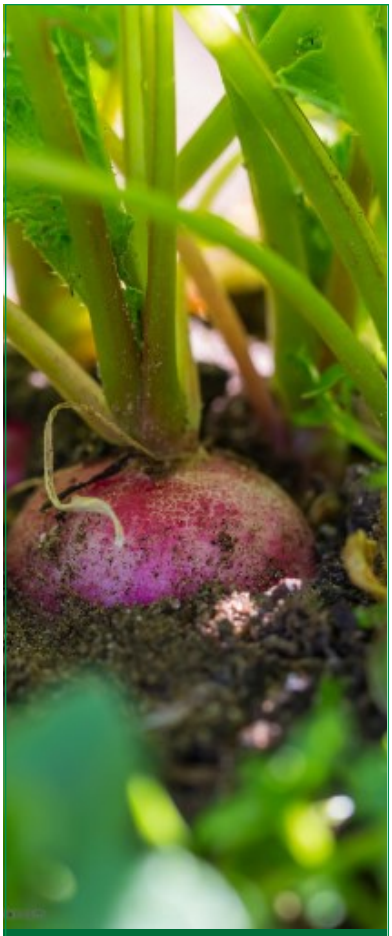

Fruit & Veggie Families

Brassicaceae: Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Kale, Kohlrabi, Radish, Rutabaga, Turnip

Cucurbitaceae: Cucumber, Gourds, Muskmelon, Pumpkin, Squash, Watermelon

Apiaceae: Carrot, Celery, Fennel, Parsley, Parsnip

Solanaceae: Eggplant, Pepper, Potato, Tomato

Chenopodiaceae: Beets, Swiss Chard, Spinach

Fabaceae: Beans, Lentils, Peas

Asteraceae: Artichoke, Endive, Lettuce

Alliaceae: Garlic, Leek, Onion

STEP 1. PLANNING FOR PLANTS

Taking Note

A productive and happy garden requires some thought at the beginning to determine what you're going to plant and where. Ask yourself: How much space do I have to plant? What fruits and veggies do I want to grow? Do I want a wide variety of plants? Or should I focus on only a few different herbs and veggies?

No matter the size or scale of your garden, you will want to start your season with a pencil and paper, or ideally a journal in which to document your garden through the season over the years. Sketch a rough map of your garden beds and pencil in which plants will go where based on your answers to the questions above and the topics below: crop rotation and companion planting. This will also help you determine how many seeds to start of each veggie and/or how many seedlings to purchase.

Crop Rotation

If you're seeding or planting an existing garden bed, do you know what was planted there last year?

It is a good idea to practice crop rotation, the simple idea of not planting the same annual fruit or vegetable in the same garden spot in consecutive years. Moving your crops around discourages a build up of pests or diseases which can overwinter in the soil. As some fruits and veggies are heavy nutrient feeders or require a lot of a particular nutrient (e.g. nitrogen, phosphorous), crop rotation can help your soil from becoming overly depleted by giving it a chance to replenish nutrients. No garden is too small for crop rotation.

There are different interpretations of how and which varieties to rotate. A general rule of thumb is: leaf, root, fruit, legume (peas, beans), repeat.

Visual example of crop rotation. *foodbloggersofcanada.ca*

When considering crop rotation, remember that the pests, diseases, and nutrient needs are characterized by plant family. It is recommended to choose plants from different families to rotate into new places. *See Fruit & Veggie Families* list in the left sidebar.

STEP 1. PLANNING FOR PLANTS, CONTINUED

Companion Planting

Companion planting is a technique that has been used for centuries to improve garden productivity. Originally based on observation and now proven in science, it is the practice of planting certain crops together based on a beneficial or symbiotic relationship. Similarly, it involves the distancing of crops with poor relationships. The numerous benefits include improved pest and disease control, attracting beneficial insects, improvements to the soil (e.g. fixing nitrogen), creating microclimates for better growing, and even improving crop flavour and yield.

Plants with beneficial relationships should be planted within two or three rows of each other. Similarly, plants that have unbeneficial relationships should be planted no closer than 2-3 rows apart. There are many neutral plants that can be used to fill space between these rows.

There are dozens of companion planting guides available online. A very extensive list can even be found on Wikipedia, it includes which specific pests are deterred by companions. The table below provides the basics of companion planting for common crops in our region.

