POTATO (*Solanum tuberosum*)
Early Blight; *Alternaria solani*
Late Blight; *Phytophthora infestans*

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EVALUATION OF POTATO CULTIVARS AND BREEDING SELECTIONS TO IDENTIFY RESISTANCE TO EARLY BLIGHT AND LATE BLIGHT, 1999: A trial was established April 29 at the Hancock Agricultural Research Station to evaluate potato cultivars and breeding selections for reaction to early and late blight. Small whole tubers or hand-cut seedpieces (approximately 2 oz.) of 107 potato cultivars and breeding selections were mechanically planted in a randomized complete block design with three replications. The trial was divided into two sections. In one section, containing 75 of the test lines, each replication consisted of a 5-foot section of row for each test line with a 4-foot section of Dark Red Norland (highly susceptible to both early and late blight) planted between each pair of test lines. This section of the trial was designed for mechanical harvest and the red potatoes permitted separation of test lines at harvest. The other section of the trial, which was not designed for mechanical harvest, contained 32 additional lines with each replication consisting of a 3-foot section of row with plots separated by 2-foot-long sections of Dark Red Norland. In both sections of the trial, rows containing test lines, were separated by rows of Russet Burbank to minimize interplot interference. Spacing was 12 inches within the row and 36 inches between rows. Soil type was a Plainfield loamy sand, pH 6.4. Plots were fertilized with 250 lb/A of 0-0-60 broadcast preplant, 500 lb/A of 5-10-30 in the row at planting, sidedress applications on May 18 (21-0-0, 350 lb/A) and on May 25 (34-0-0, 375 lb/A) and a broadcast application of Cal Sul June 3 (400 lb/A). An additional 40 lb/A nitrogen was applied through the irrigation water July 22, following a heavy rain. Insecticides used in this trial included Admire (16 fl oz./A) incorporated in the fertilizer at planting, and foliar application of Dimethoate 400 (1 pt/A, June 25), Monitor 4 (1 qt/A, July 2), Baythroid 2 (2.8 fl oz./A, July 7), Asana XL (9.6 fl oz./A) + Prentox PBO-8 (2 oz./A), August 6, and Provado 1.6 F (4 oz./A, August 20). Linex 4 L (1.0 pt/A) was applied May 11 for weed control. No fungicides were applied to the plots at any time during the season. Plots were not inoculated, relying on natural dispersal of both *Phytophthora infestans* and *Alternaria solani* in order for disease to become established. Disease severity was rated for each test plant weekly from June 25 through September 8 using the Horsfall-Barratt system. Vines were killed with application of Diquat (1.0 pt/A) plus Peptoil (1.0 qt/A) on September 8 and 15. Tubers were mechanically harvested on September 24 from the section of the trial containing the varieties planted in 5-foot-long plots. These were manually separated into undersize (<1 7/8" diam), US#1 size (>1 7/8") and culls (misshapen or with green or decayed areas). The remainder of the trial was not harvested. Rainfall measured during the growing season (inches) was 3.3 - May; 3.7 - June; 10.7 - July; 4.5 - August and 0.5 - September (through the 20th). An additional 10.9 inches of water was applied as overhead sprinkler irrigation in 24 applications (May 6 - September 17).

Early blight was first observed in this trial on June 25. Disease progressed slowly through July on most lines while 66% of the foliage of Dark Red Norland exhibited symptoms on July 26. Thereafter early blight progressed rapidly so that by mid-August, many entries exhibited symptoms on 50% or more of their foliage. Late blight was not observed until August 18 and the disease progressed slowly until vines were desiccated on September 8. High levels of early blight infection made it very difficult to differentiate early blight and late blight severity in the last two weeks of field evaluation. The combined percent foliage infection is a measure of the combined effects of both diseases on the plant canopy. Several entries exhibited good resistance to early blight with less than 50% foliage infection on September 8. These included Robijn, W91-945a, UWH-G53, LB2-35, LB2-101 and UW C75-5-297. Most of these lines (Robijn, UWH-G53, LB2-35, LB2-101 and UW C75-5-297) also exhibited low levels or no late blight on this same date. AUDPC values provide an additional measure to compare field susceptibility of the lines. Most of the lines tested had early blight AUDPC values significantly below the early blight AUDPC for Dark Red Norland (<0.52), and several entries had an early blight AUDPC of 0.30 or less. The AUDPC representing progress of both foliar diseases in the absence of fungicide controls was also 0.30 or less for several plot entries. The early blight AUDPC for LB2-101 was 0.08 and no late blight was observed on this line! Yields of many lines exceeded 400 cwt/A. The total yield for LB2-101 was 676 cwt/A and 64% of the total yield was graded as US#1A. Very little late blight tuber infection was

observed at harvest. Tuber samples from all harvested lines were placed in storage for later inoculation with *Phytophthora infestans* (US#1 and US#8), *Phytophthora erythroseptica* and *Alternaria solani*.

For those lines with only three plants per replicate, we observed several lines with an early blight AUDPC of 0.3 or less. Two lines, ND 6947B-6 and W1773-3 had an early blight AUDPC less than 0.15. The combined early and late blight AUDPC for ND 6947B-6 was 0.11, an indication of excellent early blight resistance and some resistance to late blight. This portion of the trial was not harvested and no further data were collected on these lines.

Table 1. Sources of material used in this trial.

Cultivar or line, Source No. and Maturity Group		
A082611-7	2	NK
A84118-3	3	L
A90586-11	2	
AC83064-6	2	
AF 1668-60	1	E-ME
AF 1753-16	1	ML
AF 1763-2	1	ML
AF 1775-2	1	ML
AF 1935-6	1	ML
AF 1949-1	1	ME
AF 1950-1	1	M
AF1638-5	2	ML
AND 9552-7 Russ	4	L
Atlantic	2	EM
B0288-17	2	NK
B0766-3	2	
B0767-2	2	
B9922-11	2	NK
BC0894-2	2	
CO083008-1	2	
CO86218-2	2	
D. R. Norland	2	E
Dorita	2	NK
DT6063-1R	2	
Elba	5	L
Goldrush	2	M
J101 K27	3	VL
J101 K6	3	VL

Cultivar or line, Source No. and Maturity Group		
J101 K9	3	VL
J103 K7	3	VL
J138 A12	3	VL
J138 A4	3	VL
LB1-14	3	NK
LB2-101	3	NK
LB2-215	3	NK
LB2-299	3	NK
LB2-35	3	NK
LB2-74	3	NK
LB2-96	3	NK
$LBR_1R_2R_3R_4$	2	NK
LBR_2	2	NK
LBR_3 tbr	2	NK
LBR_5	2	NK
LBR_7	2	NK
LBR_8	2	NK
ND 6935B-4R	4	VL
ND 6940B-27 Russ	4	M
ND 6947B-20	4	ML
ND 6947B-6	4	NK
NDO2438-7R	2	NK
NorDonna	2	M
NorValley	2	M
NY 101	2	ML
NY 103	2	M
NY 112	5	L

Cultivar or line, Source No. and Maturity Group		
NY 115	5	M
NY 120	5	ML
NY 123	5	ML
Pike	2	ML
Pimpernel	3	L
Q237-25 (NY 121)	2	ML
Ranger Russet	2	L
Red LaSoda	2	ML
Robijn	2	NK
Russet Burbank	2	L
Russet Norkotah	2	EM
Shepody	2	ML
Snowden	2	L
Superior	2	ME
UW C75-5	3	L
UW C75-5-297	3	ML
UWH93-1600	3	ML
UWH93-426	3	L
UWH93-911	3	L
UWH-G53	3	L
UWH-G85	3	L
W 1151 rus	6	M
W 1313	6	ML
W 1431	6	ML
W 1769-7	6	ML
W 1773-3	6	ML
W 1773-7	6	ML
W 1774-1	6	ML

Cultivar or line, Source No. and Maturity Group		
W 1775-14	6	ME
W 1782-5	6	ML
W 1806-3	6	ML
W 1806-9	6	ML
W 1811-1	6	ML
W 1812-22	6	ME
W 1817-4	6	ML
W 1823-2rus	6	ML
W 1836-3	6	ML
W 1839-3	6	ML
W 1848-2R	6	ML
W 1860-1	6	ML
W 1864-4	6	ML
W 1949-4	6	ME
W 1952-1	6	ML
W 1962-1	6	ML
W 2504-9	6	ML
W 2507-2	6	ML
W1100 R	2	
W1348 rus	6	ML
W1355-1	6	ML
W84-75 R	2	ML
W870P90	2	
W91-945a	2	

No.	Source
1	A. Reeves, University of Maine at Orono, Aroostook State Farm, Presque Isle, ME 04769
2	K. Haynes, USDA/ARS, Vegetable Laboratory, PSI Beltsville, MD 20705
3	J. Helgeson, USDA/ARS Plant Resistance Laboratory, UW-Madison • LB1 lines, progeny resulting from J103K7 x A89804-7, a cross made by Dr. J. Pavek at Aberdeen, ID. Progeny are segregating for maturity group. • LB2 lines, progeny resulting from J103K7 x BO718-3, a cross made by Dr. J. Pavek at Aberdeen, ID. Progeny are segregating for maturity group. • J101, J103, J138 = somatic hybrid between *Solanum bulbocastanum* and *S. tuberosum* • J101 K6, K9, K27; J103 K7; J138 A4, A12 = progeny from the cross of a somatic hybrid between *Solanum bulbocastanum* and *S. tuberosum* (J101, J103, J138) backcrossed to Atlantic (A) or Katahdin (K)
4	Rich Novy / NDSU
5	R. L. Plaisted, Cornell University Dept. of Plant Breeding, Ithaca, NY
6	University of WI, Dept. of Horticulture Potato Breeding program, Lelah Starks Potato Breeding Station, Rhinelander, WI

Maturity group designations are: E = Early; EM = Early-Medium; L = Late; LVL = Late to Very Late; M = Medium; ML = Medium to Late; NK = Not Known; VL = Very Late

Footnotes for Table 2

1 Severity rated on a Horsfall-Barratt scale of 0 (no infection) to 11 (all foliage and stems dead). Ratings were converted to percentages.

