1 = partial russet, 2 = heavy russet, 3 = mod. russet, 4 = light russet, 5 = netted, 6 = slight net, 7 = mod. smooth, 8 = smooth, 9 = very smooth.

Sh = tuber shape: 1 = round, 2 = mostly round, 3 = round-oblong, 4 = mostly oblong, 5 = oblong, 6 = oblong-long, 7 = mostly long, 8 = long, 9 = cylindrical.

TED = tuber eye depth: 1 = very deep, 5 = medium, 9 = very shallow. TCS = tuber cross section: 1 = very flat, 5 = intermediate, 9 = very round.

²Internal Defects: HH = hollow heart, IB = internal browning. Total number observed out of 4 tubers. 0 = not observed.

³External Defects: R = Rhizoctonia, H = hairline cracks, Gr = growth cracks, K = knobs, G = sunburn, Sc = scab, Sp = sprouts, T = secondary tubers.

Scale = 0-4, with 0 = not observed, 1 = slight to 4 = very severe.

Table 5. Total yield, greater than 1 7/8" yield, percent of standard, size distribution, percent pickouts, and specific gravity for round white potato evaluation trial in Rock Springs, Plant Pathology Farm, 2012

Variety/Line	Yield (cwt/A) ¹		US#1	%	Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	> 1 7/8"				2	3	4	5			
Atlantic	425	380	90	100	20	44	23	2	7	1.084		
Dakota Crisp	562	504	90	133	13	48	26	3	6	1.076		
JOMA	540	301	57	79	10	28	19	0	42	1.076		
Katahdin	374	329	88	87	20	49	19	0	8	1.072		
Kennebec	451	176	40	46	11	13	16	0	56	1.073		
Rochdale Gold-Doree ^{yf}	335	310	92	82	18	50	23	0	3	1.078		
Snowden	469	429	92	113	26	51	14	0	6	1.085		
Superior	395	340	86	89	22	51	11	2	11	1.070		
Yukon Gem ^{yf}	574	529	92	139	21	53	19	0	5	1.073		
Yukon Gold ^{yf}	376	316	84	83	15	36	31	2	13	1.076		
AF0338-17	412	359	87	94	10	32	33	13	10	1.079		
AF4013-3 ^{yf}	443	391	88	103	30	50	8	0	2	1.084		
AF4125-1	346	276	80	73	23	42	12	2	16	1.075		
AF4157-6	440	374	85	98	25	54	5	0	11	1.080		
B2727-2	344	311	91	82	27	55	8	0	7	1.093		
B2731-11	407	386	95	101	10	44	41	0	4	1.084		
BNC182-5	515	460	89	121	17	46	26	0	7	1.086		
NY150	405	250	61	66	54	7	0	0	1	1.083		
NYE106-4	499	457	91	120	23	43	24	2	4	1.088		
AF3011-34	343	228	67	60	19	29	18	0	29	1.079		
AF4130-7	447	390	87	103	14	44	26	2	12	1.096		
AF4363-5	382	344	90	90	18	41	32	0	4	1.083		
AF4376-3	450	417	93	110	13	56	24	0	5	1.075		
AF4430-2	564	527	93	138	19	52	22	0	3	1.063		
AF4437-5	337	237	71	62	14	38	18	0	27	1.077		
AF4454-3	294	156	52	41	17	28	7	0	44	1.055		
AF4463-7	374	333	89	88	23	49	17	0	7	1.071		
Markies ^{yf}	460	327	71	86	38	25	8	0	22	1.080		
Elkton	353	328	93	86	24	49	18	2	3	1.082		

Variety/Line	Yield (cwt/A) ¹		% US#1	% of Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"			2	3	4	5			
BNC202-3 ^{yf}	451	335	74	88	17	42	15	0	23	1.089	
B2728-2	374	341	91	90	33	46	11	0	5	1.083	
B2737-2	452	381	84	100	38	41	6	0	5	1.081	
B2738-3	404	384	95	101	14	53	28	0	3	1.069	
B2589-3	444	375	84	99	37	41	4	2	5	1.076	
Reba	361	324	90	85	25	55	9	0	5	1.072	
NY140	449	388	86	102	16	37	33	0	10	1.076	
NY141	424	390	92	103	14	41	35	2	3	1.077	
NY151 (G73-1)	500	388	77	102	25	38	14	0	17	1.064	
ATCO0293-1W/Y ^{yf}	616	408	66	107	25	32	9	0	28	1.067	
CO99045-1W/Y ^{yf}	497	348	70	91	33	29	8	0	17	1.085	
CO00412-5W/Y ^{yf}	389	305	79	80	40	30	9	0	9	1.086	
MSL211-3	348	297	85	78	29	48	9	0	8	1.072	
Spartan Splash ^{yf}	462	412	89	108	30	49	10	0	6	1.078	
A00293-2Y ^{yf}	363	305	84	80	36	42	6	0	6	1.079	
Lady Lenora	378	213	56	56	45	11	1	0	25	1.091	
Sifra	573	425	74	112	26	37	11	0	19	1.078	
Sylvania ^{yf}	350	302	86	79	24	43	19	0	11	1.062	
Opera ^{yf}	455	322	71	85	47	21	2	0	17	1.085	
Snowbird	357	286	80	75	34	40	6	0	11	1.072	
Challenger ^{yf}	409	291	71	76	42	24	5	0	13	1.084	
W2324-1	496	425	86	112	19	47	18	1	10	1.086	
AF4138-8*	334	306	92	81	24	53	14	0	2	1.071	
AF4421-4*	356	303	85	80	40	42	2	0	7	1.080	
AF4449-2*	442	368	83	97	34	38	12	0	10	1.076	
AF4463-8*	351	331	94	87	21	40	33	0	1	1.066	
AF4552-5*	293	239	82	63	32	40	10	0	6	1.076	
AF4573-2*	374	327	87	86	41	43	3	0	6	1.095	
AF4640-1*	437	416	95	109	22	50	23	0	0	1.082	
AF4725-14*	298	271	91	71	19	53	18	0	7	1.081	
AF4840-1*	421	310	74	82	10	44	20	0	24	1.080	
AF4852-2*	467	337	72	89	19	38	15	0	23	1.066	

Variety/Line	Yield (cwt/A) ¹		% US#1	% of Standard ²	% by size class ³					Specific Gravity
	Total	>1 7/8"			2	3	4	5	%PO ⁴	
AF4852-4*	456	404	89	106	21	49	18	0	7	1.072
AF4917-3*	313	293	93	77	32	43	18	0	2	1.079
AF4965-2*	373	336	90	88	14	46	30	0	7	1.075
AF4975-3*	406	372	92	98	15	37	39	0	5	1.086
B2833-16*	434	417	96	110	11	37	39	10	2	1.090
MSJ126-9Y* ^{vf}	343	328	96	86	30	58	8	0	1	1.081
LSD	66	71	9		9	10	10	3	8	

¹Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

²Percentage of the standard, Atlantic, for >1 7/8" yield.

³Percentage of total yield according to size class. 2=1.875-2.5 in., 3=2.5-3.25 in., 4=3.25-4.0 in., 5=>4.0 in.

⁴Percentage of total that are pickouts.

Planted 8-in. apart with 15 seed pieces per 10-ft plot. Yellow flesh varieties are indicated with ^{vf}.

Replicated trials are the average of 3 replicates except for those lines with * which were non-replicated.

LSD indicates least significant difference ($P = 0.05$), calculated for replicated varieties.

Table 6. Tuber characteristics, internal and external defects for round white potato evaluation trial in Rock Springs, Plant Pathology Farm, 2012

Variety/Line	Tuber Characteristics ¹						Internal Defects ²				External Defects ³					
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T
Atlantic	5	6	6	2	4	5	2	0	1	0	0	1	0	0	0	0
Dakota Crisp	5	6	7	2	3	5	2	0	2	0	1	0	1	0	0	0
JOMA	3	7	7	3	5	5	1	0	1	0	2	2	2	1	0	0
Katahdin	4	7	7	3	5	5	2	0	1	0	0	0	1	0	0	0
Kennebec	3	7	7	4	5	5	3	0	1	0	2	2	2	0	0	0
Rochdale Gold-Doree	5	7	7	2	5	5	2	0	1	0	1	0	0	0	0	0
Snowden	5	6	5	2	4	5	3	0	2	0	0	0	1	0	0	0
Superior	4	7	7	3	4	5	1	0	1	0	0	0	1	0	0	0
Yukon Gem	5	6	7	3	5	5	2	0	1	0	1	0	1	0	0	0
Yukon Gold	4	6	8	2	4	5	4	0	2	0	1	0	1	0	0	0
AF0338-17	4	7	6	3	5	5	2	0	2	0	1	0	1	0	0	0
AF4013-3	5	7	8	2	6	5	1	0	3	0	0	0	1	0	0	0
AF4125-1	5	8	7	2	4	6	2	0	1	2	1	0	1	0	0	0
AF4157-6	5	7	7	2	4	5	2	0	1	0	1	0	1	0	0	0
B2727-2	5	6	6	2	6	5	2	0	1	0	0	0	1	0	0	0
B2731-11	5	6	5	2	4	6	4	1	1	0	1	0	1	0	0	0
BNC182-5	4	6	5	2	5	5	2	0	2	0	0	0	1	0	0	0
NY150	6	8	8	2	6	5	0	0	1	0	0	0	1	0	0	0
NYE106-4	4	6	6	2	4	6	2	0	1	0	0	0	1	0	0	0
AF3011-34	4	6	6	4	6	4	2	0	1	0	1	0	1	0	0	0
AF4130-7	5	6	6	3	5	5	2	0	1	0	0	1	1	0	0	0
AF4363-5	5	7	7	3	6	4	3	0	1	0	0	0	1	0	0	0
AF4376-3	5	7	7	3	5	4	2	0	2	0	0	0	1	0	0	0
AF4430-2	4	7	7	2	5	4	0	0	1	0	0	0	1	0	0	0
AF4437-5	4	7	7	2	5	5	1	0	1	2	1	0	0	0	0	0
AF4454-3	2	6	6	2	4	5	1	1	3	0	2	0	1	0	0	0
AF4463-7	5	8	7	2	6	5	0	0	2	0	1	0	0	0	0	0
Markies	4	6	8	3	5	5	1	0	2	0	0	1	1	0	0	0
Elkton	3	5	5	2	7	5	3	0	3	0	0	0	0	0	0	0

Variety/Line	Tuber Characteristics ¹							Internal Defects ²			External Defects ³						
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T	
	BNC202-3	3	6	5	2	3	5	3	0	1	0	0	1	1	0	0	0
B2728-2	5	7	7	2	6	5	1	0	1	1	0	0	0	0	0	0	
B2737-2	6	7	7	2	5	6	1	0	1	0	0	0	1	0	0	0	
B2738-3	5	6	6	2	4	5	0	0	1	0	0	0	0	0	0	0	
B2589-3	4	6	5	3	6	5	2	0	1	0	0	0	1	0	0	0	
Reba	4	7	7	3	5	5	1	0	1	0	0	0	1	0	0	0	
NY140	5	7	7	3	6	5	0	0	1	0	0	0	1	0	0	0	
NY141	5	7	8	3	5	5	1	0	1	0	0	0	1	0	0	0	
NY151 (G73-1)	5	7	7	2	5	5	0	0	1	0	1	0	2	0	0	0	
ATCO0293-1W/Y	4	6	7	3	4	5	4	0	2	0	2	1	2	0	0	0	
CO99045-1W/Y	4	6	6	4	6	4	3	2	0	0	0	1	1	0	0	0	
CO00412-5W/Y	5	6	6	3	6	5	1	0	1	0	0	0	1	0	0	0	
MSL211-3	5	8	8	2	5	5	0	0	1	0	0	0	0	1	0	0	
Spartan Splash	6	?	7	3	5	5	1	0	0	0	0	0	0	1	0	0	
A00293-2Y	5	6	7	3	6	5	2	0	1	0	0	0	0	0	0	0	
Lady Lenora	4	6	6	3	6	5	1	0	2	0	0	0	1	0	0	0	
Sifra	4	7	7	3	6	5	0	0	1	0	1	0	1	0	0	0	
Sylvana	5	7	7	3	6	5	0	0	0	0	1	0	0	0	0	0	
Opera	5	7	7	3	6	6	0	0	1	0	1	0	1	0	0	0	
Snowbird	4	8	8	3	3	5	0	0	0	0	0	0	1	0	0	0	
Challenger	5	6	6	3	7	5	2	0	1	0	0	0	1	0	0	0	
W2324-1	3	6	6	2	2	5	2	0	2	0	0	0	1	0	0	0	
AF4138-8*	5	7	7	2	6	5	0	0	1	0	0	0	0	1	0	0	
AF4421-4*	5	7	6	2	5	5	0	0	0	0	0	0	0	1	0	0	
AF4449-2*	4	7	7	2	6	6	0	0	0	0	0	0	1	2	0	0	
AF4463-8*	4	7	6	2	3	5	0	0	3	0	0	0	0	0	0	0	
AF4552-5*	5	7	6	2	4	5	0	0	2	0	1	0	0	0	0	0	
AF4573-2*	5	6	7	2	6	5	0	0	2	0	1	0	0	0	0	0	
AF4640-1*	5	7	7	2	4	5	0	0	2	0	0	0	0	0	0	0	
AF4725-14*	6	8	8	2	5	5	1	0	0	0	1	0	0	0	0	0	
AF4840-1*	5	6	6	2	5	5	1	0	1	1	2	0	0	0	0	0	
AF4852-2*	5	7	7	2	5	5	0	0	2	0	2	0	0	0	0	0	

