THE EDIBLE GARDEN

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TREES AND LENGTHY DROUGHTS

Edythe Falconer
Master Gardener of Ottawa Carleton

Large trees shelter humans, understorey trees, shrubs, flower beds and vegetable gardens. Besides providing shelter, shade and privacy, trees are psychologically beneficial. And trees hold soil in place. In order to provide all of these benefits, a tree must take its own fair share of moisture and nutrition from the soil it grows in. In dry times they may compromise the welfare of other trees and plants within their growing space as they reach out for what they need. The root systems of large trees are vast.

Trees in a garden
Edythe Falconer

We need to know a lot more about these systems if we continue to experience lengthy periods of hot, dry weather. The main root of a tree penetrates deeply but this may not provide protection from hot, dry weather. It is the horizontal systems that do most of the work keeping trees alive and functioning well. Roots spread far and wide in order to absorb and transport water and nutrients for the tree so that photosynthesis can take place. Plants in general rely on sunlight in order to produce food from carbon dioxide and water. Oxygen is a by-product of this "manufacturing" process. When moisture is scarce plants lose more water than they can replace. Then stomata – plant pores - begin to close. When this happens photosynthesis cannot take place.

Root systems can extend well past the dripline of the tree and are usually located not more than 30 - 40 cm below the surface of the soil. If these 30 – 40 cm dry out for lengthy periods the tree is in trouble and the damage may be hard to repair. Debate continues on the best way to determine how far root systems do extend. One rule of thumb is to multiply the diameter of tree x 12ft. If the diameter is 3ft then the potential extension is 36 feet. This information is important for builders, landscapers and home gardeners.

If you have water capacity to drench trees and shrubs thoroughly during droughts then do so – not every day but deeply once per week equally distributed from near the trunk to at least the dripline. Avoid fertilizing with synthetic fertilizers during droughts. Roots receiving less moisture cannot effectively dilute minerals and other nutrients that are transported into trunks, branches and leaves and these may suffer from increased alkalinity or chemical imbalance – metabolic damage. Trees may appear to survive drought year after year but progressive damage often leads to premature death. If a dry summer is followed by a dry fall we need to keep watering until freeze up. Sometimes springs are dry too. We don't always get the spring showers we used to take for granted. We need to be especially attentive to plants transplanted late in the fall. Stressed trees are more vulnerable to pests and diseases.

Planning ahead to the next drought will pay off. By partially covering the ground under their canopy with rocks and patio stones, using plants that like to grow under trees, applying organic mulches and letting leaves fall where they may we can mitigate damage during prolonged droughts. When rain does finally come mulch gentles the force of water letting it seep in rather than being lost in runoff. Do leave some space between the trunk and heavy layers of mulch. Mulches absorb moisture and protect tree roots. Eventually organic mulches break down and become natural fertilizer further benefitting understorey trees

Need help? Contact us at:

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BEE LINE

Julianne Labreche
Master Gardener of Ottawa Carleton

This summer, the Ottawa Citizen asked someone from Master Gardeners be an 'Armchair Mayor'. Basically, it meant pitching one idea that would make our city a better place. We tossed around some different ideas. Ultimately, the pitch was, yes, all about bees. "*Let's make Ottawa a 'bee-friendly' city*," the headline read.

The hope is that the mayor and council will approve a resolution to apply to Bee City Canada for official status, meaning that we're serious as a city about helping pollinators.

"Ottawa already is a bee city. We just need to make it official," Benoit Bazinet, an apiarist at Beechwood Cemetery told me a couple of weeks after my Armchair Mayor article was published. I met him one Sunday morning as he sold liquid raw honey outside the doors of a Chamber Music Festival performance on site that day at the cemetery. He runs the biotic pollination program at Beechwood, the perfect place for bees that dwell in that bucolic 160-acre pesticide-free landscape. The cemetery is full of towering trees, flowering shrubs, waterfalls, lily ponds and well-tended perennial beds in glorious bloom.

It's true. Ottawa, in many ways, already is a bee city. Many gardeners are planting more bee-friendly plants. They're taking care to avoid pesticides outlawed through-

and shrubs and creating a tree/shrub community.

During the July drought under the weeping spruce in our front yard, Hosta's, alliums and sedges thrived along with specific plant seedlings – chokecherry and mountain ash which can be transplanted later or shared at plant sales. Low growing creeping juniper trickles down from under the tree into the ditch sharing space with a dense covering of *Vinca* aka Periwinkle.