2 Analysis of variance was performed on data, and Fisher's protected least significant difference (LSD) was calculated. NS = not significant at the $P = 0.05$ level

Table 2. Early blight and late blight severity for potato cultivars and breeding selections (5 plants/replicate).

Trt No.	Cultivar or Breeding Selection	Percent Foliage Infection [1]																	
		Early Blight Alone											Late Blight Alone				Combined			
		6/25	7/6	7/12	7/19	7/26	8/2	8/9	8/18	8/23	9/1	9/8	8/18	8/23	9/1	9/8	8/18	8/23	9/1	9/8
1	A082611-7	0.6	0.8	2.7	3.7	6.4	12.2	53.3	65.8	76.5	89.5	95.3	0.0	3.1	7.5	10.2	65.8	81.9	94.2	98.4
63	A84118-3	1.2	0.8	2.0	2.7	5.5	51.1	80.9	91.3	96.2	100.0	100.0	0.0	0.0	0.0	0.0	91.3	96.2	100.0	100.0
2	A90586-11	1.0	1.4	2.1	2.4	3.6	8.4	30.4	52.5	62.5	72.5	81.3	0.0	0.0	0.8	0.9	52.5	62.5	73.8	83.1
3	AC83064-6	1.5	1.7	2.8	3.3	6.9	13.7	44.0	60.0	79.7	96.5	99.7	0.0	0.0	0.2	0.0	60.0	79.7	96.5	99.7
74	AF 1668-60	0.6	0.9	1.5	5.3	21.0	90.8	91.9	94.8	93.8	95.6	97.3	0.0	1.6	26.2	5.4	94.8	95.0	98.9	99.5
75	AF 1775-2	0.6	1.9	2.3	4.4	8.0	16.9	43.3	67.5	76.3	82.2	86.9	0.0	0.3	15.5	27.0	67.5	76.3	87.5	93.3
4	AF1638-5	0.0	0.6	1.6	2.5	3.7	10.3	26.9	51.4	60.4	54.5	64.2	0.0	0.0	13.1	23.9	51.4	60.4	68.6	83.8
73	AND 9552-7 Russ	1.1	0.8	2.3	4.5	5.9	34.8	39.0	48.7	64.2	59.2	70.7	0.0	0.0	10.2	34.3	48.7	64.2	72.5	91.4
5	Atlantic	0.3	0.3	1.6	2.7	9.8	28.1	67.5	76.6	80.6	91.6	93.8	0.0	0.5	6.4	6.7	76.6	80.6	94.5	96.9
6	B0288-17	1.7	0.8	2.0	4.1	8.3	28.5	57.9	73.0	83.1	95.9	95.9	0.0	0.0	0.3	0.5	73.0	83.1	95.9	98.3
7	B0766-3	0.5	0.9	2.0	4.4	8.7	32.1	60.8	70.6	78.8	86.6	95.3	0.0	0.0	3.9	6.2	70.6	78.8	87.3	98.1
8	B0767-2	0.5	0.0	1.6	2.2	5.2	8.1	15.0	26.0	46.3	60.8	65.0	0.0	0.0	0.0	0.2	26.0	46.3	60.8	65.0
9	B9922-11	1.4	2.9	2.0	3.4	7.5	37.5	64.2	73.1	71.9	87.2	94.7	0.0	0.0	8.1	3.7	73.1	71.9	91.6	98.1
10	BC0894-2	1.2	0.9	1.2	2.5	16.6	79.8	82.7	92.7	92.7	95.1	96.7	0.0	0.6	4.7	2.8	92.7	93.3	97.0	98.9
11	CO083008-1	1.7	2.1	2.3	4.5	6.9	20.0	66.3	73.8	72.5	85.6	94.5	0.0	0.0	3.9	4.4	73.8	72.5	87.5	97.5
12	CO86218-2	0.9	0.8	2.0	2.7	5.5	7.8	52.9	70.0	81.6	92.0	96.1	0.0	0.0	2.2	2.5	70.0	81.6	93.9	97.7
14	D. R. Norland	2.1	0.3	2.4	6.5	66.1	91.9	98.8	98.3	97.5	96.5	98.4	0.0	0.0	26.3	0.8	98.3	97.5	97.4	99.1
15	Dorita	1.4	0.5	1.7	2.3	8.3	20.6	54.6	70.2	75.7	70.7	78.1	0.0	1.6	17.5	27.7	70.2	79.1	82.8	94.7
13	DT6063-1R	0.0	0.8	2.2	4.1	8.4	54.2	94.3	98.9	98.6	98.8	98.8	0.0	0.0	6.3	35.8	98.9	98.6	99.4	99.7
42	Elba	0.5	1.6	1.9	2.2	3.7	7.2	30.8	49.6	67.5	72.5	75.0	0.0	0.9	5.6	18.7	49.6	67.5	80.0	87.8
16	Goldrush	0.6	0.6	2.3	3.0	7.8	36.2	70.6	70.6	76.3	85.2	87.8	0.0	0.0	3.7	4.2	70.6	76.3	87.0	89.7
53	J101 K27	0.0	0.2	0.9	2.5	3.8	10.9	28.3	58.3	67.5	76.6	78.1	0.0	0.0	0.8	2.2	58.3	67.5	78.0	84.1
51	J101 K6	0.5	1.2	2.0	2.8	3.9	9.7	33.5	67.1	66.7	75.0	80.6	0.0	0.0	0.0	0.3	67.1	66.7	75.0	81.9
52	J101 K9	1.6	0.8	1.7	3.4	6.1	8.4	23.5	35.4	46.7	61.3	66.9	0.0	0.0	0.0	0.2	35.4	46.7	61.3	66.9
56	J103 K7	1.2	1.9	2.7	3.7	6.2	7.5	19.1	21.2	50.8	61.7	67.1	0.0	0.0	0.5	0.8	21.2	50.8	61.7	68.8
55	J138 A12	0.8	1.1	2.3	3.3	6.2	14.4	57.5	77.5	88.0	98.6	99.4	0.0	0.0	0.0	0.0	77.5	88.0	98.6	99.4
54	J138 A4	0.8	1.1	2.2	3.1	8.4	24.6	43.3	71.0	71.1	90.0	93.9	0.0	0.0	0.2	0.3	71.0	71.1	90.0	94.4
59	LB1-14	0.8	1.4	2.0	3.4	7.2	13.1	45.0	55.4	54.6	65.0	80.0	0.0	0.0	1.1	1.1	55.4	54.6	65.0	80.6
67	LB2-101	0.0	0.2	2.2	2.7	3.4	3.1	8.1	10.0	13.1	24.4	24.6	0.0	0.0	0.0	0.0	10.0	13.1	24.4	24.6
68	LB2-215	0.9	1.1	2.2	3.4	5.3	6.2	36.7	40.4	51.7	58.3	64.6	0.0	0.8	7.0	8.6	40.4	51.7	64.4	71.9
69	LB2-299	0.8	0.9	2.2	3.0	4.8	9.5	30.6	72.5	71.3	93.8	96.1	0.0	0.0	0.9	1.9	72.5	71.3	95.0	98.0
64	LB2-35	1.1	1.6	1.6	3.1	5.3	27.3	55.4	46.7	42.1	40.8	47.1	0.0	0.9	17.1	23.8	46.7	45.4	60.8	70.8
65	LB2-74	0.5	1.6	1.7	2.8	4.5	6.9	19.8	50.8	39.6	50.8	58.8	0.0	0.0	0.8	0.8	50.8	39.6	52.5	58.8
66	LB2-96	1.8	0.0	2.4	2.3	6.1	62.5	81.5	71.5	72.0	80.6	90.3	0.0	0.0	0.4	1.2	71.5	71.5	80.9	91.4
17	$LBR_1R_2R_3R_4$	0.3	0.2	0.9	1.6	3.7	7.8	22.5	53.4	66.3	68.8	80.6	0.0	0.0	9.8	1.4	53.4	66.3	76.3	80.6
18	LBR_2	1.0	0.8	1.6	3.0	10.3	45.8	82.7	90.5	91.6	94.5	96.4	0.0	0.0	5.0	5.6	90.5	91.6	96.4	98.8
19	LBR_3 tbr	1.6	1.2	2.2	3.1	4.8	6.7	16.9	51.7	62.9	69.2	76.0	0.0	0.2	7.3	29.5	51.7	62.9	78.1	90.6
20	LBR_5	1.1	0.9	1.9	2.5	4.1	5.1	19.4	36.8	67.2	85.5	91.9	0.0	0.0	4.1	7.6	36.8	66.7	86.6	92.5
21	LBR_7	1.1	1.2	2.2	3.0	6.2	11.9	45.4	66.3	72.5	87.8	90.9	0.0	0.0	0.5	2.7	66.3	72.5	88.4	92.7