Variety/Line	Tuber Characteristics ¹						Internal Defects ²			External Defects ³						
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T
AF4852-4*	4	7	7	2	6	5	0	0	3	0	0	0	0	0	0	0
AF4917-3*	5	8	7	2	5	2	0	0	2	0	0	0	0	0	0	0
AF4965-2*	5	8	6	2	4	5	0	0	1	0	0	0	1	0	0	0
AF4975-3*	5	7	6	2	5	5	0	0	0	0	0	0	0	0	0	1
B2833-16*	5	6	6	3	5	5	0	0	0	0	0	0	1	0	0	0
MSJ126-9Y*	5	6	6	2	6	4	0	0	0	0	0	0	0	0	0	0

¹Tuber Characteristics: TA = tuber appearance: 1 = very poor, 5 = fair, 9 = excellent.

C = skin color: 1 = purple, 2 = red, 3 = pink, 4 = dark brown, 5 = brown, 6 = tan, 7 = buff, 8 = white, 9 = cream.

TX = skin texture: 1 = partial russet, 2 = heavy russet, 3 = mod. russet, 4 = light russet, 5 = netted, 6 = slight net, 7 = mod. smooth, 8 = smooth, 9 = very smooth.

Sh = tuber shape: 1 = round, 2 = mostly round, 3 = round-oblong, 4 = mostly oblong, 5 = oblong, 6 = oblong-long, 7 = mostly long, 8 = long, 9 = cylindrical.

TED = tuber eye depth: 1 = very deep, 5 = medium, 9 = very shallow. TCS = tuber cross section: 1 = very flat, 5 = intermediate, 9 = very round.

²Internal Defects: HH = hollow heart, IB = internal browning. Total number observed out of 12 tubers for replicated trials and total number out of 4 for non replicated trials (marked with *). 0 = not observed.

³External Defects: R = Rhizoctonia, H = hairline cracks, Gr = growth cracks, K = knobs, G = sunburn, Sc = scab, Sp = sprouts, T = secondary tubers. Scale = 0-4, with 0 = not observed, 1 = slight to 4 = very severe.

Table 7. Total yield, greater than 1 7/8" yield, percent of standard, size distribution, percent pickouts, and specific gravity for red or purple skinned potato evaluation trial in Rock Springs, Plant Pathology Farm, 2012

Variety/Line	Yield (cwt/A) ¹		% US#1	% of Standard ²		% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"		Standard	Standard ²	2	3	4	5			
Chieftain	427	396	93	100	28	53	11	0	4	1.071		
Dark Red Norland	306	270	88	68	21	54	14	0	8	1.061		
Modoc	334	288	86	73	53	33	0	0	1	1.067		
Red Sunset	304	282	92	71	37	56	0	0	1	1.062		
B2863-7	294	224	76	56	24	38	13	0	16	1.075		
B1816-5 ^{yf}	366	332	91	84	36	52	2	0	5	1.073		
BCO01044-2 ^{pur}	444	400	90	101	29	46	15	0	5	1.071		
B2538-5	448	359	80	91	21	41	18	0	17	1.070		
B2676-2	348	305	88	77	43	40	5	0	5	1.081		
AD Red ^{pk}	440	356	81	90	47	31	3	0	8	1.068		
AD Blue ^{pur}	444	392	89	99	40	38	10	0	5	1.072		
H73-1	387	345	89	87	31	47	12	0	3	1.065		
H90-4	330	226	68	57	51	16	0	0	3	1.069		
CO97222-1R/R ^{pk}	410	301	74	76	53	21	0	0	7	1.068		
CO00405-1RF	307	115	37	29	34	3	0	0	10	1.072		
CO99256-2R	433	362	83	91	30	42	11	0	10	1.071		
CO00415-1RF	393	138	35	35	30	5	0	0	12	1.066		
MSS576-05SPL	559	506	90	128	20	43	24	3	5	1.076		
MI Purple Sport I	542	466	86	117	17	45	21	2	12	1.075		
NDA7985-IR	389	358	92	90	21	55	16	0	5	1.063		
A99331-2RY ^{yf}	514	404	78	102	43	33	2	0	7	1.074		
NDA050237B-1R	557	458	82	115	18	38	23	2	13	1.064		
HZC 01-6087 ^{yf}	361	309	86	78	23	50	12	0	10	1.085		
AF4815-1*	513	481	94	121	30	50	13	0	3	1.063		
AF4831-2*	442	366	83	92	40	39	4	0	3	1.065		
AF4831-3*	362	307	85	78	36	36	13	0	9	1.060		
AF4845-3*	409	377	92	95	27	57	8	0	3	1.064		
AF4985-1*	409	345	85	87	19	49	17	0	8	1.068		
BNC244-10* ^{pur}	361	268	74	67	55	19	0	0	6	1.090		

Variety/Line	Yield (cwt/A) ¹		% US#1	% of Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"			2	3	4	5			
Colonial Purple*	217	201	93	51	26	39	27	0	0	1.079	
MSQ437-2PPP* ^{pur}	280	226	81	57	31	33	16	0	12	1.072	
Blackberry* ^{pur}	412	354	86	89	40	34	12	0	7	1.059	
MSR226-ARR* ^{pk}	230	153	66	39	43	24	0	0	16	1.080	
MSR214-2P* ^{pur}	379	304	80	77	19	44	17	0	14	1.061	
Purple Heart*	316	293	93	74	40	48	5	0	0	1.062	
LSD	99	96	14	14	14	15	9	1	13		

¹Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

²Percentage of the standard, Chieftain, for >1 7/8" yield.

³Percentage of total yield according to size class. 2=1.875-2.5 in., 3=2.5-3.25 in., 4=3.25-4.0 in., 5=>4.0 in.

⁴Percentage of total that are pickouts.

Replicated trials are the average of 3 replicates except for those lines with * which were non-replicated.

LSD indicates least significant difference ($P = 0.05$), calculated for replicated varieties.

Varieties with colored flesh are indicated by ^{yf} for yellow, ^{pur} for purple, and ^{pk} for pink. Plots consisted of 10-ft rows with 15 seed pieces spaced 8-in. apart.

Table 8. Tuber characteristics, internal and external defects for red skinned potato evaluation trial in Rock Springs, Plant Pathology Farm, 2012

Variety/Line	Tuber Characteristics ¹					Internal Defects ²				External Defects ³						
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T
Chieftain	5	2	7	3	6	5	0	0	2	0	0	0	0	0	0	0
Dark Red Norland	5	2	7	3	5	5	0	0	1	0	1	0	0	0	0	0
Modoc	6	2	8	2	6	6	0	0	2	0	0	0	0	0	0	0
Red Sunset	5	2	8	3	6	5	0	0	1	0	0	0	0	0	0	0
B2863-7	5	2	8	3	5	5	0	0	1	0	1	0	0	0	0	0
B1816-5	5	1	7	3	5	5	2	0	0	0	0	0	0	0	0	0
BCO01044-2	5	1	7	3	6	5	0	0	0	0	0	0	0	0	0	0
B2538-5	5	1	8	4	4	5	0	0	0	0	1	0	1	0	0	0
B2676-2	5	2	7	2	5	5	0	0	1	0	0	0	1	0	0	0
AD Red	4	2	7	3	7	5	0	0	1	0	0	0	1	0	0	0
AD Blue	3	1	7	3	5	4	0	0	0	0	0	1	0	0	0	0
H73-1	4	2	7	2	5	5	0	0	2	0	0	0	1	0	0	0
H90-4	4	2	6	2	4	5	0	0	1	0	0	0	0	0	0	0
CO97222-1R/R	5	2	7	3	5	5	0	0	1	0	1	0	1	0	0	0
CO00405-1RF	5	2	7	4	6	5	1	0	2	0	0	0	1	0	0	0
CO99256-2R	5	2	8	3	6	5	1	0	2	0	1	0	0	0	0	0
CO00415-1RF	5	2	8	4	6	5	0	0	1	0	0	0	1	0	0	0
MSS576-05SPL	5	**	7	2	4	5	0	0	0	0	1	0	1	0	0	0
MI Purple Sport I	5	***	7	3	5	4	2	0	1	0	0	1	1	0	0	0
NDA7985-1R	5	2	7	2	5	5	0	0	0	0	0	0	0	0	0	0
A99331-2RY	4	2	7	2	5	5	0	0	1	0	0	0	1	0	0	0
NDA050237B-1R	5	2	8	2	5	6	0	0	2	0	2	0	0	0	0	0
HZC 01-6087	5	2	8	3	6	5	0	0	1	0	1	0	1	0	0	0
AF4815-1*	5	2	8	3	6	5	0	0	0	0	0	0	0	0	0	0
AF4831-2*	4	2	8	3	6	5	0	0	2	0	0	0	0	0	0	0
AF4831-3*	5	2	8	2	5	5	2	0	1	0	1	0	0	0	0	0
AF4845-3*	6	2	8	2	5	6	0	0	1	0	1	0	0	0	0	0
AF4985-1*	5	2	8	2	4	5	0	0	1	0	1	0	1	0	0	0
BNC244-10*	5	1	7	2	5	5	0	0	0	0	0	0	0	0	0	0

Variety/Line	Tuber Characteristics ¹						Internal Defects ²			External Defects ³						
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T
Colonial Purple*	5	1	8	3	4	5	4	0	0	0	0	0	0	0	0	0
MSQ437-2PP*	4	1	7	3	5	5	0	0	1	0	0	0	0	0	0	0
Blackberry*	4	1	8	3	5	5	0	0	1	0	0	0	0	1	0	0
MSR226-ARR*	5	2	8	3	6	5	0	0	1	0	1	0	0	0	0	0
MSR214-2P*	5	1	7	2	5	5	0	0	0	0	1	0	0	0	0	0
Purple Heart*	5	2	8	2	5	4	0	0	0	0	0	0	0	0	0	0

¹Tuber Characteristics: TA = tuber appearance: 1 = very poor, 5 = fair, 9 = excellent.

C = skin color: 1 = purple, 2 = red, 3 = pink, 4 = dark brown, 5 = brown, 6 = tan, 7 = buff, 8 = white, 9 = cream, ** = white skin with red splash around the eyes, *** = white skin with purple streaks on the tuber.

TX = skin texture: 1 = partial russet, 2 = heavy russet, 3 = mod. russet, 4 = light russet, 5 = netted, 6 = slight net, 7 = mod. smooth, 8 = smooth, 9 = very smooth.

Sh = tuber shape: 1 = round, 2 = mostly round, 3 = round-oblong, 4 = mostly oblong, 5 = oblong, 6 = oblong-long, 7 = mostly long, 8 = long, 9 = cylindrical.

TED = tuber eye depth: 1 = very deep, 5 = medium, 9 = very shallow. TCS = tuber cross section: 1 = very flat, 5 = intermediate, 9 = very round.

²Internal Defects: HH = hollow heart, IB = internal browning. Total number observed out of 12 tubers for replicated trials and total number out of 4 for non replicated trials (marked with *). 0 = not observed.

³External Defects: R = Rhizoctonia, H = hairline cracks, Gr = growth cracks, K = knobs, G = sunburn, Sc = scab, Sp = sprouts, T = secondary tubers. Scale = 0-4, with 0 = not observed, 1 = slight to 4 = very severe.