Companion Planting Guide

CROP	FRIENDS	FOES
Bush beans	beets, corn, cucumber, peas, nasturtium, radish, strawberry, summer savory	allium family, fennel
Beets	allium family, beans (bush), lettuce, brassica family, tomato	pole beans
Carrots	beans, chives, lettuce, onion, parsley, peas, pepper, radish, rosemary, sage, tomato	celery, dill
Cucumber	beans, broccoli, cabbage, chives, corn, dill, eggplant, kale, lettuce, marigold, nasturtium, onion, oregano, peas, radish, tomato	basil, marjoram, potato, rosemary, sage, summer savory
Lettuce	beets, carrot, cauliflower, cucumber, dill (use sparingly), kale, radish, strawberry	allium family, broccoli, cabbage
Peas	beans, brassica family, carrot, cilantro, corn, cucumber, mint, radish, spinach	allium family
Squash	beans, borage, catnip, corn, marigold, melon, mint, nasturtium, onion, radish	potato, pumpkin
Tomato	basil, beets, carrot, chives, cilantro, cucumber, garlic, marigold, melon, mint, nasturtium, parsley, pepper, onion, radish, sage	brassica family, corn, dill, fennel, potato

Companion Planting Example

A classic example of companion planting is the Three Sisters historically planted by First Nations and still planted by many people today– corn, pole or vine beans, and squash. The tall corn would provide a structure for the beans to climb. As the beans are in the legume family, they provide nitrogen in the soil for both other plants. The squash spread on the ground creating shade which eliminated weeds and thus competition for soil nutrients. The shaded ground would also have retained water better.

Seed Germination Minimum Temps*

Minimum 2°C: Parsnip, Spinach, Lettuce, Onion

Minimum 5°C: Celery, Parsley, Peas, Cabbage, Carrot, Cauliflower, Beets, Radish, Swiss Chard, Turnip, Broccoli

Minimum 10°C: Asparagus, Tomato, Corn

Minimum 15°C: Beans, Eggplant, Peppers, Cucumbers, Squash, Pumpkin, Melons

Minimum 21°C: Brussel Sprouts

*Approximate. Minimum temperatures are not optimal for maximum germination rates.

STEP 1. PLANNING FOR PLANTS

Temperature

After you've sketched out your garden for this season considering crop rotation, companion planting, and what you'd like to grow, the next step is planning when to start seeds and transplant your seedlings.

The main factor which determines the seeding and planting schedule is temperature. Planting seeds and transplanting seedlings outdoors too soon can lead to frost kill. Furthermore, different fruit and vegetable seeds germinate and grow in different temperatures. New gardeners might want to start by purchasing seedlings which were started in optimal conditions. For those wishing to start plants from seed, carefully read and adhere to the directions on each package.

You'll notice on many seed packages it may provide instructions to direct sow the seed 'as soon as the soil can be worked' (e.g. carrots, greens, onions). Test your soil's 'workability' after it has thawed completely by seeing if you can roll it into a ball in your hands. If it crumbles, it has dried enough to be workable. If it holds its form, it is still too wet.

For the majority of your crops, it can be straightforward to determine your seeding and transplanting dates based on average frost free days. The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has a very useful outline of Ontario's growing zones (also called *hardiness* or climate zones) and the average first and last frost dates for each zone. See it here: www.omafra.gov.on.ca/english/crops/facts/climzoneveg.htm. Along eastern Georgian Bay, the zone is slightly moderated by the lake compared to inland, so the average last frost dates vary between May 11th - 17th. Find your property on the map to be sure.

The *Eastern Georgian Bay Planting Chart* lists the *approximate* dates for our region. You can use this as a rough guide to help schedule your planting. Note that these dates can vary significantly year by year, greater future variation can be expected with the effects of climate change.

A helpful exercise in determining seed starting and planting dates is to follow the instructions to complete Mother Earth Living's handy Spring Garden Worksheet, available from www.gbbr.ca/gardens. This will help you put the right plants into the ground at the right time based on the average frost free days.

It is strongly recommended to keep track of the dates your seeds germinate and when you transplant them outside in a journal or notebook. This information can be very interesting and sometimes helpful to compare in future growing seasons.

Note: All of the plants listed, except slow-growers such as eggplants and peppers, could be direct-sown in the garden. By starting them indoors, however, you can gain an earlier and sometimes better harvest. Some plants are especially sensitive to transplanting (e.g. cucumbers, root vegetables, lettuce and greens)) and you may prefer to start outdoors to avoid seedling loss.