Trt No.	Cultivar or Breeding Selection	Percent Foliage Infection [1]																		
		Early Blight Alone											Late Blight Alone				Combined			
		6/25	7/6	7/12	7/19	7/26	8/2	8/9	8/18	8/23	9/1	9/8	8/18	8/23	9/1	9/8	8/18	8/23	9/1	9/8
22	LBR_8	0.0	0.0	0.0	1.9	3.3	13.4	19.5	37.4	23.4	44.4	69.4	0.0	0.0	0.2	0.2	37.4	23.4	44.4	69.4
23	NDO2438-7R	1.7	0.6	2.3	2.7	6.1	18.0	58.2	80.2	74.5	87.4	88.7	0.0	0.0	3.1	0.6	80.2	74.5	89.9	89.5
25	NorDonna	0.7	1.0	1.9	2.3	17.6	51.7	74.7	76.8	88.8	89.5	93.0	0.0	0.2	6.2	19.5	76.8	88.8	91.3	96.1
26	NorValley	0.2	0.9	2.0	3.0	10.6	46.3	72.5	77.5	76.3	80.0	83.1	0.0	0.0	5.1	13.8	77.5	76.3	83.8	89.1
24	NY 101	0.2	0.6	1.1	2.3	3.7	9.8	46.7	80.6	84.8	95.6	98.3	0.0	0.0	0.6	1.2	80.6	84.8	96.1	98.6
41	NY 103	0.5	0.9	2.0	2.8	5.3	11.6	50.6	68.8	66.7	83.0	99.1	0.0	7.2	24.6	0.0	68.8	76.9	95.6	99.1
43	NY 112	0.8	1.7	2.5	3.3	8.3	24.2	61.3	66.3	69.4	72.3	94.2	0.0	0.3	24.4	6.3	66.3	70.6	86.9	96.7
44	NY 115	1.7	2.0	2.0	4.5	38.3	89.8	77.5	88.1	87.2	84.3	88.2	0.0	0.2	22.6	24.2	88.1	87.2	94.8	98.4
45	NY 120	1.9	3.7	4.5	8.7	22.5	60.4	60.8	65.0	73.8	83.1	87.2	0.0	0.0	1.6	3.1	65.0	73.8	84.4	90.0
46	NY 123	0.9	2.3	3.1	3.9	19.4	57.5	74.4	86.4	88.0	87.2	90.3	0.0	0.0	4.3	18.7	86.4	88.0	92.3	94.5
27	Pike	0.2	0.5	1.4	2.2	3.7	11.2	28.7	73.8	76.0	72.5	76.8	0.0	0.0	22.7	28.0	73.8	76.0	88.1	96.3
72	Pimpernel	0.8	1.6	2.3	2.7	3.4	4.5	10.6	41.4	42.7	50.4	52.9	0.2	2.7	17.2	24.0	41.4	45.8	71.3	76.3
28	Q237-25 (NY 121)	1.8	1.5	1.4	3.2	10.8	62.3	66.9	84.8	86.4	95.3	98.0	0.0	0.0	0.0	33.3	84.8	86.4	95.3	98.0
29	Ranger Russet	0.6	0.5	1.9	2.3	6.2	9.7	25.6	51.3	72.5	76.3	72.8	0.0	0.9	21.9	1.1	51.3	72.5	86.3	75.3
30	Red LaSoda	0.8	1.6	2.3	2.5	5.6	11.2	54.0	81.7	88.4	95.9	99.8	0.0	0.0	3.0	0.0	81.7	88.4	97.2	99.8
31	Robijn	0.0	0.9	1.9	3.0	4.2	9.2	10.6	19.6	45.2	45.8	48.8	0.0	0.0	2.3	3.6	19.6	45.2	50.0	57.9
32	Russet Burbank	0.2	0.3	1.4	2.3	4.1	5.3	17.5	54.2	65.0	84.5	97.3	0.0	0.2	5.8	2.2	54.2	65.0	89.5	98.6
33	Russet Norkotah	0.6	1.4	2.5	4.5	27.1	42.7	81.3	86.0	90.1	96.2	98.6	0.0	0.0	0.5	0.5	86.0	90.1	97.2	99.2
34	Shepody	0.8	0.8	1.7	3.5	4.5	10.3	43.1	73.3	76.3	85.3	96.9	0.0	0.3	7.7	1.7	73.3	76.3	90.0	97.3
35	Snowden	1.6	1.2	2.3	2.8	5.3	15.0	48.8	48.0	72.5	74.5	88.9	0.0	0.2	6.9	15.4	48.0	72.5	82.7	96.1
36	Superior	0.3	0.6	1.7	2.3	7.2	40.4	70.9	78.1	86.9	96.9	100.0	0.0	0.0	5.6	0.0	78.1	86.9	98.1	100.0
71	UW C75-5	1.6	0.5	2.2	3.1	7.8	22.4	46.2	50.8	47.3	49.2	52.9	0.0	2.2	32.7	49.7	50.8	52.1	81.6	93.1
70	UW C75-5-297	0.8	0.5	2.0	3.9	3.6	5.5	21.2	40.0	41.9	40.8	46.3	0.0	2.8	15.6	43.4	40.0	47.5	65.0	84.7
60	UWH93-1600	0.9	0.8	1.9	2.2	3.3	11.9	42.0	70.0	62.1	73.2	80.8	0.0	1.2	12.5	21.7	70.0	67.5	81.4	89.1
61	UWH93-426	0.5	1.7	2.7	3.4	9.1	44.0	65.5	73.4	72.8	85.9	95.0	0.0	0.0	17.0	3.1	73.4	72.8	92.8	97.5
62	UWH93-911	0.7	1.4	2.4	5.2	71.8	97.8	98.6	99.2	99.2	100.0	100.0	0.0	0.0	0.0	0.0	99.2	99.2	100.0	100.0
57	UWH-G53	0.8	0.0	1.8	2.6	2.5	3.9	7.5	14.0	16.2	22.5	29.2	0.0	0.0	0.3	0.5	14.0	16.2	24.2	29.2
58	UWH-G85	0.8	0.0	2.2	3.3	3.7	6.1	10.6	34.6	48.8	68.8	76.3	0.0	0.0	0.0	0.9	34.6	48.8	68.8	80.0
47	W 1151 rus	2.7	2.7	3.4	5.9	11.9	22.9	52.5	81.9	86.7	97.2	100.0	0.0	0.3	1.1	0.0	81.9	86.7	97.5	100.0
50	W 1313	0.6	0.4	2.2	4.1	8.1	24.7	51.1	50.0	65.4	74.8	81.6	0.0	0.3	12.2	19.4	50.0	65.4	81.1	90.5
37	W1100 R	0.8	0.7	2.0	3.0	16.6	68.8	71.1	76.3	78.6	75.6	83.0	0.0	0.4	12.0	19.1	76.3	79.0	89.1	98.0
48	W1348 rus	2.5	2.9	3.6	4.5	16.9	15.6	51.3	59.3	67.5	81.3	89.7	0.0	4.4	23.3	6.9	59.3	75.0	86.6	92.5
49	W1355-1	1.7	2.3	2.8	4.5	8.1	6.2	13.1	34.6	60.0	71.3	90.9	0.0	0.3	23.5	11.7	34.6	60.0	83.6	97.7
38	W84-75 R	2.0	1.4	2.0	4.4	42.4	78.0	88.8	90.0	96.1	99.1	100.0	0.0	0.0	0.0	0.0	90.0	96.1	99.1	100.0
39	W870P90	1.2	1.9	3.7	5.8	12.2	39.8	66.3	71.3	72.5	85.6	98.0	0.0	0.0	5.0	0.0	71.3	72.5	88.9	98.0
40	W91-945a	1.5	0.9	2.0	4.4	8.0	8.1	15.0	30.4	46.7	42.1	50.0	0.0	2.2	30.2	65.8	30.4	54.8	70.0	92.7
	Pr > F [2]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.49	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	LSD [2]	1.4	1.2	1.1	2.1	16.3	22.4	24.6	20.2	17.7	19.5	21.4	NS	2.6	20.8	28.0	20.2	16.4	13.2	13.0

Table 3. Relative area under the disease progress curve and yield for potato cultivars and breeding selections (5 plants/replicate).

