Edible Gardening *for* Beginners Workshop Series

A Toolkit for Community Facilitators and Participants

Prince Edward Island CANADA Agriculture and Fisheries

PEI FOOD EXCHANGE

CANADIAN AGRICULTURAL PARTNERSHIP

PREFACE

The goal of this PEI Food Exchange Program Inc. ("FX") project is to stimulate healthy local food production and consumption across Prince Edward Island by celebrating its rich agricultural heritage and revitalizing local food self-sufficiency. The inspiration behind the Food Skills Workshop Series is the recognition that the ability to rebuild food literacy resides within the members of the community. The toolkits in this series are intended to assist individuals and communities across PEI in strengthening knowledge, capacity, and engagement with healthy food skills.

The toolkits include a range of tools and support information. They outline key steps intended to empower community groups and individuals to successfully host their own food skills workshop. Each toolkit is designed to stand alone or be used in conjunction with the other toolkits in the series. These toolkits are intended to be a living resource. Through ongoing input, the FX hopes to periodically update and improve the materials to ensure their continued relevancy.

"In a food environment where highly processed products have become the easy choice and sometimes the only choice, the promotion of food skills as a component of food literacy is an essential part of strategies aimed at supporting lifelong healthy eating habits."
(Canada's Food Guide 2019).

ACKNOWLEDGEMENTS

The FX gratefully acknowledges the support from our community in the development of this toolkit. Funding for this project was made available through the Community Food Security Sub-Program under the Canadian Agricultural Partnership Agreement as delivered by the PEI Department of Agriculture and Fisheries.

We would also like to thank our friends at Food First NL who generously shared their resources and allowed us to model our toolkits based on those developed for their Food Skills Workshops. This toolkit was prepared by Stephanie Dewar and is based on a series of beginning gardener workshops delivered for the FX in 2018. Stephanie has worked on organic farms across the region and has a passion for teaching people how to grow their own food. The FX is extremely thankful to Stephanie for her time and effort in preparing this toolkit. The beautiful original illustrations are the artistry of Gloria Wooldridge and Jessica MacFadzen-Reid pulled the project together with her talents in graphic design.

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INTRODUCTION

About the PEI Food Exchange

The FX was formed in 2013, following the release of a report on household food insecurity which cited PEI as having some of the highest rates of household food insecurity in Canada. In light of these findings, a small group of concerned citizens came together to determine what could be done to empower individuals to improve food security for themselves and their communities.

The FX is a member of the national group Good Food Organizations, a project of Community Food Centres Canada, and adheres to their principles along with our own supporting values.

1. Our initiatives empower individuals to access healthy food;
2. Our activities are financially accessible;
3. We value creative cooperation and collaboration;
4. Sharing economy concepts inform our operations rather than food charity;
5. We support and promote the local food system; and
6. Our activities are carried out in a manner that respects the environment.

FX Initiatives

Organized Gleaning. The FX organizes volunteers ("gleaners") to harvest non-commercial crops on island farms. The fresh produce is shared between the gleaners, farmers and social services agencies.

Community capacity building through garden and food skills workshops. To ensure community members are able to prepare and preserve the food that is harvested and available, the FX offers food skills workshops. We also encourage islanders to grow some of their own food by hosting garden skills workshops, providing an online gardening discussion forum, and connecting people in

need of gardening space to those who have land to spare or with local community gardens on our website.

Sharing information on local food resources. The FX promotes the local food system and provides eaters with information on how to access local products. This information is shared through our website and through social media where we actively connect with and engage islanders from tip to tip.

About this Workshop Series

Throughout the 2018 season this hands-on educational series was delivered free of charge to community members with the simple goal to empower participants to grow some of their own food. Held in the PEI Legacy Garden, these activities utilized a vibrant, unique urban space to create opportunities for social connection, physical activity, and shared experience centered around sustainable food production.

The modules in this guide focus on simple organic principles for growing food in an urban environment, thus improving access to the basic knowledge and skills necessary to gain confidence as a beginning gardener. By developing our curriculum into this practical guide, it is our hope that other community groups and organizations will be able to deliver these workshops more widely, thus expanding the reach and impact of our goal to improve local food security and invite more beginner gardeners to get growing.

How to Use this Toolkit

This toolkit provides the fundamentals for delivering workshops on a variety of topics targeted toward new gardeners: growing, maintaining, and harvesting a simple vegetable plot, no matter your skill, scale, or site. We aim to provide easy to follow, comprehensive information based on fundamental organic principles that can be implemented at any budget.

For the facilitator, this guide begins with the basics. We outline tips and considerations for planning, promoting, and preparing for your workshops, as well as how to engage participants in a meaningful and practical way. Next, we offer suggestions for workshop delivery, from

selecting your location to managing your time and activities safely and effectively throughout the session.

Each workshop module includes recommended activities and resources to incorporate at your discretion depending on time, interest, and capacity. Familiarize yourself with the content, but don't read it word-for-word; it is intended not to be a lecture, but a presentation of information and dialogue about gardening. We also recommend setting aside time for a brief Q&A period. In our experience, allowing participants to guide the discussion encourages engagement and interaction that enhances the overall learning experience.

Finally, these modules do not need to be delivered in full or in any particular order. This series was designed to follow a full growing season on PEI over the course of seven two-hour sessions. As such, we recommend facilitators modify the content based on their particular circumstances and the needs of their participants: take bits and pieces from different modules, combine topics, and cater the information to best serve your community.

BEFORE YOU BEGIN: TIPS FOR FACILITATORS

The following section is intended to guide facilitators in the planning and preparation of their workshops by outlining important things to consider before beginning your first workshop.

Selecting a Location

Choose a site that is available for use on your scheduled dates, accessible to your target community of participants, and affordable enough to suit your workshop budget. Book your space well in advance for all expected dates and confirm with your venue leading up to your workshop. Be sure the location is within a reasonable distance for participants to travel, whether by foot or transit. You may even consider offering ride-sharing opportunities for groups that could travel together. When contacting prospective venues, consider local community rooms or gardens, libraries, schools or churches that may be willing to donate space. For indoor rooms, be mindful of accessibility for participants with mobility issues and ensure there is sufficient seating and workspaces for the comfort and size of the group.

Depending on the activities you intend to incorporate in your workshop, you may be seeking an outdoor site with a demonstration garden plot. In this scenario, you will also need to consider the availability of tools and equipment, the comfort of participants (is there seating available?) as well as a contingency plan for weather. Are there nearby public facilities that can be used by participants? Do you have a way to promptly notify participants of any change in plans due to unexpected weather? Provide all of the information necessary so they can be properly prepared for an outdoor setting: recommended clothing, sun protection, footwear, and so on.

Agenda and Scheduling

These modules were designed as two-hour workshops, with flexibility for activities and Q&A periods; however, they are readily adaptable to suit the time you have available. Consider modifying your agenda based on the most relevant topics within each module, or combining multiple modules to fill a longer timeframe. For example, the module on Soil and Seeds could be

combined with Crop Care, or the topics of Herbs and Edible Flowers could be added to your Healthy Harvest workshop.

Be sure to schedule workshops in a window of time that is best suited to your target participants. For us, holding workshops from 6-8pm on a weekday evening was well suited to our demographic. Consider polling interested groups as to whether they prefer weekdays, weekends, or evenings. Keep in mind work schedules and child care commitments. For the latter, it could be beneficial to schedule a supervised child-friendly activity at the same time and place.

As the facilitator, be flexible with your agenda and timeline. No matter how detailed your coordination, activities can often run longer than expected and discussions can foray into new topics. For adult learners in particular this dialogue and exchange fosters networking, socializing, and engagement among community members that is a welcome benefit. Without being too strict on timing, keep the clock in mind and be sure to leave enough time and space for any hands-on activities that had been planned for as this interactive component is most valuable.

Finally, consider providing snacks and beverages for longer workshops and particularly those that are scheduled around mealtimes. Sourcing fresh, local produce to be shared among participants is a great way to encourage discussion over unusual veggies or the availability of local food.

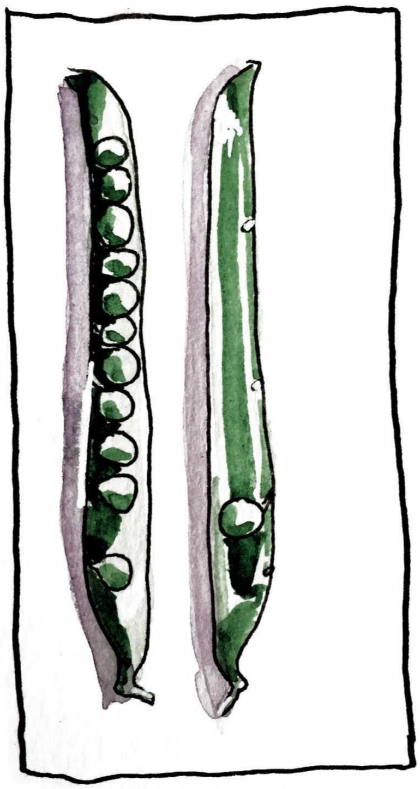
Promoting Workshops

It is now time to invite your community to participate in the workshops. Be sure to begin promoting your workshop(s) with plenty of advanced notice with friendly reminders leading up to the actual date. **See Appendix A for a sample poster demonstrating the information that should be shared in your outreach, whether in print or online.** In order to reach your target audience, it is best to promote widely and through different media within the community. Keep

your advertising budget in mind, and if it is minimal there are many ways to promote with little to no cost. Here are some suggestions:

1. **Social Media.** Create a Facebook event that can be shared more widely across relevant local groups. You can also share your event through the FX Facebook page.
2. **CBC Community Event.** You can promote your event through a PSA on the radio and on the CBC PEI Community Calendar.
3. **Local print media.** Consider printing a brief description of your event in a local publication such as The Guardian, the Buzz PEI, or Salty .
4. **Community Bulletin Boards.** Post copies of your promotional poster or flyer on bulletin boards around public gathering spaces such as local libraries, schools, community centres, and churches.
5. **Communicate with local groups.** Share your event details with local community groups that may serve or reach your target participants. These groups often have e-mail lists and newsletters where your event could be promoted.

Materials and Budget



These workshop modules were designed to be delivered with minimal expenses, but can also benefit greatly from additional supplies for activities. For instance, the topics of gardening can be discussed in a free community space with sample quantities of soil, seeds, or a slideshow of photographs. Alternatively, if resources allow, these workshops can be delivered around a demonstration garden plot where the activities can be performed and the garden maintained over the season by the group.

The PEI Food Exchange was fortunate to be able to conduct the full Edible Gardening for Beginners workshop series at the PEI Legacy Garden where we not only had access to a demonstration plot, but also the added benefit of a diverse community garden space with endless examples of techniques, gardening styles, pests, weeds, and disease, trellising systems, and so on. **No matter which end of the spectrum your workshop falls, it is recommended that you clarify your expenses using a budgeting template such as the one provided in Appendix B.** A list of materials associated with suggested workshop activities are included at the beginning of each module.

The purpose of keeping the workshop budget low is to allow for free participation - thus further breaking down barriers to learning to grow food - but this can be adjusted based on your particular circumstances and target audience. If you choose to charge a fee, this can be implemented in multiple ways: a flat rate, based on your particular budget; a sliding scale, where participants are charged a fee reflecting their income level, volunteer contribution or role/membership within the host group; suggested donation, based on what participants can reasonably afford; or pay-what-you-can, where it is left open to participants to decide what they can pay.

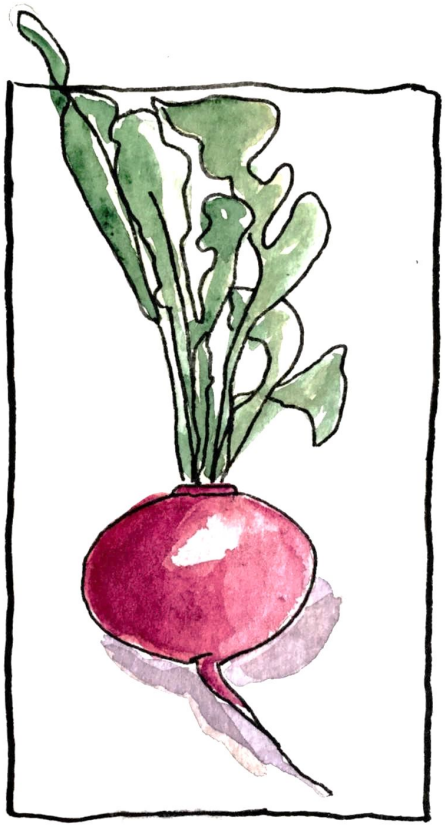
Gardening tools, equipment, seeds, and other supplies are often available at an affordable cost used, can be borrowed in spaces like community gardens, or could be acquired through monetary or in-kind donations from local businesses or organizations. If additional fundraising is needed to cover the costs of the workshop or to avoid participant fees, consider seeking donations, hosting a fundraising event, or applying for local funding or grants.

Creating a Welcoming Space

The following principles, shared with permission from Food First NL's Best Practices Toolkits, should be kept in mind when facilitating workshops for adult learners:

1. **Draw upon learners' experiences as a resource.** Adults have a wide experience base. Facilitators can help participants share their own experiences and create an environment where participants are encouraged to learn from one another. By focusing on the strengths learners bring to the workshop, learners are able to connect new learning with prior knowledge.
2. **Foster a spirit of collaboration.** Collaborative learning focuses on the interdependence of each member. Learners collaborate with facilitators and with each other by working together to answer questions and perform activities.
3. **Involve learners in the planning and implementation of learning activities.** Adults are interested in things that are relevant to their lives. Adults' past experiences, their current learning goals, and their sense of self will influence what they want to learn and how they learn it. The facilitator can create a situation in which participants can share in the planning, implementation, and evaluation of workshops.

4. **Create a climate that encourages and supports learning.** Adults have a sense of personal dignity. They must be treated with respect at all times and never feel humiliated or laughed at before others. A safe atmosphere where learners can admit confusion and express different opinions is one that enhances learner self-esteem and reduces fear.
5. **Cultivate self-direction in learners.** In a supportive and safe learning environment, the facilitator can become a mentor to adult learners. They can help learners to develop skills that lead to self-direction, independent learning, and empowerment. Facilitators can encourage learners to continue to seek out knowledge and experiences related to the topic beyond the workshop.



