



Bell Pepper Variety Trials - 2020

Instructions for On-farm Sites across Ontario

Project Context

Thank you for participating in the Canadian Organic Vegetable Improvement (CANOVI). This project is a collaboration between the Centre for Sustainable Food Systems at the University of British Columbia and *The Bauta Family Initiative on Canadian Seed Security*, a program of SeedChange. This program is implemented in Ontario by the Ecological Farmers Association of Ontario. One of the goals of this project is to create a national network and platform where existing varieties and new breeding lines can be evaluated for their performance in a range of regional organic and ecological farming conditions through on-farm variety trials.

Varieties that are sold to organic and ecological farmers in Canada have not necessarily been trialed on sites that reflect the diversity of Canadian farming conditions. Through a co-ordinated trialing network across Canada, and integration with partner networks in Canada and the United States, we can gather information about both existing varieties and new breeding lines under organic management and across a range of farming conditions.

The information gathered through this trial network will be used to help farmers:

- identify the best-performing varieties in your region, both for market garden production and seed production;
- identify which varieties would be suitable as parents for future regional breeding projects; and
- build capacity to conduct on-farm variety trials useful for their farming operations.

For any questions you may have about the variety trials, please contact Rebecca Ivanoff, Ecological Farmers Association of Ontario, rebecca@efao.ca.



Peppers for trialing

One market classes of peppers (*Capsicum annuum*) will be trialed in 2020:

- Bell peppers (8 varieties).

This trial includes all red bell pepper varieties. The varieties include hybrid (F1) varieties and open-pollinated varieties, as well as one farmer bred breeding line!

Growers may also choose to **add other varieties of their own choice to their trial** to make it more useful for their specific farm. Farmers will need to source their own seeds for any additional varieties they wish to add.

Your seed pack sheet will list the varieties included for your farm, with both code names and real variety names. If you wish to do a blind trial, please label your plants and plots using the codes only. This helps remove any bias you may have associated with the variety names, seed sources, etc. You will need to refer to the variety names to enter data in the online SeedLinked platform (see below).

Full Variety Lists for 2020**2020 Bell Peppers**

Code	Variety	Type	Source	Certification
PB-01	Yankee Bell	OP	Johnny's	Organic
PB-02	King Arthur	F1	Johnny's	Untreated
PB-03	King Crimson	OP	High Mowing	Organic
PB-04	Ace	F1	Johnny's	Untreated
PB-05	King of the North	OP	Fedco	Organic
PB-06	Red Knight	F1	Johnny's	Untreated
PB-07	SeedWorks Mass Selection	OP	Seed Works	Untreated
PB-08	Sprinter	F1	High Mowing	Organic

Planting and Cultivation Recommendations

The table below provides *suggestions only* for trial implementation. **The trial should be grown as you would normally grow peppers, including your normal bed and row spacing -- the purpose of on-farm trials, is to test them on your farm!**

Seeding and Transplant Dates	<ul style="list-style-type: none"> ● Seed in greenhouse 6-8 weeks before last frost (average early-April) ● Transplant after last frost (average mid-June) ● Seeding and transplant dates should be adjusted depending on weather conditions and your normal dates for peppers ● 50/72 cell plug trays are standard sizes ● Seed in cell trays, flats, soil blocks, or nursery beds as you wish. ● Start all 20 seeds received (per rep per variety) to account for losses in germination
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Plants per Variety	<ul style="list-style-type: none"> ● 12 plants per variety per replication ● Replications: 1 or 2
Row and Bed Spacing	<ul style="list-style-type: none"> ● 18" in-row spacing ● 36 - 72" center-to-center bed spacing, or whatever bed spacing your normally use ● You may choose to plant 2 rows per bed ● Adjust spacing accordingly based on your planting regime, the more space you give, the more you can optimize yield and disease pressure
Other Planting Specifications	<ul style="list-style-type: none"> ● Black plastic is preferred, but not required ● Row covers/hoop houses can be used to buffer against cold and increase earliness ● Drip irrigation is highly recommended ● Trellising peppers is recommended to prevent lodging from heavy fruit load
Harvesting Instructions	<ul style="list-style-type: none"> ● Fruits for evaluation should be harvested from 10 plants per plot (exclude the 2 plants at the edges of each rep) ● Harvest peppers as you normally would and market them as desired. ● Harvest evaluation should be done once, when all varieties are near peak maturity.