Table 9. Total yield, greater than 1 7/8" yield, percent of standard, size distribution, percent pickouts, and specific gravity for russet skinned or long white potato evaluation trial in Rock Springs, Plant Pathology Farm, 2012

Variety/Line	Yield (cwt/A) ¹		% US#1	% of Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"			2	3	4	5			
Alpine Russet	456	267	59	106	22	28	8	0	32	1.075	
Classic Russet	420	339	81	135	25	37	20	0	13	1.068	
Dakota Trailblazer	402	288	72	115	19	39	13	0	23	1.097	
Premier Russet	349	238	68	95	34	24	10	0	26	1.082	
Russet Burbank	408	135	33	54	14	14	6	0	63	1.066	
Russet Norkotah #3177	322	251	78	100	37	25	12	4	17	1.062	
AF3001-6	556	327	59	130	12	22	23	1	38	1.079	
AF3008-3	240	190	78	76	62	16	0	0	10	1.090	
AF3317-15	304	129	42	51	21	21	0	0	51	1.090	
AF3362-1	306	190	63	76	13	36	13	0	34	1.064	
AF4040-2	308	154	50	61	14	24	11	0	46	1.076	
AF4172-2	306	272	88	108	37	36	15	0	1	1.078	
AF4113-2	335	270	81	108	45	31	4	0	9	1.067	
AF4124-4	349	162	45	65	25	13	8	0	49	1.066	
AF4124-7	300	170	55	68	17	25	14	0	39	1.073	
AF4222-5	228	174	74	69	26	34	14	0	19	1.069	
AF4320-7	436	234	54	93	20	22	10	2	41	1.077	
AF4320-17	376	272	72	108	45	27	1	0	20	1.075	
AF4329-7	320	200	62	80	48	13	2	0	23	1.067	
AF4347-1	392	179	43	71	21	16	6	0	52	1.076	
AF4607-1	286	156	54	62	34	16	4	0	39	1.074	
AF4609-1	350	162	47	64	22	17	7	0	50	1.079	
AF4185-1	406	277	68	110	48	20	0	0	18	1.069	
AC00395-2RU	478	259	54	103	31	23	0	0	37	1.085	
CO99053-3RU	370	222	60	88	26	25	9	0	31	1.076	
CO99100-1RU	211	159	76	63	49	26	0	0	11	1.061	
AC99375-1RU	419	223	53	89	28	21	4	0	36	1.081	
CO99053-4RU	293	140	48	56	26	22	0	0	40	1.061	
A01025-4	346	222	64	88	27	34	3	0	27	1.075	

Variety/Line	Yield (cwt/A) ¹		US# ¹	%	% of Standard ²		% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"			Standard ²	Standard ²	2	3	4	5			
A98345-1	341	244	71	97	33	37	1	0	22	1.081			
Russet Norkotah	298	215	72	86	21	30	21	0	21	1.061			
Markies ^{yf}	415	293	71	116	39	28	4	0	23	1.071			
Lady Lenora	330	177	54	70	40	14	0	0	31	1.075			
AF4430-1 (round white)*	476	442	93	176	27	50	15	0	1	1.059			
AF4720-17*	287	210	73	84	12	39	23	0	26	1.073			
AF4749-5*	371	256	69	102	17	35	16	0	23	1.081			
AF4749-14*	513	317	62	126	39	23	0	0	25	1.082			
AF4953-2*	295	220	75	87	43	31	0	0	18	1.077			
CO99045-1W/Y* ^{yf}	503	301	60	120	40	20	0	0	32	1.075			
LSD	82	81	16		13	13	13	2	15				

¹Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

²Percentage of the standard, Russet Norkotah #3117 for >1 7/8" yield.

³Percentage of total yield according to size class: 2=1.875-2.5 in., 3=2.5-3.25 in., 4=3.25-4.0 in., 5=>4.0 in.

⁴Percentage of total that are pickouts.

Replicated trials are the average of 3 replicates except for those lines with * which were non-replicated. LSD indicates least significant difference ($P = 0.05$), calculated for replicated varieties.

Plots consisted of 10-ft rows with 12 seed pieces spaced 10-in. apart. Yellow flesh varieties are indicated with ^{yf}.

Table 10. Tuber characteristics, internal and external defects for russet skinned or long white potato evaluation trial in Rock Springs, Plant Pathology Farm, 2012

Variety/Line	Tuber Characteristics ¹						Internal Defects ²			External Defects ³						
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T
Alpine Russet	3	6	5	4	6	5	0	0	1	0	0	1	1	0	0	0
Classic Russet	4	6	2	4	7	5	0	0	1	0	0	0	1	0	0	0
Dakota Trailblazer	4	5	4	4	6	5	2	0	2	0	1	1	1	0	0	0
Premier Russet	4	6	4	4	7	4	3	0	2	0	1	1	0	0	0	0
Russet Burbank	3	6	5	4	7	4	2	0	2	0	2	3	1	0	0	0
Russet Norkotah #3177	5	5	3	4	6	5	0	0	1	0	0	0	1	0	0	0
AF3001-6	4	6	6	4	7	4	1	0	1	0	0	1	1	0	0	0
AF3008-3	4	6	4	3	7	4	0	0	1	0	0	0	0	0	0	0
AF3317-15	3	5	3	4	7	5	0	2	2	0	0	1	2	0	0	0
AF3362-1	4	6	4	4	7	5	0	2	1	0	0	1	1	0	0	0
AF4040-2	3	6	6	4	7	4	0	0	1	0	1	1	2	0	0	0
AF4172-2	4	6	6	3	7	5	0	0	1	0	0	0	1	0	0	0
AF4113-2	4	7	6	3	7	5	0	0	2	0	0	0	1	0	0	0
AF4124-4	3	6	6	3	7	5	0	0	1	0	0	0	1	0	0	1
AF4124-7	4	6	6	4	6	4	1	0	1	0	0	1	1	0	0	0
AF4222-5	4	6	4	3	7	5	0	0	2	0	0	0	0	0	0	0
AF4320-7	4	5	3	4	7	4	0	0	1	0	0	2	1	0	0	0
AF4320-17	5	5	3	4	7	4	0	0	1	0	0	0	2	0	0	0
AF4329-7	4	6	5	3	7	5	0	0	2	0	0	0	0	1	0	0
AF4347-1	3	5	3	4	7	4	0	0	1	0	0	1	2	1	0	0
AF4607-1	4	5	4	3	7	5	1	0	0	0	0	0	0	0	0	0
AF4609-1	4	6	6	4	7	5	0	1	1	0	0	2	1	0	0	0
AF4185-1	3	5	3	3	6	5	0	0	1	0	0	0	1	0	0	0
AC00395-2RU	4	5	3	4	6	5	1	0	2	0	0	1	1	0	0	1
CO99053-3RU	4	6	4	4	7	5	3	0	1	0	0	0	1	0	0	0
CO99100-1RU	5	6	4	4	6	5	0	0	1	0	1	0	0	0	0	0
AC99375-1RU	4	5	3	4	7	5	2	0	2	0	0	1	1	0	0	0
CO99053-4RU	4	6	4	4	7	4	0	0	1	0	0	1	0	0	0	0
A01025-4	4	6	5	4	7	5	0	1	1	0	0	0	1	0	0	0

Variety/Line	Tuber Characteristics ¹								Internal Defects ²			External Defects ³					
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T	
A98345-1	4	6	5	4	6	5	2	0	2	0	1	1	0	0	0	0	
Russet Norkotah	5	5	3	4	7	5	1	0	1	0	0	1	0	0	0	0	
Markies	4	7	7	3	7	5	0	0	0	0	0	1	1	0	0	0	
Lady Lenora	4	6	6	2	7	5	0	0	1	0	0	0	0	0	0	0	
AF4430-1 (round white)*	5	7	6	2	6	5	0	0	1	0	0	0	0	0	0	0	
AF4720-17*	4	6	6	3	6	5	0	0	0	0	0	0	0	0	0	0	
AF4749-5*	5	5	4	4	7	5	0	0	0	0	0	1	1	0	0	0	
AF4749-14*	5	6	6	4	7	4	0	0	1	0	0	0	1	0	0	0	
AF4953-2*	4	5	4	3	7	5	0	0	2	0	0	0	0	0	0	0	
CO99045-1W/Y*	4	6	5	4	7	5	1	0	1	0	0	1	1	0	0	0	

¹Tuber Characteristics: TA = tuber appearance: 1 = very poor, 5 = fair, 9 = excellent.

C = skin color: 1 = purple, 2 = red, 3 = pink, 4 = dark brown, 5 = brown, 6 = tan, 7 = buff, 8 = white, 9 = cream.

TX = skin texture: 1 = partial russet, 2 = heavy russet, 3 = mod. russet, 4 = light russet, 5 = netted, 6 = slight net, 7 = mod. smooth, 8 = smooth, 9 = very smooth.

Sh = tuber shape: 1 = round, 2 = mostly round, 3 = round-oblong, 4 = mostly oblong, 5 = oblong, 6 = oblong-long, 7 = mostly long, 8 = long, 9 = cylindrical.

TED = tuber eye depth: 1 = very deep, 5 = medium, 9 = very shallow. TCS = tuber cross section: 1 = very flat, 5 = intermediate, 9 = very round.

²Internal Defects: HH = hollow heart, IB = internal browning. Total number observed out of 12 tubers for replicated trials and total number out of 4 for non replicated trials (marked with *). 0 = not observed.

³External Defects: R = Rhizoctonia, H = hairline cracks, Gr = growth cracks, K = knobs, G = sunburn, Sc = scab, Sp = sprouts, T = secondary tubers. Scale = 0-4, with 0 = not observed, 1 = slight to 4 = very severe.

Table 11. Total yield, greater than 1 7/8" percent of standard, size distribution, percent pickouts, and specific gravity for NE1031 potato evaluation trial in Rock Springs, Plant Pathology Farm, 2012

Variety/Line	Yield (cwt/A) ¹		% US#1	% of Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"			2	3	4	5			
Alpine Russet	441	262	60	71	20	29	10	0	32	1.075	
Atlantic	414	368	89	100	21	45	21	1	7	1.084	
Chieftain	435	405	93	110	29	53	12	0	3	1.071	
Classic Russet	423	325	78	88	24	35	18	0	17	1.068	
Dakota Crisp	524	464	88	126	15	48	24	2	8	1.076	
Dakota Trailblazer	395	285	72	77	21	34	18	0	23	1.097	
Dark Red Norland	334	295	88	80	20	54	14	0	8	1.061	
JOMA	539	309	58	84	11	27	21	0	40	1.076	
Katahdin	360	322	90	88	22	50	18	0	7	1.072	
Kennebec	456	212	47	58	10	18	18	0	50	1.073	
Modoc	352	309	87	84	51	36	0	0	1	1.067	
Premier Russet	343	219	63	59	30	23	11	0	30	1.082	
Red Sunset	327	300	91	82	37	54	1	0	2	1.062	
Rochdale Gold-Doree ^{yf}	320	289	89	79	23	46	20	0	4	1.078	
Russet Burbank	398	123	31	34	15	12	4	0	65	1.066	
Russet Norkotah #3177	316	240	76	65	35	26	12	3	17	1.062	
Snowden	472	420	89	114	24	51	14	0	8	1.085	
Superior	390	342	88	93	22	50	14	1	10	1.070	
Yukon Gem ^{yf}	541	504	94	137	23	52	19	0	4	1.073	
Yukon Gold ^{yf}	365	306	84	83	14	37	30	3	13	1.076	
AF0338-17	398	347	87	94	11	34	33	10	9	1.079	
AF3001-6	558	318	57	87	12	21	22	2	40	1.079	
AF3008-3	234	180	76	49	62	14	0	0	10	1.090	
AF3317-15	309	135	44	37	18	22	4	0	51	1.090	
AF3362-1	293	201	70	55	16	43	11	0	27	1.064	
AF4013-3 ^{yf}	438	388	89	105	31	47	10	0	2	1.084	
AF4040-2	304	169	56	46	15	30	10	0	40	1.076	
AF4125-1	325	261	80	71	28	41	9	2	15	1.075	

Variety/Line	Yield (cwt/A) ¹		% US#1	% of Standard ²	% by size class ³					%PO ⁴	Specific Gravity
	Total	>1 7/8"			2	3	4	5			
AF4157-6	419	356	85	97	26	52	7	0	11	1.080	
AF4172-2	293	254	85	69	42	32	11	0	1	1.078	
B2727-2	309	281	91	76	32	50	9	0	5	1.093	
B2731-11	394	356	90	97	11	40	38	0	9	1.084	
BNC182-5	513	465	91	127	17	45	29	0	5	1.086	
NY150	410	261	63	71	57	6	0	0	1	1.083	
NYE106-4	493	450	91	122	25	41	24	1	5	1.088	
LSD	65	76	12		11	11	11	3	11		

¹Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

²Percentage of the standard, Atlantic, for >1 7/8" yield.