Getting to Know Participants

Another way to encourage participation and to enhance the overall experience for learners is by familiarizing yourself workshop attendees, understanding their level of gardening experience, and clarifying their expectations and particular interest in the topics. This can be achieved simply through the introductory portion of the workshop where the facilitator may ask questions related to these subjects. Organizers may also or alternatively choose to gather relevant information during the registration process prior to the first workshop. **See Appendix C for a sample registration form.** Note that you may also consider printing off release forms to gain permission to use photos of workshop participants, should you intend to use them for future promotion or other public use. See **Appendix H for a sample Participant Consent Form.**

In our experience these hands-on workshops are best suited to groups of around 12-15 participants; however, the specific number you target will vary depending on your resources, budget, space, and planned activities. Though initially developed for adult learners, these gardening topics could also be tailored toward younger participants. Learning to grow food is a valuable skill and fun activity at any age!

Workshop Checklist

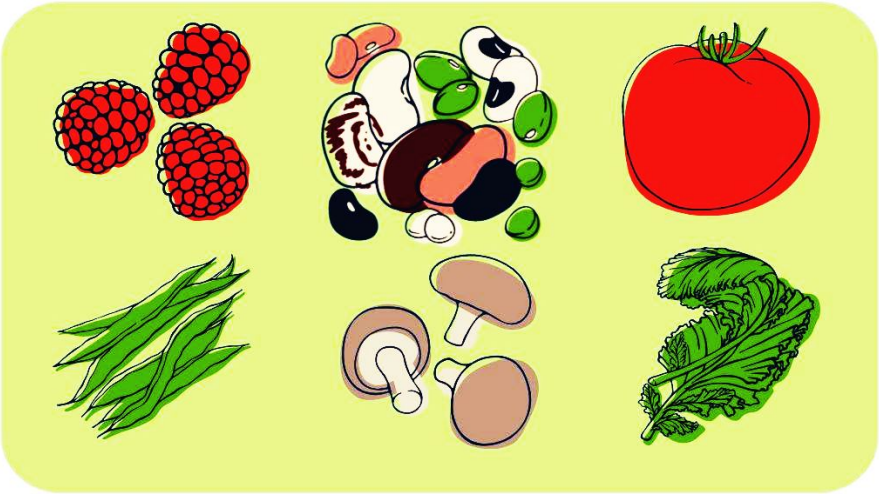
As a facilitator it is essential to be organized and fully prepared for your successful workshop: familiarize yourself with the module content, plan to accommodate the expected participants, have your materials and location secured, stay on top of promotion, and maintain communication with those involved as needed. **See Appendix D for the "Are You Ready? Checklist to assist in planning your workshop.**

Workshop Evaluation

Whether or not you are planning on hosting multiple workshops, consider creating a simple workshop evaluation form to gather feedback from participants. Reviewing these evaluations can help you to adapt and improve upon your workshops over time based on the experiences of participants.

Garden Safety

Safety should be a top priority when hosting any workshop or event, and gardening workshops come with their own particular considerations due to environmental conditions of hosting in an outdoor setting and the use of tools and other equipment. The health and wellbeing of participants should be considered at every stage of the planning and delivery process, including the location, the activities, and any food and refreshments that may be served. **See Appendix E for a list of gardening safety tips.**



WORKSHOP OVERVIEW

The following section provides information related to the delivery and structure of the Edible Gardening for Beginners workshop series.

Facilitation

You have planned, promoted, and prepared for you workshop; now it is time to deliver! Be sure to familiarize yourself with the module content ahead of time. The primary objective of these workshops is to address the lack of knowledge facing community members when it comes to growing their own food. These modules go into detail about a variety of topics related to backyard vegetable gardening, not all of which will be relevant to your particular audience or fit within your timeline. Use these modules as a guide, but feel free to be creative and flexible in your facilitation.

As a facilitator, be friendly, clear, and confident in your delivery. Adjust your language and information based on the skill and understanding of your participants. Come prepared with any materials needed to deliver the workshop, including extra pens and paper just in case. Consider bringing name-tags if you expect to host a larger group or one with multiple sessions.

Location

Once your location is confirmed, take note of any additional details that may need to be addressed on the day of the workshop: access, keys, tables, chairs, etc. You should have the space fully set up and ready to go at least 15 minutes prior to participant arrival.

Participants

As participants arrive, introduce yourself and take note of individual names, perhaps offering name tags. If registration forms have not already been completed, consider having an e-mail sign-up list available to follow up with participants after the workshop.

Timeline

The individual workshop modules are designed to last approximately two hours, which can be broken down as follows:

- Introduction (15 minutes)
- Presentation of Content (1 hour)
- Activity (30 minutes)
- Q&A Period (15 minutes)

This structure will vary depending on the topic of your workshop and the associated activities. Adjust your timeline accordingly, but be sure to allow sufficient time for any planned activities and some time for questions as these hands-on and discussion components are often the most valuable.

Safety

Participant safety is of utmost importance, particularly if workshops will be held in a garden setting using tools and equipment. Be prepared with a first aid kit and clearly communicate proper techniques prior to gardening activities. **Appendix E provides a list of tips for garden safety.**

Introductions

Begin your workshop with the following introductions:

1. **Introduce yourself.** Welcome the group by introducing yourself and sharing your interest and involvement in gardening. Explain your background experience and why you have chosen to deliver this workshop.
2. **Introduce the workshop.** Provide an overview of the topics you will be discussing and the activity, if relevant. If the workshop is part of a series, provide a recap of the previous session and/or a preview of topics to come. Explain the background of this workshop series and its importance in breaking down the barriers to growing food.

3. **Introduce the participants.** Invite participants to introduce themselves, sharing their name and a bit about their interest in gardening, or perhaps their favourite vegetable to grow or eat. By getting to know the group you will be better able to tailor the information: are participants newcomers to the island, learning about a new gardening climate? Is this their first attempt at growing food? Or are they looking to expand their knowledge of growing vegetables organically?

Suggested Activities

Each module has one or more suggested activities that can be incorporated into the workshop to enhance hands-on learning and participant engagement. Generally, they are designed to be carried out in an outdoor space with a demonstration garden plot; however, feel free to adapt the activities based on your resources and environment.

Reading Recommendations

At the end of each module we present a selection of books, articles, and other reading materials that expand upon the information provided during the workshop. These resources are generally focused on beginner gardeners and the vast majority are available either online or through the public library.

Gardening Q&A

We suggest you set aside 15 minutes or so for any questions related to the day's topic, previous topics, or just general questions related to gardening that may be helpful to the group. Take note of any questions that arise that may not be covered in the module content as you could always forward along additional resources if participants provided contact information.

WORKSHOP MODULES

The following section provides information related to the delivery and structure of the Edible Gardening for Beginners workshop series.

MODULE ONE	GET GROWING: GARDEN PLANNING, PREP AND PLANTING

Suggested Activity:	A hands-on demonstration as where the group plants a garden plot together, step-by-step to learn the basic information and techniques for growing your own food in an urban environment.
Materials:	❏ A small garden plot or containers with soil ❏ A selection of gardening tools (see list in Topic 2) ❏ An assortment of seeds and/or bedding plants (see list in Topic 4)

Topic 1: Choosing your Garden Site

The first step to starting a home vegetable garden is deciding where to put it. Here we will discuss the ideal elements for a good backyard garden plot; however, where space is limited, work with what is available. A surprising abundance and diversity of food can be grown in compact spaces: for example, planting in containers on a patio or growing herbs in a sunny window. This limitation should not stop you from planting a garden, but will inform the crops you are able to grow. In order to give your plants the best chance for success, consider the following factors:

1. **Sunlight.** Most garden vegetable crops thrive in full sun, meaning at minimum 6 hours a day but ideally 8 to 10 hours of direct sun. Plants that prefer "partial sun" need only 3 to 6 hours of sunlight per day. When planning your garden take note of shady areas or potential sun obstructions. Orienting garden rows running North-South will take best advantage of the light as the sun moves throughout the day.

2. **Access to Water.** Plants require moisture to grow and survive. Proximity to a reliable water source is a key consideration when planning your garden site.

3. **Airflow.** A healthy garden requires good air circulation to prevent the spread of disease and ensure good airflow around plants. Heavy winds can damage plants so some protection is helpful, but not enough to obstruct the free flow of air.

4. **Frost.** Cold air sinks, so be aware of potential frosts pockets when choosing where to locate your garden. A sloping area is less prone to frost; a southwest facing slope is ideal to maximize garden warmth.

5. **Accessibility.** Your garden should be easily accessible to encourage frequent visits and ensure you are able to maintain and manage as required. This not only refers to location, but also the accessibility of the garden itself: consider building raised beds for ease of use if necessary.

6. **Size.** A 100-square-foot plot is a good size for a beginning gardener and with proper planning could easily feed a family of four throughout the season with some extra to share and preserve.

In urban environments we sometimes have to get creative, whether it be sharing gardening space with a friend or neighbour, or renting a plot at a local community garden like the Legacy Garden or Debrisay Community Garden. The FX has a list of the community gardens on PEI.

Topic 2: Basic Gardening Toolkit

Gardening does not require an array of expensive tools; rather, a few basic items used properly can help build and maintain a very healthy garden. Many of these tools are widely available used or borrowed, and all of which can be purchased at any local hardware store or garden center. Community gardens often supply these items to their members, and the Charlottetown Tool Library is an excellent resource for accessing many key items. A basic gardening toolkit may include the following:

1. **Trowel.** A simple, versatile tool for planting, digging, weeding, and marking rows.

2. **Shovel.** For digging in the garden and moving materials like compost and mulch.

3. **Rake.** To remove debris, incorporate amendments and smooth out your bed.

4. **Hoe.** To cultivate the soil and eliminate weeds.

5. **Watering can or hose.** Water is essential for plant growth, especially for young seeds and seedlings.

6. **Wheelbarrow (or buckets)**. Useful for transporting tools, debris, and compost or mulch. But in a pinch or on a small scale, a bucket will certainly do!

7. **Knife/Scissors/Pruners.** It helps to have something sharp around for pruning plants, setting up trellises, and harvesting certain crops.

8. **Gloves.** A simple pair of well-fitting gardening gloves can help protect your hands while working in the soil and using your tools.

In addition, items like knee pads or garden pads can help support your joints and improve comfort while working in certain positions, while protection from the elements (a hat and sunscreen, for example) are important for summer days. Ergonomics and proper positioning are also important to consider when gardening. Incorporating these tools and techniques into your routine will support a healthy gardening lifestyle in the long-term.

Topic 3: Preparing Healthy Soil

Healthy soil grows healthy food. Plants require certain elements to grow and develop into nutritious vegetables. When our soil is depleted of these nutrients the quality of produce will suffer.

Soil can either be sandy, loam, or clay. A sandy loam comprised of sand, silt and clay is ideal as it is loose and friable - easy to work with and beneficial for plant growth. Different parts of the island feature more sandy or heavy clay soils but any type of soil can be amended with organic materials to improve its structure. If you do not have access to soil and choose to build a raised bed or container garden, there are many sources for organic compost mixes and soil that can be used in these structures. Visit your local garden center.

Adding compost (or well-aged manure or leaf mold) to the soil is a simple way to increase the organic matter and nutrient levels of your garden. Heavy clay soil will benefit from coarse sand or peat moss to improve drainage, while sandy soils will benefit from the addition of clay or aged manure for better conditioning. Well-drained soil will allow for better root penetration (especially important if you're growing root crops) and will prevent waterlogged soil. Similarly, it is important to reduce compaction in your garden that can impede soil structure and plant growth. Avoid walking in the garden bed or create designated pathways around raised beds.

A soil test will provide an accurate picture of the state of your soil by analyzing the pH, organic matter, macro- and micro-nutrients. The results can help inform which amendments to add to your soil to achieve certain goals such as improving soil structure, raising pH, or balancing nutrient levels. Gardeners should aim for a pH of 6.5 since most plants thrive in slightly acidic to neutral soils in the range of 6.0 to 7.0.

When preparing your soil to plant it is important to create a weed-free bed. Weeds will compete for essential resources like nutrients, moisture and sunlight. While some weeds are edible and

even beneficial, the general definition of a weed is anything growing where you do not want it to. To give your plants a healthy head start it is important to create a clean garden bed for planting.

Topic 4: Selecting Varieties and Crops for PEI

A number of factors come into play when deciding which foods you'll grow, including:

1. **The length of growing season in your region.** PEI is in zone 5B of Canada's Plant Hardiness Zones (map available on Veseys website). This information is based on the average climatic conditions across Canada where 0 is the hardiest and 9 is the mildest, and can be used to help determine which plants will grow and survive the coldest temperatures in your area. The length of your growing season is largely dependent on your "frost free dates," meaning the average last frost date in the spring and first frost of the fall. Even across PEI these dates can vary due to the many microclimates caused by different local geographic features such as being on a hill or in a valley, proximity to the ocean, exposure to sun and wind, and urban heat island effects in cities. The typical last heavy spring frost in Charlottetown is around May 20 and the first frost of fall around October 10, giving a growing season of approximately 140 days. This obviously isn't true for every year, 2018 being a perfect example, which is why the old saying "plant after the New Moon in June" has been a guideline passed down by generations in this region. Certain crops may not grow to maturity in the allotted growing season and may not be worth growing in your garden; however, the use of very basic materials to help protect plants from frost can help extend the season. A light freeze (0 to -2 degrees) will damage tender plants while hardier plants may survive, but a heavy frost (-4 degree and colder) will damage most garden crops.

2. **Your personal and household preferences.** While it's fun to experiment, if space is limited it is best to devote your garden to foods that you and your household enjoy eating. Or new and exciting vegetables, varieties, and colours that will get your family excited to eat what you grow. Taking a look at your grocery list gives a good indication of how much of which foods you buy most often, and which make sense for you to try growing yourself. Or maybe you'd like to grow something that isn't locally available in the store or market but can be grown at home. If your garden is too small to grow everything, or if there are certain things you're more interested in growing than others, consider sharing your harvest and swapping with gardening friends and neighbours.

3. **The amount of time you plan to spend gardening.** Some crops require more maintenance than others, while some vegetables will grow with very little effort. Tomatoes need to be staked and pruned for best success, for example, while crops like beans and zucchini grow very easily but need to be harvested regularly to keep them under control. Thinking about how often you'll be in the garden will help determine what you'll be able to manage.

