February 2023-Vol.9, No.2

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The Edible Garden in February

By Ralph Morini | February 2023-Vol.9, No.2

For edible gardeners who grow spring vegetables and fruit growers who need to prune before new growth starts, February is the month to kick off the season. The lengthening days and typically warming temperatures urge us to get things moving. Here is a suggested to-do list.

Planning

It makes sense to start with a plan:

- Decide what you want to grow, review best times to grow it, and where you want to place it in the garden. Crop rotation on a 3-year cycle is best for soil and helps minimize soil pest and disease issues.
- In Virginia we can plan spring, summer and fall plantings and harvests. Review VA Cooperative Extension's *Virginia's Home Garden Vegetable Planting Guide* to see best times to plant and harvest many popular crops.
- Start a journal that records what you grow, where you grow it, when you plant and harvest it. Also track any insect or disease issues that arise to guide decisions next year.

Seed Starting Setup. Photo: R Morini

Growing from Seed

Starting plants from seed is less expensive, offers more choices and gives gardeners the ability to control conditions and timing of transplanting. It also gets our hands in the soil earlier than outdoor planting or purchasing transplants from garden centers.

- If you plan to start plants from seed, it's time to acquire seed for spring crops. There are plenty of on-line catalogs to choose from. Put some thought into varieties to grow, working to balance the appeal of heirlooms with the disease and pest resistance benefits of new hybrids.
- If you plan to use seeds from last year, check their viability, as recommended in the January 2019 Garden Shed article *Good Seeds, Bad Seeds*.
- Folks who are new to indoor seed starting can find good advice on everything from equipment to soil to timing from the Garden Shed article Starting Seeds.

Crops that can be started in early February for transplanting in mid-March include broccoli, cabbage, cauliflower, kale/collards and head lettuce. When these are moved outside, they can be replaced indoors with warm weather vegetables like tomatoes and peppers for transplanting in late April/early May.

Optimum time from germination to transplanting varies somewhat by crop, with 6 weeks being a general guide. Waiting too long leads to leggy plants that may not be as hardy when moved outside.

Light is important. Natural light requires a south facing window or solarium. Artificial light can work with either a grow light or a two-bulb fluorescent fixture that has one cool and one warm bulb. The internet is loaded with options for non-DIYers.

Most plants prefer a temperature of 65-75°F. If the growing area is cooler than this, a heating mat is a good idea for both germination and seedling growth.

Containers can be anything from purchased or homemade flats to vegetable cans to yogurt containers. It is essential that they have drainage holes. Space seeds in flats according to the package directions, and thin overly dense seedlings soon after germination.

Be sure to use a fresh potting mix and follow fertilization guidance on the package. We recommend using non-peat based potting soils to reduce negative environmental impacts. See the Garden Shed article *Should we Stop Using Peat?* for guidance.

If you reuse pots or trays from last year, minimize disease risks by cleaning and disinfecting them with a 10% bleach solution.

Plant seeds at a depth of 2-3 times their diameter (not length). Moisten thoroughly after planting. Keep moist, not soaked. If the seed dries out, it won't germinate. Too wet invites fungus and damping off.

To help maintain soil moisture while waiting for germination, cover pots or flats with clear plastic wrap or other clear cover. Keep soil below the top of the flat or container so that any cover is an inch above the soil. Remove cover immediately after germination.

Getting a Jump on Weed Control

If you are starting a new outdoor bed or want to minimize weed issues early in the growing season, consider solarization or occultation. These methods involve using clear or black tarps respectively to smother weeds prior to planting, as a replacement for tilling, manual removal or herbicide use.

Garden Bed Occultation. Photo: R Morini

The ideal first step is to cut all growing vegetation in the garden bed as close to the ground as possible. Moisten the ground well. Then cover beds with plastic sheeting or tarps, well secured around the edges with bricks, stones, boards or soil. Clear tarps heat the soil a bit more while black tarps keep light out. Heat and moisture will cause weed seeds to germinate. The continuing heat then kills the vegetation. Leave the tarps in place for 4-6weeks, then remove them. Leave the dead vegetation as mulch or remove it and smooth the surface to be ready to plant.

A thorough description of these processes is offered in the article Using the Sun to Kill Weeds and Prepare Garden Plots from the University of Minnesota Extension.

Fruit Grower Tasks

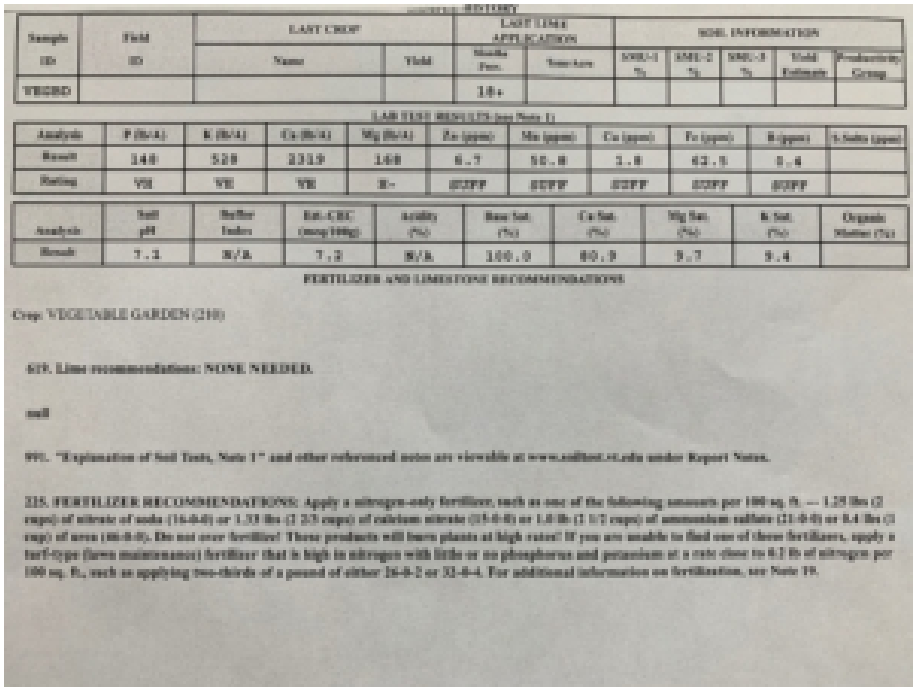
Small fruit growers should generally prune canes, bushes, or vines late in the winter, just before new

growth starts. Pruning can be done to remove dead, weak, diseased, and damaged plant parts, thin centers for light penetration and air circulation, and to train grape vines and cane hedges. Detailed guidance for selection and care of blackberries, raspberries, strawberries, blueberries, and grapes is available in the VCE publication Small Fruit in the Home Garden.

Fruit trees are also best pruned just prior to starting spring growth; pruning helps to build a strong frame while encouraging light penetration and air movement. Specific help with selection and care of various fruit trees is given in the VCE publication Tree Fruit in the Home Garden.

