CANOVI Canadian Organic Vegetable Improvement

ALÉBIO Amélioration des légumes biologiques au Canada

Lettuce Variety Trials - 2023

Instructions for On-Farm Sites across Canada

Thank you for participating in the Canadian Organic Vegetable Improvement (CANOVI) regional variety trials! 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 at SeedChange. 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.

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

- **Identify the best-performing varieties** for their regions, both for market garden production and seed production
- **Identify varieties that would be suitable parents** for future regional breeding projects
- **Build capacity to conduct on-farm variety trials** useful for their farming operation

2023 Lettuce Trial Overview

Rationale/Goal

Considering the challenges of climate change and increasing summer temperatures, this trial aims to evaluate lettuce varieties sourced from open-pollinated and regionally grown seeds for their ability to perform in the middle of the summer, including for their tolerance to premature bolting and their ability to maintain their desirable qualities (e.g., appearance, taste, etc.).

Market Classes/Varieties

The 2023 CANOVI lettuce trial will consist of **butterhead, summer crisp/batavia, and oak leaf varieties.** The core set includes butterhead and batavian varieties. The oakleaf head lettuce varieties are optional.

Trial Plots

For each variety, we ask that you plant a minimum of **10 plants** at approximately **8-12" spacing**. Depending on your plot layout, you may choose to plant a single row or multiple rows per bed.

Planting

In all regions, we recommend **seeding in mid-May to early June** for **transplanting just after the summer solstice (June 21)**. Using these planting dates, varieties with 50-60 days to maturity are ready for harvest in mid-August.

Variety evaluation and data collection

Trial evaluation will be conducted with the desktop or mobile SeedLinked app, where you will evaluate traits of interest for each variety on a scale of 1-5 (1=poor, 5=outstanding). As in past CANOVI trials, we have provided a **rubric with evaluation guidelines** for each trait (see page 6).

Stipends

Growers who plant and evaluate their trial will receive a **$300 stipend** per trial. Growers who plant their trial but *do not* complete the evaluation will receive a **$100 stipend** per trial.

<u>Lettuce Market Classes</u>

Lettuce types, or market classes, are classified by plant structure and leaf texture. The following types are included in CANOVI 2023 lettuce trial sets[1]:

- **Butterhead**
  Butterhead varieties have loosely formed heads of soft, tender, red or green leaves. These lettuce heads can be very soft and sweet — almost buttery in texture. People also refer to butterhead lettuce as buttercrunch or just plain butter lettuce. The butterhead types of lettuce include both Bibb lettuce and Boston lettuce, both of which possess a mildly sweet flavour and buttery texture. Generally grown to full-size heads, butterhead lettuce has a beautiful ruffled appearance, with a blanched heart and a delicate, sweet, and buttery flavour.

- **Summer Crisp/Batavia**
  Summer Crisp/Batavia lettuce heads are heavy and compact. This lettuce has a mild flavour and softer texture. As the name suggests, summer crisp is the ideal choice for summer lettuce. It can be grown to either baby-leaf or full-head size. Summer Crisp/Batavia is also sometimes called French crisp or Batavian.

- **Oak Leaf**
  This loose-leaf/loose-head lettuce can be either green or red, has a somewhat delicate texture, and has leaves that look like those from an oak tree. These types form attractive, rosette-like heads of curly, crisp leaves that are characteristically deeply lobed. Primarily grown for baby-leaf production, some varieties perform well when grown to full-head size.

[1] Photos from Alamy Stock Photo and the Veg Home

2023 Lettuce Varieties

Market Class	Variety	Colour	Open Pollinated (OP) or Hybrid (F1)	Days to Maturity	Seed Company
Butterhead	Butter King	Green	OP	60	Yonder Hill Farm, Nova Scotia
Butterhead	Grosse Blonde Paressuese	Green	OP	55	Les Jardins de l'écoumène, Québec
Butterhead	Sangria	Green/Red	OP	55	Salt Spring Seeds, British Columbia
Butterhead	Buttercrunch Bibb (Check)	Green	OP	50	Les Jardins de l'écoumène, Québec
Summer Crisp/ Batavian	Cardinale	Green/Bronze	OP	60	Annapolis Seeds, Nova Scotia
Summer Crisp/ Batavian	Cougar	Green/Bronze	OP	55	Hawthorn Farm Organic Seeds, Ontario
Summer Crisp/ Batavian	Gentilina	Green	OP	48	Fruition Seeds, New York
Summer Crisp/ Batavian	Magenta (Check)	Green/Red	OP	50	Saanich Organics/BC Eco Seed Co-op, British Columbia
Oak Leaf	Biscia Rossa	Green/Bronze	OP	50	La societe des plantes, Québec
Oak Leaf	Feuille de chene rouge/Red Oak Leaf	Red/Green	OP	45	Ferme Tournesol, Québec
Oak Leaf	Red Oak Leaf	Red	OP	60	Wildrose Heritage Seed Company, Alberta
Oak Leaf	Bronze Beauty Arrowhead Oak Leaf (Check)	Green/Bronze	OP	46	Sage Garden Greenhouse, Alberta

*All varieties are public domain varieties and have no intellectual property restrictions on saving seed.