4. **Which crops are easiest to grow in your climate.** We've selected an assortment of crops and varieties to grow in our demonstration garden for different reasons: some are easy to grow and require little maintenance; others produce an abundance of food all season long; some will be planted at intervals to keep a steady supply throughout the season; and others will help extend our harvest and last longer into the fall. **A sample of crops that are well suited to gardens on PEI can be found in Appendix F.**

Seeds are available through a variety of sources. For best germination and success, it is beneficial to source seed as locally as possible; seed grown and saved in a certain climate will be better adapted to regional conditions than seed grown in other regions. On PEI we are fortunate to have access to seed libraries across the province where locally saved seeds are shared through public libraries. More information about Seedy Saturday events and sourcing seed are available through the PEI Seed Alliance and Seeds of Community.

There are many reliable seed companies providing seed suitable to our regional growing conditions, from Vesey's on PEI and Hope Seed in Nova Scotia to the many smaller and larger seed companies in Canada and the US. Most companies will send a free catalogue or you can browse and order seed through their websites (or simply purchase seed from your local garden center). The options for varieties are endless!

Heirloom vegetables are open-pollinated and often saved for generations (often with unique appearance and exceptional flavour), while hybrids are developed by crossing two varieties to take advantage of their best qualities (e.g., vigorous growth of high yields). Note that hybrid seed does not mean GMO. While it can be fun to experiment with diverse varieties and types, sticking to the basics when beginning your garden will allow you to focus on learning the essentials before growing greater diversity.

Seed viability refers to the rate of germination and quality of seed. For best viability, purchase only the amount of seed you need for the current season. Many seed packets contain much more seed than you will need, which is a great opportunity to share varieties with fellow gardeners. If you do store seed for the future, be sure to keep them in a cool, dark, dry location to preserve their viability. To maintain longer-term viability, the Seed Savers Exchange offers excellent tips for success.

Topic 5: Understanding Seed Packets

Seed packets provide important information and instruction for proper seeding and plant care. Seed catalogues and company websites also offer detailed, comprehensive information about varieties, growth habits, proper planting and plant care, potential pests and disease, and how and when to harvest. These resources will help you understand which varieties are best suited to your particular region; for example, plants that require longer growing time may not be suited

to the relatively shorter growing season of PEI. While most seed catalogue and packages provide a legend explaining the information provided, the following categories explain the key elements to interpreting and understanding your seed packets.

1. **Plant type, variety and photo.** The most visual and immediate information. Seed packets are described by plant category (e.g. lettuce) and variety, often also including the latin botanical name (e.g. Lactuca sativa). The photo on the packet will show the plant at maturity, giving a good idea of what to expect as a final product.

2. **Description.** A brief explanation of the plant's characteristics and growth habits with more detailed information typically available in the catalogue or online. Packages will provide a summary of the plant's size/height/weight and colour, the flavour and texture, and the days to maturity (or DTM). The latter tells you how long from planting the crop will be ready to eat, helping to understand the timing of your harvests and whether the plant will be suited to your growing season. For staggered harvests, selecting both early and later DTMs will help ensure plants are mature in succession. For heat-loving crops like tomatoes and peppers, shorter DTMs will be better suited to the growing conditions of PEI.

3. **Best By/Packed For Dates.** While some seeds stay viable for multiple years if properly stored (in a cool, dark, dry location), it is best to use seeds within the year they were packaged. Most packets will be stamped with these dates and may also include the guaranteed germination rate as a percentage of seeds.

4. **Number of Seeds or Weight.** Seed packets will tell you the contents either by weight or number of seeds, helping you understand how much garden space can be covered or how many packages you will need for a certain yield of food. Tools like Johnny's Seed Quantity Calculator can help convert the amount of garden space to the number of seeds and weight you will need to purchase. It is useful to add a "safety factor": buying in a little extra seed can help make up for less than perfect germination, or unexpected weather conditions or pests.

5. **Planting Directions and Growing Conditions.** Packets will tell you how to plant the seed for best success, whether indoors or directly sown in the garden. Relevant information includes ideal temperatures and timing of planting, seeding depth, spacing within and between rows, preferred growing conditions (e.g., full or partial sun, soil type, and watering needs), and fertility needs. Particular quirks relevant to the plant will also be identified: some seeds need to be soaked in advanced, while others prefer darkness or need sunlight to germinate, for example.

6. **Harvest and Maintenance.** Information on when and how to harvest the mature crop as well as which pests and diseases to look out for while managing your garden. Seed

packets will often provide advice on how to manage these issues organically and may also identify good companion plants to help you map out your garden design.

Topic 6: Garden Layout and Companion Planting

Once you know where your garden will be located, your soil is ready, and you've chosen what you'll be planting, it is now time to design the layout of your garden. There are many styles and systems that can help structure your garden to maximize space, but the most important thing is to ensure your plants have enough space, sunlight, and water to thrive. Plants that are spaced too tightly will compete for nutrients and other resources; rather than grow more food in a small space, plants will be stunted and yields reduced. If there is limited space in your garden, consider growing certain things in pots or containers to expand your growing area.

1. **Row Gardening.** A traditional method used in larger fields that can also be applied to smaller garden plots and raised beds. Planting vegetables in rows space between to allow the gardener access to the plants and keep things organized and make weeding easier. Incorporating herbs and flowers among the vegetable rows is one way to maximize diversity in the space.

2. **Intensive or Square Foot Gardening.** Square foot gardening is one way to plant intensively and make the most of limited space. The basic concept is to create a small garden bed and divide it into a grid of 1-foot squares which are managed individually. Different vegetables are planted within the squares at a density based on plant characteristics. Because there are no paths, there is no wasted space and you avoid compacting the soil. This is a popular model for schools where students take ownership over their own square foot. There are many resources online with more detail, including this blog and this website.

3. **Raised Beds.** Raised beds may refer to simple wooden structures on the ground, elevated wooden frames for improved accessibility, or simply shaping your soil into raised beds (using a shovel or rake) with designated pathways. There are a multitude of instructions online for building simple and inexpensive raised beds, like this one, or this example. It is best to keep the width of the bed no more than 4 feet as you need to be able to access the center without stepping on or compacting the soil. A 4' x 25' bed is a standard size recommended for a family of four.

4. **Container Gardening.** Planting in containers is a great option for gardeners with limited access to yard space. Any combination of various sized pots, boxes, or even bags can be filled with soil and placed in sunny or slightly shaded spots. With the flexibility to be moved around or be taken inside during shoulder seasons, container gardening allows for creativity and lots of potential for food production.

5. **Spot Gardening.** If you have a yard with several small sunny areas suited to growing different crops but no space large enough for a full garden you can take advantage of "spot gardening." Vegetables and herbs can be incorporated into different areas of around your space, intermingling with flower beds or around your home to a create beautiful and productive landscape.

Designing and planning your garden space does not have to be complicated. While you can certainly use online programs, apps, or other computer tools to lay out your garden plan, a simple piece of paper (or graph paper) and a pencil are all you really need.

Companion planting involves deciding which plants to put next to each other based on their benefits to one another, including deterring certain pests, attracting beneficial pollinators and insects, and enhancing growth and flavour. Carrots and tomatoes are a classic example (and the title of a helpful guide, "Carrots Love Tomatoes"). Another example is the "three sisters" method, a traditional Native American concept where corn, pole beans and squash are planted together to support and protect one another: the beans trellis on the corn, and the squash vines protect both from critters and provide beneficial shade to the soil. Many excellent resources exist to help identify both good and bad companion plants (not necessarily as a strict rule, but more so as a guide). West Coast Seeds provides useful tips for herbs, flowers, and vegetables.

Plants can be assigned space in your plot based on their harvest timelines and requirements for sunlight, nutrients and water. Taking note of how tall crops like tomatoes and corn may shade out others can help determine your gardening orientation. Rows running north-south take good advantage of sunlight, and planting taller crops strategically can add beneficial protection to plants like lettuce and spinach that do best with light shade from hot summer sun to avoid bitterness and bolting. Planting cool-season crops in your summer garden is best if they are on the north side of a taller crop: they will receive morning sun and be shaded during the extreme heat of the afternoon.

Topic 7: Sowing Seeds and Transplanting

Many vegetables can easily be started by seed directly in your garden, including beans, beets, carrots, cucumbers, greens, peas and squash. Longer season crops like onions, tomatoes, peppers and eggplant are better started indoors earlier in the spring. These can be started in a sunny windowsill or under artificial lighting using a simple system of trays and soil; however, many of these and other crops are widely available from local greenhouse growers and can be sourced in the late spring and summer to be transplanted into your garden. There are many resources that can help determine the ideal planting dates for individual varieties of plants in your region: Veseys, Johnny's Selected Seeds and the Old Farmer’s Almanac are all examples of such resources.

Seed germination is affected by temperature, moisture, oxygen, and light. These factors will impact the successful sprouting of your garden seeds. Specific requirements for each plant are typically identified on their seed packets and can easily be accessed in seed catalogues or on seed company websites. Temperature will affect how quickly seeds will germinate, which is why many crops should not be planted until soil has warmed in the late spring or early summer. Different vegetables prefer a broad range of soil temperatures, but 18-24 degrees Celsius is a general range for effective germination of most seeds. Finding a balance between too dry and too wet is also key to successful germination. Consistent light watering is ideal when seeds are first planted. Covering indoor seeds with a thin layer of vermiculite can help retain moisture. Soil should have proper drainage to allow seeds to access enough oxygen to germinate and grow. Light requirements will vary as well across seed types, but most vegetables prefer at least a light covering when in the ground and full sun upon germination.

When sowing seeds directly in the garden, be sure to start with a healthy weed-free bed with clearly marked spacing. Most seeds are easily planted by hand, simply take care when working with very small seeds like lettuce and carrots to avoid planting too close together. Using basic household items like popsicle sticks or plastic cutlery with a permanent market can help identify which seeds are planted where; this will help you assess germination rates when they finally come up, as well as identify which new sprouts are weeds. Mist or gently water the soil after planting and maintain moisture levels while young seedlings grow.

When transplanting bedding plants/seedlings, use your trowel to place transplants into loose, well-aerated soil and soak the soil around new seedlings immediately after transplanting. It is best to plant on cloudy days to reduce the amount of shock to plants, especially if they have been kept indoors. "Hardening off" plants is good practice and refers to gradually introducing seedlings to outdoor conditions like wind and sun and increasing that exposure for a week or two prior to planting.

Topic 8: Keeping a Garden Journal

Keeping a record of your gardening activities can help you keep track of your planting dates, varieties, and harvests during the busy summer season and allow you to reflect on your successes and potential for improvement over the quieter winter. This information and insight will allow you to better plan for the following season and provide a resource for future gardens. Your gardening journal can be as simple or as complex as you like: anything from basic point-form notes on weather, daily activities, and dates of seeding and harvests to detailed accounts and photos of your garden throughout the season. Regardless of your journaling style, the basic concept will allow you to build upon your experience to expand your knowledge, improve your gardening skills, and compare notes from one season to the next.

Recommended Reading:

The following excellent resources for gardeners provide general information to enhance your understanding of growing food and offer tips as you proceed through the season.

- ❏ Rodale's Basic Organic Gardening: A Beginner's Guide to Starting a Healthy Garden by Deborah L. Martin
- ❏ The Year-Round Vegetable Gardener: How to Grow Your Own Food 365 Days a Year, No Matter Where You Live by Niki Jabbour
- ❏ Small-Space Vegetable Gardens by Andrea Bellamy
- ❏ Carrots Love Tomatoes: Secrets of Companion Planting for Successful Gardening by Louise Riotte
- ❏ The New Organic Grower: A Master's Manual of Tools and Techniques for the Home and Market Gardener by Eliot Coleman
- ❏ Starting Seeds: How to Grow Healthy, Productive Vegetables, Herbs, and Flowers from Seed by Barbara W. Elli

MODULE TWO	CROP CARE: HOW TO MAINTAIN A HEALTHY GARDEN

Suggested Activity:	Visit the garden plot to identify important next steps for garden maintenance, including demonstrating techniques for weeding, pruning, and trellising as well as recipes for natural pest and disease management.
Materials:	❏ Garden hoes and hand tools to demonstrate weeding techniques (Topic 2) ❏ Wooden stakes or bamboo sticks, string, and tomato cages to demonstrate trellises (Topic 3) ❏ Spray bottles and ingredients listed in Topic 4 and 5 to make solutions ❏ Row cover, hoops, and bricks or sandbags to demonstrate barrier methods of pest protection

Topic 1: Watering Your Garden

Now that your garden is planted it is important to make sure your seeds have enough moisture to germinate and that your young seedlings are receiving adequate water for proper growth. The frequency of irrigation will depend largely on the weather: if there are regular showers or rain daily watering will not be necessary, but it is essential during hot dry summer days. Healthy vegetables and fruit are largely made up of water (think cucumbers and melons); therefore, plants need sufficient watering not only to grow but also to produce and ripen a healthy harvest.

Watering your garden is best done early in the morning or later in the evening to avoid immediate evaporation in the hot sun. Simply observing the soil surface (Is it crusty and lightly coloured?), examining the leaves (Are they droopy?) and digging your hand around the plants (Does it feel moist to the touch? Is the soil crumbling or sticking together?) should provide a good indication as to whether plants are thirsty. Soil below the surface should generally feel moist to the touch; never dusty and dry.

Using a hose or watering can, evenly distribute water throughout your garden. Newly planted seedlings should be watered gently to avoid disturbing the seeds or harming young plant tissue. Watering deeply at fewer intervals rather than watering the surface lightly very frequently will encourage deeper root growth and stronger plant development. Aim to water the soil directly around the plant rather than the plant foliage itself as that invites disease and plants benefit most from water absorbed through their roots.

Take care to prevent overwatering and take note of your soil type (e.g., clay soils do not drain as well as sandier loams and therefore retain more moisture). Grouping plants according to their watering needs can help avoid wasting water, but generally the garden can receive an equal amount with no issues. If adding mulch to help retain moisture (either landscape fabric or organic materials), water first before laying it down.

Topic 2: Weed Management

Though many common weeds are edible, medicinal, and beneficial, anything growing where it should not be in your garden is considered a weed. These unwanted plants compete for essential resources like sunlight, water, and nutrients. If they overtake your garden your crops will suffer and growth will be stunted as a result. Luckily there are many tools and techniques to help you easily and efficiently manage weeds in your garden.