A broader-based article on good pruning practice is available in the Garden Shed article A Pruning Primer: Tools, Techniques and Timing.

Soil Testing



Sample ID	Field ID	LAST CROP Name	LAST CROP Yield	LAST LIME APPLICATION Months Prev.	LAST LIME APPLICATION Tons/Acre	SOIL INFORMATION				
YRGBD				18+						

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	% Soluble Salts (ppm)
Result	148	528	2319	168	8.7	50.8	1.8	62.5	0.4	
Rating	VH	VH	VH	H-	STPP	STPP	STPP	STPP	STPP	

Analysis	Soil pH	Buffer Index	Est. CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	7.3	N/A	7.3	N/A	100.0	80.9	9.7	9.4	

FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: VEGETABLE GARDEN (210)

619. Lime recommendation: NONE NEEDED.

null

991. "Explanation of Soil Tests, Note 1" and other referenced notes are viewable at www.soiltest.vt.edu under Report Notes.

Soil test results. Photo: R Morini

If the garden is due for a soil test (we recommend about every three years), now is a good time to do it. Healthy soils that provide the right amount of macro and micronutrients yield larger harvests from healthier plants with less effort from the gardener. The process is summarized in the VCE publication Soil Sampling for the Home Gardener. Sampling kits are available at the local extension office. In Charlottesville/Albemarle the office is located at 460 Stagecoach Rd, Charlottesville. Phone is 434-872-4580.

Spring is Coming

It is time to launch the 2023 gardening year. The garden can be a place to escape the noise of the world while reconnecting with nature. It is that way for me, and I hope it is a place of enjoyment and learning for you, too. See you next month at The Garden Shed.

Biodiversity: Its Meaning, Importance and How Home Gardeners can Help Restore It

By Ralph Morini | February 2023-Vol.9, No.2

There is a critical issue facing the world concerning environmental decline and the future of life on earth. The issue is the loss of biodiversity on earth, basically the accelerating reduction *in the number and population of species*, including plants, microbes and animals. Most scientists agree that the rate of species decline is the highest it's been since at least the last ice age, and that it is caused by a variety of human activities. Reversing the decline is critical to maintaining a healthy planet, but as is usual in cases where change creates winners and losers, it is complicated. Let's look at the terminology, the causes and examples of species decline, why it is important, and how home gardeners can help.

Meanings and Relationships of Species, Biodiversity, Ecosystems and Ecosystem Services?

These definitions explain the relationships of key mutually-dependent elements and why reversing species decline is so important:

Species: the principal classification unit of organisms. Individual species are a group of organisms that can reproduce naturally and create fertile offspring. Current population studies estimate that there are 8.7

million species on earth, 6.5 on land and 2.2 in oceans. About 1.1 million have been identified to date.

Biodiversity: the variety of plant, animal and microorganism species on earth and the ecosystems they form. It includes diversity within species and between different species. It covers species in terrestrial, freshwater and marine ecosystems, local and global.

An ***ecosystem*** is the combination of different species that live together to form a stable community, interacting with one another and the physical environment, relying on diversity and balance to thrive. The interrelationships between plants, animals and microorganisms, and their essential contributions to building and maintaining healthy water, land and air to support life on earth are what makes maintaining biodiversity so critical.

Ecosystem services are the elements of nature that contribute to human health and well-being. They include photosynthesis, pollination, water and air purification, soil formation and health, nutrient cycling and moderating weather extremes. The decline of biodiversity and ecosystem health causes a similar decline in ecosystem services that adds risk to human health and welfare.

Some Examples of Species Decline

Here are some well-documented examples of species population declines. The links connect to publications that add detail:

- Worldwide:
  - A 2/3 loss of worldwide wildlife in the past 50 years
  - 1 million species and 40% of the earth's plants at risk of extinction
- In the US
  - A reduction in our bird population by 3 billion since 1970
  - A 30% reduction in our pollinator network, affecting food production and flowering plant survival.
  - Known population declines for a huge number of species. For example, the 80% decline of the Eastern Monarch butterfly since the 1990s, affected by reduced milkweed supply, their major larval food source, and deforestation in Mexico, their adult wintering location.

Dr. EO Wilson, biologist, naturalist and writer, a lifelong advocate for biological diversity, once said: "If all mankind were to disappear, the world would regenerate back to the rich state of equilibrium that existed ten thousand years ago. If insects were to vanish, the environment would collapse into chaos."

We need to take this issue seriously. Let's review what it means and what we can do about it.

Causes and Impacts of Biodiversity Decline

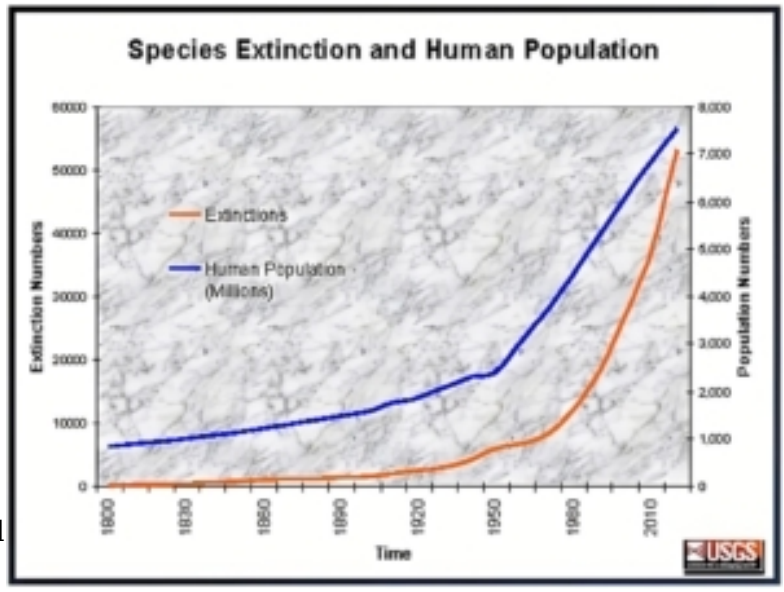
Worldwide, human population has increased from about 1 billion in 1800 to 8 billion today. During this period, the US population has grown from 5.3 million to 331 million. The similar rapid growth of technology and fossil fuel use has changed the way we live. While it has helped to improve the feeding, housing and life choices of some of earth's growing population, it has negatively impacted the environment and biodiversity, harming others, human and non-human. Major changes include:

- **Habitat loss** due to urban growth and deforestation for construction and agriculture
- **Pollution from fossil fuel and chemical use** by agriculture, manufacturing and consumers

- **Climate change** due to the increase in atmospheric carbon from 277 parts per million (ppm) in 1750 to 414 ppm today, a 49% increase that is 100 times faster than prior recorded increases. The result is higher air and water temperatures leading to major weather changes including floods, droughts and wildfires, rising ocean levels due to glacial melting impacting coastal and low-lying areas world-wide, and a 30% increase in ocean acidity that is destructive to marine life including coral reefs.
- **Wildlife declines due to poaching, exotic pet trading and overfishing**
- **The spread of invasive species**, of plants, animals and microbes, that outcompete and reduce native species.