Planting and Cultivation Recommendations

The table below provides *suggestions only f*or trial implementation. **Please grow this trial as you would normally grow lettuce,** including your normal bed and row spacing, as the purpose of on-farm trials is to test varieties in your farm system!

Greenhouse Seeding	• **Seed lettuce in flats in mid-May**, or 3-4 weeks before our desired transplanting date just after the summer solstice. Lettuce generally germinates best when trays are kept below 21°C and shade/cool water is used to lower soil temperatures and maintain moisture. However, since this trial is testing for heat-tolerant lettuces, you may want to observe which varieties can germinate in the heat without extra attention/care. • **Seed extra to account for germination:** Each trial participant should have received approximately 30 to 50 seeds of each variety. We suggest that you plant all the seeds you receive of each variety. We know that lettuce has a

<table>
<tr><td></td><td>hard time germinating in spring and summer heat. The goal is to get at least 10 seedlings that you can plant.</td></tr>
<tr><td>Transplanting</td><td>

Transplant seedlings at the end of June or beginning of July, or 3-5 weeks after sowing in flats.
Transplanting is recommended over direct seeding due the irrigation needs of the small lettuce seeds.
Please feel free to adjust your planting dates based on previous experience or local information, with the plan of growing the lettuce heads in the hottest part of the summer.

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<tr><td>Trial Layout</td><td>

10 plants per variety
1 plot per variety
Plots may be distributed in multiple side-by-side beds or planted in one bed.

Please use the bed width that fits with your regular tillage methods. Depending on bed width, you may choose to plant a single row or multiple rows per bed.
Aim for in-row spacing of 8” to 12”. Many seed catalogues recommend 12” spacing, but some farms have found better success with closer plantings.

Estimated space required ranges from min. 54 bed-feet (core set at 8’’ spacing) to max. 120 bed-feet (core+optional set at 12’’spacing).
You may wish to plant varieties of the same market class near one another for easier comparison.
Consider planting each trial crop alongside market crops with similar maturity dates. This will help ensure the trial plots are top of mind during their harvest window and may allow for smoother fieldwork coordination.
To allow the best comparison among varieties, it’s important that soil, light, moisture, and disease/insect/animal pressures be as similar as possible among plots. To that end, please observe these practices to the extent possible:

Avoid field edges or ends of beds.
Plant a buffer around the trial plots to reduce crop loss due to mechanical damage or critters. Choose a buffer crop that requires similar management as lettuce.

This example layout shows how buffers can be incorporated into your trial plot.

<table>
<tr><td colspan="3">Buffer</td></tr>
<tr><td rowspan="8">Buffer</td><td>Butter King</td><td rowspan="8">Buffer</td></tr>
<tr><td>Buttercrunch Bibb</td></tr>
<tr><td>Grosse Blonde Paressuese</td></tr>
<tr><td>Sangria</td></tr>
<tr><td>Cardinale</td></tr>
<tr><td>Cougar</td></tr>
<tr><td>Magenta</td></tr>
<tr><td>Gentilina</td></tr>
<tr><td colspan="3">Buffer</td></tr>
</table>

Label the plots with stakes <u>and</u> draw a field map to serve as a backup in case stakes get lost. Please note plant spacing between and within rows.

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</table>

	● **Feel free to grow additional plants for market or your own use!** We ask that you keep these plots separate from your trial plots so that the trials are of uniform size across farms.
Management practices	● Please use the organic pest and disease control measures you would normally use.
Days to harvest	● **45-60 days depending on the variety, weather conditions, and your judgement.**

Data collection

- We will be using the **SeedLinked** online platform for data collection, as in previous years.
- You will receive an **email invitation** for the lettuce trial.
- Data (including photos) can be entered into SeedLinked from the field via **iOS and Android apps**. If you don't have cell data service in the field, you can still enter data into the app, and it will sync with the database once you reach a data connection.
- You may also enter data on your **computer's web browser**. We will provide **downloadable paper data forms**, which allow you to evaluate varieties using paper and pencil and for later entry into SeedLinked.
- SeedLinked updated their user interface in 2021, and the **following videos offer an orientation to the platform**:
    - What is SeedLinked?
    - How to Accept a Collaborative Trial
    - Reviewing a Trial

Evaluation

- Before rating varieties **in SeedLinked**, you'll be asked to enter the **planting date**. For lettuce, please also enter your **transplanting date**.
- For each variety, you'll be asked to **rate attributes** including germination, vigour, bolt resistance, appearance, marketability, yield, uniformity, and flavour.
- First, **survey all varieties** to get a feel for the range of characteristics they show.
- Then, **rate them from 1-5 using the *rubric below***, rather than ranking them best to worst.
- **Trust your judgement** and your knowledge of the crop!
- **If a trait doesn't apply to your planting**, please just leave it blank.
- We encourage you to add **pictures and free-form notes** about these varieties!
- Before you complete your trial, you'll be prompted to enter **harvest dates** and general information about soil quality, weather (e.g., number of days above 30°C), and any other factors that might have influenced the trial.
- When you complete the trial, your data will be combined with that of other participants and shared with you via an **interactive SeedLinked interface**.