Trt no	Cultivar or breeding selection	Relative AUDPC [1]			Yield [2]				
		Early blight alone	Late blight alone	Combined	Total lb/hill	Total cwt/A	% US#1 size	% Undersize	% Culls
1	A082611-7	0.36	0.02	0.37	3.1	455.0	66.8	29.3	3.9
63	A84118-3	0.48	0.00	0.48	1.7	244.9	46.9	51.8	1.2
2	A90586-11	0.28	0.00	0.28	3.1	456.9	73.0	21.9	5.0
3	AC83064-6	0.36	0.00	0.36	2.7	394.0	72.9	26.1	1.0
74	AF 1668-60	0.54	0.03	0.54	2.1	298.1	85.7	5.4	8.9
75	AF 1775-2	0.34	0.03	0.35	3.2	458.8	79.0	9.2	11.8
4	AF1638-5	0.24	0.03	0.27	1.6	235.7	87.8	11.3	1.0
73	AND 9552-7 Russ	0.29	0.03	0.32	2.5	365.9	47.2	52.8	0.0
5	Atlantic	0.40	0.01	0.41	2.5	367.8	81.8	11.4	6.8
6	B0288-17	0.40	0.00	0.40	2.7	396.9	67.5	11.3	21.3
7	B0766-3	0.39	0.01	0.39	1.9	274.9	89.7	9.0	1.3
8	B0767-2	0.20	0.00	0.20	1.5	224.6	67.7	27.0	5.3
9	B9922-11	0.40	0.01	0.40	1.6	232.6	86.1	11.4	2.5
10	BC0894-2	0.51	0.01	0.51	1.5	219.7	62.3	30.9	6.8
11	CO083008-1	0.38	0.01	0.39	1.7	247.8	77.8	17.8	4.4
12	CO86218-2	0.36	0.00	0.37	1.7	245.9	63.3	29.9	6.8
14	D. R. Norland	0.60	0.03	0.60	1.5	221.7	67.5	18.4	14.1
15	Dorita	0.34	0.03	0.37	1.4	196.5	19.1	67.1	13.9
13	DT6063-1R	0.51	0.02	0.51	2.2	323.3	68.1	12.2	19.7
42	Elba	0.27	0.02	0.29	5.2	759.9	87.8	3.8	8.4
16	Goldrush	0.40	0.01	0.40	2.5	355.7	77.0	15.1	7.9
53	J101 K27	0.29	0.00	0.29	2.3	338.8	53.2	21.0	25.8
51	J101 K6	0.30	0.00	0.30	1.2	171.3	26.2	61.7	12.0
52	J101 K9	0.22	0.00	0.22	0.7	105.5	33.3	45.2	21.4
56	J103 K7	0.21	0.00	0.21	5.0	727.9	28.2	53.4	18.3
55	J138 A12	0.40	0.00	0.40	3.3	472.4	73.2	25.9	0.8
54	J138 A4	0.36	0.00	0.36	2.8	407.5	55.3	43.5	1.2
59	LB1-14	0.29	0.00	0.29	3.0	442.4	63.9	27.7	8.4
67	LB2-101	0.08	0.00	0.08	4.7	676.6	64.0	19.7	16.4
68	LB2-215	0.24	0.01	0.25	3.8	553.7	83.4	9.6	6.9
69	LB2-299	0.34	0.00	0.34	2.8	413.3	54.6	41.5	3.9
64	LB2-35	0.25	0.03	0.28	2.6	375.6	73.1	25.6	1.3
65	LB2-74	0.21	0.00	0.21	3.2	466.6	79.9	8.9	11.2
66	LB2-96	0.42	0.00	0.42	1.0	148.8	79.2	6.5	14.3
17	$LBR_1R_2R_3R_4$	0.26	0.01	0.27	1.6	238.4	19.4	72.9	7.8
18	LBR_2	0.47	0.01	0.47	0.4	53.2	18.7	78.9	2.4
19	LBR_3 tbr	0.26	0.02	0.27	1.3	188.3	14.7	82.1	3.2
20	LBR_5	0.27	0.01	0.27	2.4	353.6	19.4	72.5	8.1
21	LBR_7	0.34	0.00	0.34	1.9	282.7	49.6	50.1	0.3
22	LBR_8	0.18	0.00	0.18	0.4	54.9	3.9	96.1	0.0
23	NDO2438-7R	0.37	0.00	0.38	2.9	417.5	74.8	19.1	6.1
25	NorDonna	0.45	0.02	0.45	2.5	364.9	53.3	35.3	11.4
26	NorValley	0.41	0.01	0.42	2.6	375.6	78.4	12.3	9.3
24	NY 101	0.37	0.00	0.37	3.0	433.7	79.9	16.4	3.7
41	NY 103	0.34	0.03	0.36	2.0	284.6	84.6	11.2	4.2
43	NY 112	0.35	0.03	0.37	4.4	639.8	88.2	7.2	4.6
44	NY 115	0.51	0.04	0.53	3.0	437.5	74.4	13.3	12.4
45	NY 120	0.42	0.00	0.43	4.1	591.4	88.7	5.8	5.5
46	NY 123	0.46	0.01	0.47	3.4	490.8	76.5	12.5	11.0
27	Pike	0.31	0.04	0.33	1.8	255.6	57.6	30.2	12.2

Trt no	Cultivar or breeding selection	Relative AUDPC [1]			Yield [2]				
		Early blight alone	Late blight alone	Combined	Total lb/hill	Total cwt/A	% US#1 size	% Undersize	% Culls
72	Pimpernel	0.18	0.03	0.22	3.7	531.4	33.4	66.2	0.5
28	Q237-25 (NY 121)	0.46	0.02	0.46	1.3	190.0	76.5	20.1	3.4
29	Ranger Russet	0.28	0.03	0.29	2.5	363.0	62.8	27.6	9.6
30	Red LaSoda	0.39	0.00	0.39	1.8	260.4	67.5	20.4	12.0
31	Robijn	0.16	0.00	0.17	2.0	295.2	5.2	93.9	0.9
32	Russet Burbank	0.28	0.01	0.29	1.5	223.6	54.1	29.9	16.0
33	Russet Norkotah	0.48	0.00	0.48	1.5	215.2	77.3	22.7	0.0
34	Shepody	0.35	0.01	0.35	2.5	358.2	72.0	20.5	7.4
35	Snowden	0.32	0.01	0.33	1.9	277.8	88.2	5.5	6.3
36	Superior	0.43	0.01	0.44	2.8	404.1	78.9	11.6	9.4
71	UW C75-5	0.26	0.06	0.31	1.9	282.7	24.0	71.2	4.7
70	UW C75-5-297	0.18	0.04	0.23	5.2	756.0	65.8	30.9	3.2
60	UWH93-1600	0.31	0.02	0.32	3.0	428.8	91.9	6.5	1.7
61	UWH93-426	0.40	0.02	0.41	2.0	294.3	63.3	28.8	7.9
62	UWH93-911	0.61	0.00	0.61	1.4	208.6	59.5	32.1	8.4
57	UWH-G53	0.09	0.00	0.09	1.8	256.0	52.0	28.8	19.2
58	UWH-G85	0.22	0.00	0.22	3.5	506.7	36.2	16.1	47.7
47	W 1151 rus	0.41	0.00	0.41	3.4	491.7	86.2	9.3	4.5
50	W 1313	0.32	0.02	0.33	1.5	218.0	60.8	30.3	8.9
37	W1100 R	0.43	0.02	0.45	2.2	315.1	84.0	13.8	2.2
48	W1348 rus	0.35	0.03	0.36	4.2	605.7	70.4	22.6	6.9
49	W1355-1	0.25	0.03	0.26	4.0	583.7	76.3	22.3	1.4
38	W84-75 R	0.55	0.00	0.55	1.3	188.3	24.4	75.6	0.0
39	W870P90	0.41	0.01	0.41	2.5	362.0	81.9	13.6	4.5
40	W91-945a	0.18	0.07	0.24	2.1	302.0	31.2	49.7	19.1
	Pr > F [3]	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	LSD [3]	0.08	0.03	0.07	0.9	124.8	17.0	15.2	11.9

1 Relative area under the disease progress curve. Data for each observation date are plotted on a graph and the relative area under the line is calculated for each treatment providing a measure of the relative severity of disease throughout the season. A disease rating of 100% foliage infection for the entire season would produce a value of 1.0. All relative AUDPC values are expressed as the proportion of this value. Either decreased disease severity or later disease development will contribute to lower relative areas under the disease progress curve.

2 Yield from 5-feet of row, converted to cwt/A. Yield was graded by hand by passing tubers over a 1 7/8" grading chain to separate undersize (<1 7/8" diam), from those that were ≥1 7/8" These larger tubers were classed as US#1 size or culls (if rotted, green or severely misshapen).

3 Analysis of variance was performed on data, and Fisher's protected least significant difference (LSD) was calculated. NS = not significant at the $P = 0.05$ (or $P = 0.10$) level. * = Differences between pairs of treatments were significant at $P = 0.10$ (but not at $P = 0.05$).

Footnotes for Table 4

1 Severity rated on a Horsfall-Barratt scale of 0 (no infection) to 11 (all foliage and stems dead). Ratings were converted to percentages.

2 Relative area under the disease progress curve. Data for each observation date are plotted on a graph and the relative area under the line is calculated for each treatment providing a measure of the relative severity of disease throughout the season. A disease rating of 100% foliage infection for the entire season would produce a value of 1.0. All relative AUDPC values are expressed as the proportion of this value. Either decreased disease severity or later disease development will contribute to lower relative areas under the disease progress curve. Early and late blight AUDPC's are calculated for June 25-September 1. Combined AUDPC is calculated for June 25-September 8 (based on early blight ratings through August 9 and combined foliage infection ratings for the rest of the season).

3 Symptoms were too severed to distinguish between defoliation due to early blight or late blight.

4 Analysis of variance was performed on data, and Fisher's protected least significant difference (LSD) was calculated. NS = not significant at the $P = 0.05$ (or $P = 0.10$) level. * = Differences between pairs of treatments were significant at $P = 0.10$ (but not at $P = 0.05$).

Table 4. Early blight severity and relative AUDPC of potato cultivars and breeding selections (3 plants/replicate).