The Debate Around Causes and Significance

Over 99% of peer reviewed scientific papers agree that humans are the primary cause of climate change and related issues. The science says it is an existential issue that we need to deal with to preserve life as we know it. There are some who disagree, both that humans are the cause and that it is something we need to address.



Correlation of species extinction and human population growth since 1800. Chart: USGS

Those who doubt that humans are the cause argue that climate and species changes have occurred since the planet was formed and this is simply another series of natural changes. But human dominance, and the correlation of changes linked to human population growth, fossil fuel use, industrial growth, technology and chemical use make that denial difficult if not impossible to believe.

Doubters of the importance of the loss of diversity argue that as the dominant species on the planet, humans should manage nature to suit our needs rather than work to preserve natural evolution. This view fails to acknowledge that the human focus has improved life for some, but damaged it for many, human and non-human, and its self-focus ignores the benefits we receive from diverse natural ecologies.

With the rate of diversity loss increasing rapidly, following the science and seeking to rebuild biodiversity to achieve a natural ecological balance, while supporting healthy existence for all life forms, seems like the best approach. Optimizing change by finding the best path from current practices to proposed solutions and committing to moving forward makes sense. Failing to act doesn't.

Native perennials and pollinators. Photo: R Morini

How Can Home Gardeners Help?

The general population can engage in thoughtful study and debate what to do and how to do it. Urging representatives at all levels to do the same, separating fact from emotion, is essential.

Gardeners and homeowners can adopt sound ecological practices in our own yards and gardens, and perhaps influence neighborhoods and communities to join the effort.

Diverse winter cover crop. Photo: R Morini

Suggested approaches for homeowners and gardeners include:

- **Following regenerative farming practices in our edible gardens by:**
    - ***Limiting tillage*** by using cover crops, solarization vs herbicides and broadforking rather than tilling
    - **Keep living roots in the soil** through dense crop planting and off season cover crops
    - ***Diverse planting*** by rotating crops and using multi-species cover crops
    - **Building soil health** by adding organic amendments like compost to the soil surface
    - ***Minimize use of pesticides and synthetic fertilizers***

About 15% of US cropland now follows these principles. It is a small start to repair the damage done by past practices. Data indicates that the changes can be made economically and productively. Home gardeners and commercial growers can join this movement.

Pest free mid-summer kale after adding pollinator plants: Photo: R Morini

- **Build pollinator habitat** including native trees, shrubs and perennials, to increase populations of insects, birds and other species. In my garden, adding pollinator plants that flower throughout the growing season has increased insect and bird populations and eliminated serious damage from garden pests through the summer.
- **Use mostly native plants** to support native pollinators. Some professionals in the field think the push to native plantings is not as critical as many believe, but it is certainly a good thing. The question isn't whether native plants are bad, rather how fast native pollinators adapt to new plant species. Dr Doug Tallamy, a highly respected, much published entomologist from the University of Delaware, recommends a 70% native plant base, leaving room for 30% exotics. This seems like a reasonable approach.
- **Reduce lawn:** Turfgrass lawns are an established element of home landscapes but provide no significant ecological benefit. Regular mowing prevents deep root growth while the fertilizers and herbicides used contribute to polluting our waterways. Reducing lawn area and substituting native pollinator plants is a great way to help local ecology.

Invasive vines killing shrubs and trees along C'ville walking trail. Photo: R Morini

- **Manage invasive plants** which aggressively overtake established natives and spread uncontrollably. By displacing natives, they deny food to the insects we want to encourage. They are relentless, but control is essential. In the Charlottesville/Albemarle area Blue Ridge Prism is the leading resource for information on identifying and treating harmful invasive plants.

Ladybugs consuming aphids on roses. Photo: R Morini

- **Learn to love insects:** Many of us go through life instinctively fearing or swatting any insects we meet. In fact, we need them if we want to have a healthy environment. They pollinate our food, feed our birds and beneficial insects help control insect pests. We can help by getting rid of bug zappers, making exterior lights motion sensitive, using yellow bulbs which don't attract insects, reducing insecticide use and providing food for them through pollinator plants. For information about invasive insects refer to Invasive Insects | University of Maryland Extension (umd.edu)
- **Minimize Chemical Use:** Chemical fertilizer and pesticides have become the go-to method of managing soil and controlling unwanted plant disease and insect pests over the past century. While they have helped increase agricultural output, they have provided a short-term benefit at a long-term cost. Much of the damage to soil, soil microbes, insects and marine life is traceable to the use of various chemicals. Regenerative soil building and increasing pollinator populations to reestablish a natural balance, can help reduce the need for chemicals. Following IPM principals is another sensible practice.

Doug Tallamy's Home Grown National Park (HGNP)

Doug Tallamy advocates for increasing insect and pollinator populations via many of the techniques noted. He has formed a non-profit to encourage home, commercial and agricultural property owners to change landscaping and land management practices, to increase biodiversity. It is called Homegrown National Park. For homeowners, it advocates reducing our turfgrass lawns by 50% and replacing them with native plants (trees, shrubs, perennials). This action, with help from wood lot and agricultural landowners, can make a significant contribution to restoring the decades long species decline in the US.

Tallamy's basic premise is that all life is better off if humans and nature coexist. HGNP's emphasis

is to provide ways to enable nature to move back into human dominated landscapes. A few key points are:

- 78% of unprotected land in the US is privately owned. Private landowners can have a huge impact.
- In 2005, the US had 40 million acres of lawn that offers virtually no ecological benefit, and the negative effects of regular mowing and fertilizer/herbicide use are significant. Converting half of this to a diverse ecology would provide a huge benefit to struggling plant, animal and microbial species, as well as the environment.
- Key goals are to create a food web to support all life including pollinators, sequester carbon through photosynthesis and manage water sheds.
- Focus on keystone plants, those that provide the most food and habitat benefit to local wildlife.
- While **insects are needed to pollinate food sources**, they also pollinate 80% of all plants and 90% of flowering plants.
- Practical actions for farmers, relating to roadsides, hedgerows and prairie strips and eliminating neonicotinoid insecticide
- This YouTube video of Dr Tallamy's presentation to the National Garden Club adds detail.

The Takeaways

Biodiversity and related topics are complex and emotional. This article underscores its importance to the future of life, human and otherwise, on planet earth. It is essential to find a balance with nature, rather than simply control it for our benefit. Climate change and loss of diversity are undeniably happening. We owe it to ourselves and our descendants to act seriously to manage its environmental impacts, in a thoughtful, fact-based, responsible way, for the benefit of all living things.