Rubric for evaluations

In order to make results more easily comparable among sites, and to clarify the trait descriptions in SeedLinked, we are offering this rubric to guide your evaluations.

Lettuce Evaluation Rubric		**1**	**2**	**3**	**4**	**5**	
Trait	**Guidelines**	**Poor**	**Fair**	**Acceptable**	**Good**	**Outstanding**	**Timing**
Germination	*Approximately what percentage of seeds germinated?*	Less than 50%	50-75%	About 75%	More than 75%	All or almost all	*14 days after sowing*
Vigour	*How vigorous (i.e. robust, fast-growing, resilient to stress) is this variety?*	Weak and slow-growing plants	Below average vigour	Acceptable growth and some resilience to stress	Strong growth	Exceptional growth and resilience to stress	*30 days after transplant*
Bolt Resistance	*Does this variety resist bolting long enough for complete head growth and harvest?*	Most heads bolt before reaching harvestable size.	A minority of plants bolt before reaching harvest size.	Some heads bolt before harvest size; most do not bolt	All heads harvestable before bolting, but short harvest window.	All heads resist bolting, allowing flexible harvest time.	*Harvest*
Uniformity	*How uniform are plants with respect to maturity, size, and appearance?*	Extremely variable	Quite variable	Acceptable variability	Quite uniform	Very uniform	*Harvest*
Yield	*How well does this variety yield, in context of other vegetable varieties you grow?*	Poor yield - Couldn't justify growing it	Yield is just OK, but might give another try	Sufficient yield	Solid yield	Exceptional yield	*Harvest*
Marketability	*How easy would it be to sell this variety in your market, given its quality at harvest?*	Difficult to sell	Expect limited sales	Expect average sales	Expect strong sales	Would sell out!	*Harvest*
Appearance	*How visually appealing is this variety when ready for market?*	Ugly or off-putting	Just OK	Appealing enough for market	Consistently appealing	Gorgeous	*Harvest*
Flavour	*How do you like the overall flavour? Taste varieties raw, as your customers would, and when at their ideal size.*	Would not eat again	Might try again	Would eat again, but wouldn't seek out	Would eat again happily	Would seek it out and rave about it!	*Harvest*
Overall Performance	*How much do you like the overall performance of this variety?*	It is clearly not a good fit for me and my markets	I am unsure if it is a good fit for me and my markets	Like this variety but need to evaluate more	Solid variety, a good fit for me and my markets	Love this variety, would recommend to other growers	*End of the Season*

Seed Saving Guidance

All of the varieties we are offering through this trial are open-pollinated varieties with no intellectual property restrictions. Farmers are free to save seed from these varieties for on-farm use. In the Resources section (below), there are some excellent resources on how to save lettuce seed. However, if you plan to sell the seed of these varieties through your seed company, as a contract grower for another seed company, or if you plan to breed with these varieties to create new lettuce varieties, we ask that you connect with the original breeder of that variety (if possible) or the seed grower for that variety, to see how they would like to be recognized.

It is good practice for us to build a culture of trust and reciprocity among our seed growing community. There are generations of farmers and Indigenous communities who are responsible for creating the basis of all the seeds we use today - fully recognizing plant breeding work will often feel incomplete. However, connecting with the plant breeders we know is one way to respect those that have created all of these amazing varieties that we get to work with. Where possible, the contact information for the plant breeders for all of the varieties are listed for your reference.

Resources

We encourage interested growers to read On-Farm Variety Trials by the Organic Seed Alliance, a detailed "how-to" guide on how to implement variety trials for your own farm. We also encourage you to review these excellent variety trial, seed production, and plant breeding resources on lettuce:

- Lettuce! Webinar: A webinar on trialling, selecting, and saving seed for lettuce (2022)
- EFAO Farmer-Led Research Program lettuce trial reports:
    - Article on Lettuce Data Collection
    - 2020 Report
    - 2021 Report
- How to Grow and Save Lettuce Seeds Crop Guide (Community Seed Network)
- Principles and Practices of Organic Lettuce Seed Production in the Pacific Northwest (Organic Seed Alliance)

CANOVI is a collaboration between the Centre for Sustainable Food Systems at the University of British Columbia Farm and the Bauta Family Initiative on Canadian Seed Security at SeedChange.

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10 years
THE BAUTA FAMILY INITIATIVE ON CANADIAN SEED SECURITY
in the seed movement!

We welcome your questions about the CANOVI variety trials! Please contact the Bauta Family Initiative on Canadian Seed Security regional coordinator for your region:

- **Atlantic Canada:** Steph Hughes, SeedChange, shughes@weseedchange.org
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