Knowing how to identify common garden weeds at different stages of growth will help you distinguish between your germinating crops and the onslaught of pesky weeds, allowing you to address the issue before the plants get bigger and go to seed. This free guide is an excellent resource to help with identifying and understanding common weeds in the Maritimes.

Identifying the weeds in your garden can also help you understand why these particular species have appeared. Weeds often indicate information related to your soil health and fertility. Your particular weeds can tell you about your soil type, its acidity, moisture levels and drainage, compaction, and fertility. **This guide can help you understand what your weeds may be telling you.**

The best time to attack weeds is when they are just emerging as tiny, white threadbare plants with no true leaves. This is called **cultivation:** regular garden maintenance with tools such as a hoe or tine rake to attack weeds at a very early stage. Hoeing is best done to relatively dry soil on a sunny day. It is easier to effectively scrape the surface of dry soil with these tools, and weeds will promptly wither as their roots are exposed to the sun.

Hand weeding is necessary when the weeds have grown beyond the size when a hoe can be effective or for weeds very close to your plants. It is best not to cultivate too close to your crops to avoid harm; pulling those closer weeds by hand will allow you to protect the stem or your plants. A trowel is a helpful tool when hand weeding to help loosen the soil, or for larger weeds a garden fork works well. The goal is to remove as much of the root system as possible; otherwise these resilient plants will continue to grow. Hand weeding is best done when the soil is somewhat moist making it easier to pull deeply rooted plants. If pulling weeds on a sunny day they can be left to wither in the sun, but on cloudy, wet days it is best to remove residue to avoid plants re-rooting in the garden.

If weeds are allowed to go to seed, they will have the opportunity to spread, increasing your weed pressure in future seasons. It is best to remove weeds prior to the seed stage in order to reduce the weed seed bank in your garden and ease future weed management. If properly managed you will notice a significant reduction in weed pressure over time.

Mulch is an effective way to manage weeds with limited effort. Many types of mulch exist, whether synthetic products and organic materials you can source for free or at low cost. Mulch not only offers the benefit of weed suppression but also serves to retain moisture and either warm or cool the soil, depending on the type in use. Reusable landscape fabric, organic weed-free straw, and eel grass harvested from the beach are all good options.

For garden plots with significant weed issues you may consider using a tarp for an extended period of time. Covering bare ground with a firmly secured tarp will heat up the soil causing weed seeds to emerge and quickly die under the dark conditions.

Topic 3: Plant Maintenance: Pruning, Trellising and Thinning

While some plants are very low maintenance and require little to no extra attention beyond watering - radishes, beans, and zucchini are all such examples - others benefit from some additional maintenance to ensure healthy growth and an abundant harvest. The following basic techniques can be adopted at any scale to help support your garden as it grows through the summer.

Trellising. Crops that grow tall benefit from the additional support of a trellis. Taking advantage of the vertical nature of certain crops will also allow for more to be planted in your garden as they take up less space than plants growing horizontally across the garden. Pole beans, peas, and cucumbers all produce tendrils that will climb the nearest support in order to grow taller and expose their flowers to sunlight and pollinators. A simple structure made of stakes and string or netting is plenty to support crops with lighter fruit. Heavier plants like cucumbers, tomatoes, and peppers can also be trellised with string and stakes, but require a more heavy-duty set-up and closer spacing. As these plants continue to grow those without tendrils will need guidance to stay within the trellis. Adding higher horizontal strings, wrapping plants around hanging string, or guiding branches through tomato cages will help the process. Take care to be gentle when manipulating plants into the trellis system, especially those with tender leaves and smaller shoots.

Pruning. Some crops that benefit from trellising will also appreciate regular pruning. Indeterminate tomatoes are the perfect example: as they grow taller and develop fruit sets, the lower leaves become irrelevant and can even obstruct airflow, making way for disease to spread. These plants can be trained to one or more "leaders," which are the guiding stems that grow taller as the side shoots produce flowers and fruit. By carefully removing bottom leaves below the next set of fruit and frequently pinching off suckers - the smaller shoots growing

where a branch joins with the leader - you will encourage the plant to put more energy into producing and ripening tomatoes rather than growing new leaves. It is best to remove suckers when still small to reduce the risk of a larger than necessary wound; until the plant heals, these places can invite disease. For the same reason it is best to prune and trellis tomatoes when warm and dry since moist conditions are also invite disease to spread and contaminate other plants.

Thinning. When direct seeding in the garden we often plant at a higher density than necessary, whether to ensure good germination rates or simply because small seeds are difficult to manage by hand. Once seeds begin to sprout you will be able to see how densely your vegetables have been planted. In certain cases, thinning or pulling out seedlings at different intervals will allow greater space between plants ensuring there is enough room for your crop to mature to its proper size. If spaced too intensely, plants will also compete for resources and both plant health and yields will suffer as a result. Carrots and beets are two crops that often benefit from thinning: refer to your seed packet for recommended spacing, and if planted too close together simply pull enough plants to give the remainder enough room to thrive. This task is usually performed when plants are still very small, but in the case of beets you can wait for the leaves to grow slightly larger. Harvesting intermittent beet greens to eat will give the remaining plants enough space to develop into healthy beetroot.

Pinching. A common practice to promote prolific flower blooms, pinching can also be used in your garden to encourage more robust plant growth and discourage plants from bolting or going to seed. Basil, for example, should be pinched at the stem from the top (above the next set of leaves) rather than harvested leaf-by-leaf. The plant will then grow outward and bushy rather than tall to set seed. Regularly harvesting greens either above or around the growing tip will similarly encourage healthy growth among new leaves.

In general, taking note of the health and vigour of your garden through regular observation is good practice. Armed with a seed catalogue or the internet you can see how plants should look at different stages of growth: lush green leaves are a sign of good health while withering, discoloured plants indicate stress. Referring back to the spacing requirements and recommended growing conditions will provide the information you need to properly support the healthy growth of your food garden.

Topic 4: Natural Pest Protection

Insect pests are nearly unavoidable in any vegetable garden and some damage is to be expected. Most vegetables will still be fine to eat despite a few holes caused by insects munching; take it as a sign that your food is good enough to share. Rather than attack pests with synthetic chemicals that can be toxic to your soil and your food, there are a variety of natural ways to minimize pest pressure and protect your crops from damage. Organic pesticides are an option, but instead we will focus on other easy, affordable natural strategies.

Regular inspection of your garden plants will help you identify and prevent issues before they get out of control. There are an array of common pests you may encounter in your island garden; here we discuss what to look for and how to address the issue naturally. In addition to the many books available, you can compare the state of your plants and the insects that appear with photos online using pest identification guides such as these from Grow Veg or Savvy Gardening.

Plants can be covered with simple **barriers** to keep pests away. Using row covers of mesh netting (or even tulle) over simple hoops will keep pests off young plants. Once they grow to a certain size they are usually strong enough to withstand a bit of insect damage. This is often used to protect plants in the brassica family (like arugula, kale, and radishes) from flea beetles and white cabbage moths, and to keep striped cucumber beetles away from squash, cucumbers, and melons.

Other **living control options** to pest protection include handpicking harmful insects off of plants (a good strategy at the first sign of Colorado potato beetles) and traps placed throughout the garden. Snails and slugs can be trapped in open beer cans at soil level or under damp boards, while earwigs are attracted to upside-down clay pots filled with shredded newspaper. Plants can be protected against cutworms with cardboard collars or by spreading cornmeal or bran around the plants. Diatomaceous earth can also help control snails and slugs as well as other crawling insects by dusting the ground around your plants or sprinkling it on the foliage. For wireworm, a common pest on PEI, planting potato traps can help bait and remove them from your garden.

Insects cause damage either by chewing or biting (caterpillars, flea beetles, cutworms, potato bugs, etc.) or by sucking (aphids, thrips, squash bugs, etc.) The former can be sprayed with aromatic and distasteful solutions like garlic, onion and pepper sprays to discourage their appearance. A **basic garlic spray** would include 1 head garlic, 4 cups water, and 30ml liquid soap, or add 1 tsp powdered cayenne and one small onion to boost the spray. Sucking insects are better controlled with a soap solution or clear oil solution that will asphyxiate the insects. A simple control against tiny pests like aphids and mites is to remove them with a strong jet of water from your hose. Visit this site for more tips on natural pest control.

Increasing the biodiversity in your garden is the best way to encourage a healthy ecosystem home to beneficial plants, pollinators, insects, birds and other creatures that will help control pest populations. Companion planting beneficial herbs and flowers can attract predatory insects like ladybugs; for example, composite flowers like calendulas and sunflowers have large supplies of pollen to serve as food for beneficial insects. Nasturtiums are believed to be beneficial plant controls against aphids and squash bugs; mint can act as a deterrent to flea beetles; and radish help control against striped cucumber beetle. Rosemary, thyme and chives are also helpful repellents. In addition to the books included as resources in this module, this article and this website offer advice on companion planting for insect balance.

Recognizing the damage caused by specific garden pests and identifying the insects at different stages of their lifecycle is a complex science not expected of nor necessary for success as a new gardener. Simply knowing what to expect and where to look for advice are enough. Keeping your gardening journal updated with signs of pest pressure in your garden and the dates when certain pesky insects appeared will help you address these issues in the future. Rotating your crops to different locations each year (i.e. not growing plants from the same family or affected by the same issues in the same spot year after year) will also help control pest pressure and aid in disease prevention.

Topic 5: Preventing Disease

Certain bacterial and fungal diseases are common among vegetable gardens. The first line of defense is soil: just as people nourished by healthy food are more immune to illness, plants grown in healthy soil can better respond to stresses in their environment. There are also many plant varieties bred for resistance to common diseases; these traits are indicated on seed packets and in catalogues and are worth seeking out if your region is prone to certain conditions. Where certain diseases cause damage that is hard to avoid and may continue to be a problem year after year, it may be best to eliminate affected crops from your garden altogether.

Wherever possible, taking the steps to prevent disease and the conditions that encourage its spread is better practice than reacting to the problem as it arises (which is often too late). Some common diseases will inevitably appear at certain points in the season and are not a major cause for concern as it is often at the later stage of plant development after you have begun to harvest; simply removing affected plants as they become sick is enough to slow the spread of disease. Since many vectors for disease can live in the soil, it is best to dispose of contaminated crop residue rather than add it to your compost.

The ability to **identify warning signs** is a key step toward addressing disease and reducing its contamination throughout your garden. For a beginning gardener these complicated plant signals are largely unknown and can be overwhelming. Luckily there are many accessible and free resources that can help identify the issue and offer advice to address it.

Tending to your garden by pruning and trellising plants to improve airflow, amending your soil with additional fertility, and reducing the amount of insect pests jumping from plant to plant are all excellent preventative measures against the spread of disease. Practicing good hygiene when doing so (using clean tools to avoid spreading disease, for example) is good practice.

Rather than spray affected plants with synthetic chemicals there are widely used natural solutions made with regular household ingredients. Though not necessarily a cure-all, these recipes are a good line of defense against the further spread of disease. Fungal diseases

spread in humid conditions where airflow is limited and often appear on the leaves. At the first sign of fungal disease, a mix of 2 Tbsp baking soda into a gallon of water can be sprayed on affected areas every few days until problem ceases. If **powdery mildew** appears (which looks as it sounds), mix equal parts milk and water and spray on infected plants once a week or as a preventive measure when conditions are suited to their development.

Late blight is a common disease in PEI and usually arrives later in August or September affecting tomatoes and potatoes in particular. Planting disease resistant varieties is a good first line of defense, but when blight appears it is best to remove the affected plants and dispose of them in the waste to prevent the disease spreading beyond that area.

Some diseases that appear in your garden will be unavoidable and may not be detrimental; however, take note of any changes to your plant health and take precautions by practicing good crop care.

Topic 6: Succession Planting and Seeding for Fall

Summer may be in full swing but there is still time to plant another succession of certain crops, or replace any seedings that may not have germinated well. Understanding the length of your growing season and the characteristics of your chosen plants will allow you to plan for an ongoing harvest from the spring through summer and into the fall. Vegetables with short growing seasons and a single harvest, like radishes and head lettuce, can be planted every couple of weeks to allow for your harvest to be spaced out and not all of your vegetables are ready at once. Plantings of crops like beans and zucchini that yield large quantities and have longer harvest windows can be spaced wider apart. Certain cool-season greens like spinach, lettuce, arugula and kale can be planted and harvested into the fall as they will not be as affected by the early frosts and in fact become sweeter with colder temperatures.

The following is a list of vegetables that still have time to mature if planted in mid-July, though some may require a little extra protection depending on your first frost date in the fall: Endive, Parsley, Cilantro, Dill, Beets, Kale, Cabbage, Kohlrabi, Radish, Carrots, Lettuce, Spinach, Collard Greens, Scallions, Turnip, Summer Squash.

July is an appropriate time to start planning ahead to your fall garden. Knowing that some vegetables continue to grow and even thrive in the cooler months of fall, it is time to allocate space and perhaps prepare new soil to ensure you optimize your garden all season long. While some longer season crops need to be planted now for a fall harvest others can be planted later in the summer in preparation for later fall harvests. Leafy greens like spinach, arugula, and lettuce as well as radishes and some turnips are all examples that will do well in our island climate.

When and how long to plant these crops can easily be determined by counting back the days to maturity and comparing with your frost dates; however, there are also helpful tools and charts that are free to use online such as the following:

- West Coasts Seeds Planting Charts by Region
- Johnny's Succession Planting Calculator and Seed Planting Schedule Calculators
- The Old Farmer's Almanac Planting Calendar

Reading Recommendations:

The following books are excellent guides and resources for beginning gardeners related to general garden maintenance, organic methods for pest and disease management, and weed identification.