Cultivar or breeding line	Percent Foliage Infection [1]																			Relative AUDPC [2]		
	Early Blight Alone											Late Blight Alone				Combined				Early Blight	Late Blight	Com-bined
	6/25	7/6	7/12	7/19	7/26	8/2	8/9	8/18	8/25	9/1	9/8	8/18	8/25	9/1	9/8	8/18	8/25	9/1	9/8			
AF 1753-16	0.8	2.1	2.6	3.6	6.2	16.3	30.7	66.0	61.5	64.6	---	0.3	15.3	39.6	---	68.8	76.0	90.9	97.1	0.25	0.04	0.34
AF 1763-2	2.1	1.3	3.1	10.4	21.4	78.1	84.4	88.0	69.8	74.0	---	0.3	12.5	36.5	---	88.0	76.0	93.8	96.9	0.44	0.03	0.50
AF 1935-6	1.6	1.8	2.3	3.6	7.0	12.0	38.9	62.5	60.4	69.4	---	0.8	12.5	38.5	---	62.5	68.8	93.2	99.7	0.25	0.03	0.34
AF 1949-1	3.1	3.1	3.4	4.7	5.7	17.7	22.9	61.1	58.3	52.1	---	0.3	15.5	48.6	---	61.1	72.9	88.8	97.7	0.23	0.04	0.32
AF 1950-1	1.3	1.8	3.1	7.0	14.1	41.5	47.2	70.8	64.6	57.6	---	0.8	15.3	31.8	---	72.9	75.0	84.1	95.3	0.31	0.03	0.39
ND 6935B-4R	0.8	1.6	3.3	10.4	16.1	90.9	94.3	87.8	94.3	91.9	95.8	0.0	0.0	0.0	0.0	87.8	94.3	91.9	95.8	0.49	0.00	0.53
ND 6940B-27Russ	1.7	2.1	2.3	6.5	18.2	72.7	64.6	66.7	75.0	75.0	78.1	0.0	0.0	5.2	7.3	66.7	75.0	80.2	88.5	0.38	0.00	0.43
ND 6947B-20	1.0	1.6	2.3	2.3	5.5	35.4	31.3	60.4	69.8	82.0	84.6	0.0	0.0	4.7	8.3	60.4	69.8	86.7	92.2	0.27	0.00	0.34
ND 6947B-6	0.9	0.3	1.8	2.6	3.1	7.8	6.8	12.0	12.5	29.2	45.8	0.0	0.0	2.6	4.4	12.0	12.5	36.1	56.9	0.07	0.00	0.11
W 1431	1.0	1.8	2.6	5.7	4.9	13.3	35.9	47.9	48.4	52.1	---[3]	0.0	4.2	50.3	---[3]	47.9	54.2	91.4	98.4	0.21	0.03	0.30
W 1769-7	0.8	2.3	2.6	3.1	17.7	61.5	61.2	75.0	74.5	83.3	---	0.0	1.8	28.1	---	75.0	78.6	93.2	98.2	0.37	0.02	0.44
W 1773-3	1.3	1.8	2.6	3.9	7.3	20.8	24.3	21.9	25.2	31.2	---	0.0	1.0	50.0	---	21.9	26.7	77.1	97.4	0.14	0.03	0.23
W 1773-7	1.3	0.8	2.3	4.9	7.8	20.8	35.9	23.6	54.9	55.6	---	0.0	11.5	41.7	---	23.6	63.9	81.8	98.7	0.20	0.03	0.28
W 1774-1	1.3	1.3	2.6	3.9	15.8	23.1	38.5	38.5	48.1	53.5	---	0.0	2.9	28.1	---	38.5	50.2	78.2	97.9	0.22	0.02	0.29
W 1775-14	0.8	1.3	2.1	4.4	12.0	29.7	31.6	37.5	41.7	27.1	---	0.0	7.5	74.5	---	37.5	54.9	92.2	100.0	0.19	0.05	0.31
W 1782-5	1.0	1.6	2.1	6.2	8.8	20.8	42.4	42.4	63.9	66.7	76.6	0.0	2.1	20.1	19.6	42.4	66.0	79.7	92.7	0.24	0.01	0.31
W 1806-3	0.8	1.3	3.1	3.4	8.6	33.0	62.5	82.3	75.3	84.1	---	0.0	4.2	22.4	---	82.3	79.2	93.0	99.7	0.35	0.02	0.41
W 1806-9	1.8	3.1	2.6	5.5	12.0	41.7	49.3	61.1	69.6	81.3	94.8	0.0	1.6	7.3	2.1	61.1	72.4	85.4	97.4	0.32	0.01	0.38
W 1811-1	1.6	2.1	2.6	7.8	24.0	64.6	63.9	80.2	86.5	91.7	97.9	0.0	0.3	1.3	1.0	80.2	86.5	92.7	98.4	0.42	0.00	0.47
W 1812-22	1.6	1.3	2.3	5.7	28.1	71.3	77.9	77.1	70.1	72.2	---	0.0	2.3	37.5	---	77.1	74.3	89.6	98.4	0.41	0.02	0.47
W 1817-4	1.0	2.3	2.1	5.2	9.4	28.1	66.0	70.8	69.8	61.8	87.0	0.0	0.0	17.2	15.3	70.8	69.8	78.1	98.4	0.32	0.01	0.38
W 1823-2rus	2.1	2.6	3.6	7.3	10.9	48.6	45.8	75.0	39.6	47.6	76.5	0.0	17.7	56.6	45.8	75.0	62.5	93.0	98.7	0.29	0.05	0.39
W 1836-3	1.0	3.1	3.1	4.9	14.6	42.4	50.0	63.2	54.2	61.5	---	0.8	18.1	33.6	---	70.8	74.0	90.1	98.7	0.29	0.04	0.40
W 1839-3	0.8	2.6	3.4	13.0	25.3	95.8	99.5	92.2	99.0	99.5	99.0	0.3	0.5	1.6	1.0	92.2	99.5	99.5	99.5	0.53	0.00	0.57
W 1848-2R	1.3	2.1	2.1	4.4	18.2	52.1	72.4	77.1	56.9	42.4	---	0.0	15.3	51.0	---	77.1	68.2	87.2	98.4	0.34	0.04	0.43
W 1860-1	1.8	2.6	2.9	4.4	12.5	43.1	70.8	79.2	80.7	86.2	---	0.0	2.3	23.7	---	79.2	81.8	90.9	97.1	0.38	0.01	0.43
W 1864-4	1.6	2.1	3.1	7.3	43.4	78.9	90.4	88.5	89.4	88.0	---	0.0	0.5	24.7	---	88.5	92.2	94.8	97.4	0.49	0.01	0.54
W 1949-4	1.0	1.6	2.6	3.6	8.3	29.9	51.4	49.7	56.3	59.4	---	0.0	6.3	37.5	---	49.7	62.5	92.4	97.7	0.26	0.03	0.35
W 1952-1	1.3	1.8	2.9	5.7	15.6	49.3	69.8	84.6	73.1	67.5	---	0.0	8.3	32.0	---	84.6	82.8	82.8	96.9	0.37	0.03	0.44
W 1962-1	2.3	2.9	4.4	18.8	51.0	89.3	88.0	87.0	84.4	81.6	91.0	0.3	9.0	36.5	11.1	87.0	90.1	92.7	99.0	0.51	0.03	0.56
W 2504-9	2.3	2.1	2.1	3.4	7.3	17.7	33.0	38.7	44.8	62.5	70.8	1.6	21.4	18.4	27.1	41.3	68.8	81.3	98.4	0.20	0.03	0.30
W 2507-2	2.1	3.1	6.0	16.1	13.5	19.8	34.4	21.0	46.9	96.1	---	1.3	22.4	4.2	---	22.6	72.9	98.2	100.0	0.23	0.03	0.33
Pr > F [4]	0.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	0.49	0.59	<0.01	0.35	<0.01	.01	.01	.01	<0.01	0.10	<0.01
LSD (*P* = 0.05) [4]	1.3*	1.4	1.4	4.7	20.0	26.2	29.9	26.5	26.4	31.7	NS	NS	NS	35.6	NS	26.0	20.8	11.7	5.6	0.11	0.03	0.09

Table 5. Data ranked according to several disease and yield measurements.