³Percentage of total yield according to size class. 2=1.875-2.5 in., 3=2.5-3.25 in., 4=3.25-4.0 in., 5=>4.0 in.

⁴Percentage of total that are pickouts. Yellow flesh varieties are indicated with ^{yf}.

Replicated trials are the average of 4 replicates. LSD indicates least significant difference ($P=0.05$).

Russets were planted 10-in. apart with 12 seed pieces per 10-ft plot, all other varieties were spaced 8-in. apart with 15 seed pieces per 10-ft plot.

Table 12. Tuber characteristics, internal and external defects for NE1031 potato evaluation trial in Rock Springs, Plant Pathology Farm, 2012

Variety/Line	Tuber Characteristics ¹						Internal Defects ²				External Defects ³					
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T
	Alpine Russet	3	6	5	4	6	5	0	0	1	0	0	1	1	0	0
Atlantic	5	6	6	2	4	5	2	0	1	0	0	1	0	0	0	0
Chieftain	5	2	7	3	6	5	0	0	2	0	0	0	0	0	0	0
Classic Russet	4	6	2	4	7	5	0	0	1	0	0	0	1	0	0	0
Dakota Crisp	5	6	7	2	3	5	2	0	2	0	1	0	1	0	0	0
Dakota Trailblazer	4	5	4	4	6	5	2	0	2	0	1	1	1	0	0	0
Dark Red Norland	5	2	7	3	5	5	0	0	1	0	1	0	0	0	0	0
JOMA	3	7	7	3	5	5	1	0	1	0	2	2	2	1	0	0
Katahdin	4	7	7	3	5	5	2	0	1	0	0	0	1	0	0	0
Kennebec	3	7	7	4	5	5	3	0	1	0	2	2	2	0	0	0
Modoc	6	2	8	2	6	6	0	0	2	0	0	0	0	0	0	0
Premier Russet	4	6	4	4	7	4	3	0	2	0	1	1	0	0	0	0
Red Sunset	5	2	8	3	6	5	0	0	1	0	0	0	0	0	0	0
Rochdale Gold-Doree	5	7	7	2	5	5	2	0	1	0	1	0	0	0	0	0
Russet Burbank	3	6	5	4	7	4	2	0	2	0	2	3	1	0	0	0
Russet Norkotah #3177	5	5	3	4	6	5	0	0	1	0	0	0	1	0	0	0
Snowden	5	6	5	2	4	5	3	0	2	0	0	0	1	0	0	0
Superior	4	7	7	3	4	5	1	0	1	0	0	0	1	0	0	0
Yukon Gem	5	6	7	3	5	5	2	0	1	0	1	0	1	0	0	0
Yukon Gold	4	6	8	2	4	5	4	0	2	0	1	0	1	0	0	0
AF0338-17	4	7	6	3	5	5	2	0	2	0	1	0	1	0	0	0
AF3001-6	4	6	6	4	7	4	1	0	1	0	0	1	1	0	0	0
AF3008-3	4	6	4	3	7	4	0	0	1	0	0	0	0	0	0	0
AF3317-15	3	5	3	4	7	5	0	2	2	0	0	1	2	0	0	0
AF3362-1	4	6	4	4	7	5	0	2	1	0	0	1	1	0	0	0
AF4013-3	5	7	8	2	6	5	1	0	3	0	0	0	1	0	0	0
AF4040-2	3	6	6	4	7	4	0	0	1	0	1	1	2	0	0	0
AF4125-1	5	8	7	2	4	6	2	0	1	2	1	0	1	0	0	0

Variety/Line	Tuber Characteristics ¹							Internal Defects ²				External Defects ³					
	TA	C	TX	Sh	TED	TCS	HH	IB	Rhizoc	H	Gr	K	G	Sc	Sp	T	
	AF4157-6	5	7	7	2	4	5	2	0	1	0	1	0	1	0	0	0
AF4172-2	4	6	6	3	7	5	0	0	1	0	0	0	1	0	0	0	
B2727-2	5	6	6	2	6	5	2	0	1	0	0	0	1	0	0	0	
B2731-11	5	6	5	2	4	6	4	1	1	0	1	0	1	0	0	0	
BNC182-5	4	6	5	2	5	5	2	0	2	0	0	0	1	0	0	0	
NY150	6	8	8	2	6	5	0	0	1	0	0	0	1	0	0	0	
NYE106-4	4	6	6	2	4	6	2	0	1	0	0	0	1	0	0	0	

¹Tuber Characteristics: TA = tuber appearance: 1 = very poor, 5=fair, 9 = excellent.

C = skin color: 1 = purple, 2 = red, 3 = pink, 4 = dark brown, 5 = brown, 6 = tan, 7 = buff, 8 = white, 9 = cream.

TX = skin texture: 1 = partial russet, 2 = heavy russet, 3 = mod. russet, 4 = light russet, 5 = netted, 6 = slight net, 7 = mod. smooth, 8 = smooth, 9 = very smooth.

Sh = tuber shape: 1 = round, 2 = mostly round, 3 = round-oblong, 4 = mostly oblong, 5 = oblong, 6 = oblong-long, 7 = mostly long, 8 = long, 9 = cylindrical.

TED = tuber eye depth: 1 = very deep, 5 = medium, 9 = very shallow. TCS = tuber cross section: 1 = very flat, 5 = intermediate, 9 = very round.

²Internal Defects: HH = hollow heart, IB = internal browning. Total number observed out of 16 tubers for replicated trials and total number out of 4 for non replicated trials (marked with *). 0 = not observed.

³External Defects: R = Rhizoctonia, H = hairline cracks, Gr = growth cracks, K = knobs, G = sunburn, Sc = scab, Sp = sprouts, T = secondary tubers.

Scale = 0-4, with 0 = not observed, 1 = slight to 4 = very severe.

Russets were planted 10-in. apart with 12 seed pieces per 10-ft plot, all other varieties were spaced 8-in. apart with 15 seed pieces per 10-ft plot.

Table 13. Total yield, greater than 1 7/8" yield, size distribution, percent pick outs and specific gravity for potato commercial trials of three varieties in 2012 in: A) Lehigh County, Forrest Wessner Farm; B) Erie County, Kevin Troyer Farm; C) Rock Springs, Plant Pathology Farm. About 200 lbs of each variety were planted in each location.

Location	Variety/Line	Yield (cwt/A) ¹		% US#1	% by size class ²					%PO ³	Specific Gravity
		Total	>1 7/8"		2	3	4	5			
A	AF3001-6	356	199	56	28	19	9	0	0	36	1.070
	Markies ^{yf}	268	117	44	37	7	0	0	0	19	1.067
	Lady Lenora	237	84	35	34	1	0	0	0	34	1.066
B	AF3001-6	434	308	71	12	35	24	0	0	26	1.079
	Markies ^{yf}	375	246	66	44	20	1	0	0	21	1.079
	Lady Lenora	265	97	37	33	3	0	0	0	19	1.089
C	AF3001-6	417	334	80	15	27	31	7	0	18	1.082
	Markies ^{yf}	305	237	78	44	27	6	0	0	16	1.077
	Lady Lenora	223	98	44	42	1	0	0	0	29	1.089

¹Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

²Percentage of total yield according to size class. 2=1.875-2.5 in., 3=2.5-3.25 in., 4=3.25-4.0 in., 5=>4.0 in.

³Percentage of total that are pickouts.

Yellow flesh varieties are indicated with ^{yf}.

Table 14: Management of Evaluation Trials, 2012

Rock Springs

Planting Date:	18 May for Russet Varieties, 7 Jun for round white and red varieties
Harvest Date:	9, 10 and 15 Oct
Previous Crop:	Wheat followed by mustard green manure
Fertilizer Rate/A:	Pre-plant: 189 lb/A 0-0-60 (N-P-K); at planting: 1051 lb/A 10-10-10 (N-P-K)
Herbicide:	Eptam 7E, Dual Magnum II, Sencor 75DF, Matrix
Fungicide:	Gavel 75DF, Manzate ProStik, Tanos, Bravo WS, Curzate 60 DF
Insecticide:	Regent, Admire Pro, Baythroid XL, Assail, Asana XL
Vine Kill:	19 and 24 Sep
Rainfall (inches):	May (8.22), June (2.73), July (3.30), August (5.11), September (4.28)
Irrigation (inches):	28 June (1.10), 6 July (1.05), 13 July (1.00)

Evaluation of potato cultivars and breeding lines for resistance to late blight, 2012.

In two experiments, seventy-two potato cultivars and advanced breeding lines were evaluated at the Russell E. Larson Agricultural Research Center at Rock Springs, PA. The soil type was a Hagerstown silty clay loam. The previous crop was wheat. Potatoes were planted on 20 Jun. The experimental design was a randomized complete block with three replicates in both experiments. The plots were 4 ft long with five seed pieces planted in each plot and 5 ft breaks between plots within a row. At planting, 1051 lb/A of 10-10-10 (N-P-K) was banded in-the-row. Liquid N fertilizer was applied at 33 lb/A on 24 Jul while hilling. Precipitation was 2.73, 3.30, 5.11, and 4.28 in. for Jun, Jul, Aug, and Sep, respectively. Natural infection of late blight (US23) was observed in the field in mid-August. On 17 Aug, spreader rows were inoculated with a mixture of three isolates of *Phytophthora infestans* genotype US23, at a concentration of 2.19×10^5 sporangia/ml, to promote a uniform spread of the pathogen to all treatment plots. Overhead irrigation was applied at 0.90 in. on 2 Jul, and 0.70 in. on 9 Jul. Overhead sprinklers were used for approx. one hour daily when the weather was dry and hot to increase humidity in the plant canopy after inoculation. Disease ratings were determined by visually assessing each 4 ft plot and estimating the percentage of diseased foliage caused by late blight. Assessments were made on 18, 24, 30 Aug and 6 Sep. Disease data were expressed as area under the disease progress curve (AUDPC), subjected to analysis of variance, and means separated using Fisher's protected least significant difference test (SAS v. 9.3, SAS Institute, Cary, NC).

Kennebec was considered the moderately resistant check for experiment #1; therefore, Rochdale Gold-Doree, Yukon Gem, NY150, AF3317-15, NYE106-4, Premier Russet, Classic Russet, JOMA, Alpine Russet, Dakota Trailblazer, and BNC182-5 were considered resistant to moderately resistant. In experiment #2, B0718-3 was the resistant check; therefore, lines LBR3, LBR4, MSP516-A, AWN86514-2, MSQ131-A, A02507-2LB, B0692-4, MSR061-1, AF4122-3, AF3317-15, LBR2, LBR7, A02424-83LB, AF4191-2, AND99362B-1Russ, AF4677-1, AF4329-7, and LBR1 were considered resistant to moderately resistant.