- ❏ The Organic Gardener's Handbook of Natural Pest and Disease Control: A Complete Guide to Maintaining a Healthy Garden and Yard the Earth-Friendly Way by Fern Marshall Bradley
- ❏ Weeds and What They Tell Us by Ehrenfried E. Pfeiffer
- ❏ Insect, Disease & Weed I.D. Guide: Find-It-Fast Organic Solutions for Your Garden by Anna Carr and Linda Gilkenson
- ❏ How to Grow More Vegetables by John Jeavons
- ❏ Great Garden Companions: A Companion-Planting System for a Beautiful, Chemical-Free Vegetable Garden Paperback by Sally Jean Cunningham
- ❏ Eartheasy Natural pest control guide

MODULE THREE	HEALTHY HARVEST: HOW TO MAINTAIN A HEALTHY GARDEN

Suggested Activity:	Check in on garden progress, mixing natural recipes for boosting plant health, and sampling fresh, easy-to-grow island produce.
Materials:	❏ Assortment of edible flowers and herbs foraged and sourced from local farmers (Topic 1) ❏ Knives and/or snips to harvest (Topic 2) ❏ Watering can and spray bottle; liquid fish fertilizer and other ingredients listed in Topic 3

Topic 1: Growing culinary herbs and edible flowers

Adding herbs and flowers to your garden not only increases biodiversity and attracts pollinators and beneficial insects, but also enhances the diversity and nutrition of your harvest.

Many culinary herbs are quick and easy to grow and do not require much added fertility. Annual herbs like dill and cilantro can be directly seeded in succession all season long for a consistent supply, while basil and parsley - if properly maintained - will remain productive throughout the summer. If planted in pots, thyme and rosemary can be taken indoors to continue to thrive over the winter. Perennial herbs like oregano, mint, and sage are best planted in pots or in designated areas of your garden as they tend to spread. Chives can be started by seed in the spring or transplanted in the fall and will be one of the first herbs ready for your plate. For more information check out this guide to planting and caring for your herbs.

A great variety of herbs perform well planted in containers, which is great for both saving garden space and bringing your garden indoors. Herbs can be planted in individual pots or combined in larger containers; however, if taking the latter approach be sure to pair herbs with similar growing characteristics such as requirements for sun and water and overall size. This website offers tips on planting your herbs in containers.

Herbs can be harvested as soon as the plant is mature. For best performance all season long, take only a little bit at a time (generally no more than one third) in order to promote a quick recovery and new growth. Rather than harvesting leaf-by-leaf, pinching from tops of herbs like rosemary, thyme, oregano and basil will promote branching out and a bushier, more productive plant. For best flavour harvest herbs before they bloom and pick them earlier in the morning. If not being consumed right away, keep herbs refrigerated or upright in water in your fridge to maintain freshness. Some, like basil, will brown if wet.

Edible flowers bring beauty to your garden and your plate. Some may already be growing in your garden, like zucchini blossoms, basil flowers, the flowers of your bolting brassica and cilantro plants. Others you may plant more deliberately, such as peppery nasturtiums, pretty pansies and borage (great as a garnish!), or lavender with its sweet floral aroma. Edible flowers are also used for medicinal benefits: calendula and marigold are two great companion plants that also have traditional medicinal uses. This list of flowers includes many that you may not have considered eating.

Only flowers that have not been sprayed with chemicals should be harvested, just after they have fully opened early in the morning after the dew has dried. They should be refrigerated as soon as possible and can be kept on moist paper towel in plastic containers to avoid damage and keep from wilting. This website provides more information about growing and harvesting fresh edible flowers.

Topic 2: Timing and Techniques for Harvesting Veggies

For the freshest, tastiest vegetables harvested straight from your garden it is best to harvest as soon as they mature. At this stage they have peak flavour and are still tender, but if left too long in the garden they can become bitter, lose their appealing texture, and will be more susceptible to insect pressure. Each type and variety has a unique "days to maturity" that can guide you to when they should be ready to pick; however, simply observing your garden for certain cues - or pulling a carrot here and there - will help determine when food is ready to harvest. Here are some general guidelines based on categories of plant families. Seed company catalogues and websites are great resources for specific crops as well, usually showing photographs of the mature plant along with size, colour, and other determinations of maturity to look out for.

1. **Root Crops.** When the tops of your beets, carrots, radishes, turnip are starting to grow tall it is time to check on the size of your roots. These crops can be harvested at baby sizes (to thin or based on your eating preference) or at its larger mature size indicated in the variety description. Feel around the base of the greens and the top of the root to get a sense of its width, or simply pull one or two to see the stage of growth. Bolting tops - meaning they are beginning to set seed - is an indication that the root is beyond maturity and may have lost quality of flavour and texture, though it can still be fine to eat. Roots should be washed in cold water to avoid soil staining the skin and keep the greens fresh. If storing in the fridge for an extended period, remove the greens for a longer shelf life. Roots store well in plastic with a couple of air holes.

2. **Fruiting Crops.** The ripeness of tomatoes, peppers, and eggplant can usually be determined by appearance and touch. Feeling the bottom of the fruit will let you know if it is soft enough to eat, in the case of tomatoes. It is helpful to know the mature colour and likely size of the ripe crop based on the seed packet or catalogue. Once ripe, these fruits should be harvested for best flavour and to avoid splitting or insect damage. No

need to wash immediately; simply store at room temperature on your counter or in paper bags. Peppers and tomatoes will continue to ripen after they have been picked.

3. **Brassicas.** Cabbage, cauliflower, and broccoli are ready to harvest when the heads are dense and full. Sizes will differ based on variety and growing conditions. For broccoli, cut the primary crown and wait for new delicious shoots to grow as well. Similarly, Brussels sprouts are ready when they form small, dense heads. Remove the leaves and harvest the entire stock, picking the sprouts off to eat.

4. **Beans and Peas.** These productive plants should be harvested regularly to promote new growth and keep up with mature pods. They taste best when young and tender, but make sure they are full size to maximize sweetness and yield. Store them in your refrigerator or eat immediately as a snack!

5. **Cucurbits.** Once they begin to produce fruit zucchini and cucumbers will grow very quickly and continuously. Plants should be checked every second day and can be harvested at your preferred size, though cucumbers are best once they are plumper. Cut or remove at the stem and refrigerate. Winter squash and melons will mature more consistently all in one go. For melons, look for a yellow circle where the fruit meets the ground and give it a knock - a hollow sound means it is mature. Winter squash is ready in the fall when foliage begins to die back, the stem dries out, and the fruit gains its mature colour. Clip plants, let them cure in the sun, and store in a cool, dry place with good air circulation.

6. **Greens.** Leafy greens like lettuce and spinach can be harvested as full plants or leaf by leaf, cutting above the growing tip and letting the plant regrow multiple times before it goes to seed. Kale and chard will grow all season long as you harvest a few leaves at a time from the bottom, avoiding the middle growing stem. Any leafy green is best harvested in the morning as they prefer cooler temperatures. For best quality and freshness, dunk in cold water, spin dry, and store in plastic bags in the refrigerator.

7. **Onions and Garlic.** While scallions can be harvested at any point, onions can either be harvested for short-term or longer-term consumption. "Green" onions are those that have grown bulbs and still have green leaves: pull from the ground, wash, and store in your refrigerator until you are ready to eat them. For onions that will store over the winter, wait until the greens have browned and started to fall over. Then pull the bulbs, remove the leaves, and leave to cure before storing in a cool, dark, dry place for the winter. Garlic will produce curly scapes from the middle that should be picked once they have looped around once or twice, usually in July. This encourages the plant to put energy into developing its bulb which can be harvested once the first few leaves from the bottom have turned brown and dry in late summer. Pull from the ground and cure for best

results, either by hanging to dry or leaving on a surface with good air circulation. To store, remove tops and root hairs and keep in a cool, dark, dry location.

These tips are a basic guide to a few common garden crops. For more detailed information, Johnny's Selected Seeds as well as most other seed companies catalogues and websites provide comprehensive information about ideal harvest timing, techniques and storage conditions for ideal results. This online guide offers more tips on harvesting the freshest vegetables.

Topic 3: Boosting Plant Health Naturally

Plants will benefit from additional fertility prior to maturity and once you begin to harvest regularly. The goal is to provide sufficient nutrients and minerals to support plant health, not to add more fertilizer than necessary. The following natural amendments can be included in your gardening routine to help enhance the health of your garden and promote an abundance of fresh veggies to harvest.

Compost Tea is a liquid made by extracting the beneficial microbes (bacteria, fungi, etc.) of a rich compost using a simple brewing process. It provides an excellent boost to plant and soil health and structure, as well as enhancing plant health by stimulating root growth and protecting foliage from disease. It can be made with or without aeration. This sample recipe is made with aeration and is suited to most vegetable crops.

Fish and Seaweed Emulsions. Liquid fish and seaweed fertilizers are readily available natural sources of nutrients and trace minerals that are gentle on plants. Shake the bottle well and dilute it with water according to instructions. Water the soil around your plants with the solution every two weeks, but avoid spraying leafy greens or other plants you will be eating shortly.

Blackstrap Molasses has long been used as an organic soil and foliar amendment, stimulating the growth of beneficial microorganisms and the decay of residual organic matter. Blackstrap molasses contains high levels of potassium relative to nitrogen and phosphorus as well as vitamins and trace elements like iron. Foliar applications are known to reduce plant stress: feed plants every 7-10 days with 1-1.5 tbsp of Blackstrap molasses per gallon of water. Apply to soil at a concentration of 2-3 tbsp/gallon every 7-10 days.

Epsom Salts are composed of hydrated magnesium sulfate and are often used by home gardeners to help tomato and pepper plants build strong cell walls and produce more abundant fruit. Magnesium helps plants use nitrogen, sulfur and phosphorus and can help reduce issues with blossom end rot. Dilute 1 Tbsp Epsom salts with 1 gallon of water and spray plants after transplanting, when they first flower and when they begin producing fruit.

Side Dressing. You can add fertility directly to the soil by side dressing with compost, worm castings, or crab meal, for example.

These basic tips will add a boost to your garden in the summer, but we will take a deeper, more comprehensive look into soil health, fertility, and amendments in Module 4.

Topic 4: Checking in on Summer Pest and Disease Management

As discussed in Module 3, there are a wide array of pests and disease that can affect the health of your garden in mid-summer. This is natural in organic gardening and often unavoidable, but there are steps you can take to remove or deter the issue at hand.

If you suspect a disease is affecting your crop, first, take note of how the plant is normally supposed to appear. Notice any progression or spread across plants and observe patterns. If you begin to observe changes in the foliage, consider possible environmental causes: temperature extremes, drought or excess rain, and soil types and conditions. Sometimes what appears as a disease is actually a problem related to weather conditions or your own cultural practices, such as over-fertilizing or underwatering. Refer to a resource for disease identification online or at the library (see Module 2) and proceed according to their recommendations.

Keep an eye on any pests that are ravaging your plants. Certain insects thrive in dry summer heat, while you'll notice others in different stages of their life cycles. One example is the cabbage moth: if you see this white moth fluttering about your garden, you will also likely find green caterpillars in your brassica plants. In Module 2 we discussed natural ways to control insect pests using physical barriers or homemade sprays. Continue to monitor the issue and note where the pressure is highest so that next season you can be prepared for their arrival and rotate crops accordingly.

Topic 5: Crops to Plant and Harvest All Summer Long

In addition to planning your fall harvest, there is still time to plant crops to enjoy through the summer. Annual herbs like dill and cilantro, fast-growing salad greens like lettuce, mesclun mix, and baby kale, spicy radishes and sweet salad turnips.

Fall root crops should be planted by mid-July to ensure they reach maturity before the first frost. A number of cool-loving greens - kale, collards, arugula, and spinach, for example - perform much better in the coming fall season. Not only do they taste sweeter with the frost, but they also benefit from fewer pests as the temperature drops. Now is the time to plan for their harvest and begin seeding either in trays or directly in your garden.

Reading Recommendations:

The following books are great resources to complement this module, with information for beginners as well as more comprehensive content for digging deeper into these diverse topics.

- ❏ Your Backyard Herb Garden by Miranda Smith
- ❏ Rodale's Illustrated Encyclopedia of Herbs
- ❏ 100 Edible and Healing Flowers: Cultivating, Cooking, Restoring Health by Margaret Roberts

Suggested Activity:	Analyze a sample soil test (see example in Appendix G) and learn how to save seed from a local heirloom tomato.
Materials:	❏ Printouts of sample soil test report for each participant (Topic 1) ❏ Ripe heirloom tomatoes, plastic containers, paper towel, elastics, and markers for seed saving activity (Topic 3)

Topic 1: Soil Testing and Organic Amendments

Healthy soil grows healthy plants, and just as with humans, striking a balance between too little and too much is essential for proper nutrition. The most common and comprehensive way to analyze overall soil fertility is with a soil test analyzed by a laboratory. Samples can be submitted to PEI Analytical Laboratories for a fee of $12-$22, depending on the detail of your analysis. The results will help you uncover potential issues such as a lack of fertility or an excess of certain nutrients, whether your soil is acidic, and the level of micronutrients available in your garden. These results can help guide the quantity and type of organic amendments that would benefit your garden.

Soil samples can be submitted at any time, but best to take them in late summer or fall. To take the test, simply collect soil from a depth of 6-8 inches from various parts of your garden and mix together well. The lab will require 500g to conduct the analysis. Regardless of when you take your test, it is best to do so regularly at the same time of year to best compare your improvement each year. Here we discuss the main components of a soil test and how to interpret the results at a beginner level. **The results of a sample soil test can be found in Appendix G.**

Soil pH. Most vegetables thrive in a pH range of 6.0-7.0, so aiming for 6.5 is a good balance for most crops. Level 1 of the scale is most acidic, 7 is neutral, and 14 is most alkaline or basic. Getting your soil in the right pH range enables plants to effectively use and take in nutrients from the soil. Applying lime to your soil will increase pH. Agricultural lime adds calcium while dolomitic lime adds both calcium and magnesium. It can take 6-12 months for lime to dissolve completely and for the full effect to be seen, though you may see a difference in as soon as 4 weeks. As such, adding lime in the fall gives plenty of time for it to dissolve before spring planting.

Organic Matter. Expressed as a percentage, organic matter is important for soil structure (tilth) and overall health. It is made up of living, recently dead, long dead, and animal residue in the

soil, helping to store energy and nutrients, improve moisture retention, enhance root growth, and reduce compaction. Aim for organic matter levels of over 3.5%, which can be accomplished by incorporating compost, animal manure, crop residue, and other organic materials at different stages of decomposition.

Phosphorus (P). Essential for seed germination, root development, fruit development and improves nitrogen absorption. Organic phosphorus fertilizers include rock phosphate, steamed bone meal, fish bone meal, and rock dust.