As Dr Seuss wrote in his surprisingly controversial book "The Lorax", published in 1971, **"...UNLESS someone like you cares a whole awful lot, nothing is going to get better. It's not."**

The list of sources that follows includes books and articles that I found informative, including the Albemarle County Biodiversity Action Plan (BAP) and Biodiversity Stewardship webpage and the Charlottesville Environmental Sustainability webpage.

Sources:

Books by noted authors:

Sustaining Life: How Human Health Depends on Biodiversity, Edited by Eric Chivian MD and Aaron Bernstein MD, Oxford University Press, 2008.

Half Earth: Our Planet's Fight for Life, Edward O Wilson, Liveright Publishing Corporation, 2016.

The Sixth Extinction: An Unnatural History, Elizabeth Kolbert, Henry Holt and Company, 2014.

Science based publications from reputable sources:

The importance of Biodiversity, Matthew R. Fisher and Editor, University of Minnesota

Why We Should Care About Biodiversity, Arizona State University, December 7, 2020.

The Statistics of Biodiversity Loss (2020 WWF Report), Owen Mulhern, Earth.Org, Dec 4, 2020.

5 reasons why biodiversity matters-to human health, the economy and your well-being. Marie Quinney,

Specialist Nature Action Agenda, World Economic Forum, May 22, 2020.

Articles presenting conflicting views:

Thoughtful NY Times article by conservative editorial writer, Bret Stephens, a climate change skeptic who changed his view and argues for a balanced view of risks and solutions to develop the best outcome.

Meet the Ecologist Who Wants You to Unleash the Wild on Your Back Yard, Jerry Adler, Smithsonian Magazine.

Doug Tallamy speaks…Art Shapiro responds, Million Trees fills in the gaps, March 22, 2020.

Op Ed: Stop Trying to Save the Planet, Erle Ellis, U of Maryland Baltimore County, WIRED, May 6, 2009.

No One Wants to Say " Put Down This Burger" but We Really Should, Michael Grunwald, NY Times, 12/15/2022.

They Fought the Lawn. And the Lawn's Done, Cara Buckley, NY Times, 12/14/2022.

40 year old Dr Seuss book that tried to bring attention to the species loss evident 50 years ago: **The Lorax**, by Dr Seuss, Random House, Inc., NY, 1971

Albemarle County Biodiversity Action Plan (BAP)

Informative County webpage: Environmental Stewardship in Albemarle County

Charlottesville Environmental Sustainability Division website

Featured image: World-wide Biodiversity Illustration: Duke University

The Ornamental Garden in February

By Cathy Caldwell | February 2023-Vol.9, No.2

Although the weather is wintry outside, the days are getting noticeably longer, signaling the time to start gearing up in earnest for the spring gardening season. In the meantime, lots of actions can be taken now to prepare for spring planting.

Complete orders for new seed from catalogs and on-line resources. Order early to improve the chances of getting the seeds you want. Once the seeds arrive, label the front side of each packet with the year so that, in the future, you can see at a quick glance how old any unused seeds are.

Inventory your seed-starting supplies to make sure you have ample quantities of cell packs, transplant pots, potting mix, trays, plant tags, fertilizer, etc. Don’t forget to check the light bulbs in grow lights to make sure they are in good operating order.

To get a head start on this season's garden, think about starting seeds indoors and plan accordingly. Follow the recommendations printed on seed packages for how far in advance of the last frost date (which falls between April 15 – 25 on average) to start seeds indoors. It's important not to start them too soon. Otherwise, the seedlings may be spindly and weak and will not transplant well. Also, some seedlings that are started too early could grow too large for their containers and require re-potting before it is safe to plant them outside. For more information on seed starting, check out this *Garden Shed* article on How to Start Your Garden Seeds.

Seed starting. Photo: Satrina0, CC BY-NC-ND-2.0

If you have seeds left over from previous years, **do a germination test** to make sure they are still viable. Viability often depends on the plant species, the quality of the seed, and the conditions under which the seeds have been stored. According to Johnny's Selected Seeds Seed Storage Guide, zinnia seeds are viable for about 5 to 6 years, whereas phlox seeds are only viable for about 2 years. To test seeds for viability, moisten a paper towel and place about 10 seeds of the same variety on it. Roll up the paper towel and put it in a plastic bag but don't seal the bag. Place the bag in a warm area. Check the seeds daily and keep the paper towel damp but not soggy. After several days or so, see how many seeds have sprouted. If at least half of them did, then the rest may sprout as well. If not, then it may be best to buy new seed.

This is the ideal time of year to prune most deciduous trees while they are dormant. Prune to remove dead, weak, diseased, or crossing branches. If you are a novice at pruning, see Virginia Cooperative Extension (VCE) Publication 430-456, A Guide to Successful Pruning: Pruning Deciduous Trees/VCE and VCE Publication 430-457, Pruning Evergreen Trees.

This is also the ideal time to prune late spring or early summer-flowering shrubs such as Abelia, beautyberry, Buddleia, or Caryopteris. Spring-blooming shrubs such as forsythia and flowering quince should not be pruned until after they finish flowering later in the spring. Before making that first cut, see VCE Publication 430-462, Shrub Pruning Calendar, for basic guidance on when and how to prune selected shrubs.

Inspect stored tender bulbs, tubers, or corms periodically and lightly moisten them if they are shriveled. If any appear soft or diseased, discard them now. Otherwise, keep checking them periodically until time to plant them in spring.

Check evergreen trees for drought stress caused by either frozen soil, which prevents the plant from taking up water, or from lack of rain or snow over the winter. If water is needed (check the soil around the tree for dryness), wait until the outside temperature rises above 40°F and use a soaker hose to water the root zone. If possible, do this early enough in the day to allow the water to soak in before the soil re-freezes.

Monitor trees and shrubs for deer, rabbit, or vole damage. Look for scraped or gnawed bark. Pull back mulch a couple of inches away from the trunk to discourage vole damage.

Cut back ornamental grasses before spring growth occurs. If you wait until spring, you may damage the newly emerging grass blades. An easy way to cut back large clumps of dormant grasses is to tie a bungee cord around the clump and use pruning shears or an electric hedge trimmer to cut back the foliage to a few inches above ground. Try not to cut too close to the crown. Otherwise, moisture may settle in the crown causing it to rot.

Look for emerging foliage of early blooming daffodils, snowdrops, hyacinths, and other spring bulbs. If daytime temperatures are above freezing, the foliage can tolerate short periods of frosty temperatures without harm. If prolonged freezing weather is predicted, protect the foliage with frost covers, a layer of newspaper, light mulch or chopped leaves.

Carefully trim away old foliage from hellebores so that you don't damage new emerging foliage and flower buds.

Arrange to have your lawnmower serviced now if you didn't get around to it at the end of the last growing season. By taking care of this task during the dormant season, you can beat the crowds at the repair shop before warm weather arrives.

Avoid walking on ice or frost-covered lawns. Foot traffic on frozen grass can damage the grass blades and compact the soil.