Cultivar/Line	AUDPC ^z	Cultivar/Line	AUDPC	Cultivar/Line	AUDPC
Experiment #1		Experiment #1 (continued)		Experiment #2 (continued)	
Rochdale Gold-Doree.....	4 r ^y	Superior.....	599 ef	LBR7.....	73 j-n
Yukon Gem.....	4 r	AF3008-3.....	649 e	A02424-83LB.....	74 j-n
NY150 (NYF52-1).....	4 r	AF4157-6.....	793 d	AF4191-2.....	89 i-m
AF3317-15.....	25 qr	AF4125-1.....	830 d	AND99362B-1Russ.....	90 i-m
NYE106-4.....	56 p-r	B2727-2.....	866 cd	AF4677-1.....	93 i-l
Premier Russet (A93157-LS)..	85 o-r	AF4172-2.....	898 cd	AF4329-7.....	113 i-k
Classic Russet (A95109-1).....	97 o-r	Modoc.....	956 bc	LBR1.....	127 ij
JOMA.....	122 n-q	AF4013-3.....	962 a-c	AC00395-2RU.....	165 i
Kennebec.....	131 n-q	Red Sunset.....	1020 ab	CO02024-9W.....	249 h
Alpine Russet (A9305-10).....	149 m-p	Dark Red Norland.....	1071 a	LBR5.....	284 h
Dakota Trailblazer.....	178 l-o			MSR214-2P.....	290 h
BNC182-5.....	231 k-n			MSQ086-3.....	323 h
Dakota Crisp.....	254 k-m	Experiment #2		B2958-2.....	416 g
Russet Burbank.....	274 kl	LBR3.....	6 n	A03158-2TE.....	447 g
Snowden.....	276 j-l	LBR4.....	8 mn	CO02033-1W.....	447 g
Katahdin.....	325 i-k	MSP516-A.....	10 mn	ND071412CB-1Russ.....	468 fg
B2731-11.....	385 h-j	AWN86514-2.....	10 mn	B2874-1.....	474 fg
Russet Norkotah #3117.....	433 hi	MSQ131-A.....	13 l-n	B2942-5.....	546 ef
AF3001-6.....	457 gh	A02507-2LB.....	15 l-n	A01010-1.....	619 de
Yukon Gold.....	475 gh	B0692-4.....	30 l-n	ND081476B-1Rus.....	652 cd
AF4040-2.....	493 f-h	MSR061-1.....	43 k-n	A02138-2.....	729 c
AF0338-17.....	570 e-g	AF4122-3.....	51 j-n	B2971-2.....	839 b
Atlantic.....	571 e-g	B0718-3.....	53 j-n	B2954-11.....	857 ab
Chieftain.....	575 e-g	AF3317-15.....	65 j-n	CO02321-4W.....	870 ab
AF3362-1.....	596 ef	LBR2.....	65 j-n	ND071302B-2Russ.....	924 a

^z AUDPC = Area under the disease progress curve was calculated from 18 Aug to 6 Sep according to the formula : $\sum_{i=1}^n [(R_{i+1} + R_i)/2] [t_{i+1} - t_i]$, where R = disease severity rating (% of leaf surface affected) at the *i*th observation, *t_i* = time (days) since the previous rating at the *i*th observation, and n = total number of observations).

^y Means followed by the same letter within each experiment are not significantly different at *P* = 0.05 as determined by Fisher's protected least significant difference test (LSD = 110 for experiment 1, LSD = 82 for experiment 2).

Evaluation of potato cultivars and breeding lines for resistance to early blight, 2012.

Thirty-five potato cultivars and advanced breeding lines were evaluated at the Russell E. Larson Agricultural Research Center at Rock Springs, PA. The soil type was a Hagerstown silty clay loam. The previous crop was wheat. Entries were planted on 8 Jun in a randomized complete block design with three replicates. Plots consisted of a single row 4 ft long with five seed pieces planted in each plot with a 4 ft break between plots. Each entry had an adjacent row of the susceptible cv. ‘Dark Red Norland’. Fertilization was 1051 lb/A of 10-10-10 (N-P-K) banded in-the-row at planting. Precipitation was 2.73, 3.30, 5.11, and 4.28 in. for Jun, Jul, Aug, and Sep, respectively. Overhead irrigation was applied at 0.5 in. on 29 Jun and 0.85 in. on 10 Jul. On 9 Aug, spreader rows were inoculated with a conidial mixture of three isolates of *Alternaria solani*, at a concentration of 4.07×10^4 conidia/ml, to promote a uniform spread of the pathogen to all treatment plots. For each plot, the percentage of diseased foliage was visually assessed on 16 and 23 Aug and 1, 7 and 14 Sep. Disease data were expressed as the area under the disease progress curve (AUDPC), subjected to an analysis of variance and means separated using Fisher’s protected least significant difference test (SAS v. 9.3, SAS Institute, Cary, NC).

Seventeen cultivars/lines were classified as resistant to moderately resistant, and they are: Premier Russet, Classic Russet, AF3317-15, Dakota Trailblazer, NYE106-4, Kennebec, JOMA, Russet Burbank, BNC182-5, Katahdin, Alpine Russet, Snowden, AF3001-6, Dakota Crisp, Yukon Gem, Superior, and Chieftain.

Cultivar/Line	AUDPC ^z	Cultivar/Line	AUDPC
Premier Russet (A93157-LS).....	30 q ^y	B2731-11	226 h-o
Classic Russet (A95109-1)	40 pq	AF3362-1	258 h-n
AF3317-15	41 pq	NY150 (NYF52-1).....	268 h-m
Dakota Trailblazer	44 pq	Russet Norkotah #3117.....	294 g-l
NYE106-4.....	73 o-q	B2727-2	294 g-l
Kennebec	85 n-q	Atlantic	303 f-k
JOMA	95 m-q	Rochdale Gold-Doree	311 f-j
Russet Burbank.....	101 m-q	AF4040-2.....	327 e-i
BNC182-5.....	108 m-q	AF0338-17	358 e-h
Katahdin.....	109 m-q	AF4172-2.....	452 d-g
Alpine Russet (A9305-10).....	119 l-q	AF3008-3.....	472 c-g
Snowden	127 k-q	AF4013-3.....	476 c-f
AF3001-6.....	143 j-q	AF4157-6.....	502 c-e
Dakota Crisp.....	147 j-q	Red Sunset	618 b-d
Yukon Gem.....	150 i-q	Modoc	633 bc
Superior.....	168 i-q	AF4125-1	725 b
Chieftain	176 i-q	Dark Red Norland.....	1053 a
Yukon Gold	213 h-p		

^z AUDPC = area under the disease progress curve was calculated from 16 Aug to 14 Sep according to the formula : $\sum_{i=1}^n [(R_{i+1} + R_i)/2] [t_{i+1} - t_i]$, where R = disease severity rating (% of leaf surface affected) at the *i*th observation, *t_i* = time (days) since the previous rating at the *i*th observation, and n = total number of observations).

^y Means followed by the same letter are not significantly different at *P* = 0.05 as determined by Fisher’s protected least significant difference test (LSD = 179).

Evaluation of potato cultivars and breeding lines for resistance to powdery scab, 2012.

Thirty-six potato cultivars and advanced breeding lines were planted in a naturally infested field in Potter Co., PA on 25 May. The soil type was a Mardin silt loam. The previous crop was corn. Plots consisted of 6 ft rows, which were arranged in a randomized complete block design with three replications. Within each plot, 8 seed pieces were spaced 8 in. apart. Fertilizer was banded in-furrow at a rate of 1200 lb/A 8.5-8.5-11.4-19.0 5.7 (N-P-K-S-Mg) at planting. Precipitation was 4.39, 4.44, 2.81, and 4.46 in. for Jun, Jul, Aug, and Sep, respectively. Standard crop management procedures and a recommended program for control of early and late blight were followed. Reglone (1.0 pt/A) was applied to vine kill on 27 Aug and 5 Sep. Tubers were harvested on 27 Sep. The tubers were visually assessed, and the number of tubers with powdery scab was determined from the total number of tubers per plot. Disease incidence was calculated as the percentage of tubers with powdery scab. Data was subjected to an analysis of variance test, and means were separated using Fisher's protected least significant difference test (SAS v. 9.3, SAS Institute, Cary, NC).

The powdery scab disease pressure was low thus making it difficult to separate cultivars/lines into groups (resistant, moderately resistant, moderately susceptible, and susceptible). Based on our past years' data, Kennebec and Shepody should be susceptible, and Russet Burbank should be moderately resistant. Cultivars and breeding lines with less powdery scab than Dark Red Norland indicate some level of resistance.

Cultivar/Line	Powdery Scab Incidence (%)	Cultivar/Line	Powdery Scab Incidence (%)
Dakota Trailblazer.....	1.4 i ^z	AF4040-2	8.8 b-i
AF3008-3	2.1 hi	NY150 (NYF52-1)	9.1 b-i
Russet Burbank	2.4 g-i	Atlantic.....	9.2 b-i
NYE106-4	2.4 g-i	Alpine Russet (A9305-10)	10.7 b-i
B2731-11	2.6 g-i	Dakota Crisp.....	11.3 b-i
AF3317-15	3.3 f-i	Shepody.....	11.6 b-i
AF3001-6	4.0 e-i	Red Sunset.....	12.9 b-i
AF3362-1	4.1 e-i	Superior.....	13.2 b-h
Rochdale Gold-Doree.....	4.2 e-i	B2727-2.....	14.0 a-g
Premier Russet (A93157-LS).....	4.8 e-i	Katahdin	15.0 a-f
AF4157-6	5.3 d-i	Yukon Gem	15.1 a-f
AF4172-2	5.9 c-i	AF4013-3	15.4 a-e
BNC182-5	5.9 c-i	AF4125-1	16.8 a-d
Dark Red Norland	6.6 c-i	Yukon Gold.....	17.0 a-d
Classic Russet (A95109-1).....	6.8 c-i	Snowden.....	17.1 a-d
Modoc	6.9 c-i	AF0338-17	17.6 a-c
Chieftain.....	7.8 b-i	JOMA.....	19.1 ab
Russet Norkotah #3117	8.4 b-i	Kennebec.....	25.6 a

^z Means followed by the same letter are not significantly different at $P = 0.05$ as determined by Fisher's protected least significant difference test (LSD = 11.8).

Evaluation of fungicides for control of potato late blight, 2012.

Fungicides were evaluated on potato cv. ‘Atlantic’ at the Penn State Russell E. Larson Agricultural Research Center at Rock Springs, PA. The soil type was a Hagerstown silty clay loam. The previous crop was wheat. Potatoes were planted on 15 Jun. The experimental design was a randomized complete block with four replicates. Plots were three rows wide (36 in. spacing between rows) and 10 ft long with 8 in. seed piece spacing. Fertilization was 790 lb/A of 20-10-10 (N-P-K) banded in-the-row at planting. Liquid N fertilizer was applied at 33 lb/A on 1 Aug while hilling. Precipitation was 2.73, 3.30, 5.11, and 4.28 in. for Jun, Jul, Aug, and Sep, respectively. Natural infection of late blight (US23) was observed in the field in mid-August. On 17 Aug, spreader rows were inoculated with mixture of three isolates of *Phytophthora infestans* genotype US23, at a concentration of 2.19×10^5 sporangia/ml, to promote a uniform spread of the pathogen to all treatment plots. Overhead sprinklers were used for approx. one hour daily when the weather was dry and hot to increase humidity in the plant canopy after inoculation. Fungicides were applied with a tractor-mounted, N₂-pressurized side boom sprayer at 30 psi and 45 gal/A. The spray boom was equipped with drop nozzles and boom nozzles so that both sides and the top of each plant were uniformly sprayed. Disease ratings were determined by visually assessing each plot for the percentage of diseased foliage caused by late blight. The plots were rated on 18, 24, 30 Aug and 6, 14 Sep and the assessments were used to calculate the area under the disease progress curve (AUDPC). Plants were vine killed on 20 and 24 Sep with Reglone (2.0 pt/A). The middle row of each plot was harvested on 16 Oct. Tubers were sorted and yield data were collected. Disease data were subjected to analysis of variance and Fisher’s protected least significant difference test (SAS v. 9.3, SAS Institute, Cary, NC).

All of the treatments, except for CX-10250 3.0 oz and CX-10440 6.5 oz, significantly suppressed season-long foliar late blight compared to the untreated control. All of the treatments, except for CX-10440 at both the 6.5 oz and 13.0 oz rates, had significantly higher yields than the untreated control.

Treatment and rate of product per acre (application timing ^z)	AUDPC ^y	Yield (cwt/A) ^x
Untreated Control.....	1612 a ^w	144 f
Bravo Weather Stik 6SC 1.5 pt (A, B, C, D, E).....	437 de	257 a-d
GAVEL 75DF 2.0 lb (A, B, C, D, E).....	240 f	268 a-c
GWN-10126 32.0 oz (A, B, C, D, E).....	283 f	304 a
GWN-10127 24.0 oz/A (A, B, C, D, E).....	329 ef	275 a-c
GWN-4700 3.4 oz + GWN-10043 17 oz (A, B, C, D, E).....	461 de	251 b-d
GWN-10043 20.0 oz (A, B, C, D, E).....	527 cd	228 cd
GWN-4700 3.4 oz (A, B, C, D, E).....	611 c	234 cd
Cabrio Plus 2.0 lb (A, B, C, D, E).....	445 de	232 cd
Cabrio Plus 2.9 lb (A, B, C, D, E).....	240 f	294 ab
CX-10250 3.0 oz (A, B, C, D, E).....	1539 ab	214 de
CX-10250 3.0 oz (A, C, E) <i>alt.</i>		
Bravo Weather Stik 6SC 1.5 pt (B, D).....	1404 b	214 de
CX-10250 3.0 oz + Bravo Weather Stik 6SC 0.75 pt (A, B, C, D, E).....	557 cd	228 cd
CX-10440 6.5 oz (A, B, C, D, E).....	1545 ab	167 ef
CX-10440 13.0 oz (A, B, C, D, E).....	1449 b	164 f
LSD (0.05).....	150	49

^z Dates of fungicide applications were as follows: A = Aug 15; B = Aug 22; C = Aug 29; D = Sep 5; E = Sep 12.