Potassium (K). Also called potash, important for overall growth, disease resistance, and for the taste and colour of vegetables. The harvest of plants removes significant amounts of potassium from the soil, so levels will decrease more rapidly than levels of phosphorus. Greensand, kelp meal, and hardwood ashes are all readily available and organic sources of potassium. Sul-Po-Mag (a naturally-occurring mineral called langbeinite) can be added if soil is also in need of sulfur and magnesium. A rich organic compost is also an excellent source of nutrients including potassium.

Calcium (Ca) and **Magnesium (Mg).** Calcium is important for cell nutrition, stress and disease resistance, and improved absorption of other nutrients in plants. Magnesium is important for photosynthesis, nitrogen fixation, and the movement of phosphorus within plants. Add dolomitic lime if soil is low in both calcium and magnesium, but if calcium is low compared to magnesium it is best to add calcitic lime instead. The calcium to magnesium ratio is important as it determines the gas exchange/breathing capacity of your soil. A sandy soil has a lower CEC and may need a ratio of just 3:1 while a heavy clay soil has a much higher CEC and therefore needs more calcium to help push apart the high clay component. Here, the ideal Ca:Mg ratio might be 7:1.

Sodium (Na). Not an important plant nutrient, but toxicity can occur if pH levels are higher than 8.3.

Sulfur (S). Known as part of the compounds that give garlic and onion their characteristic taste and smell and is generally found naturally in our regional soils.

Aluminum (Al). High levels of aluminum can become toxic to plants at low soil pH levels, but it is not an important plant nutrient.

Iron (Fe). Good levels of iron are between 50 and 100 ppm but are usually much higher in our island soils.

Manganese (Mn). Helps with seed germination and increases the availability of phosphorus and calcium to plants. Kelp is a great source of micronutrients including manganese.

Copper (Cu). Usually lower in sandy soils. Copper is also found in kelp.

Zinc (Zn). Crops such as corn, beans, onion and spinach respond highly to zinc, a micronutrient needed in small quantities that is important for root development. Zinc is often available in compost.

Boron (B). Island soil is typically low in boron, a common deficiency that can negatively affect the development certain crops as it is important for cells and seeds. It is toxic to beans, peas, and cucumbers but important for the growth of other vegetables like root and cole crops. A careful dose of boric acid as a foliar spray will help address these issues in your plants without harming the growth of others.

Nitrogen (N). Not part of the typical soil test, but a recommendation for this important nutrient will be included in your test results. Nitrogen is essential for plants because it is a major component of chlorophyll (the compound that enables photosynthesis in plants) and also a major component of amino acids, the building blocks of proteins. Organic sources include alfalfa meal (medium release), blood meal (quick release), fish or crab meal (slower release), and poultry manure (quick release). In spring when it is still cool nitrogen is less available to plants, so it is beneficial to amend your soil to boost growth.

CEC. The Cation Exchange Capacity shows your soil's ability to hold and release nutrients with a positive charge (cations) including potassium, calcium, magnesium and sodium. It is affected by soil type, pH level, and organic matter. Sandy soils have lower CEC (1-10 milliequivalent/100g) than clay soils (11-50 meq/100g) as the latter have higher organic content and water holding capacity. Clay soils are also more resistant to changes in pH (need more lime) and less susceptible to nutrients leaching through the soil.

Base Saturation. A good general indicator of soil fertility, these numbers measure how much of the CEC is occupied by the major cations and hydrogen as a percentage and can help indicate the concentration of nutrients in your soil. Calcium should be between 55-85% base sat., magnesium at 10-12%, and potassium at 2-5%.

Ratings and Recommendations. The ratings in your soil test are based on annual fertilization rates to increase nutrient availability to your crops. Recommendations for applications will be given based on the type of crop you intend to grow (e.g. mixed vegetables) and can be converted to a smaller scale using the calculations provided.

In addition to calling the laboratory for more information following the receipt of your analysis, you can find more information about understanding your soil test results here.

Topic 2: Weeds and Other Indicators of Soil Health

Beyond a soil test conducted by a lab, there are many other qualitative ways to assess the health of your soil using sight, touch, smell, and common sense. For example, the presence of particular weeds in your garden can provide insight into your soil condition, including: wet, poorly drained soil (e.g., thistle, plantain, moss, creeping buttercup); low fertility (e.g., yarrow, dandelion, soil, wild carrot); dry soil (e.g., silvery cinquefoil, field horsetail, mustard weed); acidic soil (e.g., garden sorrel, plantain, dandelion, curled dock, moss); heavy clay (e.g., chicory, coltsfoot, thistle, quack grass); saline soil (shepherd's purse, Russian thistle); or fertile, cultivated soil (e.g., lambsquarter, chickweed, pigweed, nettle). Gardening Knowhow and The Old Farmer's Almanac have more information.

1. **Soil Structure and Compaction.** Also known as tilth, this indicates how easily your soil can be worked. A healthy soil should be made up of different sized aggregates that crumble nicely rather than clump and it should feel soft. The surface should remain porous instead of crusting and show little to no signs of compaction. Plant roots should be made up of long, fine white strands. Root crops like carrots will give a good hint as to the structure of your soil simply by looking at the size, length and shape of the carrot as it grows.

2. **Organisms and soil life.** The presence of earthworms (along with their castings and burrows) is the easiest visual indicator of an active soil life and is a sign that a high level of nutrient cycling is taking place. Earthworms aerate the soil, increase water filtration, improve tilth, and their castings infuse it with enzymes, bacteria, organic matter, and plant nutrients. Mites, millipedes and beetles also suggest a mature, well-functioning ecosystem.

3. **Organic Matter.** Having plant residue at various stages of decomposition both on the surface and in the topsoil indicates a well-balanced soil with good microbial life and healthy activity in general. Look for recognizable plant parts as well as plant fibers and darkly colored humus - this suggests an ideal rate of plant matter decomposition.

4. **Air and Water.** A healthy soil is able to both retain moisture in dry periods and drain water well after a heavy rain. Plants wilting during dry spells or puddles settling after rainfall suggest poor soil structure; about half of the space in soil should be made up of air and water.

5. **Scent.** A healthy soil with active soil life should have a rich, earthy smell. A strong, swampy smell suggests anaerobic decomposition and poor soil structure while no smell at all is usually the result of slow biological activity.

6. **Plant Performance.** Because nutrient uptake is directly related to soil structure the vigour of crop growth is another important visual indicator of soil health. Take note of germination rates, uniformity of size and height, colour, and signs of stress in their appearance, be it stunted growth or symptoms of nutrient deficiency.

Topic 3: Seed Saving for Beginners

Another fun project in the garden is seed saving, allowing you to save money by producing your own seed for next season, maintain stock of your favourite varieties, and swap interesting seeds with other gardeners. Seeds can only be saved from open-pollinated or heirloom varieties: these seeds will replicate their parents and remain true to type, while hybrid seeds will not produce the same characteristics as the original variety.

When planning to save seed, consider that individual varieties of plants within the same family need to be isolated a certain distance to avoid cross-pollination. To simplify the process, simply grow one variety at a time if you intend to save seed. You must also grow enough plants to ensure a sufficient population size of seed and keep enough distance between plantings to avoid cross contamination. For some crops like lettuce and peas you only need a little extra space between varieties, while other crops like cucurbits require more advanced methods such as larger isolation distances, pollination barriers, or hand pollination.

The best place to start for a beginner is with annual, self-pollinating crops that require little to no isolation and only a few plants to produce enough seed for next year. Peas, beans, lettuce, and tomatoes are great for beginning seed savers for these reasons, along with annual herbs like cilantro and dill. This guide offers tips on how to save these and other seeds.

1. **Peas and Beans.** Pick the brown pods from the vines and remove the seeds, which will require about six weeks of further drying in a cool place with good airflow. If you must harvest to avoid frost or other inclement weather, harvest ripe vines by the roots and hang to dry in a warm area such as a basement or barn.

2. **Lettuce.** Seeds are produced in pods after the plant has bolted and flowered. Let the pods dry on the plant, which they will do from the bottom up a few pods at a time. You can harvest the dried pods as they are ready or place a paper or mesh material at the base of the plant to collect any that fall and shatter while the remaining pods dry out. Clean the seed by separating it from the pod (threshing) either by hand, using a screen, or a fan method. Read more about lettuce seed saving techniques here.

3. **Tomatoes.** Seeds saved from heirloom tomatoes can remain viable for several years. Because tomatoes have seeds that are coated with a gel, the first step is to remove it by fermentation. To do so, cut the fruit in half and squeeze or spoon the seed mass into a waterproof container (glass, jar, plastic cup, or deli container). Add enough water to

equal the volume of the seed mass, and put the container in a warm spot out of direct sunlight to ferment. Stir daily for five days or so. The viable seeds will sink to the bottom while bad seeds, debris, and white mold will float to the surface. Rinse away the gunk using a strainer or sieve, washing the seeds with several changes of water. Lay seeds in a single layer on a glass or plastic plate, or on paper towel. Let sit in a warm place until the seeds are fully dry, which can take several weeks.

It is time to harvest seed when they have reached maturity or peak ripeness. For crops that produce wet fruits (e.g., eggplant, cucumber, zucchini) the seeds are not always mature when the fruits are ready to eat; seed savers need to leave a few fruits to fully mature in the garden in order to save seed. The harvested fruits are either crushed or cut open and the seeds are extracted from the flesh and pulp before the seeds are dried. Dry fruiting crops (e.g., grains, lettuce, and beans) are simpler and can be removed from the plant once seeds are dry and hard. Collecting seeds can be as simple as hand picking a few mature seed pods and bringing them inside for further drying and cleaning. Fruits from wet fruited crops must be picked when their seeds are mature.

Seeds must be completely dry in order to store properly and maintain viability. Be sure to label your secure packet or container with the crop type, variety, source, the date of harvest, and any other useful notes. In general, seeds are best stored in a cool, dark, and dry place like a dark closet in a cooler part of the house or a dry, cool basement. Seeds can also be sealed in airtight containers and stored in the refrigerator or freezer for several years. Some seeds last longer in storage than others: tomatoes and beans stay viable for many years if stored properly, while onion and carrot seeds are best used the following year.

For more information on isolation distances, the amount of plants needed for an effective seed crop, and more excellent information about seed saving, refer to "How to Save Seeds" or the Organic Seed Alliance Seed Saving Guide.

Reading Recommendations:

The following resources will help you better understand your soil and provide a solid foundation for effective seed saving in your garden.

- ❏ The Intelligent Gardener: Growing Nutrient Dense Food by Steve Solomon and Erica Reinheimer
- ❏ Building Soils Naturally by Phil Nauta
- ❏ Building Soil: A Down-to-Earth Approach by Elizabeth Murphy
- ❏ The Rodale Book of Composting: Easy Methods for Every Gardener by Grace Gershuny
- ❏ Let it Rot!: The Gardener's Guide to Composting by Stu Campbell
- ❏ How to Save Your Own Seeds: A handbook for Small Scale Seed Production by Seeds of Diversity Canada
- ❏ The Complete Guide to Saving Seeds: 322 Vegetables, Herbs, Fruits, Flowers, Trees, and Shrubs by Robert E. Gough

MODULE FIVE	PUTTING UP THE HARVEST

Suggested Activity:	Opportunity to incorporate a basic sauerkraut demonstration and sampling, or to conduct a recipe and cookbook exchange.
Materials:	❏ Refer to the PEI Food Exchange Food Skills- Preserving Toolkit ❏ Request that participants bring their favourite recipes

Topic 1: Curing and Storing Fall Veggies

A number of easy-to-grow crops can also be enjoyed throughout the winter months so long as they are properly stored and cured, if necessary. Curing refers to the process of drawing out water for preservation purposes. Crops like onions, garlic, and winter squash all provide signals as to when they are ready for harvest: onion tops will dry out and flop over; garlic is ready when the lower two thirds of leaves have dried up and turned brown; and squash should be harvested when most foliage has died back, the stem is becoming dry and brown, and you cannot easily indent the skin with a fingernail. All of these crops should be harvested before a heavy frost. Curing can be done in a variety of ways, but the general principle is the same. The objective is to provide dry, warm, well-ventilated conditions for one to three weeks in order to remove moisture and dry out skins for storage. For more about how to cure and store these crops and others visit High Mowing.

Creating the ideal storage environment is key for extending the shelf life of your veggies (just as root cellars were meant to do). Most root and tuberous vegetables, winter squashes, pumpkins, alliums and some brassica crops such as cabbages are considered classic storage crops, each with their own optimal storage conditions. Temperature and humidity are the two main factors: vegetables either want to be stored cold and dry, cold and moist, cool and dry, or cool and moist. Here on PEI many homes will have suitable situations in their garage, basement or mudroom. While it certainly helps to attain the ideal conditions for each individual crop, perfection is not necessary - try to get as close as possible to the target range and keep an eye on your stored vegetables, removing (and eating!) any that have signs of deterioration as decay can spread quickly. Perforated bags that allow some air exchange can be used to help maintain humidity for carrots, beets, turnips, leeks, celeriac, and all brassicas that prefer more moisture than squash, onions and garlic. This guide provides more detail on how best to harvest and store individual crops.

Drying crops is another form of curing food for storage and is one of the most accessible forms of preservation. Removing the moisture inhibits bacterial growth and slows down

decomposition. Air drying and oven drying are two common methods. Hanging bouquets of herbs is the simplest example of air drying: gather the stalks, tightly bind them with string, hang upside down in a well-ventilated area, and once they are brittle, store as is or by crushing the leaves and storing in a sealed container. You can also create leather britches or ristras for chili peppers where a needle is threaded through the stems. Oven drying is done at a temperature of 170 degrees Fahrenheit with food arranged on racks.

Topic 2: Preserving, Fermenting and Pickling

*For more information on this topic, refer to the **PEI Food Exchange Food Skills - Preserving Toolkit***.

In addition to curing and drying there are a number of food preservation techniques that can be used to extend the life the vegetables from your garden. Refrigeration and freezing are the most basic forms: if you have enough space in your fridge/freezer you can easily fill it with an abundance of food. For example, greens, beans, and zucchini can be steamed, immediately dunked in cold water, and stored frozen in sealed bags. Cherry tomatoes and sweet peppers can be roasted and frozen for future use in sauces and soups, while fresh herbs can be blended with olive oil and frozen in ice cube trays to season your winter dishes.