Keep tabs on the health and well-being of your houseplants. Inspect them for pests every time you water them. Common pests include white flies, scale, fungus gnats, spider mites, and mealy bugs. Treat as needed at the first sign of a problem. The University of Minnesota extension publication on Managing insects on indoor plants/UMN offers sound advice on houseplant pests and includes photos of the most common ones. Clemson Cooperative Extension publication HGIC 2252 Common Houseplant Insects is another useful source for advice.

This is a good time to **start new houseplants from cuttings**. Use a sharp knife to sever a 2" to 6" long cutting just below a node on a stem. Remove all but the top 2 or 3 sets of leaves. Many cuttings may be rooted in water, but for more advice on this and other plant propagation methods, see VCE Publication No. 426-002, Propagation by Cuttings, Layering and Division.

As berries, seeds, and other natural food sources become scarcer in the landscape, **continue providing supplemental food and fresh water** for the birds and don't forget to keep the feeders clean. See these tips from the Audubon Society Three Easy But Important Ways to Keep Your Bird Feeder Disease-Free. Also, join the annual **Great Backyard Bird Count**, which is a free, fun, and easy event that engages bird watchers of all ages in counting birds over a four-day period later this month and reporting their sightings online. For further information and to register for this event, see birdcount.org.

Invasive Watch: Paradise Tree or Tree of Heaven (*Ailanthus altissima)* is a dreaded nonnative invasive that threatens natural areas, agricultural fields, disturbed areas, and homeowner properties. For trees with trunks 4 to 6 inches in diameter, a basal bark treatment with an herbicide is effective from **February 15 to April 15.** See the Blue Ridge PRISM (Partnership for Regional Invasive Species Management) Factsheet for information on how to identify and eradicate this invasive. The nonnative insect pest, **Spotted Lanternfly,** prefers, and may even require, *Ailanthus altissima* trees to complete its lifecycle.

February is a cold and wintry month, but Valentine's Day, which traditionally occurs mid-month, provides welcome respite from the weather with its promises of candlelight, hearts, and flowers. **To keep those Valentine's Day flowers – or any floral display – going strong**, see this *Garden Shed* article on How to Keep Cut Flowers Fresh.

Feature Photo: Snowdrops (*Galanthus nivalis*), Courtesy of Missouri Botanical Garden PlantFinder

PMG Gardening Resources/Monthly Gardening Tips/February

What is a Native Plant?

By Bernice Thieblot | February 2023-Vol.9, No.2

The question arises often as gardeners seek to make their plantings more ecologically valuable. Perhaps the most accurate, if not the most helpful, answer is, "it depends." The Plant Northern Piedmont Natives marketing campaign may have a unique answer.

If we assume that no humans brought plants here earlier, then only those plants that greeted the first Europeans to arrive—plants with origins in deep time—should be considered truly native to our part of North America. However, defining only those plants as "native" would rule out many that today have real ecological value.

Doug Tallamy* and Rick Darke in their book, *The Living Landscape*, offered a more practical definition:

> ***"a plant or animal that has evolved in a given place over a period of time sufficient to develop complex and essential relationships with the physical environment and other organisms in a given ecological community."***

Tallamy's later books, *Bringing Nature Home: How You Can Sustain Wildlife with Native Plants*, and *Nature's Best Hope: A New Approach to Conservation that Starts in Your Yard*, led to the grassroots movement, Homegrown National Park. The aim of this movement is to encourage the creation of linked

habitat corridors to regenerate biodiversity across the nation. Along with other pro-biodiversity efforts, it has succeeded in creating unprecedented demand for native plants. It has also brought about a great deal of frustration on the part of property owners and gardeners because straight species of local genotype native plants—those most likely to flourish and support the local food web—are not readily available to the average gardener.

Only a small percentage of plants carried by nurseries and garden centers could be considered native in any way, and the great majority of those are cultivars and hybrids rather than unchanged descendants of wild plants.**. We do have several local smaller nurseries that specialize in growing natives from seed (including Hummingbird Hill Native Plant Nursery, Little Bluestem Nursery, and the greenhouse of Wintergreen Nature Foundation). While these growers may find it challenging to compete with large producers (that can provide consistently beautiful plants in quantity), consumers seeking native options will have an easier time finding them, and a greater selection, at a smaller, specialty nursery. For a complete list of native plant suppliers, check out the Virginia Native Plant Society's website: www.vnps.org.

As an entomologist, Tallamy offers the insects' view of plants. That perspective has informed studies of the value of some cultivars, such as those Mt. Cuba Center has conducted. For example, one Mt. Cuba study of hydrangea cultivators included the Virginia native *Hydrangea aborescens*. Noting that such lacecap hydrangeas attract many more pollinators than mopheads, the study gave top marks to *Hydrangea arborescens* 'Haas' Halo', a selection that "offers the perfect combination of horticultural excellence and pollinator value."

Studies of plants' attractiveness to pollinators don't wholly define their ecological value. Like us humans, insects and animals can be attracted to foods that aren't beneficial to their health. In the case of birds, for example, sugary berries may be consumed at a time when they need fat in their diets instead. For this reason among others, local plant genotypes are most likely to provide the right ecological services—if they are available. And apart from commercial availability, there is also the problem of natural availability: Try to find a small-scale (4 feet tall or less) evergreen shrub species native to central Virginia.

All of these issues and factors came to bear when Piedmont Master Gardeners decided to join the Plant Virginia Natives Marketing Partnership. This statewide campaign is intended to bring gardeners/landscapers and commercial suppliers together in the common cause of more native plants—and fewer exotic ornamental plants of little or no value to local ecosystems. Thus, an important aspect of our Plant Northern Piedmont Natives ("PNPN") campaign is to inform both buyers and sellers of which plants have value for this region. Taking inspiration from a list generously shared by a northern Virginia campaign, we sought to create the most useful list possible.

Our primary resource is the Digital Atlas of the Virginia Flora, which contains the most comprehensive information available on the geographic distribution of vascular plants in the Commonwealth. We have also referred to Albemarle County's Piedmont Native Plant Database. The great majority of species those sources identify as native are not commercially available. This may be simply because many native plants are unfamiliar and underappreciated. It is certainly also because buyers want plants that fit into designed situations, have eye-catching beauty, and resist diseases common to landscapes and gardens. Cultivars are continually being developed to meet such needs.

We sought the opinion of Repp Glaettli, author of *Piedmont Native Plants: A Guide for Landscapes and Gardens*.*** Taking heart from his view that the PNPN marketing campaign should "not let the perfect be the enemy of the good," we have adopted a definition of "native" to include selections or cultivars with locally native antecedents, which are likely to be commercially available to gardeners, and which either might have occurred naturally or which have demonstrated ecological value approximately equal to the local species. Repp cautioned that the origins of many cultivars are "a black box." So, we refer to multiple web

sources—including plant patents—in the attempt to learn cultivar origins. We know that much depends on the reason for the cultivar. If it was bred to offer a new color, double blooms, a different flower shape, or red or variegated foliage, insects may not recognize it. However, if the cultivated trait is disease resistance, a larger flower, or a shorter habit, it's likely to be fine.**** We make our best guess. (It's a can of worms and an ongoing effort.)