CROP	WEEKS INDOORS BEFORE TRANSPLANTING	TRANSPLANT DATE, RELATIVE TO LAST FROST	SOW INDOORS FROM-TO	EARLIEST OUTSIDE TRANSPLANT OR SOW
Fruits & Vegetables				
Arugula	Direct sow only	4 weeks before	-	22-Apr
Beans (bush & pole)	Direct sow only	At frost date	-	20-May
Beets	5 to 6	2 weeks before	25-Mar to 1-Apr	6-May
Broccoli	4 to 6	2 weeks before	25-Mar to 8-Apr	6-May
Cabbage	4 to 6	2 to 4 weeks before	11-Mar to 8-Apr	22-Apr to 6-May
Carrot	Direct sow only	2 to 3 weeks before	-	29-Apr to 6-May
Cauliflower	4 to 6	2 weeks before	25-Mar to 8-Apr	6-May
Chard	4	2 weeks before	8-Apr	6-May
Celery, celeriac	10 to 12	1 week after	4-Mar to 18-Mar	27-May
Corn	2 to 4	0 to 2 weeks after	22-Apr to 20-May	20-May to 3-Jun
Cucumber	3 to 4	1 to 2 weeks after	29-Apr to 13-May	27-May to 3-Jun
Eggplant	6 to 8	2 weeks after	8-Apr to 22-Apr	3-Jun
Kale, collards	4 to 6	2 to 4 weeks before	11-Mar to 8-Apr	22-Apr to 6-May
Kohlrabi	4 to 6	2 to 4 weeks before	11-Mar to 8-Apr	22-Apr to 6-May
Leeks	8 to 10	2 weeks before	25-Feb to 11-Mar	6-May
Lettuce	4	2 to 4 weeks before	25-Mar to 8-Apr	22-Apr to 6-May
Melons	3 to 4	1 to 2 weeks after	29-Apr to 13-May	27-May to 3-Jun
Mustard	4	2 to 4 weeks before	25-Mar to 8-Apr	22-Apr to 6-May
Onions	8 to 10	3 to 4 weeks before	11-Feb to 4-Mar	22-Apr to 29-Apr
Pak choi	4	2 weeks before	8-Apr	6-May
Parsnip	Direct sow only	3 to 4 weeks before	-	22-Apr to 29-Apr
Peas	Direct sow only	6 weeks before	-	8-Apr
Peppers	6 to 8	1 to 2 weeks after	1-Apr to 22-Apr	27-May to 3-Jun
Radish	Direct sow only	3 to 4 weeks before	-	22-Apr to 29-Apr
Spinach	Direct sow only	4 to 6 weeks before	-	8-Apr to 22-Apr
Squash (summer)	3 to 4	1 to 2 weeks after	29-Apr to 13-May	27-May to 3-Jun
Squash (winter)	3 to 4	1 to 2 weeks after	29-Apr to 13-May	27-May to 3-Jun
Tomatoes	6 to 8	1 to 2 weeks after	1-Apr to 22-Apr	27-May to 3-Jun
Turnip	Direct sow only	2 to 3 weeks before	-	29-Apr to 6-May
Herbs				
Basil	4 to 6	1 week after	15-Apr to 29-Apr	27-May
Cilantro	Direct sow only	0 to 3 weeks before	-	29-Apr to 20-May
Dill	Direct sow only	0 to 3 weeks before	-	29-Apr to 20-May
Parsley	8 to 10	2 weeks before	25-Feb to 11-Mar	6-May

Source: The Farmer's Almanac

Preserving the Harvest

Freezing, canning, cold storage (e.g. root cellar or similar), and dehydrating are tried and true ways to keep your harvest in your kitchen throughout winter. Here are some guides help you preserve the harvest:

1. Bernardin Guide to Home Preserving by Bernardin
2. The Ultimate Guide to Preserving Vegetables by Angi Schneider
3. The Farm Girl's Guide to Preserving the Harvest by Ann Accetta-Scott
4. Homegrown Pantry by Barbara Pleasant

ABOUT US

Georgian Bay is part of Lake Huron and the Great Lakes Basin. It is known as Spirit Lake (*Mnidoo-gamii*) by the Anishinabek peoples and was named a World Biosphere Reserve by the United Nations Education Scientific and Cultural Organization in 2004.

The Georgian Bay Mnidoo Gamii Biosphere is a non-profit charity that works to protect the environment, create vibrant communities, and support a healthy economy. Working with many partners across the region, GBBR relies on grants, contracts, memberships, and donations to do our work.

Join us today! gbbr.ca

Sustainable food systems are an important part of being a UNESCO biosphere reserve. A key factor in sustainable food systems is knowledge sharing and building capacity for people to grow their own food. Since 2008, GBBR has led and partnered on food and garden programs with dozens of partners.

Gardening is a rewarding experience with many benefits. It is a powerful way for people of all ages to connect with nature, it can have significant environmental benefits, and can even be an economical option for fresh produce.

ONLINE RESOURCES

1. **The Georgian Bay Biosphere**
   www.gbbr.ca/gardens
2. **The Old Famer's Almanac**
   www.almanac.com
3. **Ontario Seed Company**
   www.oscseeds.com
4. **Family, Food & Garden**
   www.familyfoodgarden.com
5. **West Coast Seeds**
   www.westcoastseeds.com
6. **Planet Natural Guide**
   www.planetnatural.com

HAPPY GARDENING

Gardening on any scale is healthy for our bodies and minds. We wish you lots of luck, fun, and success with your garden!

Please take a minute to share a picture of your garden with us. We'd love to see your green thumb!

United Nations Educational, Scientific and Cultural Organization

GEORGIAN BAY BIOSPHERE MNIDOO GAMII