Vegetables can also be preserved through lacto-fermentation, a process that enhances the nutrient content of your food as the resulting good bacteria produce vitamins and enzymes beneficial to gut health as well as making minerals more available to your body. Just about any vegetable can be fermented, but cabbage offers two of the most common and traditional examples: sauerkraut and kimchi. The process is relatively simple and requires little equipment other than a knife, an appropriate container, and salt. In addition to the recommended books below, the following websites provide a simple guide: WikiHow and Running to the Kitchen. For an excellent tutorial about fermenting vegetables check out this YouTube video presented by expert Sandor Katz.

A longstanding tradition on PEI, pickling vegetables using the hot water bath method is an excellent way to make use of your garden produce - especially all of those cucumbers and beets! Tomatoes can also be preserved in a similar manner as salsa or sauces. No matter the recipe, of utmost concern are sanitation and achieving proper pH levels to avoid contamination. You can find household recipes for mustard, bread and butter, and other beloved island pickles in local cookbooks.

Reading Recommendations:

There are endless great books available about processing and preserving the harvest. The following recommendations cover the basic techniques and tools as well as recipes to help you enjoy your garden's bounty year-round.

- ❏ Put 'em Up! by Sherri Brooks Vinton
- ❏ Wild Fermentation: The Flavor, Nutrition, and Craft of Live-Culture Foods by Sandor Ellix Katz
- ❏ Fermented Vegetables: Creative Recipes for Fermenting 64 Vegetables & Herbs in Krauts, Kimchis, Brined Pickles, Chutneys, Relishes & Pastes by Christopher Shockey and Kirsten K. Shockey
- ❏ Keeping the Harvest: Preserving Your Fruits, Vegetables and Herbs (Down-to-Earth Book) Paperback by Nancy Chioffi

MODULE SIX	EXTENDING THE HARVEST

Suggested Activity:	Outdoor activity: building a basic cold frame for the garden plot and demonstrating how to use row covers and other simple frost protection methods. Indoor activity: planting an indoor herb garden.
Materials:	❏ Cold frame: refer to examples in Topic 1 for full list of tools and materials ❏ Row cover, wire hoops, and bricks/sandbags for weight (Topic 1) ❏ Assortment of small pots, garden soil, and herb seeds (Topic 3)

Topic 1: Simple Tools and Tricks for Frost Protection

There are many ways to ensure your garden remains productive well into the fall: planting in succession rather than all at once; practicing good weed control; using trellises and raised bed systems; taking care with watering; and other general management techniques. But when the risk of frost is near, most crops will need some form of protection to remain healthy as the weather cools. Depending on what vegetables remain in your garden, some crops will be more susceptible to frost damage than others. Very tender crops like tomatoes, beans, cucumber and squash plants will be damaged by temperatures from 0 to -1°C, while hardy cole crops and greens can tolerate slightly cooler temperatures without harm.

Know your Climate. The first step is understanding your microclimate and your growing zone in order to predict when a heavy frost may affect your garden. On PEI (zone 5b) we can generally expect a light frost by mid-September and a killing frost by October 10. Frost is also more likely in low lying inland areas, particularly when nights are clear; pay close attention to weather forecasts and warnings.

Plant Covers. The simplest form of protection is to cover your plants with plastic, floating row covers (lightweight fabric available at garden centers), or even old sheets, as long as these protective coverings are elevated from the plants to avoid damage. These sheets can be draped over your garden with a portable frame made from bent PVC pipe, old hula hoops or metal wires, essentially creating the effect of a small hoop house. Here is one low-cost, simple example. Be sure to anchor your cover to keep it secure in windy conditions: bricks, soil, sandbags, or any other heavy item will do. You can also create cloches (small plant covers) for individual plants from various containers such as inverted buckets, boxes, 5-gallon water bottles with the spouts removed and pillowcase-covered lampshades, or paint water-holding containers with flat black paint to absorb sunlight during the day and radiate heat to plants at night.

Cold Frames. A low-cost cold frame at its most basic is a shallow rectangular bottomless box with a transparent top. The sides can be made from straw bales or wood and the sloping top covered with a clear material (e.g., glass, plastic, fiberglass, old windoors or shower doors) to draw in the sun's warmth. The angle and direction of the cover will impact the amount of heat attracted to the garden box: the steeper the south-facing slope, the more heat will be captured from the sun's rays in the darker months. Using a cold frame can be the equivalent of moving your garden one growing zone to the south. Location also matters: set up your cold frame in direct sunlight, atop good soil in a well-drained location that has easy access to the house. It is important to be able to ventilate your cold frame during the day to keep plants from overheating in the warm sun. The internet offers many plans for cold frame models of varying complexity using all kinds of accessible materials. Here is one example, and another that could be used as part of your workshop activity.

You can also boost the growth of your plants by heating your cold frame. One suggested method: lay down a sheet of Styrofoam insulation, cover it with a layer of sand, add a layer of soil, lay down the heat tape, add another layer of sand, and cover it with 6 to 8 inches of loam. Connect the heating tape to a switched outlet, and your cold frame will become a hot bed at the mere flip of a switch.

Wind Protection. While some crops like kale and cabbage can tolerate cold temperatures and even snow, strong winds have the ability to damage and kill even the hardiest plants. Installing a simple fence or windbreak will help protect your garden from strong winter winds.

Overwintering Crops. Another option for extending your harvest is overwintering crops such as greens, carrots or onions for an earlier spring harvest. This means planting in the fall to establish very young plants that will survive the winter and begin growing again in spring when day length increases to 10 hours. This can be challenging and often entails trial and error to best understand what will and will not success in your garden's conditions. A common approach involves seeding in the late fall so germination and the first stages of growth occur before the plant goes dormant during the Persephone period (when daylight drops below 10 hours). You can find more information about overwintering here.

Topic 2: Cold Weather Crops and Hardy Greens

As daylight diminishes so too will plant growth, therefore the days to maturity of your garden crops will be longer in the darker months of fall. For most vegetables, planning ahead for a late fall harvest means planting in late summer to ensure sufficient growth before plants go dormant. Encourage healthy growth by maintaining healthy soil fertility using the same concepts adopted for summer growing.

You can continue to enjoy fresh greens from your garden throughout the fall and winter, so long as they are protected from the worst of winter conditions (namely wind): spinach, kale, collards, and tatsoi can all survive island fall with ease. Lettuce, arugula and chard are less adaptable to harsh winter conditions but depending on seasonal conditions can continue to produce well into the fall.

Topic 3: Growing an Indoor Herb Garden

As the weather cools down you can continue to enjoy fresh flavours from your very own kitchen with the help of a simple indoor herb garden, either in a sunny, south-facing window or with the help of a basic grow light set-up. To bring your herbs indoors you can either transplant from your current garden, bring pots inside, or start new seeds. Any plants you are digging up from your garden should be cut back; they will be somewhat shocked and will need some recovery time to regrow. Gently clean as much soil away from the root ball as possible and transfer into an appropriately-sized pot with new potting soil. Take care to avoid bringing pests and insects into your garden (you can spray with a soapy water solution to kill off any rogue pests). Once your window garden is set up you can fertilize the plants with your usual organic fertilizer to encourage healthy growth.

Many herbs - both perennial and annual - can be grown indoors successfully. Cilantro, parsley and basil can be started from seed (or in the case of bail, from cuttings), for example. Oregano, thyme, sage, and rosemary will also grow well indoors.

Reading Recommendations:

The following resources will help you understand how best to keep your garden growing into the cooler months.

- ❏ The Year-Round Vegetable Gardener: How to Grow Your Own Food 365 Days a Year, No Matter Where You Live by Niki Jabbour
- ❏ The New Organic Grower's Four-Season Harvest by Eliot Coleman
- ❏ Cold-Climate Gardening by Lewis Hill

MODULE SEVEN	GROWING GARLIC & SEASON WRAP-UP

Suggested Activity:	Plant garlic as a group in the demonstration garden plot, including popping cloves, preparing the bed with compost, and mulching the finished plot.
Materials:	❏ Garlic seed and bags of organic compost ❏ Rakes, trowels, and other gardening tools ❏ Eel grass or straw for mulch ❏ Plastic or wooden stakes and permanent markers for labelling

Topic 1: Growing Garlic

Garlic is a popular member of the Allium family with excellent culinary properties. Garlic is relatively easy to grow, stores well, and has been long been cultivated by cultures around the world for its rich flavour and medicinal benefits. Another benefit is only needing to buy seed once: by growing your own garlic bulbs you are also producing new seed for next year! One small 4 x 8 foot bed can easily produce enough garlic to keep a household going through the winter. Here we discuss how to be successful in planting, growing, and harvesting your garden garlic crop.

Sourcing seed. It is best to buy your seed from a known producer to ensure clean, high quality seed stock free of pests and disease. Only plant cloves from healthy bulbs. There are different types of garlic, each with their own benefits depending on your preferred usage. Hardneck varieties will produce an edible garlic scape that can be harvested in summer while softneck varieties do not produce scapes and can be used to make garlic braids. Porcelain varieties (e.g., Music) produce bulbs of 4-6 large cloves with bold flavour that store well. Rocambole types have rich, spicy flavour with 7-12 smaller cloves per head and often a purple or brown skin. Purple Stripe (glazed or marbled) varieties have intense flavour and beautiful colour that carries through to the cloves with 8-12 cloves per head. Artichoke garlic is a softneck type named for the way the cloves are arranged much like an artichoke with 10-20 cloves of various sizes inside the bulb. Silverskin is a common softneck type with a long storage life. Elephant garlic is a perennial plant that is not a true garlic - it is related to the leek and has similar broad, flat leaves - but forms a bulb consisting of very large, garlic-like cloves. Eureka Garlic and Veseys Seeds on PEI both sell a wide selection of garlic seed varieties. To prepare seed for planting, separate individual cloves and keep in a mesh or paper bag allowing air circulation until time for planting.

Preparing your soil. Garlic should be planted in an area of full sun with rich, well-drained soil with a pH close to 7. Amend with limestone if necessary and add lots of compost. A small amount of bone meal can also be added as a source of phosphorus. To improve drainage, you

can prepare your soil into a raised bed. Rotate your planting area in the garden so that garlic is not continuously planted in the same place as other alliums.

Planting. On PEI the ideal time to plant garlic is late October when the temperature has cooled significantly but the soil can still be worked. It can be planted in November or even December so long as the ground is not yet frozen. The goal is to get good root growth but no top growth before winter. If you miss the fall window garlic can be planted in early spring as soon as the soil is workable (early to mid-April, usually), but spring planting will reduce bulb size. Set cloves root side down 6" apart in single rows 1-1/2 to 2' apart or in beds of multiple rows leaving at least 8" between rows. Plant cloves 2-3" deep and cover with soil. Be sure to label your varieties.

Mulching. In our climate it is best to cover your planting with 6 inches of organic mulch for winter protection. Straw and eelgrass are both locally available options.

Management. Consistent soil moisture is important in the spring, especially during the bulbing period. Water as necessary but reduce irrigation closer to maturity in late summer. Keep the growing area as weed-free as possible as garlic does not compete well with weed pressure, which can reduce bulb size by up to 30%. Remove and enjoy the scapes in early to mid-July when they appear and have curled around at least once.

Harvest and Curing. Garlic is ready to harvest when the bottom two leaves are dead and dry, and the third from bottom is starting to die as well. The rest of the plant will still be green. Don't wait for the whole plant to dry out as the bulb quality will suffer. Make note of the varieties you plant as they will mature at different rates. Once harvested, shake off excess soil (or spray to clean) and hang in bunches of 10-20 plants in an open space with good airflow, protected from direct sunlight and rain. This process of curing will take about 4 weeks depending on humidity levels. Once dry, cut off roots and tops leaving about one inch of stalk. To clean simply remove a layer or two of wrapper. Discard any bulbs with obvious disease and save the healthiest, largest bulbs as seed for replanting.

Storage. Garlic should be stored in an area with good airflow. Hanging garlic braids, in mesh bags, open paper bags, or containers with holes are all options. Never store in an airtight container. Temperature should be between 13 to 20 degrees Celsius. In these conditions garlic can store up to 6 months or longer.

Visit Johnny's Selected Seeds or West Coast Seeds for more information about growing garlic.

Topic 2: Preparing your Garden for Winter

As the seasons change and we prepare for colder temperatures, so too is it time to transition your garden for the winter. By taking steps to tidy up and prepare your garden at this stage you will be setting yourself up for an earlier start to the next growing season.

First, clean up your garden beds by removing plant debris, dead vegetation and rotten vegetables or fruit. Residue from healthy plants can go into the compost pile, but some diseases and pests can overwinter on foliage and fruit left in the garden so any plants that were unhealthy with mildew, mold or blight should be disposed of in the waste to avoid contamination. For example, tomatoes are often hit with late blight on PEI and all plant matter should be removed from the garden. Remove any remaining weeds to reduce weed pressure next season.

It is a great time of year to amend your soil by adding lime, compost, or other organic matter. You can get a soil test analysis or simply add a 1-2" layer of rich compost and a light covering of mulch to suppress weeds and protect your soil from harsh winter conditions. As an alternative to organic mulch (such as leaves, straw, or eelgrass) you can cover your garden with a tarp for a similar effect.

If you're planning to grow the scale of your garden next year now is a good time to prepare new garden plots so they will be ready to plant next spring.

Topic 3: Planning for Next Year

As you put your garden to bed for winter it is a great opportunity to take note of this past growing season and plan ahead to next year. If you have kept a garden journal, review your successes and challenges to help inform your future planting decisions. This may include the timing of your plantings and harvests, the types of vegetables and/or varieties you choose to grow, the location of your garden or certain crops, pest and disease pressure, your water and weed management, tools and supplies you might like to add to your toolshed, and your overall soil health. If you hadn't been keeping a garden journal all along it is not too late to start! Compile the information that is fresh in your mind to help you get organized for next year.

Though not critical on a small scale, taking into consideration crop rotations is a valuable practice for reducing pest and disease pressure as well as managing your soil health. Take note of or map out where certain crops are planted and try to plant vegetables from a different plant family in that spot next year.

This is the time of year when seed companies are updating their catalogues and online stores for next year's seed purchases. Begin to shop around and learn about new varieties to try, or simply read up on and plan ahead for the vegetables you were most happy to have grown at home.