The resulting list of native plants and cultivars, though perhaps not perfect, is provided to participating nurseries and garden centers, where Extension Master Gardener volunteers label those plants found on the list with bright red "Virginia Native" stickers (which we are told greatly enhance sales). The list may also be found on the Piedmont Master Gardeners website. It is frequently updated as we learn more and as our volunteers find cultivars to research.

So, what is a native plant? For your garden, it may be a cultivar with local genes.

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*Doug Tallamy is the T. A. Baker Professor of Agriculture in the Department of Entomology and Wildlife Ecology at the University of Delaware, where he has authored 106 research publications and has taught insect-related courses for 41 years.

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https://www.ecolandscaping.org/11/designing-ecological-landscapes/native-plants/supply-and-demand-of-native-species/

*** Available in print from some participating garden centers and nurseries; for information on how to order the book or download it, see https://www.plantvirginianatives.org/native-plants-for-northern-piedmont

****Picking Plants for Pollinators: The Cultivar Conundrum, https://xerces.org/blog/cultivar-conundrum

SOURCES:

Featured Photo: Tiger Swallowtail on *Phlox paniculata* 'Jeana' by Bernice Thieblot

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Upcoming Events

By Cathy Caldwell | February 2023-Vol.9, No.2

Piedmont Landscape Association Annual Seminar

Thursday, February 2, 2023 @ The Paramount Theater, Charlottesville, VA

After several years hiatus due to COVID, the Piedmont Landscape Association is once again hosting its annual seminar on Thursday, February 2 at the Paramount Theater in Charlottesville. This year's speakers include Colston Burrell, Peggy Cornett, Thomas Rainer, and Doug Tallamy.

Registration: https://www.piedmontlandscape.org/seminar2023.html

Create a Bird-Friendly Yard

February 7 @ 4:00 pm – 5:00 pm

The Center at Belvedere, 540 Belvedere Boulevard, Charlottesville, VA

Songbird populations are rapidly declining. Homeowners can help reverse this trend by creating a healthy landscape. Topics covered will include: using keystone native plants for food year-round, planting in layers to provide shelter, removing invasive species, and tips for shrinking the lawn. This in-person program is hosted by the Piedmont Master Gardeners and The Center at Belvedere and is free and open to all.

Register here.

Tree Identification by Season: Winter (Zoom) sponsored by Charlottesville Area Tree Stewards

Tuesday evening, February 7th, 2023 @ 7:00 to 8:30 p.m.

Look beyond the monotonous winter forest by focusing on the finer details that will help you differentiate between species of trees. Let Emily Ferguson, a Charlottesville Area Tree Steward, share some of her favorite characteristics for winter tree ID.

Register here.

Garden Basics: Tools for Gardening Smarter, Not Harder

February 18 @ 2:00 pm – 4:00 pm | Trinity Episcopal Church 1118 Preston Avenue, Charlottesville | FREE

The Piedmont Master Gardeners will offer a primer on easy-to-find as well as odd, little-known, but handy tools for tending the yard and garden—from socks and gloves to clippers and tree-extraction tools. This free Garden Basics session will cover:

• caring for your tools;
• where to buy them; and
• how, when, and where to use them properly.

Space is limited. See below to register and reserve a place in the class. Garden Basics is a partnership with the Bread and Roses Ministry at Trinity Episcopal Church.

RSVP Now

2023 GreenScapes Symposium sponsored by Brookside Gardens

Friday, February 17, 2023 | 9:30 a.m. to 4:00 p.m. | ZOOM

Registration: $55 per person. To learn more and register for this **live Zoom event**, click on this link: www.brooksidegreen.org.

For questions or help with registration, please email Maia Eskin at **maia.eskin@montgomeryparks.org.**

The GreenScapes Symposium is an annual program sponsored by Brookside Gardens since 2004. The symposium explores the latest topics related to landscape sustainability and the environment. The topics and presenters are as follows:

9:30 am: Quest for Climate Resiliency: Adaptive Strategies for Sustainable Plant Designs
by Laura Hansplant, landscape architect and co-owner at Studio Sustena

How should changing weather patterns affect the way we design our landscapes? This lecture will examine resilience strategies that help landscapes successfully respond to climate change. What critical ecological functions need to be protected over time? Why is density and species diversity important to adaptation?

11:00 am: Soak it up: Carbon Sequestering Sites
by Pamela Conrad, landscape architect, founder of Climate Positive Design, and current Loeb Fellow, Harvard Graduate School of Design

The reduction and storage of carbon levels from the atmosphere is critical to fighting climate change. Learn about the opportunities for carbon sequestration through site development and design in a range of landscapes. How can soil health, functional plant diversity and sustainable maintenance practices reduce and capture carbon?

1:15 pm: On This Land: Connecting Minority Communities to the Natural World
by Veronica Tyson-Strait, landscape designer, educator, artist, and Horticulture Manager at Randall's Island Park Alliance

Learn key strategies on how to design and manage landscapes that engage immigrants and communities of color and provide them with a sense of belonging. How can we balance the priority of native plant gardens with the need for new residents to connect with culturally familiar yet foreign florae? Which mainstream expectations around garden maintenance and design aesthetics are at odds with minority cultures and communities?

2:45: Unlawning Suburbia: Lessons in the Design and Management of Nature-Inspired Landscapes
by Benjamin Vogt, Author & Owner, Monarch Gardens

Two of the greatest challenges in creating a naturalistic garden are demonstrating that the space is intentional and appeasing HOAs, city ordinances, and finicky neighbors. This lecture will cover core design principles that bring visual order to naturalized gardens and that can be adapted to your local native plants. Successful strategies to appease the human community will be explored while looking at landscape examples and success stories from around the country.

Contact: *Jason Gedeik at 301-962-1470 or jason.gedeik@montgomeryparks.org.*

Coming up in March . . .

Piedmont Master Gardeners' 2023 Spring Lecture Series

"**Gardening for a Healthy Planet"** will be the theme of the Piedmont Master Gardeners' 2023 Spring Lecture Series. Presented **online from 7 to 8:15 p.m. on four Thursdays in March,** the series will feature lectures on organic food crops with roots in Africa, water features that attract birds and other wildlife, climate-resilient gardens that support pollinators, and landscapes that protect our waterways. Admission is $10 for each lecture. **To register** for the webinars, visit https://pmgarchives.com/events/.