Maturity group designations in all rankings are: E = Early; E-M = Early-Medium; L = Late; L-VL = Late to Very Late; M = Medium; M-L = Medium to Late; NK = Not Known; VL = Very Late

Sorted by Early Blight AUDPC (increasing)

Cultivar or Breeding Selection and Maturity Grouping		AUDPC			Yield	
		Early Blight	Late Blight	Com-bined	Total	% US#1 Size
ND 6947B-6	NK	0.07	0.00	0.11	---	---
LB2-101	NK	0.08	0.00	0.08	676.6	64.0
UWH-G53	L	0.09	0.00	0.09	256.0	52.0
W 1773-3	ML	0.14	0.03	0.23	---	---
Robijn	NK	0.16	0.00	0.17	295.2	5.2
LBR_8	NK	0.18	0.00	0.18	54.9	3.9
Pimpernel	L	0.18	0.03	0.22	531.4	33.4
UW C75-5-297	ML	0.18	0.04	0.23	756.0	65.8
W91-945a	NK	0.18	0.07	0.24	302.0	31.2
W 1775-14	ME	0.19	0.05	0.31	---	---
B0767-2	NK	0.20	0.00	0.20	224.6	67.7
W 1773-7	ML	0.20	0.03	0.28	---	---
W 2504-9	ML	0.20	0.03	0.30	---	---
J103 K7	VL	0.21	0.00	0.21	727.9	28.2
LB2-74	NK	0.21	0.00	0.21	466.6	79.9
W 1431	ML	0.21	0.03	0.30	---	---
J101 K9	VL	0.22	0.00	0.22	105.5	33.3
UWH-G85	L	0.22	0.00	0.22	506.7	36.2
W 1774-1	ML	0.22	0.02	0.29	---	---
AF 1949-1	ME	0.23	0.04	0.32	---	---
W 2507-2	ML	0.23	0.03	0.33	---	---
AF1638-5	ML	0.24	0.03	0.27	235.7	87.8
LB2-215	NK	0.24	0.01	0.25	553.7	83.4
W 1782-5	ML	0.24	0.01	0.31	---	---
AF 1753-16	ML	0.25	0.04	0.34	---	---
AF 1935-6	ML	0.25	0.03	0.34	---	---
LB2-35	NK	0.25	0.03	0.28	375.6	73.1
W1355-1	ML	0.25	0.03	0.26	583.7	76.3
$LBR_1R_2R_3R_4$	NK	0.26	0.01	0.27	238.4	19.4
LBR_3 tbr	NK	0.26	0.02	0.27	188.3	14.7
UW C75-5	L	0.26	0.06	0.31	282.7	24.0
W 1949-4	ME	0.26	0.03	0.35	---	---
Elba	L	0.27	0.02	0.29	759.9	87.8
LBR_5	NK	0.27	0.01	0.27	353.6	19.4
ND 6947B-20	ML	0.27	0.00	0.34	---	---
A90586-11	NK	0.28	0.00	0.28	456.9	73.0
Ranger Russet	L	0.28	0.03	0.29	363.0	62.8
Russet Burbank	L	0.28	0.01	0.29	223.6	54.1
AND 9552-7 Russ	L	0.29	0.03	0.32	365.9	47.2
J101 K27	VL	0.29	0.00	0.29	338.8	53.2
LB1-14	NK	0.29	0.00	0.29	442.4	63.9
W 1823-2rus	ML	0.29	0.05	0.39	---	---
W 1836-3	ML	0.29	0.04	0.40	---	---
J101 K6	VL	0.30	0.00	0.30	171.3	26.2
AF 1950-1	M	0.31	0.03	0.39	---	---
Pike	ML	0.31	0.04	0.33	255.6	57.6
UWH93-1600	ML	0.31	0.02	0.32	428.8	91.9
Snowden	L	0.32	0.01	0.33	277.8	88.2
W 1313	ML	0.32	0.02	0.33	218.0	60.8
W 1806-9	ML	0.32	0.01	0.38	---	---
W 1817-4	ML	0.32	0.01	0.38	---	---
AF 1775-2	ML	0.34	0.03	0.35	458.8	79.0
Dorita	NK	0.34	0.03	0.37	196.5	19.1
LB2-299	NK	0.34	0.00	0.34	413.3	54.6
LBR_7	NK	0.34	0.00	0.34	282.7	49.6
NY 103	M	0.34	0.03	0.36	284.6	84.6
W 1848-2R	ML	0.34	0.04	0.43	---	---
NY 112	L	0.35	0.03	0.37	639.8	88.2
Shepody	ML	0.35	0.01	0.35	358.2	72.0
W 1806-3	ML	0.35	0.02	0.41	---	---
W1348 rus	ML	0.35	0.03	0.36	605.7	70.4
A082611-7	NK	0.36	0.02	0.37	455.0	66.8
AC83064-6	NK	0.36	0.00	0.36	394.0	72.9
CO86218-2	NK	0.36	0.00	0.37	245.9	63.3
J138 A4	VL	0.36	0.00	0.36	407.5	55.3
NDO2438-7R	NK	0.37	0.00	0.38	417.5	74.8
NY 101	ML	0.37	0.00	0.37	433.7	79.9
W 1769-7	ML	0.37	0.02	0.44	---	---
W 1952-1	ML	0.37	0.03	0.44	---	---
CO083008-1	NK	0.38	0.01	0.39	247.8	77.8
ND 6940B-27Russ	M	0.38	0.00	0.43	---	---
W 1860-1	ML	0.38	0.01	0.43	---	---
B0766-3	NK	0.39	0.01	0.39	274.9	89.7
Red LaSoda	ML	0.39	0.00	0.39	260.4	67.5
Atlantic	EM	0.40	0.01	0.41	367.8	81.8
B0288-17	NK	0.40	0.00	0.40	396.9	67.5
B9922-11	NK	0.40	0.01	0.40	232.6	86.1
Goldrush	M	0.40	0.01	0.40	355.7	77.0
J138 A12	VL	0.40	0.00	0.40	472.4	73.2
UWH93-426	L	0.40	0.02	0.41	294.3	63.3
NorValley	M	0.41	0.01	0.42	375.6	78.4
W 1151 rus	M	0.41	0.00	0.41	491.7	86.2
W 1812-22	ME	0.41	0.02	0.47	---	---
W870P90	NK	0.41	0.01	0.41	362.0	81.9
LB2-96	NK	0.42	0.00	0.42	148.8	79.2
NY 120	ML	0.42	0.00	0.43	591.4	88.7
W 1811-1	ML	0.42	0.00	0.47	---	---
Superior	ME	0.43	0.01	0.44	404.1	78.9
W1100 R	NK	0.43	0.02	0.45	315.1	84.0
AF 1763-2	ML	0.44	0.03	0.50	---	---
NorDonna	M	0.45	0.02	0.45	364.9	53.3
NY 123	ML	0.46	0.01	0.47	490.8	76.5
Q237-25 (NY 121)	ML	0.46	0.02	0.46	190.0	76.5
LBR_2	NK	0.47	0.01	0.47	53.2	18.7
A84118-3	L	0.48	0.00	0.48	244.9	46.9
Russet Norkotah	EM	0.48	0.00	0.48	215.2	77.3
ND 6935B-4R	VL	0.49	0.00	0.53	---	---
W 1864-4	ML	0.49	0.01	0.54	---	---
BC0894-2	NK	0.51	0.01	0.51	219.7	62.3
DT6063-1R	NK	0.51	0.02	0.51	323.3	68.1
NY 115	M	0.51	0.04	0.53	437.5	74.4
W 1962-1	ML	0.51	0.03	0.56	---	---
W 1839-3	ML	0.53	0.00	0.57	---	---
AF 1668-60	E-ME	0.54	0.03	0.54	298.1	85.7
W84-75 R	ML	0.55	0.00	0.55	188.3	24.4
D. R. Norland	E	0.60	0.03	0.60	221.7	67.5
UWH93-911	L	0.61	0.00	0.61	208.6	59.5

Sorted by Late Blight AUDPC (increasing)