Reading Recommendations:

Check out these great resources to learn more about growing garlic:

- The Complete Book of Garlic: A Guide for Gardeners, Growers, and Serious Cooks by Ted Jordan Meredith
- Growing Great Garlic: The Definitive Guide for Organic Gardeners and Small Farmers by Ron L. Engeland

APPENDICES

Appendix A: Sample Flyer for Promotion

EDIBLE GARDENING *for* BEGINNERS

A series of **FREE** workshops by the PEI Food Exchange teaching the basics of growing your own food through the seasons. *Everyone welcome!*

GET GROWING

GARDEN PLANNING, PREP AND PLANTING

When: **Tuesday, June 26** from **6-8pm**
Where: **The Legacy Garden** at **420 University Avenue**

Join us for a hands-on demonstration and help us plant a garden plot at the Legacy Garden step-by-step using simple organic methods. We'll get you started with the basics, including:

- Choosing your garden site and planning your layout
- Essential gardening tools and how to use them
- How to prepare healthy soil
- What to grow on PEI and proper planting techniques
- Companion planting and planning for a balanced harvest
- And more!

Stay tuned for these upcoming workshops:
CROP CARE all about maintaining healthy plants and managing weeds, pest & disease
EATING WITH THE SEASONS all about herbs, edible flowers & planning your fall garden

About the Presenter: One of the original Legacy Gardeners, Stephanie Dewar has worked with some of the island's best organic vegetable farmers and will share simple and sustainable tips, tricks and techniques that can be applied to your own backyard garden.

For more information:
Food Exchange PEI
123-456-7890
foodexchangepei@gmail.com

Appendix B: Budget Template

Workshop Title:		Date:
Organizers:		

ESTIMATED EXPENSES		
Description	Amount	Notes
Venue		
Activity Materials (see modules)		
Refreshments & Food		
Printing & Photocopies		
Other*		
Total Estimated Expenses		

* Other may include transportation, honorariums for facilitators, child care, thank you gifts, etc.

Estimated expenses ÷ estimated # of participants = cost per participant

ESTIMATED FUNDS AVAILABLE		
Description	Amount	Notes
Fees from participants		
Donations		
Grants		
Group's workshop funds		
Other		
Total Estimated Funds		

Estimated funds - Estimated expenses = Estimated surplus or deficit

Appendix C: Sample Registration Form

EDIBLE GARDENING FOR BEGINNERS	
WORKSHOP TOPIC:	
Please return completed forms to:	
WORKSHOP REGISTRATION FORM	
Please fill in this registration form to the best of your ability. It will be kept private and used only to ensure your spot in the upcoming workshop.	
Name:	
Phone:	
Email:	
1. Do you have any food restrictions that organizers should be aware of, including allergies?	
2. Photos and videos may be taken at the workshop. Do you consent to being photographed and/or filmed? Please circle. YES NO	
3. Please rank and circle your prior understanding of the workshop topic, where 1= little understanding and 4= very knowledgeable: 1 2 3 4	
4. What do you hope to learn or gain by attending this workshop?	
5. Please share any additional comments or suggestions that would assist in making this a positive workshop experience for you:	

Appendix D: Are You Ready? Checklist

Use this checklist to make sure that you are ready to host an Edible Gardening for Beginners Workshop. As you complete each task, check it off.

- ❏ Carefully read through the introductory materials to get familiar with how to host any of the Edible Gardening for Beginners Workshops.
- ❏ Decide which modules you would like to present.
- ❏ Keep accessibility in mind throughout all planning.
- ❏ Read through the workshop module(s) of your choice carefully and adapt/merge topics as you see fit.
- ❏ Identify who will facilitate the workshop.
- ❏ Decide which topics you want to present from each module. Prepare handouts or resources to be printed if desired.
- ❏ Decide what Activities you want to do.
- ❏ Develop your agenda for the workshop.
- ❏ Create a budget for your workshop.
- ❏ Organize funds to cover workshop costs.
- ❏ Choose a date and time.
- ❏ Book an appropriate venue.
- ❏ Promote the workshop to the community.
- ❏ Create a materials list.
- ❏ Gather donated, reused, and purchased materials and tools.
- ❏ Register participants.
- ❏ Print materials as needed, including sign-up sheets, evaluation forms, and any resources or handouts you have prepared to distribute.
- ❏ Check to make sure all the equipment you will use works.
- ❏ Remind participants of the workshop by email or phone.
- ❏ Purchase refreshments and food if planned for.
- ❏ Have fun at your workshop!
- ❏ Take photos and videos to share.
- ❏ Using contact information from the registration and/or sign-up forms, follow up with participants to inform of upcoming workshops or gather feedback.

QUICK TIP: Involve potential participants in planning and decision-making so that you host a workshop that is well-attended, fun for everyone, and best reflects the interests in your community.

Appendix E: Garden Safety

The following is a list of safety tips borrowed from Food First NL's Root Cellars Rock Container Gardening toolkit. It is important to keep safety top of mind when incorporating gardening skills or using garden tools at a workshop. Share this information with participants as needed.

1. Protect yourself from sun overexposure, exhaustion and injury:
    - wear a hat and adequate clothing for the weather
    - apply sunscreen
    - take breaks in the shade
    - drink enough water to stay hydrated
    - eat enough healthy food to maintain energy
    - pace yourself and be aware of your physical limits
    - stretch after vigorous activity or keeping to one position for a long time
    - avoid straining your back, neck, and knees
    - have a first aid kit on site and when possible, someone trained in first aid

2. Stay safe when using garden machinery and tools:
    - wear sturdy gardening gloves, footwear and clothing that covers skin
    - choose equipment that is the right size and weight for you to handle
    - when you are unsure of how to use something, ask for guidance
    - keep equipment clean and rust-free
    - store equipment in safe, dry places
    - maintain a tidy work space be aware of possible tripping hazards
    - place sharp equipment like rakes sharp-side-down
    - do not leave equipment unattended
    - keep equipment in good working order with tune-ups and repairs read and follow manufacturer's instructions for all equipment
    - do not work with electrical equipment in wet or damp conditions
    - use extension cords that are rated for outdoor use

3. Be cautious when using fertilizers (even organic), pesticides, and chemicals:
    - keep skin covered by wearing long clothing and sturdy gloves
    - remove garden shoes and brush off clothing before going indoors and consider keeping separate clothing to be worn only during application
    - read and follow manufacturer's instructions closely store fertilizers, pesticides and chemicals in safe places away from food, children, and pets

4. Ensure food safety in the garden: (Adapted from the University of Maine Cooperative Extension)

- choose a garden site that is away from septic systems, manure piles, and areas where animals frequent
- if using surface water (streams, ponds, etc.) or rain barrels to water your garden, apply water to the base of plants at the soil level
- if using well water, ensure that the water is regularly tested for safety use potable water to clean soil and residue from foods
- harvest foods with clean hands/gloves and tools
- harvest foods into clean, food-grade containers
- if putting foods into storage, be sure to handle them gently to avoid creating damage that could eventually rot
- ensure that harvested foods are adequately dry before storing
- be aware of potential soil contamination and consider having your soil tested
- if growing food in containers, do not use pressure treated wood, painted materials or heat/water sensitive containers that could degrade and leach contaminants into the soil

Appendix F: Crops for Beginner Gardeners on PEI

This table lists offers a list of vegetables that are well suited to beginner gardeners on PEI, along with basic tips for planting, growing, and harvesting.

CROP	PLANTING & GROWING	PESTS & DISEASE	HARVEST
Beans	Seed after risk of frost, 1" deep and 2" apart. Full sun, well-drained soil with pH 6.5-7.5.	Root maggots and cutworms. For cutworms, try cornmeal or crushed eggshells, diatomaceous earth (DE), or plant collars. To prevent foliar disease, allow good air circulation.	Harvest readily for a steady supply. Ready once smooth, firm and crisp.
Beets	Seed ½"-1" deep in rows 8-12" apart from spring through summer. Full sun, well-drained soil with pH 6.5-6.8. Amend with sources of potassium and boron. Thin as needed.	Leaf miner can be controlled by removing leaves and stomping or squishing to kill pest. Can also cover with floating row cover. Cercospora leaf spot - remove affected leaves.	Harvest for the greens when young and tender and for the beetroot when they reach desired size.
Carrots	Seed ¼"-½" deep in loose soil, pH 6.5, June through July. Thin to 1" apart. Prefer full sun but tolerate light shade.	Prevent root maggots and carrot rust fly with row cover. Wireworm is common on PEI. Try planting potato pieces nearby to trap.	Harvest baby sized or once fully mature.
Chard & Kale	Plant spring through late summer, either seeding 1" deep and 8-12" apart or transplanting. Full sun, pH 6.0-7.0 with compost.	Flea beetles and cabbage moth damage in kale can be prevented with row cover. Remove chard leaves affected by leaf spots or leaf miner.	Harvest leaves at desired size. To extend the harvest, pick leaves from the bottom of stem upward.
Cucumber, Zucchini & Squash	Seed or transplant after all risk of frost in warm soil. Plant seeds ½"-1" deep, spaced 12" apart in rows 4'-6' apart. Full sun, pH 6.0-6.8 with compost. Cucumber can be trellised.	Row cover prevent against striped cucumber beetles, which can spread bacterial wilt. Remove affected plants. Good air circulation will help prevent powdery mildew. Benefit from mulch for weed prevention and moisture, as well as keeping fruit clean.	Cucumber - continuous harvest when fruit reach mature size. Zucchini/summer squash - continuous harvest at desired size. Winter squash - harvest before frost when skin is hard, plant has died back and stem is dry.
Lettuce	Seed spring through fall, ¼" deep and 8"-12" apart for full heads with 12" between rows. Full sun to	Slugs - set beer can traps as slug bait. Companion planting will distract other insects.	Harvest early in the day when still cool. Looseleaf types can be picked leaf-by-leaf when

	partial shade, pH 6.2-6.8 in rich, well-drained soil. Amend with nitrogen source.		leaves are large enough to eat. Full heads are ready when full and firm.
Peas	Seed early spring as soon as soil can be worked, 1”-1½” deep, 1”-2” apart in double rows 2’ apart. Full sun to partial shade in well-drained soil with pH 6.0-7.0. Trellis to help climb.	No significant pest or disease issues. Rotate crop location each season for best success.	Pick regularly when pods are young and tender, and plump if snap variety.
Radishes	Seed in cool soil, spring and fall, ¼” deep and ½” apart in rows 6”-12” apart. Full sun, pH 6.0-7.0, very light feeders.	Cover to protect against flea beetles.	Harvest as soon as roots reach desired size.
Spinach	Seed ½” deep, 1”-3” apart in rows 6”-12” apart in spring and late summer/fall as spinach grows best in cool temperatures. Full sun to partial shade in fertile soil with pH 6.5-7.5. Amend with good source of nitrogen.	Leaf miner - prevent by covering plants or by removing leaves and squishing pest.	Pick leaves at baby size or larger, leaf-by-leaf or by cutting the whole plant 1” above the base. Harvest plant before bolting as taste/quality will suffer.
Tomatoes	Transplant seedlings after risk of frost has past, mid-late June. Plant deeply spaced 18-24” apart in rows 3-4’ apart. Full sun in rich soil with pH 6.0-6.5 and good air circulation. Plant with compost and amend throughout the season. Trellis plants with tomato cages or other trellising system.	Cutworms - use plant collars and cornmeal/DM to protect young plants. Blight - practice crop rotation and keep air circulating by pruning plants. Blossom end rot - avoid over watering and amend with Calcium.	Harvest regularly when fruit is firm and true to size/colour. Avoid over watering when fruit is maturing to prevent splitting.

Appendix G: Sample Soil Test

Sample Information			Soil Test Values and Ratings							
Lab Sample #	Field Number	Organic Matter (%)	pH	Phosphate P_2O_5 (ppm)	Potash K_2O (ppm)	Calcium Ca (ppm)	Magnesium Mg (ppm)	Boron B (ppm)	Copper Cu (ppm)	Salt mS/cm
1	1	3.4	5.0	46 L-	57 L	505 L	38 M	0.4 L	1.5 M+	

Lab Sample #	Field Number	Zinc Zn (ppm)	Sulfur S (ppm)	Manganese Mn (ppm)	Iron Fe (ppm)	Sodium Na (ppm)	Aluminum Al (ppm)	Lime Index	Nitrogen N (%)	Nitrate-N NO -N (ppm)
1	1	0.9 L-	18 M+	22 M	407 H+	21	1077	6.5		

L-: Low L: Low M: Medium M+: Above Medium H: High H+: Very High

To convert HECTARES into ACRES multiply by 2.47				To convert T/HECTARE into T/ACRE multiply by 0.45			To convert Kg/Ha into lbs/ACRE: multiply by 0.9		
Sample Information				Limestone application (T/Ha) to acheive			Required Applications (Kg/Ha)		
Lab Sample #	Field Number	Field Size (Ha)	Crop to be Grown	pH 5.5	pH 6.0	pH 6.5	Nitrogen N	Phosphate P_2O_5	Potash K_2O
1	1	0.4	Mixed Vegetable	1	2	3	130	250	130

Lab Sample #	Field Number	% P/Al	Ratio Ca/Mg	Man	Sod	CEC (Meq/100g)	Base Saturation					Total % Base Saturation
							% K	% Mg	% Ca	% H	% Na	
1	1	1.87	13:1	0	1	9	1.3	3.5	27.9	66.3	1.0	32.7

Date of analysis available upon request.

Comments: All fertilizer recommendations are based on a pH of 6.0
To convert P2O5 to P, divide by 2.29. To convert K2O to K, divide by 1.2.

Methods: SFL_22M - pH*
SFL_23M - Organic Matter*
SFL_24M - Nutrients*

Copies To:

Approved By:

Laboratory Manager

* Accredited Methods

Appendix H: Participant Consent Form

I agree that my contact information provided below may be used to contact me for purposes directly related to this workshop (example - to complete an evaluation or send further resources to you).

I understand that I may be contacted to let me about upcoming events.

I understand that the organizer is not responsible in the case of sickness or injury during my participation in this workshop, and I have informed the organizer of any allergies I have before attending the workshop.

I understand that any photos taken during the workshop may be used by the organizer to promote and inform the public about the workshop. These photos may be shared via websites, social media, newsletters, presentations, conferences, etc. (If you prefer not to have your photo taken during the workshop, let your facilitator know at the beginning of the workshop).

Name: _____

E-Mail address: _____

Phone Number: (daytime)_____ (other)_____

Signature: _____ Date: _____