The Magic of Legumes

By Chris Stroupe | February 2023-Vol.9, No.2

Most people know the edible legumes: soybeans, lentils, peanuts, chickpeas, black-eyed peas, black beans, white beans, green beans, lima beans, fava beans, and Asian yard-long beans, among many others. Carob and licorice are also legumes, and are considered by many to be edible. Other legumes, like alfalfa and clover, are used to feed livestock – and honeybees. Some trees are legumes, including redbuds, locusts, mesquite, and many tropical trees, such as tamarind. Finally, a few invasive species in North America, for example kudzu and wisteria, are legumes.

In addition to their worldwide use as food crops, legumes are critical for soil nutrition. Legumes are symbiotic hosts for rhizobial bacteria that live in root nodules and "fix" atmospheric nitrogen. That is, rhizobia convert nitrogen from a chemically inert form (N_2, i.e. nitrogen gas) to a reactive form (NH_3, i.e. ammonia) that can be metabolized by plants, animals, and microbes. Not only does this provide nitrogen for the legume itself, but it can boost the nitrogen content of the surrounding soil.

This article starts with a quick run-down of legumes commonly grown in home gardens. It will then cover how to sow legumes for best results. It'll then discuss common diseases and insect pests of legumes and how to control them. Finally, it will touch on using legumes as soil-building cover crops.

Varieties

Peas (*Pisum sativum*): The peas belonging to this species originated in Europe. Examples include English peas/garden peas, snow peas, and sugar snap peas. Other legumes called "peas", like chickpeas and black-eyed peas, are from different species and are covered below.

Peas are cool-season crops. This makes them a great candidate for early planting in Virginia. (That's why we're publishing this article in February!) Check out Virginia Tech's planting schedule (PDF link) for target dates for spring sowing in your hardiness zone. Personally, I plant pea seeds in early March and they usually germinate by the end of the month. The seedlings can handle a mild frost, but if there's a hard frost in April, I'll cover them. Typically I'll do just one round of harvest and pull up the plants in May, then grow beans in the same spot.

Signs of spring. Photo: Rob Young. License: CC-BY-2.0

Southern peas, e.g. black-eyed peas (*Vigna unguiculata* var *unguiculata):* These peas have a lot of other names, like cowpeas, crowder peas, and cream peas. Originating in India or southern Asia, they were introduced to North America via the slave trade.

Good luck with these. Photo: Toby Hudson. License: CC BY-SA 3.0

Southern peas are warm-season crops, so don't sow until the soil has reached 60°F, around mid-May in piedmont Virginia. They will thrive in hot summer weather. Expect about 50-55 days until fresh peas can be harvested, and 65-75 days for dry peas.

Yard-long/asparagus beans (*Vigna unguiculata* var. *sesquipedalia):* These beans were probably bred in Southeast Asia. As the Latin name indicates, they're closely related to Southern peas. Like Southern peas, they're warm-weather crops, so plant in warm soil. They form long vines, up to 10 feet long. Support accordingly – or trim when they reach the

tops of their supports.

Yard-long beans should be harvested before the seeds reach maturity. Pods containing immature seeds will look and feel a little puffy. As the seeds mature, they will swell and fill up the pods.

Yard-long beans – they really do look like asparagus. Photo: E. Halam. License: CC BY-SA 4.0

Chickpeas/Garbanzo beans (*Cicer arietinum*)**:** Chickpeas aren't a good choice for home gardeners in Virginia because they favor dry climates and sandy loam soil, and require a lot of space. Nevertheless, Penn State has a nice writeup on growing chickpeas at home.

Peanuts (*Arachis hypogaea*): A classic Virginia crop that originated in South America, peanuts grow best in light, sandy soil, a la southeast Virginia. The "Tennessee Red" variety, however, thrives even in the clay soils of the piedmont. That said, they will do better in soil that's been amended with ample organic matter.

Peanut plant: pegs, pods. Photo: Pacific Northwest Caribbean Gardens. License: CC BY-NC 2.0.

Peanuts are frost-sensitive and have a long growing season, 110 – 130 days. They transplant well, though, so a good strategy is to start them inside 4 weeks before planting outdoors. Wait until the soil has warmed to 60°F before transplanting. As the plant grows, mound soil a few inches high around the base.

The growth habit of peanuts is fascinating. Peanut flowers self-pollinate, after which the end of the flower stalk elongates to form a structure called a "peg". The peg droops down and penetrates the ground, where the peanut pod develops. It's important to keep the plants well-irrigated (about 1" per week) as the peg elongates and develops. The peanuts will be ready to harvest after the foliage turns yellow in late summer or early autumn. A couple of weeks before harvest, stop watering the plants.

Harvest by pulling the whole plant out of the soil. Dry for a week in a warm spot with good air movement. Then cut the peanuts off the pegs and spread them out to cure for a few weeks in a cool, dry spot. Store in a cool, dry place, ideally in a mesh bag.

Consult the articles listed in the References section for more details about peanut cultivation.

"Common" bean (*Phaseolus vulgaris*): Originating in North America, these are the beans most gardeners are familiar with. There are two main types: pole beans, which require support for their vines, or bush beans, which can grow without support. Half-runner beans are in between; they don't grow as tall as pole beans, but sprawl without support. Amongst these categories, there are many, many varieties, with diverse bean and pod sizes, shapes, and colors. Snap beans, like green beans, purple beans, and yellow or wax beans, belong to this species. So do black, white/cannellini, Great Northern, navy/Boston, kidney, and pinto beans. Personally, I usually grow good old Blue Lake pole beans.

How to support pole beans? One option is to run electrical conduit (or rope or wire cable) horizontally between the tops of fence posts at least 6 feet high (see picture below), then tie twine to the conduit and attach it to stakes or another piece of conduit on the ground. Plant the seeds in a line near the bottom of the twine. Another common method is to fashion a tripod from long sticks or pieces of sturdy bamboo. Plant the seeds around the tripod.

Pole beans. Photo: Rasbak. License: CC BY-SA 3.0.

Bush beans. Photo: Denes Feri. License: CC BY-SA 2.5.

Common beans are warm-season crops, so wait to sow until the soil reaches about 60°F.

One important difference between pole and bush beans: pole beans “fruit” all through their growing season, whereas bush beans produce only for a short time, just a couple of weeks.

Use conduit atop fence posts to attach twine for supporting pole beans. Photo © 2022 S. Christopher Stroupe.

Lima beans (*Phaseolus lunatus*): Lima beans – named for the city – are famous for their buttery flavor. Growing them is not too different from "common" beans. Plant seeds once the soil has warmed up. They come in pole and bush varieties.

A caveat about lima beans is that raw limas contain small amounts of toxins called glucosides. Though the levels are low, it's best to never eat raw lima beans. Cooking destroys these toxins.

Fava beans (*Vicia faba*): Somewhat notorious because the beans themselves are covered by a fibrous membrane that must be removed, one bean at a time, fava beans' rich, nutty flavor is worth the effort. Some people make hummus with fava beans in place of chickpeas.