^y AUDPC = Area under disease progress curve was calculated from 18 Aug to 14 Sep according to the formula: $\sum_{i=1}^n [(R_{i+1} + R_i)/2] [t_{i+1} - t_i]$, where R = disease severity rating (% of leaf surface affected) at the *i*th observation, *t_i* = time (days) since the previous rating at the *i*th observation, and n = total number of observations).

^x cwt/A = hundred weight per acre for tubers with diameter greater than 1.875 inches.

^w Means followed by the same letter are not significantly different at *P* = 0.05 as determined by Fisher’s protected least significant difference test.

Evaluation of fungicides for control of potato early blight, 2012.

Fungicides were evaluated for managing early blight on potato cv. ‘Atlantic’ at the Russell E. Larson Agricultural Research Center at Rock Springs, PA. The soil type was a Hagerstown silty clay loam. The previous crop was wheat. Potatoes were planted on 8 Jun. The experimental design was a randomized complete block with four replicates. Plots were three rows wide (36 in. spacing between rows) and 10 ft long with 8 in. seed piece spacing. Fertilization was 1051 lb/A of 10-10-10 banded in-the-row at planting. Precipitation was 2.73, 3.30, 5.11, and 4.28 in. for Jun, Jul, Aug, and Sep, respectively. Spreader rows were inoculated on 9 Aug. A mixture of three isolates of *Alternaria solani*, with a concentration of 4.07×10^4 conidia/ml, was used to promote a uniform spread of the pathogen to all treatment plots. Fungicides were applied with a tractor-mounted, N₂-pressurized side boom sprayer at 30 psi and 45 gal/A. The spray boom was equipped with drop nozzles and boom nozzles so that both sides and the top of each plant were uniformly sprayed. On 16 and 23 Aug and 1, 7, 14 and 22 Sep each plot was visually assessed for the percentage of diseased foliage caused by early blight. The six visual assessments of early blight infection were used to calculate the area under disease progress curve (AUDPC). Plants were vine killed on 24 Sep and 1 Oct with Reglone (2.0 pt/A). The middle row of each plot was harvested on 5 Oct. Tubers were sorted and yield data was collected. Disease data were subjected to analysis of variance and Fisher’s protected least significant difference test (SAS v. 9.3, SAS Institute, Cary, NC).

All treatments significantly reduced season-long early blight compared to the untreated control. All of the treatments, except for treatments CX-10440 at both the 6.5 oz 13.0 oz rates, had yields significantly higher than the untreated control.

Treatment and rate of product per acre (application timing ^z)	AUDPC ^y	Yield (cwt/A) ^x
Untreated Control	680 a ^w	340 d
Bravo Weather Stik 6SC 1.5 pt (A, B, C, D, E, F, G)	230 c	416 a-c
Priaxor 500SC 4.0 oz (A, B, C, D, E, F, G)	117 d	436 ab
Cabrio Plus 60WG 2.0 lb (A, B, C, D, E, F, G)	110 d	459 a
CX-10440 6.5 oz (A, B, C, D, E, F, G)	395 b	386 b-d
CX-10440 13 oz (A, B, C, D, E, F, G)	395 b	362 cd
LSD (0.05)	91	58

^z Dates of fungicide applications were as follows: A = Aug 7; B = Aug 14; C = Aug 21; D = Aug 28; E = Sep 4; F = Sep 11; G = Sep 19.

^y AUDPC = Area under disease progress curve was calculated from 16 Aug to 22 Sep according to the formula : $\sum_{i=1}^n [(R_{i+1} + R_i)/2] [t_{i+1} - t_i]$, where R = disease severity rating (% of leaf surface affected) at the *i*th observation, *t_i* = time (days) since the previous rating at the *i*th observation, and n = total number of observations).

^x cwt/A = hundred weight per acre for tubers with diameter greater than 1.875 inches.

^w Means followed by the same letter are not significantly different at *P* = 0.05 as determined by Fisher’s protected least significant difference test.

Supplemental Progress Report, 2012-----March 20, 2013

Pennsylvania Regional Potato Germplasm Evaluation Program, 2012

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The objective of this project is to find new breeding lines that are well adapted to Pennsylvania potato growing conditions, and have qualities that are suitable for either processing or tablestock use. We cooperate with the directors of several other potato breeding programs from the Northeast US and a few programs from outside the Northeast by evaluating their potato germplasm. Data from this project helps breeders determine which lines to consider for potential release as new varieties, thereby bringing about new potato varieties for you.

Regional trials were established in three counties across Pennsylvania: Lehigh, Erie and the Russell E. Larson Agricultural Research Center at Rock Springs, Centre Co. Please see the Progress Report from December 2012 for details.

During the winter months, tests were performed to evaluate germplasm for chip, French fry processing and culinary qualities. Storage ability, sprouting, and other traits were also noted as the tests were conducted. Presented in this report are the chip processing results (Tables 1-3), French fry results (Tables 4-8), and the culinary quality results (Table 9). The data are collected from small samples, which may not reflect all possible variations one may see within a commercial harvest.

Materials and Methods

From harvest until November, tuber samples were placed in a pole barn where they were subjected to fluctuating temperatures. We did not perform out of the field chip testing this year. Storage temperatures are listed at the bottom of each table. The chipping procedure at the PSU Lab was as follows. Four tubers from each breeding line/variety were peeled, cut in half, and sliced. Eight slices from the center of each half were used for chipping. Slices were fried at 365°F. The chip samples were rated on a scale of 1-10, which is in accordance with the Snack Food Color Chart. The oil used for chipping was soy-based oil (Bakers Chef heavy-duty oil). French fry tests were conducted as follows. Four tubers were peeled and sliced. Center slices (36 over the 4 tubers) were blanched in water for 3 minutes at 185°F then fried for 3 minutes at 365°F. The samples were rated using the USDA scale; see Tables 4-8 for details.

Results

Yield results and listings of noteworthy varieties/lines were provided in the December 2012 progress report.

Chipping (Tables 1-3)

There was no chipping directly out of the field (within two-three days of harvesting). Atlantic and Snowden are the standard varieties to use for comparing the chip color of the other lines.

There were a few noteworthy lines from the short term storage chipping in December: At Rock Springs, Snowden, AF4125-1, B2727-2, B2731-11, AF4363-5, AF4376-3, Elkton and NY140 had the best color; AF4157-6, B2728-2, W2324-1 and AF4917-3 had acceptable color. At Lehigh, AF4363-5 had the best color and Snowden had acceptable color. At Erie, Snowden, Reba, NY140, BNC182-5, AF4363-5, B2727-2, NY148 and AF0338-17 had the best color; Atlantic, Lady Lenora, NY141, B2731-11, AF4157-6 and W2324-1 had acceptable color.

From the results of the 3 week reconditioning the noteworthy lines are: At Rock Springs, Snowden, AF4157-6 and AF4363-5 had the best color; B2727-2, B2731-11, NYE106-4, NY140, Lady Lenora, AF4463-8 and AF4573-2 had acceptable color. At Lehigh, Snowden and AF4363-5 had the best color; BNC182-5 and NY140 had acceptable color. At Erie, Atlantic, Reba, AF4363-5, B2727-2 and AF4157-6 had the best color; Snowden, Lady Lenora, NY140, B2589-3, B2731-11 and NY148 had acceptable color.

From the results of the 6 week reconditioning the noteworthy lines are: At Rock Springs, Snowden, AF4157-6, B2727-2, AF4363-5 and NY140 had the best color; Atlantic, B2731-11, NYE106-4, BNC202-3, W2324-1, AF4463-8, AF4573-2 and AF4965-2 had acceptable color. At Lehigh, NY140 had the best color; AF4363-5 and NY148 had acceptable color. At Erie, Atlantic, Reba, AF4363-5 and B2731-11 had the best color; Snowden, Lady Lenora, NY141, B2589-3, B2727-2 and AF4157-6 had acceptable color.

From the results of the chipping directly from 45°F the noteworthy lines are: At Rock Springs, Snowden, B2727-2 and AF4363-5 had the best color; AF4157-6 had acceptable color. At Lehigh, NY140 had acceptable color. At Erie, AF4363-5, B2731-11 and AF4157-6 had the best color; Atlantic, Reba, NY140, B2727-2 and NY148 had acceptable color.

French fry Tests (Tables 4-8)

At Rock Springs, Alpine Russet, Dakota Trailblazer, Premier Russet, AF3001-6, AF3008-3, AF4320-17, A98345-1 and Markies had the best French fry color. At Erie, CO99053-4RU, Dakota Trailblazer, AF3001-6, Premier Russet, Markies, CO99053-3RU, Challenger, AF3317-15 and Silverton Russet had the best color. At Lehigh, AF3001-6, Dakota Trailblazer and Premier Russet had the best color.

Tablestock Tests (Table 9)

There were several new lines tested for tablestock varieties. Many of the lines that were boiled retained their white or yellow color with no sloughing therefore, suggesting that they are better suited for this purpose than Katahdin. Of the 138 lines tested for culinary characteristics, 12 were unacceptable for color, texture or sloughing.

This research was funded in part by the Pennsylvania Potato Research Program and a Special USDA grant. Growers, industry and cooperating breeding programs contributed to this project. We would like to acknowledge Chad Moore, Bob Leiby, Andy Muza, and other part time staff. Without their assistance to this project, we could not accomplish all the research and prepare this report.

Table 1. Chip color results of potato evaluation at Rock Springs, Centre County, 2012 - 2013.

Variety/ Line	Specific Gravity	Chip Color			
		Dec. ¹	Jan. ²	Feb. ³	Mar. ⁴
Atlantic	1.084	5	5	4	6
Dakota Crisp	1.076	5	6	6	5
JOMA	1.076	6	7	7	7
Katahdin	1.072	8	7	7	7
Kennebec	1.073	8	7	7	7
Rochdale Gold-Doree ^{yf}	1.078	7	7	6	6
Snowden	1.085	3	3	3	3
Superior	1.070	7	7	7	7
Yukon Gem ^{yf}	1.073	5	6	5	5
Yukon Gold ^{yf}	1.076	8	8	8	8
AF0338-17	1.079	6	6	5	6
AF4013-3 ^{yf}	1.084	6	6	5	6
AF4125-1	1.075	3	5	5	5
AF4157-6	1.080	4	3	3	4
B2727-2	1.093	3	4	3	3
B2731-11	1.084	3	4	4	5
BNC182-5	1.086	5	6	6	6
NYE106-4	1.088	6	4	4	5
AF3011-34	1.079	7	8	7	8
AF4130-7	1.096	5	6	5	7
AF4363-5	1.083	3	3	3	3
AF4376-3	1.075	3	8	6	7
AF4430-2	1.063	7	7	7	7
AF4437-5	1.077	5	6	5	5
AF4454-3	1.055	6	7	7	7
AF4463-7	1.071	6	6	7	7
Markies ^{yf}	1.080	5	5	5	6
Elkton	1.082	3	6	6	6
BNC202-3 ^{yf}	1.089	6	5	4	5
B2728-2	1.083	4	5	5	6
B2737-2	1.081	5	5	5	6
B2738-3	1.069	6	7	6	7
B2589-3	1.076	6	6	6	5
Reba	1.072	5	5	5	5
NY140	1.076	3	4	3	5
NY141	1.077	6	6	6	7
NY151 (G73-1)	1.064	8	9	8	6
ATCO0293-1W/Y ^{yf}	1.067	8	8	9	7
CO99045-1W/Y ^{yf}	1.085	8	8	7	8
CO00412-5W/Y ^{yf}	1.086	6	6	6	7
MSL211-3	1.072	8	9	8	8
Spartan Splash ^{yf}	1.078	6	6	6	-
A00293-2Y ^{yf}	1.079	7	6	6	7
Lady Lenora	1.091	5	4	6	5
Sifra	1.078	9	10	9	9
Sylvana ^{yf}	1.062	8	8	7	7
Opera ^{yf}	1.085	5	5	6	5
Snowbird	1.072	7	8	7	7
Challenger ^{yf}	1.084	5	5	5	5
W2324-1	1.086	4	6	4	6

Variety/ Line	Specific Gravity	Chip Color			
		Dec. ¹	Jan. ²	Feb. ³	Mar. ⁴
AF4138-8	1.071	5	6	6	7
AF4421-4	1.080	7	7	7	8
AF4449-2	1.076	7	9	9	9
AF4463-8	1.066	5	4	4	6
AF4552-5	1.076	6	6	-	6
AF4573-2	1.095	5	4	4	5
AF4640-1	1.082	6	7	6	7
AF4725-14	1.081	7	7	8	8
AF4840-1	1.080	6	6	6	6
AF4852-2	1.066	5	7	7	7
AF4852-4	1.072	5	6	6	6
AF4917-3	1.079	4	5	5	5
AF4965-2	1.075	5	6	4	6
AF4975-3	1.086	5	6	5	7
B2833-16	1.090	6	6	6	6
MSJ126-9Y ^{yf}	1.081	5	5	5	5

¹ Dec. = Stored at 55⁰F from November 26, 2012 and chipped on December 17 & 18, 2012

² Jan. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F three weeks prior to chipping on January 31 & Febuary 1, 2013.

³ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F six weeks prior to chipping on February 20 & 21, 2013.

⁴ Mar. = Stored at 45⁰F from November 27, 2012 and chipped on March 7 & 8, 2013.

Chip color is based on a 1 – 10 scale with 1 = lightest, 10 = darkest, 1 – 5 = acceptable chip color.

yf = Yellow Flesh

Table 2. Chip color results of potato evaluation in Lehigh County, Forrest Wessner Farm, 2012 - 2013.

Variety/ Line	Specific Gravity	Chip Color			
		Dec. ¹	Jan. ²	Feb. ³	Mar. ⁴
Atlantic	1.076	6	7	6	6
Snowden	1.076	4	3	5	5
Reba	1.064	5	5	6	6
Superior	1.059	10	8	8	10
Yukon Gold ^{yf}	1.072	7	7	8	8
AF0338-17	1.076	6	6	7	6
AF4013-3 ^{yf}	1.066	6	7	6	6
AF4363-5	1.069	3	3	4	5
AF3011-34	1.066	8	8	7	8
Sifra	1.074	10	10	9	9
Harley Blackwell	1.065	7	8	7	8
Elkton	1.079	6	7	6	7
BNC182-5	1.077	5	4	6	5
BNC202-3 ^{yf}	1.079	5	6	5	6
B2727-2	1.071	7	6	6	7
B2589-3	1.064	7	7	7	7
NY140	1.080	5	4	3	4
NY141	1.064	8	8	7	8
NY148	1.085	5	6	4	6
NY151	1.056	10	10	10	9
Rochdale Gold-Doree ^{yf}	1.065	7	8	7	7
Lehigh ^{yf}	1.068	7	7	8	9
ACTO0293-1W/Y ^{yf}	1.061	7	8	7	7
Markies ^{yf}	1.071	5	5	6	6
Lady Lenora	1.064	7	8	7	8
Sylvana ^{yf}	1.046	8	8	8	-
Opera ^{yf}	1.072	6	6	6	6

¹ Dec. = Stored at 55⁰F from November 26, 2012 and chipped on December 18, 2012

² Jan. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F three weeks prior to chipping on January 28, 2013.

³ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F six weeks prior to chipping on February 19, 2013.

⁴ Mar. = Stored at 45⁰F from November 27, 2012 and chipped on March 4, 2013.

Chip color is based on a 1 – 10 scale with 1 = lightest, 10 = darkest, 1 – 5 = acceptable chip color.

yf = Yellow Flesh

Table 3. Chip color results of potato evaluation in Erie County, Mark Troyer Farm, 2012 - 2013.

Variety/ Line	Specific Gravity	Chip Color			
		Dec. ¹	Jan. ²	Feb. ³	Mar. ⁴
Atlantic	1.080	4	3	3	4
Snowden	1.070	3	4	4	5
Reba	1.066	3	3	3	4
Yukon Gold ^{yf}	1.066	6	8	7	8
Lady Lenora	1.074	4	4	4	5
Yukon Gem ^{yf}	1.065	5	6	5	5
Sifra	1.065	10	9	9	10
NY140	1.078	3	4	5	4
NY141	1.074	4	5	4	5
NY151	1.059	7	9	8	8
AF4013-3 ^{yf}	1.073	5	5	5	6
BNC182-5	1.077	3	5	6	5
AF4363-5	1.074	3	3	3	3
CO99045-1W/Y ^{yf}	1.076	7	7	7	7
Snowbird	1.071	5	6	5	6
Opera ^{yf}	1.083	5	5	6	6
B2589-3	1.073	5	4	4	5
B2727-2	1.087	3	3	4	4
B2731-11	1.077	4	4	3	3
NY148	1.083	3	4	5	4
AF4157-6	1.077	4	3	4	3
AF0338-17	1.076	3	5	5	5
W2324-1	1.079	4	5	5	5

¹ Dec. = Stored at 55⁰F from November 26, 2012 and chipped on December 19, 2012

² Jan. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F three weeks prior to chipping on January 28, 2013.

³ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F six weeks prior to chipping on February 18, 2013.

⁴ Mar. = Stored at 45⁰F from November 27, 2012 and chipped on March 4, 2013.

Chip color is based on a 1 – 10 scale with 1 = lightest, 10 = darkest, 1 – 5 = acceptable chip color.

yf = Yellow Flesh

Table 4. Total yield, greater than 1 7/8" yield, specific gravity, and French fry color for russet skinned or long white potato evaluation trial at Rock Springs Plant Pathology Farm, 2012.

Variety/ Line	Yield (cwt/A) ¹		% of Standard ²	Percent ³ Pickouts	Specific Gravity	French Fry Color ⁴		
	Total	>1 7/8"				Dec. ⁵	Feb. ⁶	Feb. ⁷
Alpine Russet	456	267	106	32	1.075	0	0	0
Classic Russet	420	339	135	13	1.068	1	1	1
Dakota Trailblazer	402	288	115	23	1.097	00	00	00
Premier Russet	349	238	95	26	1.082	00	00	00
Russet Burbank	408	135	54	63	1.066	1	1	1
Russet Norkotah #3177	322	251	100	17	1.062	1	1	1
AF3001-6	556	327	130	38	1.079	0	00	00
AF3008-3	240	190	76	10	1.090	0	00	00
AF3317-15	304	129	51	51	1.090	1	0	0
AF3362-1	306	190	76	34	1.064	1	1	1
AF4040-2	308	154	61	46	1.076	0	1	0
AF4172-2	306	272	108	1	1.078	1	1	1
AF4113-2	335	270	108	9	1.067	1	0	1
AF4124-4	349	162	65	49	1.066	1	1	1
AF4124-7	300	170	68	39	1.073	1	1	0
AF4222-5	228	174	69	19	1.069	1	0	1
AF4320-7	436	234	93	41	1.077	1	1	0
AF4320-17	376	272	108	20	1.075	0	0	00
AF4329-7	320	200	80	23	1.067	2	2	2
AF4347-1	392	179	71	52	1.076	2	2	2
AF4607-1	286	156	62	39	1.074	1	1	1
AF4609-1	350	162	64	50	1.079	1	1	1
AF4185-1	406	277	110	18	1.069	0	0	1
AC00395-2RU	478	259	103	37	1.085	1	2	1
CO99053-3RU	370	222	88	31	1.076	1	0	0
CO99100-1RU	211	159	63	11	1.061	1	1	1
AC99375-1RU	419	223	89	36	1.081	1	1	0
CO99053-4RU	293	140	56	40	1.061	2	1	1
A01025-4	346	222	88	27	1.075	1	0	1
A98345-1	341	244	97	22	1.081	0	0	0
Russet Norkotah	298	215	86	21	1.061	2	3	2
Markies ^{yf}	415	293	116	23	1.071	0	0	0
Lady Lenora	330	177	70	31	1.075	1	0	0
AF4430-1 (round white)*	476	442	176	1	1.059	1	1	0
AF4720-17*	287	210	84	26	1.073	1	0	0
AF4749-5*	371	256	102	23	1.081	1	1	0
AF4749-14*	513	317	126	25	1.082	0	1	0
AF4953-2*	295	220	87	18	1.077	2	1	1
CO99045-1W/Y* ^{yf}	503	301	120	32	1.075	2	1	1

¹ Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

² Percentage of the standard, Atlantic for >1 7/8" yield.

³ Percentage of total that are pickouts.

⁴ French Fry Color: USDA Scale Color Standers for Frozen Fried Potatoes with 000 = lightest, 4 = darkest.

⁵ Dec. = Stored at 55⁰F from November 26, 2012 and fried on December 12, 2012.

⁶ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F four weeks prior to frying on February 7, 2013.

⁷ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F seven weeks prior to frying on February 25, 2013.

Replicated trials are the average of 3 replicates except for those lines with * which were non-replicated.

Table 5. Total yield, greater than 1 7/8" yield, specific gravity, and French fry color for russet skinned or long white NE1031 potato evaluation trial at Rock Springs Plant Pathology Farm, 2012.

Variety/ Line	Yield (cwt/A) ¹		% of Standard ²	Percent ³ Pickouts	Specific Gravity	French Fry Color ⁴		
	Total	>1 7/8"				Dec. ⁵	Feb. ⁶	Feb. ⁷
Alpine Russet	456	267	106	32	1.075	0	0	0
Classic Russet	420	339	135	13	1.068	1	1	1
Dakota Trailblazer	402	288	115	23	1.097	00	00	00
Premier Russet	349	238	95	26	1.082	00	00	00
Russet Burbank	408	135	54	63	1.066	1	1	1
Russet Norkotah #3177	322	251	100	17	1.062	1	1	1
AF3001-6	556	327	130	38	1.079	0	00	00
AF3008-3	240	190	76	10	1.090	0	00	00
AF3317-15	304	129	51	51	1.090	1	0	0
AF3362-1	306	190	76	34	1.064	1	1	1
AF4040-2	308	154	61	46	1.076	0	1	0
AF4172-2	306	272	108	1	1.078	1	1	1

¹ Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

² Percentage of the standard, Atlantic for >1 7/8" yield.

³ Percentage of total that are pickouts.

⁴ French Fry Color: USDA Scale Color Standers for Frozen Fried Potatoes with 000 = lightest, 4 = darkest.

⁵ Dec. = Stored at 55⁰F from November 26, 2012 and fried on December 12, 2012.

⁶ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F four weeks prior to frying on February 7, 2013.

⁷ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F seven weeks prior to frying on February 25, 2013.

Replicated trials are the average of 4 replicates.

Table 6. Total yield, greater than 1 7/8" yield, specific gravity, and French fry color for russet skinned or long white potato evaluation trial in Erie County, Mark Troyers Farm, 2012.

Variety/ Line	Yield (cwt/A) ¹		% of Standard ²	Percent ³ Pickouts	Specific Gravity	French Fry Color ⁴		
	Total	>1 7/8"				Dec. ⁵	Feb. ⁶	Feb. ⁷
Atlantic	264	237	100	6	1.080	-	-	-
CO99053-4RU	156	54	23	43	1.066	00	0	0
CO99045-1W/Y ^{yf}	468	286	121	26	1.076	1	2	1
Russet Norkotah	183	137	58	13	1.067	0	1	1
Dakota Trailblazer	388	244	103	33	1.097	0	00	0
AF3001-6	373	246	104	28	1.078	00	00	00
Premier Russet	172	111	47	18	1.077	00	00	00
Markies ^{yf}	446	301	127	26	1.076	0	0	0
CO99053-3RU	223	124	53	34	1.074	0	0	0
Challenger ^{yf}	375	180	76	29	1.080	0	0	0
AF3317-15	241	120	51	46	1.083	0	0	0
Silverton Russet	293	217	92	18	1.065	00	0	00

¹ Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

² Percentage of the standard, Atlantic for >1 7/8" yield.

³ Percentage of total that are pickouts.

⁴ French Fry Color: USDA Scale Color Standers for Frozen Fried Potatoes with 000 = lightest, 4 = darkest.

⁵ Dec. = Stored at 55⁰F from November 26, 2012 and fried on December 11, 2012.

⁶ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F four weeks prior to frying on February 8, 2013.

⁷ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F seven weeks prior to frying on February 26, 2013.

Non – replicated trial.

Russets except Silverton Russet were planted 10-in. apart with 24 seed pieces per 20-ft plot, Silverton Russet and Atlantic were spaced 8-in. apart with 30 seed pieces per 20-ft plot.

Table 7. Total yield, greater than 1 7/8" yield, specific gravity, and French fry color for russet skinned or long white potato evaluation trial in Lehigh County, Forrest Wessner Farm, 2012.