Under the maple near our back door daylilies, Solomon seal, pagoda dogwood, Nanking cherry, Hosta's and bleeding heart have continued to do well. So did yew, viburnum, rhododendron, and *Fothergilla.* Many trees and shrubs blossom early in the year attracting pollinators at a time when other plants have yet to bloom. Trees and shrubs pay their way throughout the year.

A multi-stemmed Maple behind the sheds shelters another pagoda dogwood, lilacs, false spirea, elderberries, azaleas, red and white currants, smaller maple and wild plum, viburnum, golden dead nettle and elderberry. During this drought some shrubs struggled and needed gardener assistance. Others did not - in particular, the elderberries. In all three locations there is communal use of the available space – for better or for worse.

What am I doing talking about trees and shrubs in an issue of The Edible Garden? Aside from the fact that all have blossoms that are attractive to pollinators, particularly in the spring, trees and shrubs can be selected for their fruit bearing prowess. Apple trees could be the dominant tree and the understorey shrubs could be Nanking cherries, Saskatoon berries, chokecherries, elderberries, Dolgo crabapples, hazelnuts or red currants.

Within and among predominant trees and shrubs it is possible to create islands of plants that complement and support each other. These islands then create a complex of shade and sun in which to display more ornamentals and grow vegetables according to their need for shade – a need that may increase in a prolonged drought.

From July 1 to – July 21 – the Ottawa area received only 11mm of rain. That is less than one inch. If we continue to have long periods of extreme heat coupled with drought we need to employ every possible strategy in order to maintain beauty and productivity in our yards and gardens.

Should we give more importance to watering trees and shrubs during prolonged droughts? I think the answer is a very emphatic "Yes".

Reference: Photosynthesis and Global "Weirding" – How Heat and Drought Affect Photosynthesis (part 2)

GREEN MANURE – LEAVE NO GROUND UNCOVERED

Edythe Falconer
Master Gardener of Ottawa Carleton

Inspired by an ancient box of Mung beans I decided to do a green manure experiment. What could I lose? If they didn't germinate I'd try something else. If they did then I would need to decide whether to leave them now and till them in in the spring or till them in just before freeze up this fall. They germinated in a 4 x 4 planter and I faithfully watered them throughout the July drought. I also placed chicken wire over the planter. The Mungs are fine and healthy.

What is the main purpose of planting green manure? One objective is to reduce dependence on commercial fertilizers and even pesticides. How might that be ? and how does it work?

Now is a good time to plant green manure but so is early spring. I've decided to leave mine

out the province on residential properties. They're gardening without chemicals. Many gardeners are aware of threats nowadays for bees: loss of habitat, climate change, pesticides used in agriculture-– including neonicotinoids, deadly for both native and non-native bees– as well as various pathogens and diseases.

Indeed, cities across Canada are increasingly becoming safer for bees than the countryside, especially around farming areas. That's why at least 19 cities have officially proclaimed themselves a Bee City, willing to learn and share ideas to support native and non-native bee species.

Some interesting projects already are underway. The city of Niagara Falls, for instance, has planted more than 10,000 pollinator plants at a local cemetery. Kawartha Lakes in central Ontario is a Bee City too. They've initiated the Fenelon Landfill Pollination Project, turning part of a local landfill into a 1.5-acre wildflower garden.

Schools in some bee cities, says official website of Bee City Canada, are teaching children about pollinators. Horticulture workshops are instructing gardeners how to grow pollinator gardens. Chefs are working with local businesses to install rooftop gardens with beehives.

Bee on Coreopsis
Julianne Labreche

In Ottawa, working quietly behind-the-scenes, master gardeners are answering questions about bee-friendly gardens on our email helpline and providing handouts with carefully researched lists of bee-friendly plants at local farmer markets. We're participating again in World Honey Bee Day at the Central Experimental Farm.

alone until spring and only then I will till them in. In early May I will fill the planter with whatever I please whether it be fledgling ornamentals or some of the cold weather vegetables such as the brassicas. Again the chicken wire will come in handy. We have a lot of squirrels and while I love birds they too can get their busy little beaks into the wrong places.

Mung Beans
Edythe Falconer

Mung beans are leguminous so not only are they generally good for the soil they also fix nitrogen something that all plants need in order to grow. I have white clover seed on hand and that will go into planter #2. It too is leguminous.

