

What are the best fall lettuce varieties for southern Ontario?



MULTI-FARM



SEED PRODUCTION & BREEDING



Farmer-
Researchers

Angie Koch
Fertile Ground Farm -
West



Joanna Kowalczyk
Table Community Food
Center - East



Lise-Anne Léveillé,
David Mazur-
Goulet
BeetBox Cooperative
Farm - East



Hilary Moore
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Cedar Down Farm -
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Harold Saunders
Saunders Family Farm -
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Ann Slater
Ann Slater Organics -
West

Project timeline:
Winter 2019 - Fall 2019

IN A NUTSHELL

- Magenta, a red/green batavian, and Ruby Star, a red leaf, were the top performers with respect to overall vigor, flavour and germination.
- Adriana was the growers' least favourite.

BACKGROUND

The fall slot for lettuce is challenging because lettuce has to handle both the heat and dryness of summer and the cold and wet of fall.

METHODS

To compare different varieties for fall growing, these farmers - in consultation with Johnny's, High Mowing and Fedco seed companies - selected 11 lettuce varieties of interest. Each grower chose a subset and everyone committed to planting two replicates of each variety in their last two plantings of lettuce (*Table 1 on page 2*).

RESULTS

Germination, Disease and Frost Tolerance

See *Tables 2 and 3 on page 2*.

- Data were limited, but Winter Wonderland and Speckled Amish had the worst germination (*Table 2*).

Table 4

Overall and flavour rankings (1 high - 5 low) and notes from the lettuce variety trial on seven farms. Favourable rankings (2.5 and lower) are highlighted.

Variety	# farms with data	Overall Average Ranking (1 - best)	Flavour Average Ranking (1 - best)	Rated BEST by one or more farmers	Rated WORST by one or more farmers	Other comments
Adriana	7	3.6	2.7		X	Disliked overall
Winter Wonderland	3	3.0	2.0	X		Bad germination (Table 3).
Speckled Amish	3	4.2	3.4	X	X	Small
Magenta	5	1.9	2.3	X		
Ruby Sky	3	1.6	2.6	X		Sold well
Newham	1	2.5	2.0			Small heads, similar to Spretnak but matures later in warmer months.
Green Star						No data due to poor germination (1 farm).
Spretnak	2	3.5	1.0		X	Small heads, similar to Newham but matures earlier in the warmer months.
Aerostar	2	2.5	3.0	X		
Starfighter	5	3.0	1.9			
Lovelock	5	3.5	2.8			

Crunch time: The best

Overall, the growers found that **Magenta** and **Ruby Sky** were the best performing varieties in this trial. These varieties had high overall and flavour ranking (<2.5), good germination and were rated the best by multiple growers. Interestingly, Magenta was a top performer in two summer lettuce variety trials in Iowa (1, 2).

"I will definitely continue growing Magenta. I have never grown Ruby Sky or Starfighter and I will grow them again as fall lettuce. I may try Lovelock again as well. As for Magenta, I have found it to be a very reliable variety in all seasons. It stood up well in this trial, although it did not germinate as well as some others and tended to be the last variety ready to harvest but it stood through some wet days...with the last harvested October 31 still in good condition." - Ann

"I have not grown a red leaf lettuce in the fall and I really enjoyed the crunch and lack of bitterness [of Ruby Sky]... [It was a] very pretty addition to a salad also." - Hilary

"Magenta and Starfighter were my favourites. Both sized up nicely and held a desirable shape (whereas others were somewhat deformed). Both were tasty and had no disease or rot issues. Magenta did suffer some frost damage though. Ruby Sky was also really nice in this trial in both plantings." - Leslie

"Found [Aerostar romaine] very sturdy, grew well into the fall. Good flavour and nice big head without disease or pest pressure. Magenta also very nice with crunchy leaves and good flavour." - Joanna



Photo: Magenta, a red/green batavian.



Photo: Ruby Sky, a red leaf lettuce.

Newham also had high rankings (<2.5), but was trialed on only one farm.

"Was really pleased with Newham in late plantings... [even though] I did not grow it for the trial." - Leslie

Crunch time: The worst

Adriana was one of the lowest ranking varieties, was rated the worst by multiple growers and was one of two varieties to show signs of disease. Growers noted:

- Lacked softness and buttery flavour
- Did not size up well or form nicely compared to spring and summer plantings.
- Unattractive outer leaves

TAKE HOME MESSAGE

"Testing varieties in the field is a great way to test before using them in the hoop house" - Harold

Multi-farm trials are a good way for farmers to assess varieties. In this trial, 8 growers trialed 11 varieties. While results are limited for some varieties, **Magenta** and **Ruby Sky** were the group's favourites with respect to overall vigour, taste and germination, and Adriana was the group's least favourite.