Fava beans, like peas, are cool-season crops and should be planted early in the season, i.e. the beginning of March in piedmont Virginia. Look for varieties that mature relatively quickly, from 75 – 80 days, because hot summer weather impairs pollination and makes the plants disease-prone.

Fava bean plants are 2 – 4' high and are sturdy, not viny. They won't need a trellis but might benefit from staking or a "Florida weave" support.

Soybeans (*Glycine max*): Soybeans are a great choice for home gardens in Virginia, particularly when they're harvested young and eaten as edamame. (Boil pods for 7 – 10 minutes in salted water, then shell before eating as snacks or in salads.) Look for varieties that are bred for eating fresh, not dried. The plants are very productive: by one estimate, a dozen plants will yield enough for a family of four.

Plant soybean seeds once the soil has warmed to 60°F. The plants resemble bush beans and don't need a trellis. Most varieties can be harvested within 80 days.

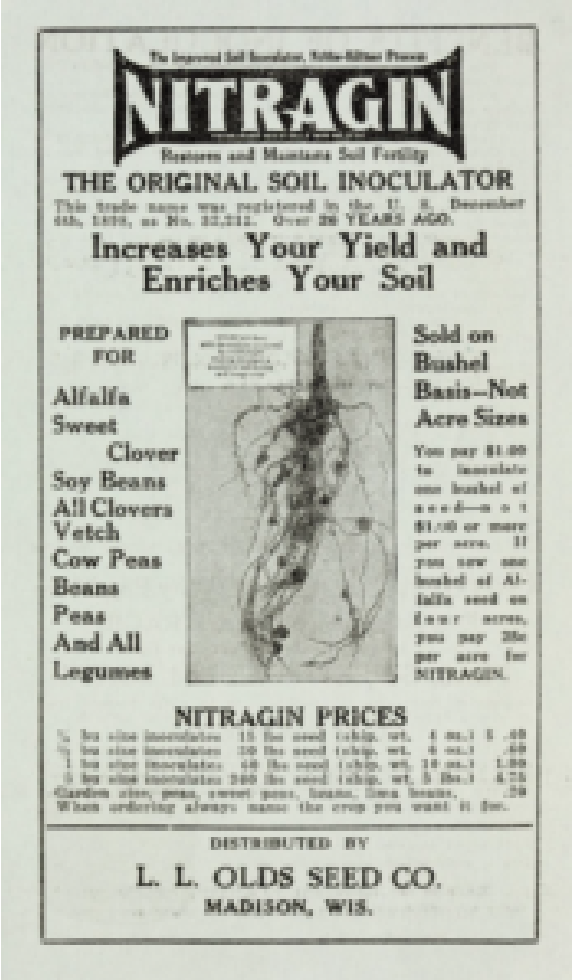
Edamame. Photo: Tammy Green. License: CC BY-SA 2.0.

Sowing

Soil preparation: Most legumes can handle Virginia clay, but will perform better if the soil is well-drained. The best way to improve drainage is with organic matter, i.e. compost. A good rule of thumb is to work about 4" of compost into the top 12" of soil when preparing a new bed for planting. This is a lot of compost, and a lot of work, but the improved soil texture will be worth it. After the first year, consider the no-till methods that Piedmont Master Gardeners Fern and Cleve Campbell use in their home garden, as described by Ralph Morini.

Legumes grow best in mildly acidic soil, pH 6.0 to 7.0, but aren't too picky about soil pH. That said, it's always a good idea to have your soil tested to ensure that pH and nutrition levels are within reasonable ranges.

When amending soil, use fertilizer that's low in nitrogen. (That's the first number on the label.) This is because, as mentioned above, legumes (or, rather, their symbiotic rhizobia) fix their own nitrogen. Adding extra nitrogen will promote leaf and stem growth at the expense of flowers and fruit.



Old school. Photo: USDA National Agricultural Library.

Spacing and depth: Follow the recommendation on the seed packet.

Timing: As discussed above, some legumes are cool-season crops and should be planted early, as early as the beginning of March in piedmont Virginia. Others are warm-season crops and shouldn't be sown until the soil has warmed up to around 60°F.

Inoculation: Sometimes the nitrogen-fixing rhizobia need help getting started. You can encourage their growth by coating seeds with an inoculant before planting. This is especially important if you haven't grown legumes in your garden before. These bacteria can be found at garden stores or online. Be sure to get the correct kind of inoculant, because different legumes host different rhizobia.

Pests and Diseases

Insect pests There are three main insect pests of legumes:

– Aphids, which suck nectar out of leaves and stems and can spread diseases. Control by knocking them off plants with a spray of water, or with horticultural oils like neem oil.

– Cutworms, which sever stems near the soil line. Control by inspecting your plants, and if necessary protecting the base of the plants with a collar made from aluminum foil.

– Bean beetles, which chew big holes in leaves (see photo). To me they look a lot like ladybugs, but with a red head, not black. Control by planting in rows where no legumes have been planted for the past two years. Delayed sowing can also help: over-wintering adults emerge in mid-May and will fly away if no seedlings are around. Minor infestations can be controlled by picking the beetles off plants.

Diseases Legumes can suffer from root rots, which can be prevented by maintaining

good drainage in the soil as described above, and by not over-watering. Various bacterial and fungal blights can also affect legumes. These can be prevented by planting resistant varieties and by keeping plants properly spaced, to promote air movement and keep the leaves dry. If irrigation is necessary, water the base of the plant and don't splash soil on the leaves. Finally, legumes can be infected by viruses. These are usually spread by insects, particularly aphids, so controlling infestations should keep plants virus-free.

Bean beetle. Photo: Frank Peairs, Colorado State University, Bugwood.org

These diseases are virtually impossible to cure, so prevention is the only way to keep your plants healthy. Consult the Virginia Cooperative Extension's Pest Management Guide (PDF link) for more information.

Use as cover crop/green manure

Finally, legumes make a great cover crop that can boost the nitrogen content of soil. These soil-building cover crops are sometimes called "green manures".

Cover crops work great in small spaces too. Photo: djfrantic. License: CC BY-NC-ND 2.0.

The choice of legume depends on when the cover crop will be planted. For summer planting, use warm-season legumes like Southern peas or soybeans. For planting in the fall, choose cold-hardy legumes like peas. Clover and alfalfa are classic cover crops; both germinate best at warm temperatures. It's a good idea to also plant "tillage" radishes, to loosen dense or hard soil, and a fast-growing grass like annual rye, buckwheat, or oats, to add organic matter and

suppress weeds.

Consult the articles in the Reference section below for more details about cover crops.

Final thoughts

Legumes are garden staples for many good reasons: they're easy to grow, productive, and of course delicious. It's nearly time to plant peas, and beans won't be far behind. And hopefully this article will provide some inspiration to try growing a legume that's a little off the beaten path. Enjoy.

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Featured image: Serge96, Wikimedia Commons. License: CC BY-SA 4.0.

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