Cultivar or Breeding Selection and Maturity Grouping		AUDPC			Yield	
		Early Blight	Late Blight	Com-bined	Total	% US#1 Size
W84-75 R	ML	0.55	0.00	0.55	188.3	24.4
W 1839-3	ML	0.53	0.00	0.57	---	---
ND 6935B-4R	VL	0.49	0.00	0.53	---	---
A84118-3	L	0.48	0.00	0.48	244.9	46.9
Russet Norkotah	EM	0.48	0.00	0.48	215.2	77.3
LB2-96	NK	0.42	0.00	0.42	148.8	79.2
NY 120	ML	0.42	0.00	0.43	591.4	88.7
W 1811-1	ML	0.42	0.00	0.47	---	---
W 1151 rus	M	0.41	0.00	0.41	491.7	86.2
B0288-17	NK	0.40	0.00	0.40	396.9	67.5
J138 A12	VL	0.40	0.00	0.40	472.4	73.2
Red LaSoda	ML	0.39	0.00	0.39	260.4	67.5
ND 6940B-27Russ	M	0.38	0.00	0.43	---	---
NDO2438-7R	NK	0.37	0.00	0.38	417.5	74.8
NY 101	ML	0.37	0.00	0.37	433.7	79.9
AC83064-6	NK	0.36	0.00	0.36	394.0	72.9
CO86218-2	NK	0.36	0.00	0.37	245.9	63.3
J138 A4	VL	0.36	0.00	0.36	407.5	55.3
LB2-299	NK	0.34	0.00	0.34	413.3	54.6
LBR_7	NK	0.34	0.00	0.34	282.7	49.6
J101 K6	VL	0.30	0.00	0.30	171.3	26.2
J101 K27	VL	0.29	0.00	0.29	338.8	53.2
LB1-14	NK	0.29	0.00	0.29	442.4	63.9
A90586-11	NK	0.28	0.00	0.28	456.9	73.0
ND 6947B-20	ML	0.27	0.00	0.34	---	---
J101 K9	VL	0.22	0.00	0.22	105.5	33.3
UWH-G85	L	0.22	0.00	0.22	506.7	36.2
J103 K7	VL	0.21	0.00	0.21	727.9	28.2
LB2-74	NK	0.21	0.00	0.21	466.6	79.9
B0767-2	NK	0.20	0.00	0.20	224.6	67.7
LBR_8	NK	0.18	0.00	0.18	54.9	3.9
Robijn	NK	0.16	0.00	0.17	295.2	5.2
UWH-G53	L	0.09	0.00	0.09	256.0	52.0
LB2-101	NK	0.08	0.00	0.08	676.6	64.0
ND 6947B-6	NK	0.07	0.00	0.11	---	---
UWH93-911	L	0.61	0.00	0.61	208.6	59.5
BC0894-2	NK	0.51	0.01	0.51	219.7	62.3
W 1864-4	ML	0.49	0.01	0.54	---	---
LBR_2	NK	0.47	0.01	0.47	53.2	18.7
NY 123	ML	0.46	0.01	0.47	490.8	76.5
Superior	ME	0.43	0.01	0.44	404.1	78.9
NorValley	M	0.41	0.01	0.42	375.6	78.4
W870P90	NK	0.41	0.01	0.41	362.0	81.9
Atlantic	EM	0.40	0.01	0.41	367.8	81.8
B9922-11	NK	0.40	0.01	0.40	232.6	86.1
Goldrush	M	0.40	0.01	0.40	355.7	77.0
B0766-3	NK	0.39	0.01	0.39	274.9	89.7
CO083008-1	NK	0.38	0.01	0.39	247.8	77.8
W 1860-1	ML	0.38	0.01	0.43	---	---
Shepody	ML	0.35	0.01	0.35	358.2	72.0
Snowden	L	0.32	0.01	0.33	277.8	88.2
W 1806-9	ML	0.32	0.01	0.38	---	---
W 1817-4	ML	0.32	0.01	0.38	---	---
Russet Burbank	L	0.28	0.01	0.29	223.6	54.1
LBR_5	NK	0.27	0.01	0.27	353.6	19.4
$LBR_1R_2R_3R_4$	NK	0.26	0.01	0.27	238.4	19.4
LB2-215	NK	0.24	0.01	0.25	553.7	83.4
W 1782-5	ML	0.24	0.01	0.31	---	---
DT6063-1R	NK	0.51	0.02	0.51	323.3	68.1
Q237-25 (NY 121)	ML	0.46	0.02	0.46	190.0	76.5
NorDonna	M	0.45	0.02	0.45	364.9	53.3
W1100 R	NK	0.43	0.02	0.45	315.1	84.0
W 1812-22	ME	0.41	0.02	0.47	---	---
UWH93-426	L	0.40	0.02	0.41	294.3	63.3
W 1769-7	ML	0.37	0.02	0.44	---	---
A082611-7	NK	0.36	0.02	0.37	455.0	66.8
W 1806-3	ML	0.35	0.02	0.41	---	---
W 1313	ML	0.32	0.02	0.33	218.0	60.8
UWH93-1600	ML	0.31	0.02	0.32	428.8	91.9
Elba	L	0.27	0.02	0.29	759.9	87.8
LBR_3 tbr	NK	0.26	0.02	0.27	188.3	14.7
W 1774-1	ML	0.22	0.02	0.29	---	---
AF 1668-60	E-ME	0.54	0.03	0.54	298.1	85.7
W 1962-1	ML	0.51	0.03	0.56	---	---
AF 1763-2	ML	0.44	0.03	0.50	---	---
W 1952-1	ML	0.37	0.03	0.44	---	---
NY 112	L	0.35	0.03	0.37	639.8	88.2
W1348 rus	ML	0.35	0.03	0.36	605.7	70.4
AF 1775-2	ML	0.34	0.03	0.35	458.8	79.0
Dorita	NK	0.34	0.03	0.37	196.5	19.1
NY 103	M	0.34	0.03	0.36	284.6	84.6
AF 1950-1	M	0.31	0.03	0.39	---	---
AND 9552-7 Russ	L	0.29	0.03	0.32	365.9	47.2
Ranger Russet	L	0.28	0.03	0.29	363.0	62.8
W 1949-4	ME	0.26	0.03	0.35	---	---
AF 1935-6	ML	0.25	0.03	0.34	---	---
LB2-35	NK	0.25	0.03	0.28	375.6	73.1
W1355-1	ML	0.25	0.03	0.26	583.7	76.3
AF1638-5	ML	0.24	0.03	0.27	235.7	87.8
W 2507-2	ML	0.23	0.03	0.33	---	---
W 1431	ML	0.21	0.03	0.30	---	---
W 1773-7	ML	0.20	0.03	0.28	---	---
W 2504-9	ML	0.20	0.03	0.30	---	---
Pimpernel	L	0.18	0.03	0.22	531.4	33.4
W 1773-3	ML	0.14	0.03	0.23	---	---
D. R. Norland	E	0.60	0.03	0.60	221.7	67.5
NY 115	M	0.51	0.04	0.53	437.5	74.4
W 1848-2R	ML	0.34	0.04	0.43	---	---
Pike	ML	0.31	0.04	0.33	255.6	57.6
W 1836-3	ML	0.29	0.04	0.40	---	---
AF 1753-16	ML	0.25	0.04	0.34	---	---
AF 1949-1	ME	0.23	0.04	0.32	---	---
UW C75-5-297	ML	0.18	0.04	0.23	756.0	65.8
W 1823-2rus	ML	0.29	0.05	0.39	---	---
W 1775-14	ME	0.19	0.05	0.31	---	---
UW C75-5	ML	0.26	0.06	0.31	282.7	24.0
W91-945a	NK	0.18	0.07	0.24	302.0	31.2

Sorted by Combined AUDPC (increasing)

Cultivar or Breeding Selection and Maturity Grouping		AUDPC Early Blight	AUDPC Late Blight	AUDPC Com-bined	Yield Total	Yield % US#1 Size
LB2-101	NK	0.08	0.00	0.08	676.6	64.0
UWH-G53	L	0.09	0.00	0.09	256.0	52.0
ND 6947B-6	NK	0.07	0.00	0.11	---	---
Robijn	NK	0.16	0.00	0.17	295.2	5.2
LBR_8	NK	0.18	0.00	0.18	54.9	3.9
B0767-2	NK	0.20	0.00	0.20	224.6	67.7
J103 K7	VL	0.21	0.00	0.21	727.9	28.2
LB2-74	NK	0.21	0.00	0.21	466.6	79.9
Pimpernel	L	0.18	0.03	0.22	531.4	33.4
J101 K9	VL	0.22	0.00	0.22	105.5	33.3
UWH-G85	L	0.22	0.00	0.22	506.7	36.2
UW C75-5-297	ML	0.18	0.04	0.23	756.0	65.8
W 1773-3	ML	0.14	0.03	0.23	---	---
W91-945a	NK	0.18	0.07	0.24	302.0	31.2
LB2-215	NK	0.24	0.01	0.25	553.7	83.4
W1355-1	ML	0.25	0.03	0.26	583.7	76.3
AF1638-5	ML	0.24	0.03	0.27	235.7	87.8
LBR_3 tbr	NK	0.26	0.02	0.27	188.3	14.7
LBR_5	NK	0.27	0.01	0.27	353.6	19.4
$LBR_1R_2R_3R_4$	NK	0.26	0.01	0.27	238.4	19.4
LB2-35	NK	0.25	0.03	0.28	375.6	73.1
W 1773-7	ML	0.20	0.03	0.28	---	---
A90586-11	NK	0.28	0.00	0.28	456.9	73.0
Ranger Russet	L	0.28	0.03	0.29	363.0	62.8
Elba	L	0.27	0.02	0.29	759.9	87.8
W 1774-1	ML	0.22	0.02	0.29	---	---
Russet Burbank	L	0.28	0.01	0.29	223.6	54.1
J101 K27	VL	0.29	0.00	0.29	338.8	53.2
LB1-14	NK	0.29	0.00	0.29	442.4	63.9
W 1431	ML	0.21	0.03	0.30	---	---
W 2504-9	ML	0.20	0.03	0.30	---	---
J101 K6	VL	0.30	0.00	0.30	171.3	26.2
UW C75-5	L	0.26	0.06	0.31	282.7	24.0
W 1775-14	ME	0.19	0.05	0.31	---	---
W 1782-5	ML	0.24	0.01	0.31	---	---
AF 1949-1	ME	0.23	0.04	0.32	---	---
AND 9552-7 Russ	L	0.29	0.03	0.32	365.9	47.2
UWH93-1600		0.31	0.02	0.32	428.8	91.9
Pike	ML	0.31	0.04	0.33	255.6	57.6
W 2507-2	ML	0.23	0.03	0.33	---	---
W 1313	ML	0.32	0.02	0.33	218.0	60.8
Snowden	L	0.32	0.01	0.33	277.8	88.2
AF 1753-16	ML	0.25	0.04	0.34	---	---
AF 1935-6	ML	0.25	0.03	0.34	---	---
LB2-299	NK	0.34	0.00	0.34	413.3	54.6
LBR_7	NK	0.34	0.00	0.34	282.7	49.6
ND 6947B-20	ML	0.27	0.00	0.34	---	---
AF 1775-2	ML	0.34	0.03	0.35	458.8	79.0
W 1949-4	ME	0.26	0.03	0.35	---	---
Shepody	ML	0.35	0.01	0.35	358.2	72.0
W1348 rus	ML	0.35	0.03	0.36	605.7	70.4
NY 103	M	0.34	0.03	0.36	284.6	84.6
AC83064-6	NK	0.36	0.00	0.36	394.0	72.9
J138 A4	VL	0.36	0.00	0.36	407.5	55.3
NY 112	L	0.35	0.03	0.37	639.8	88.2
Dorita	NK	0.34	0.03	0.37	196.5	19.1
A082611-7	NK	0.36	0.02	0.37	455.0	66.8
NY 101	ML	0.37	0.00	0.37	433.7	79.9
CO86218-2	NK	0.36	0.00	0.37	245.9	63.3
W 1806-9	ML	0.32	0.01	0.38	---	---
W 1817-4	ML	0.32	0.01	0.38	---	---
NDO2438-7R	NK	0.37	0.00	0.38	417.5	74.8
W 1823-2rus	ML	0.29	0.05	0.39	---	---
AF 1950-1	M	0.31	0.03	0.39	---	---
B0766-3	NK	0.39	0.01	0.39	274.9	89.7
CO083008-1	NK	0.38	0.01	0.39	247.8	77.8
Red LaSoda	ML	0.39	0.00	0.39	260.4	67.5
W 1836-3	ML	0.29	0.04	0.40	---	---
B9922-11	NK	0.40	0.01	0.40	232.6	86.1
Goldrush	M	0.40	0.01	0.40	355.7	77.0
B0288-17	NK	0.40	0.00	0.40	396.9	67.5
J138 A12	VL	0.40	0.00	0.40	472.4	73.2
UWH93-426	L	0.40	0.02	0.41	294.3	63.3
W 1806-3	ML	0.35	0.02	0.41	---	---
W870P90	NK	0.41	0.01	0.41	362.0	81.9
Atlantic	EM	0.40	0.01	0.41	367.8	81.8
W 1151 rus	M	0.41	0.00	0.41	491.7	86.2
NorValley	M	0.41	0.01	0.42	375.6	78.4
LB2-96	NK	0.42	0.00	0.42	148.8	79.2
W 1848-2R	ML	0.34	0.04	0.43	---	---
W 1860-1	ML	0.38	0.01	0.43	---	---
NY 120	ML	0.42	0.00	0.43	591.4	88.7
ND 6940B-27Russ	M	0.38	0.00	0.43	---	---
W 1952-1	ML	0.37	0.03	0.44	---	---
W 1769-7	ML	0.37	0.02	0.44	---	---
Superior	ME	0.43	0.01	0.44	404.1	78.9
NorDonna	M	0.45	0.02	0.45	364.9	53.3
W1100 R	NK	0.43	0.02	0.45	315.1	84.0
Q237-25 (NY 121)	ML	0.46	0.02	0.46	190.0	76.5
W 1812-22	ME	0.41	0.02	0.47	---	---
LBR_2	NK	0.47	0.01	0.47	53.2	18.7
NY 123	ML	0.46	0.01	0.47	490.8	76.5
W 1811-1	ML	0.42	0.00	0.47	---	---
A84118-3	L	0.48	0.00	0.48	244.9	46.9
Russet Norkotah	EM	0.48	0.00	0.48	215.2	77.3
AF 1763-2	ML	0.44	0.03	0.50	---	---
DT6063-1R	NK	0.51	0.02	0.51	323.3	68.1
BC0894-2	NK	0.51	0.01	0.51	219.7	62.3
NY 115	M	0.51	0.04	0.53	437.5	74.4
ND 6935B-4R	VL	0.49	0.00	0.53	---	---
AF 1668-60	E-ME	0.54	0.03	0.54	298.1	85.7
W 1864-4	ML	0.49	0.01	0.54	---	---
W84-75 R	ML	0.55	0.00	0.55	188.3	24.4
W 1962-1	ML	0.51	0.03	0.56	---	---
W 1839-3	ML	0.53	0.00	0.57	---	---
D. R. Norland	E	0.60	0.03	0.60	221.7	67.5
UWH93-911	L	0.61	0.00	0.61	208.6	59.5