In future years, the grower may use this dataset to select a smaller number of varieties for further evaluation. They will pay special attention to measurement selection so that data is collected consistently across farms.

[Continued on page 2]

REFERENCES

1. Practical Farmers of Iowa. 2017. Summer Lettuce Variety Trial. <https://practicalfarmers.org/research/summer-lettuce-variety-trial/>
2. Practical Farmers of Iowa. 2018. Summer Lettuce Variety Trial. <https://practicalfarmers.org/research/summer-lettuce-variety-trial-2/>

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SEED PRODUCTION & BREEDING

METHODS continued

Table 1

List of the lettuce varieties that the growers selected for this trial. EFAO staff blind coded the seeds to minimize bias during the trial.

Variety	Type	Colour	Source	Certification	Farmers' initials
Adriana	Butterhead	Green	Johnny's	No	All
Winter Wonderland	Romaine	Green	Fedco	No	HS, HM, DM-G
Speckled Amish	Butterhead	Green with speckles	Fedco	Organic	AS, HS, JK, HM
Magenta	Batavian	Green/Red	High Mowing	Organic	AK, AS, JK, DM-G, LM
Ruby Sky	Leaf	Red	Johnny's	Organic	AS, HM, LM
Newham	Mini Romaine	Green	High Mowing	No	AS
Green Star	Leaf	Green	High Mowing	Organic	AK
Spretnak	Mini Romaine	Green	High Mowing	Organic	AS, LM
Aerostar	Romain	Green	High Mowing	Organic	AK, HS, JK
Starfighter	Leaf	Green	Johnny's	No	AK, AS, HS, DM-G, LM
Lovelock	Batavian/Leaf	Green/Red	High Mowing	Organic	AK, AS, HM, DM-G, L

Plot Location

- Growers tried to avoid the edge of the field and the end of the bed.
- They avoided areas with known soil, shade or irrigation differences that would affect some plots more than others.
- If possible, they planted the trial in a spot where it had the same crop on either side of it.

Trial Arrangement

- For each planting, growers created two replicate blocks of the trial space (**2 replicate sections with 8+ heads per section**).
- They distributed the plots in multiple side-by-side beds or across one bed.
- For each bed or section, growers randomly assigned the order in which they planted.
- They used stakes to label the plots and drew a field map showing the order and location of varieties.

RESULTS continued

Table 2

Seeding and transplanting dates. Semicolons (;) denote different plantings.

Farm	Seeding date	Transplant date	Note
Fertile Ground Farm	July 13; July 28	Aug 15; Aug 26	Second planting killed by grubs/birds
Table Community Food Center	Jul 12; Jul 26	Jul 26 & Aug 2; Aug 21	
BeetBox Cooperative Farm	Jul 25; Aug 1	Aug 31; Aug 31	
Maplelane Farm	Jul 27; Aug 15	Aug 8; Sep 8	Wild turkeys plucked out the freshly planted transplants in second planting
Cedar Down Farm	July 18; July 31	Aug 15; Aug 26	
Saunders Family Farm	Jul 29; Aug 18	Aug 18; Sep 6	
Ann Slater Organics	July 23 & 27; Aug 13	Aug 11; Sep 3	

Table 3

Results on germination (germ.), disease and frost tolerance. Data points and notes from different growers are separated by ;.

Variety	% Germ. Planting 1	% Germ. Planting 2	Disease notes	Frost tolerance
Adriana	100; 100; 75	88; 95	Bacterial spot and downy mildew	Damage at 2 farms; survived -2°C on one farm.
Winter Wonderland	50 +	0 +		Harold is harvesting later Nov under row cover!
Speckled Amish	0; 1; 75	30; 100		Survived -2C
Magenta	66; 75	96		No damage when other damage reported; harvestable under row cover after -7C; survived -3C
Ruby Sky	90; 100	100; 100		Survived -3C
Newham	86	96	Bacterial spot	
Green Star				
Spretnak	100	100		Patchy harvest after 3 nights of <-10C
Aerostar	100	100 (but small, spindly)		Harold is harvesting later Nov under row cover!
Starfighter	100	100	Yes	Some damage; harvestable after 3 nights of <-10C; survived -2C
Lovelock	90; 100	50; 93	Yes	No damage when other damage reported

* Frosts were late this year, which limited the group's observations.



Photos: Trial lettuce growing at Ann's (top), Harold's (middle) and David and Lise-Anne's (bottom).

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REFERENCES

1. Practical Farmers of Iowa. 2017. Summer Lettuce Variety Trial. <https://practicalfarmers.org/research/summer-lettuce-variety-trial/>
2. Practical Farmers of Iowa. 2018. Summer Lettuce Variety Trial. <https://practicalfarmers.org/research/summer-lettuce-variety-trial-2/>

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