

Trial: Variety Evaluation

Year: 2025

Location: Bonshaw, PE

This year, the PEI Potato Board decided to undertake a small trial to evaluate commercially available potato varieties with two primary objectives:

1. Compare yield and quality of potato wart resistant varieties with industry standard varieties, and
2. Compare yield and quality of yellow-fleshed varieties with industry standard variety Satina.

The following varieties were selected for this trial:

Variety	Category	Notes:
Red Norland (Standard)	Red	Moderately Resistant: Rhizoctonia Susceptible: black leg, late blight, Vert wilt, PVY, silver scurf
AAC Fuschia	Red	Potentially resistant to potato wart (path 6) Cross of N1700-8 x Chieftain, in Early commercialization
Mountain Gem Russet (Standard)	Russet (Dual Purpose)	Highly resistant: common scab Mod. Resistant: Soft rot, Vert. wilt Susceptible: PVY, dry rot, late blight, hollow heart
Hilite Russet	Russet (Table)	Resistant to potato wart (path 6) Highly resistant: blackleg, scab, internal brown spot Mod. Resistant to early blight Susceptible to PVY, Vert. wilt, late blight
Satina (Standard)	Yellow	Resistant: common scab, PLRV, drought Mod. Resistant: late blight, PVY, rhizoctonia Susceptible: black leg
Alegria	Yellow	Resistant: golden nematode, PVY Mod. Resistant: late blight, Rhizoctonia, common scab, drought
Colomba	Yellow	Resistant: PCN, PVY, internal bruising Mod. Resistant: late blight, early blight, common scab Susceptible: low gravity
Belmonda	Yellow	Resistant: PCN, foliar late blight, internal brown spot, bruise, Rhizoctonia Mod. Resistant: black leg, common scab, silver scurf, PLRV Susceptible: PVY
Electra	Yellow (Light)	Resistant: Common scab, bruising Mod. Resistant: PLRV, black dot, Rhizoctonia, drought Susceptible: PVY, late blight, black leg
Elland	Cream Flesh (Dual Purpose)	Resistant: PCN, Bruising Mod. Resistant: silver scurf, black dot, scab, black leg Susceptible: PVY, Fusarium dry rot, late blight

Seed for Red Norland, AAC Fuschia, Elland, Mountain Gem, and Hilite Russet were sourced from Fox Island Elite Seed Farm. Seed for five yellow varieties sourced from Island seed farms from certified seed lots.

The trial was planted on June 4th, 2025 in a commercial field in Bonshaw, PEI. Harvest date was October 3rd, 2025. Fertility consisted of 1000 lbs/ac of 15-15-19-1Mg-2S, as well as 4L/ac of Calcimax and 4L/ac of Zincmax applied. Between June 1st and September 30th, the nearest PEI Dept of Ag weather station (Tryon) recorded 230 mm of rainfall, significantly less than normal. This consisted of 115 mm in June, 59 mm in July, 18 mm in August and 38 mm in September.

The trial was planted in a randomized complete block design (RBCD) of four replications per variety. Each replication consisted of 15 plants (12 inch spacing) in 15 feet, with two spacer plants (either Red Norland or Mountain Gem) between each replicate. Five plants of each variety were also planted to harvest in early September as “preview plots.”

Emergence was rated on two dates:

Variety	Percent Emerged June 26	Percent Emerged July 2
Red Norland	98	100
AAC Fuschia	100	100
Hilite Russet	97	100
Mountain Gem	98	100
Elland	85	93
Satina	93	98
Colomba	97	98
Alegria	83	85
Electra	62	97
Belmonda	57	77

Two varieties (Allegría and Belmonda) did not achieve 100% emergence. This was due to combination of set rot and other undiagnosed emergence issues. Lack of emergence was spread relatively consistently between replicates.

Plots were harvested by hand using a single-row harvester and bagged for subsequent grading. Tubers were graded for size and quality on November 6th by Steve Watts of Genesis Crop Systems. Russet/Long-Type varieties used 1.875 inch and lower for the “Small” grade size, while Yellow and Red varieties used 2.0 inch and lower for the “Small” grade size. Yield and quality results are presented below. Letters beside the numbers indicate significant difference at $p=0.10$. (ie. means with and “a” next to them are significantly different than those with a “b”, but not significantly different than those with an “ab.”)

Table 1: Red and Yellow Varieties:

	cwt/acre					#	
Variety	Total Yield	Market. Yield	Small	A Size	Large	Tubers /plot	Notes
AAC Fuschia	229 a	135 a	95 b	135 a	0 a	144 bc	trace wireworm
Norland	270 ab	215 bc	55 ab	184 bc	30 a	132 ab	
Alegria	220 a	152 ab	68 ab	129 a	23 a	118 ab	trace scab, ww
Belmonda	220 a	159 ab	62 ab	129 a	30 a	114 a	significant scab, trace wireworm
Colomba	319 b	248 c	71 ab	215 c	33 a	168 c	trace wireworm
Electra	227 a	154 ab	73 ab	151 ab	3 a	143 bc	trace scab, ww
Satina	269 ab	203 bc	66 ab	173 abc	30 a	144 bc	trace wireworm
p value	<0.001	<0.001	0.015	<0.001	0.21	<0.001	

Table 2: Russet/Long-Type Varieties

	cwt/acre					#	
Variety	Total Yield	Market. Yield	Small	A Size	Large	Tubers /plot	Notes
Elland	250 b	197	53	190	7	121	trace scab, moderate ww
Hilite Russet	198 a	154	44	150	4	94	trace wireworm
Mountain Gem	239 ab	190	49	184	5	104	trace wireworm
p value	0.076	0.205	0.841	0.22	0.885	0.122	

For the red varieties, AAC Fuschia has significantly lower marketable yield than the Red Norland standard. This appeared to be due to a higher number of tubers per plot and a smaller overall size profile. There were no tubers in the large size category for AAC Fuschia.

In the yellow varieties, Colomba had the highest marketable yield, followed by Satina, the trial standard. Alegria, Belmonda, and Electra had very similar yields and size profile. Both Colomba and Satina did not have much evidence of scab, while Electra and Alegria had a trace amount of scab symptoms and Belmonda had significant scab present. All varieties had a similar amount of wireworm holes per tuber.

Among the russet/long-type varieties, Elland had significant higher total yield than Hilite Russet but not significantly higher than the standard, Mountain Gem Russet. Size profile was similar across the three varieties.

It is expected that that is variety evaluation trial will continue in 2026. Thanks to Cameron Farms for hosting this trial, and thanks to Steve Watts of Genesis Crop Systems for assistance with planting, harvesting and grading of this trial.



Fig 1: Image of the 2025 Variety Trial at Cameron Farms on July 31st.