Sorted by total yield (decreasing)

Cultivar or Breeding Selection and Maturity Grouping		AUDPC			Yield	
		Early Blight	Late Blight	Com-bined	Total	% US#1 Size
Elba	L	0.27	0.02	0.29	759.9	87.8
UW C75-5-297	ML	0.18	0.04	0.23	756.0	65.8
J103 K7	VL	0.21	0.00	0.21	727.9	28.2
LB2-101	NK	0.08	0.00	0.08	676.6	64.0
NY 112	L	0.35	0.03	0.37	639.8	88.2
W1348 rus	ML	0.35	0.03	0.36	605.7	70.4
NY 120	ML	0.42	0.00	0.43	591.4	88.7
W1355-1	ML	0.25	0.03	0.26	583.7	76.3
LB2-215	NK	0.24	0.01	0.25	553.7	83.4
Pimpernel	L	0.18	0.03	0.22	531.4	33.4
UWH-G85	L	0.22	0.00	0.22	506.7	36.2
W 1151 rus	M	0.41	0.00	0.41	491.7	86.2
NY 123	ML	0.46	0.01	0.47	490.8	76.5
J138 A12	VL	0.40	0.00	0.40	472.4	73.2
LB2-74	NK	0.21	0.00	0.21	466.6	79.9
AF 1775-2	ML	0.34	0.03	0.35	458.8	79.0
A90586-11	NK	0.28	0.00	0.28	456.9	73.0
A082611-7	NK	0.36	0.02	0.37	455.0	66.8
LB1-14	NK	0.29	0.00	0.29	442.4	63.9
NY 115	M	0.51	0.04	0.53	437.5	74.4
NY 101	ML	0.37	0.00	0.37	433.7	79.9
UWH93-1600	ML	0.31	0.02	0.32	428.8	91.9
NDO2438-7R	NK	0.37	0.00	0.38	417.5	74.8
LB2-299	NK	0.34	0.00	0.34	413.3	54.6
J138 A4	VL	0.36	0.00	0.36	407.5	55.3
Superior	ME	0.43	0.01	0.44	404.1	78.9
B0288-17	NK	0.40	0.00	0.40	396.9	67.5
AC83064-6	NK	0.36	0.00	0.36	394.0	72.9
NorValley	M	0.41	0.01	0.42	375.6	78.4
LB2-35	NK	0.25	0.03	0.28	375.6	73.1
Atlantic	EM	0.40	0.01	0.41	367.8	81.8
AND 9552-7 Russ	L	0.29	0.03	0.32	365.9	47.2
NorDonna	M	0.45	0.02	0.45	364.9	53.3
Ranger Russet	L	0.28	0.03	0.29	363.0	62.8
W870P90	NK	0.41	0.01	0.41	362.0	81.9
Shepody	ML	0.35	0.01	0.35	358.2	72.0
Goldrush	M	0.40	0.01	0.40	355.7	77.0
LBR_5	NK	0.27	0.01	0.27	353.6	19.4
J101 K27	VL	0.29	0.00	0.29	338.8	53.2
DT6063-1R	NK	0.51	0.02	0.51	323.3	68.1
W1100 R	NK	0.43	0.02	0.45	315.1	84.0
W91-945a	NK	0.18	0.07	0.24	302.0	31.2
AF 1668-60	E-ME	0.54	0.03	0.54	298.1	85.7
Robijn	NK	0.16	0.00	0.17	295.2	5.2
UWH93-426	L	0.40	0.02	0.41	294.3	63.3
NY 103	M	0.34	0.03	0.36	284.6	84.6
LBR_7	NK	0.34	0.00	0.34	282.7	49.6
UW C75-5	L	0.26	0.06	0.31	282.7	24.0
Snowden	L	0.32	0.01	0.33	277.8	88.2
B0766-3	NK	0.39	0.01	0.39	274.9	89.7
Red LaSoda	ML	0.39	0.00	0.39	260.4	67.5
UWH-G53	L	0.09	0.00	0.09	256.0	52.0
Pike	ML	0.31	0.04	0.33	255.6	57.6
CO083008-1	NK	0.38	0.01	0.39	247.8	77.8
CO86218-2	NK	0.36	0.00	0.37	245.9	63.3
A84118-3	L	0.48	0.00	0.48	244.9	46.9
$LBR_1R_2R_3R_4$	NK	0.26	0.01	0.27	238.4	19.4
AF1638-5	ML	0.24	0.03	0.27	235.7	87.8
B9922-11	NK	0.40	0.01	0.40	232.6	86.1
B0767-2	NK	0.20	0.00	0.20	224.6	67.7
Russet Burbank	L	0.28	0.01	0.29	223.6	54.1
D. R. Norland	E	0.60	0.03	0.60	221.7	67.5
BC0894-2	NK	0.51	0.01	0.51	219.7	62.3
W 1313	ML	0.32	0.02	0.33	218.0	60.8
Russet Norkotah	EM	0.48	0.00	0.48	215.2	77.3
UWH93-911	L	0.61	0.00	0.61	208.6	59.5
Dorita	NK	0.34	0.03	0.37	196.5	19.1
Q237-25 (NY 121)	ML	0.46	0.02	0.46	190.0	76.5
W84-75 R	ML	0.55	0.00	0.55	188.3	24.4
LBR_3 tbr	NK	0.26	0.02	0.27	188.3	14.7
J101 K6	VL	0.30	0.00	0.30	171.3	26.2
LB2-96	NK	0.42	0.00	0.42	148.8	79.2
J101 K9	VL	0.22	0.00	0.22	105.5	33.3
LBR_8	NK	0.18	0.00	0.18	54.9	3.9
LBR_2	NK	0.47	0.01	0.47	53.2	18.7