The practice of green manuring involves leaving uprooted or sown crops on a plot – planter in my case - to serve as mulch and soil amendment. Leguminous green manure is best but as you can see from the list below there are non legumes that serve well too.

Some of their many benefits include those already mentioned plus capacity to acidify the soil to a pH more compatible to growing crops, the encouragement of microorganisms that till beneath the surface and improve soil structure – good soil structure being essential for good results in our gardens. They also assist with weed suppression and since some bloom they are attractive to pollinators. Finally covering our soil reduces the possibility of erosion and compaction.

Here is a partial list of potential green manure crops courtesy of Wikipedia. Alfalfa, Cowpea, Clover, Fava beans, Lupin and Soybean are all legumes. Buckwheat, Millet, Mustard, Radish and Tyfon are acceptable alternatives.

I will be staying with Mung beans, Soybeans and Clover for the time being.

So leave no ground uncovered and go one step further and start growing green manure crops as not only a cover but as natural fertilizer for vegetable gardens.

BOOK REVIEW

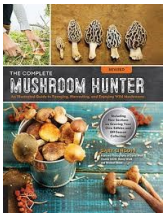
THE COMPLETE MUSHROOM HUNTER;

AN ILLUSTRATED GUIDE TO FORAGING, HARVESTING AND ENJOYING WILD MUSHROOMS (REVISED)

By Gary Lincoff

ISBN-10: 1631593013, ISBN-13: 978-1631593017

Gerda Franssen
Master Gardener of Lanark County



Published in 2017 by Quarto Books.
Gary Lincoff is the author of several books and articles on mushrooms, including "*The Audubon Society Field Guide to North American Mushrooms*" 1981. He is a self-taught mycologist and has taught courses on mushroom identification at the New York Botanical Gardens in the Bronx for 40 years.
Spring, summer or fall, foraging for mushrooms a day or two after a refreshing rain is a wonderful way to spend time outdoors. This book shows you the equipment you will need and that wild mushrooms grow right in your own back yard, parks, in woods and don't forget to look up—they also grow on trees.
This book makes extensive use of photo illustrations to show the best edible mushrooms and helps you identify the poisonous look a likes.
Once you have gathered your treasures and properly identified them, there are recipes to help you prepare them for eating.
Experienced and novice mushroom foragers will find "The Mushroom Hunter" and informative guide with many interesting short stories. There is even an extensive section on growing your own mushrooms at home.
I own several books on mushrooms and have found this book the best one yet. Hope you enjoy it too.

Becoming an official bee city will make a difference to Ottawa. The proclamation will draw attention to the fact that bees need our help. Ottawa, like many Canadian cities, has potential to be an ideal habitat for bees. Gardeners can make a difference. Getting rid of a little grass and planting a few pollinator plants will help. Plants like lavender, calamint, bee balm and coneflowers are bee magnets. There are others too. The list is long. Among bee-friendly plants however, grass is not among them.

Even weeds can be beneficial. Plants like clover and dandelions are a primary source of food come spring. As a society, maybe it's time to re-think our love affair with grass. Let's grow more trees, shrubs, vegetables and ornamental plants instead. Certainly, our bees and other pollinators will benefit.

Our water bills might too, given the costs of keeping a lawn green on hot, dry Ottawa days. Many bee-friendly plants also happen to be drought tolerant.

Meanwhile, fingers crossed that our city mayor and council will come onboard and officially proclaim Ottawa a Bee City, before or after the upcoming municipal election.

To read a full version of the Ottawa Citizen story on Bee City Ottawa, go to: https://ottawacitizen.com/opinion/columnists/armchair-mayor-make-ottawa-a-bee-city.

To learn more about Bee City Canada, go to: http://www.beecitycanada.org

Mung beans, Green gram, Moong -*Vigna radiata*
Are prevalent in Asian and Middle eastern cuisines, in both savoury and sweet dishes. They are also eaten as bean sprouts,

Watch for Trowel Talk the Master Gardeners of Ottawa Carleton electronic monthly gardening newsletter available on the 15th at http://mgottawa.ca/

Visit the Almonte online community newspaper 'The Millstone' - http://millstonenews.com/ -for a column by David Hinks of the Lanark County Master Gardeners; under the Gardening tab.

Master Gardeners of Ottawa-Carleton and Master Gardeners of Lanark County are member groups of Master Gardeners of Ontario Inc., a registered charity with the mission of providing gardening advice to homeowners.
The Edible Garden logo was created by Jon Last (jonlast13@rogers.com).