Variety/ Line	Yield (cwt/A) ¹		% of Standard ²	Percent ³ Pickouts	Specific Gravity	French Fry Color ⁴		
	Total	>1 7/8"				Dec. ⁵	Feb. ⁶	Feb. ⁷
Atlantic	494	447	100	3	1.076	-	-	-
Russet Norkotah	370	230	52	31	1.061	2	2	2
AF3001-6	491	249	56	38	1.068	0	00	00
Dakota Trailblazer	454	364	81	13	1.075	0	0	00
Premier Russet	264	152	34	22	1.078	0	0	0

¹ Yield Total = all yield including pickouts. Yield >1 7/8" = categories 2, 3, 4 and 5 excluding pickouts.

² Percentage of the standard, Atlantic for >1 7/8" yield.

³ Percentage of total that are pickouts.

⁴ French Fry Color: USDA Scale Color Standers for Frozen Fried Potatoes with 000 = lightest, 4 = darkest.

⁵ Dec. = Stored at 55⁰F from November 26, 2012 and fried on December 11, 2012.

⁶ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F four weeks prior to frying on February 8, 2013.

⁷ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F seven weeks prior to frying on February 26, 2013.

Non – replicated trial.

Russets were planted 10-in. apart with 24 seed pieces per 20-ft plot, Atlantic were spaced 8-in. apart with 30 seed pieces per 20-ft plot.

Table 8. Total yield, greater than 1 7/8" yield, specific gravity, and French fry color for potato commercial trials of three varieties in 2012 at: A) Lehigh County, Forrest Wessner Farm; B) Erie County, Kevin Troyer Farm; C) Rock Springs, Plant Pathology Farm. 200 lbs of each variety were planted in each location.

Variety/ Line		Yield (cwt/A) ¹		Percent ² Pickouts	Specific Gravity	French Fry Color ³		
		Total	>1 7/8"			Dec. ⁴	Feb. ⁵	Feb. ⁶
A	AF3001-6	356	199	36	1.070	00	0	00
	Markies ^{yf}	268	117	19	1.067	-	1	0
	Lady Lenora	237	84	34	1.066	-	-	-
B	AF3001-6	434	308	26	1.079	00	0	00
	Markies ^{yf}	375	246	21	1.079	0	0	0
	Lady Lenora	265	97	19	1.089	-	-	-
C	AF3001-6	417	334	18	1.082	0	0	00
	Markies ^{yf}	305	237	16	1.077	0	0	0
	Lady Lenora	223	98	29	1.089	-	-	-

¹ Yield Total = all yield including pickouts. Yield >1 7/8"

² Percentage of total that are pickouts.

³ French Fry Color: USDA Scale Color Standers for Frozen Fried Potatoes with 000 = lightest, 4 = darkest.

⁴ Dec. = Stored at 55⁰F from November 26, 2012 and fried on December 11, 2012.

⁵ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F four weeks prior to frying on February 8, 2013.

⁶ Feb. = Stored at 45⁰F from November 27, 2012 than transferred to 55⁰F seven weeks prior to frying on February 26, 2013.

Yellow flesh variety is indicated with ^{yf}

Table 9. Baking, boiling, microwaving results of tablestock test for Germplasm evaluation trial in Rock Springs, Plant Pathology Farm, 2012.

Variety/ Line	Boil ¹		Sloughing ⁶	Bake ²		Microwave ³	
	Color ⁴	Texture ⁵		Color	Texture	Color	Texture
Atlantic	1	3		1	2	1	1
Dakota Crisp	1	2		1	2	1	2
JOMA	1	3		1	1	1	1
Katahdin	1	2		1	1	1	2
Kennebec	1	3		1	1	1	2
Rochdale Gold-Doree ^{yf}	3	2		3	1	2	2
Snowden	1	3		1	1	1	1
Superior	1	3		1	2	1	2
Yukon Gem ^{yf}	3	3		3	2	3	2
Yukon Gold ^{yf}	3	2		3	1	3	2
AF0338-17	1	2		1	2	1	2
AF4013-3 ^{yf}	3	2		3	1	3	2
AF4125-1	1	3		1	2	1	1
AF4157-6	1	2		1	2	1	2
B2727-2	1	2		1	1	1	1
B2731-11	1	2		1	2	1	2
BNC182-5	1	2		1	2	1	2
NYE106-4	1	2		1	2	1	2
AF3011-34	1	2		1	2	1	2
AF4130-7	1	2		1	3	1	2
AF4363-5	1	2		1	1	1	1
AF4376-3	1	2		1	2	1	1
AF4430-2	1	2		1	1	1	2
AF4437-5	1	3		1	2	1	2
AF4454-3	1	3		1	3	1	3
AF4463-7	1	2		1	2	1	1
Markies ^{yf}	3	3		3	3	3	3
Elkton	1	2		1	2	1	1
BNC202-3 ^{yf}	2	1		2	1	2	3
B2728-2	1	2	1	1	1	1	2
B2737-2	1	3		1	3	1	3
B2738-3	1	3		1	2	1	3
B2589-3	1	2	1	1	1	1	2
Reba	1	3		1	1	1	2
NY140	1	2		1	1	1	3
NY141	1	3		1	3	1	2
NY151 (G73-1)	1	3		1	3	1	4
ATCO0293-1W/Y ^{yf}	3	3		3	2	3	2
CO99045-1W/Y ^{yf}	3	2		3	2	3	3
CO00412-5W/Y ^{yf}	3	2		3	1	3	2
MSL211-3	1	3		1	3	1	1
Spartan Splash ^{yf}	3	2		3	1	3	1
A00293-2Y ^{yf}	3	2		3	1	3	1
Lady Lenora	1	2		1	3	1	3
Sifra	1	2		1	2	1	2
Sylvania ^{yf}	3	3		3	2	3	2
Opera ^{yf}	3	1		3	1	3	1
Snowbird	1	2		1	2	1	2
Challenger ^{yf}	3	2		3	2	3	2
W2324-1	1	1		1	1	1	1

Variety/ Line	Boil ¹		Sloughing ⁶	Bake ²		Microwave ³	
	Color ⁴	Texture ⁵		Color	Texture	Color	Texture
AF4138-8	1	3		1	1	1	2
AF4421-4	1	3		1	1	1	1
AF4449-2	2	2		1	1	1	1
AF4463-8	1	3		1	1	1	2
AF4552-5	1	2		1	1	1	1
AF4573-2	1	1		1	1	1	1
AF4640-1	1	2		1	2	1	1
AF4725-14	1	2		1	1	1	1
AF4840-1	1	3		1	1	1	1
AF4852-2	1	3		1	3	1	3
AF4852-4	1	3		1	2	1	1
AF4917-3	1	1		1	1	1	2
AF4965-2	1	2		1	1	1	1
AF4975-3	1	2		1	1	1	2
B2833-16	1	2		1	1	1	2
MSJ126-9Y ^{yf}	2	2		2	1	2	1
Reds							
Chieftain	1	2		1	1	1	2
Dark Red Norland	1	3		1	3	1	3
Modoc	1	3		1	3	1	2
Red Sunset	1	3		1	3	1	3
B2863-7	1	2		1	3	1	2
B1816-5 ^{yf}	3	2		3	2	3	2
BCO01044-2	Pur	2		Pur	1	Pur	2
B2538-5	1	3		1	1	1	2
B2676-2	1	2		1	1	1	2
Adirondack Red	Pk	2		Pk	1	Pk	3
Adirondack Blue	Pur	3		Pur	1	Pur	2
H73-1	1	2		1	2	1	2
H90-4	1	3		1	2	1	2
CO97222-1R/R	Pk	2		Pk	3	Pk	2
CO00405-1RF	1	2		1	2	1	3
CO99256-2R	1	3		1	2	1	2
CO00415-1RF	1	3		1	3	1	3
MSS576-05SPL	2	2		2	2	2	1
MI Purple Sport I	1	2		1	2	1	2
NDA7985-1R	1	3		1	3	1	3
A99331-2RY ^{yf}	3	2		3	1	3	3
NDA050237B-1R	1	3		1	3	1	3
HZC 01-6087 ^{yf}	3	2		3	1	3	2
AF4815-1	1	4		1	4	1	4
AF4831-2	1	3		1	2	1	3
AF4831-3	1	4		1	3	1	3
AF4845-3	1	3		1	2	1	2
AF4985-1	1	3		1	1	1	3
BNC244-10	PurW	1		PurW	1	PurW	1
Colonial Purple	1	2		1	1	1	2
MSQ437-2PP	PurW	2		PurW	1	PurW	1
Blackberry	Pur	2		Pur	2	Pur	1
MSR226-ARR	Rd	2		Rd	2	Rd	1
MSR214-2P	Pur	3		Pur	2	Pur	2

Variety/ Line	Boil ¹			Bake ²		Microwave ³	
	Color ⁴	Texture ⁵	Sloughing ⁶	Color	Texture	Color	Texture
Purple Heart	Pur	2		Pur	2	Pur	2
Russets							
Alpine Russet	1	3		1	2	1	3
Classic Russet	1	3		1	1	1	3
Dakota Trailblazer	1	2	1	1	1	1	1
Premier Russet	1	3		1	1	1	2
Russet Burbank	1	2		1	1	1	1
Russet Norkotah #3177	1	2		1	2	1	3
AF3001-6	1	3		1	3	1	3
AF3008-3	1	1	1	1	1	1	2
AF3317-15	1	3		1	1	1	2
AF3362-1	1	3		1	2	1	1
AF4040-2	1	3		1	2	1	3
AF4172-2	1	2		1	2	1	3
AF4113-2	1	2		1	2	1	3
AF4124-4	1	3		1	3	1	2
AF4124-7	1	3		1	2	1	2
AF4222-5	1	3		1	3	1	3
AF4320-7	1	3	1	1	2	1	2
AF4320-17	1	3	1	1	2	1	3
AF4329-7	1	3		1	3	1	3
AF4347-1	1	2	1	1	2	1	2
AF4607-1	1	3		1	2	1	2
AF4609-1	1	3	1	1	3	1	3
AF4185-1	1	3		1	2	1	3
AC00395-2RU	1	3	1	1	2	1	3
CO99053-3RU	2	3		1	2	1	2
CO99100-1RU	1	3		1	3	1	3
AC99375-1RU	1	3		1	3	1	3
CO99053-4RU	1	3		1	2	1	3
A01025-4	1	2		1	3	1	2
A98345-1	1	3		1	2	1	2
Russet Norkotah	1	3		1	2	1	2
AF4430-1	1	3		1	3	1	2
AF4749-5	1	2		1	2	1	2
AF4749-14	1	2		1	3	1	2
AF4953-2	1	3		1	2	1	3

Tested: January 14 - 18, 2013 and February 4 - 8, 2013.

¹ Boil 20 minutes.

² Bake 45 min. - 1 hr.

³ Microwave 4 - 8 minutes.

⁴ Color scored as follows: 1=white, 2=slightly yellow, 3=yellow, 4=white with gray edges, 5=gray with dark edges.

⁵ Texture scored as follows: 1=dry (mealy, 3= medium, 5=soggy).

⁶ Sloughing scored as follows: 1=some sloughing, 2= severe sloughing.

YF = Yellow Flesh

Pur = Purple Flesh

Pk = Pink Flesh

Rd = Red Flesh

PurW = Purple and white flesh

Yellow Flesh Notes

We rated the yellow flesh in December.
We used Yukon Gold that was grown at Rock Springs

Scale:

YF1 - lighter than Yukon Gold
YF2 – equal to Yukon Gold
YF3 - darker than Yukon Gold

Rock Springs:	<u>YF1</u>	<u>YF2</u>	<u>YF3</u>
	BNC202-3	Yukon Gold	A00293-2Y
	Challenger	Yukon Gem	CO00412-5W/Y
		AF4013-3	ATCO0293-1W/Y
		MSJ126-9Y	A66331-2RY (red skin)
		Sylvana	
		Opera	
		HZC 01-6087 (red skin)	
		Markies	
		CO99045-1W/Y	
		B1816-5 (purple skin)	
		Rochdale Gold - Doree	
		Spartan Splash (white skin with purple splotchs)	

Red Flesh Varieties

CO97222-1R
MSR226-ARR
Adirondack Red

Rated in order of darkest to lightest in flesh color

Purple Flesh Varieties

Adirondack Blue
Blackberry
BCO01044-2

Rated in order of darkest to lightest in flesh color

Purple skin varieties with a unique purple and cream color flesh.

MSQ437-2PP
BNC244-10