How to Arrange the Trial

You may choose to do 1 or 2 replications of the trial (i.e., 1 or 2 plots of each variety), depending on your available space. Two replications will give you more confidence about your observations on your own farm, as you will be able to better account for the effects of field variation. However, with 1 replication you will still be able to contribute to a network of results providing reliable information about variety performance. If you plant 1 replication, please still plant 2 plots of the check variety to have a sense of the variation in your field.

- **If you will be planting 2 replications** (2 plots) of each variety, sow enough seed to end up with at least 24 transplants of each variety.
- **If you will be planting 1 replication** (1 plot) of each variety, sow enough seed for at least 12 transplants of each variety and at least 24 transplants of the check variety (Ace for bell peppers, Carmen for corno peppers).
- Please make your own planting labels to ensure varieties don't get mixed up.

If you have any questions, including questions about growing fewer varieties or adding additional varieties, please contact your Regional Coordinator and/or Helen Jensen. We strongly encourage growers read [On-Farm Variety Trials](#) by the Organic Seed Alliance - an incredible how-to guide on implementing variety trials for your own farm.

Sample Trial Layouts

Please observe the layouts below as a examples of how you can organize your trial:

- Bell Pepper Trial Example with 1 replicate:

Please randomize the planting of varieties *within the replication*

Border		
Border	PB-06/Red Knight	Border
	PB-08/Sprinter	
	PB-04/Ace*	
	PB-07/SeedWorks Mass Selection	
	PB-05/King of the North	
	PB-01/Yankee Bell	
	PB-04/Ace*	
	PB-02/King Arthur	
PB-03/King Crimson		
Border		

● **Bell Pepper Trial Example with 2 replicates:**

Please randomize the planting of varieties *within each replication*

Border			
Border	Replication 1	Replication 2	Border
	PB-06/Red Knight	PB-08/Sprinter	
	PB-04/Ace*	PB-07/SeedWorks Mass Selection	
	PB-05/King of the North	PB-06/Red Knight	
	PB-08/Sprinter	PB-05/King of the North	
	PB-07/SeedWorks Mass Selection	PB-03/King Crimson	
	PB-02/King Arthur	PB-01/Yankee Bell	
	PB-01/Yankee Bell	PB-02/King Arthur	
	PB-03/King Crimson	PB-04/Ace*	
Border			

Please observe these best practices to the extent possible:

- A border around your trial of buffer crops not included in your trial is recommended to prevent crop loss from mechanical damage or pests/critters. The crops that make up the border can be other varieties peppers, or other types of crops.
- Avoid using the edge of the field and the end of the bed for the trial, as well as any areas with known soil, shade, or irrigation differences that would affect some plots more than others.
- If possible, plant the trial in a spot where it has the same crop on either side of it.

- Use stakes provided to label the plots AND draw a field map showing the order and location of varieties. This serves as a backup in case the stakes get lost!

Evaluation

Ultimately, the purpose of gathering data for the trial is to answer these three questions:

1. Does this pepper variety work well on your farm?
2. Is it a suitable candidate for on-farm seed production?
3. Is it a suitable candidate for future breeding projects?

Data will be collected in a systematic way to help answer those questions. Evaluation forms are still being finalized for the trial and will be provided shortly after farmers receive seed for the trial. The evaluation forms will be quite simple, requesting farmers to evaluate the following information throughout the trial:

- Would you grow this variety again?
- How marketable is this variety?
- Please rate the flavour and productivity of the variety
- Are there any disease/insect/stress problems related to the variety?



This year, we are going to use an online platform called "Seedlinked" for data collection. This platform should make the final results of the trials accessible to farmers faster. You will also have the option to collect your data on a paper evaluation form. We hope to have another webinar to orient participants to the use of "Seedlinked" for data entry again in 2020 as SeedLinked has been incorporating your feedback and has greatly improved from last year.

Growers will also be asked to make note of:

- Soil type
- Prior crop to planting
- Planting method
- Planting dates
- In-row/between-row spacing
- Mulch used
- Fertilizer applied
- Pest/disease treatments
- Trellising methods used

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