

Gardening Matters

Yates County Master Gardener Newsletter

Winter 2024, Issue 4



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Educator's Note...

We are now past the winter solstice and headed towards lengthening days and the start of spring. As a gardener, winter is my least favorite season. However, I find more joy in the garden's rest time as I get older. There's still plenty to do in terms of planning and prep work to prepare for warmer days ahead. The seed catalogs are stacked in a pile on the kitchen table, and as I look out my window, I can see the birds arguing over the best tidbits in the garden.

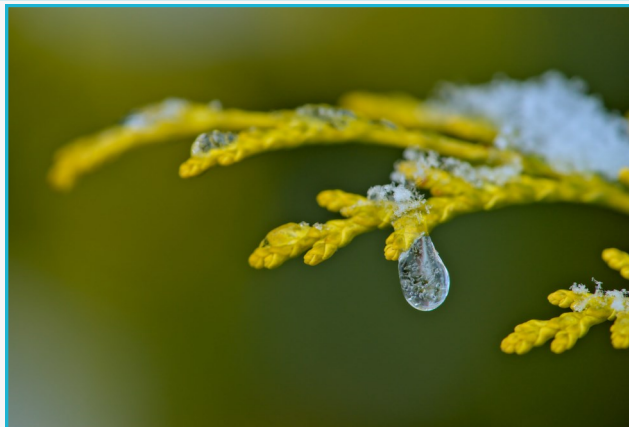


Photo Credit: Peter Stenzel cc: Flickr

As much as I enjoy looking forward to the sunshine and rain of spring, it is also a joy to reflect on the last year.

The Yates County Gardeners have accomplished so much that I hope you'll enjoy reading about it in the Master Gardener Volunteer Corner article by Volunteer Coordinator Cheryl Flynn. I visited many amazing garden projects within Yates County this year, from fabulous container vegetable gardens to large-scale pollinator habitats.

It is truly a privilege to learn from the gardeners in the Master Gardener program and the community at large, and I hope you'll reach out in 2024 to share your gardening projects or for troubleshooting advice.

All my best for a peaceful and fulfilling year ahead!

Caroline Boutard-Hunt
Agricultural/Horticultural Educator

About Cornell Cooperative Extension

CCE connects communities with Cornell research and expertise to enrich and empower New York State neighbors, local businesses, towns, and cities.

In neighborhoods, homes, workplaces, and schools, CCE educators work to empower individuals and families by raising children, saving energy and money, growing and preparing food, starting and sustaining businesses, and protecting the environment.

Each CCE office relies on county, state, and federal funds to solve local problems and strengthen communities.

For more information, please contact the CCE-Yates County Association at 315-536-5123 or visit us online at <https://yates.cce.cornell.edu/>.



Photo Credit: Maggie Mahr

Front Cover Photo Credits (from top to bottom): Ice on Grass Heads (Name), Amaryllis (Peter Miller cc: Flickr), Begonia Leaf (Judy Dean cc: Flickr) Bird (Todd Petit cc: Flickr)

What to do in...

January

- * Houseplants looking a little sad? Consider supplementing them with an LED plant light. Although previously expensive (and let's face it, unsightly), plant lights have become much less pricey and available in many more styles to fit your home (see page 5 for more information).
- * This is a great time of year to plan a home orchard and order bareroot trees to arrive in the spring.
- * Remember to clean and sanitize your bird feeders regularly to prevent them from spreading disease!
- * Check on any stored bulbs and tubers such as Cannas and Dahlias and remove any rotten or shrunken specimens.



February

- * Inventory your saved vegetable and flower seeds from past years and compost those what may have lost vigor.
- * Looking for a little winter garden inspiration? Take a trip to visit the Cornell Mullestein Winter Garden. The garden contains over 700 plants selected for their winter beauty. For more information, visit: <https://bit.ly/3WPTtsx>.
- * To have the best selection, plan to purchase your vegetable seeds by mid-February
- * Count down the days until spring...we're nearly there (even if it doesn't feel like it).



March

- * Begin to inventory your seed starting supplies for the spring. We're still a little early to plant anything other than onions and leeks but it's the perfect time to prepare!
- * March is a great time to prune blueberries and fruit trees. Call the office if you have any questions on the when and how of pruning!
- * Hold off on pruning Maple, Beech, Dogwood, Elm, and Sycamore. If pruned in late winter these species will bleed large quantities of sap. Wait until they are in full leaf.
- * Begin fertilizing your houseplants as the days lengthen and they start to put on fresh growth. Increase watering as needed.



Want to be featured in *Gardening Matters*?

If you have any seasonal tips or photos you would like to share, please submit them to:

Master Gardeners/CCE Yates County
417 Liberty Street, Suite 1024
Penn Yan NY 14527

Yates County Master Gardener's Corner

Cheryl Flynn (Master Gardener Volunteer Coordinator)

Penn Yan Community Garden Update

After a busy season of weeding, watering, and harvesting from the Penn Yan Community Garden, we donated 725 pounds of produce to local food programs, including The Hope Center, Milly's Market and Café, and the Living Well. Special thanks to the Master Gardeners who help support our food-growing garden projects: Christine Vojt, Dixon, Perry Snyderman, Karen Welch, Beverly Barnwell, and Celeste Lewis. Without the help of this fantastic group, we could not support our local programs helping with food insecurity in Yates County.

Are you interested in learning more about the Penn Yan Community Garden? Please visit <https://bit.ly/pygarden> to learn more about the history of the garden and how to become a member!



Master Gardener Volunteer Programming Updates

Fall Floral Arrangement Workshop

This past November, the Master Gardeners held a fresh-cut fall flower workshop. Master Gardener Michelle Buschner (pictured below, left) demonstrated using color palettes, flower sizes, and different textures to make a beautiful arrangement. Fifteen people attend the workshop. The arrangements were all different and so beautiful.

Master Gardener Volunteer Training 2023

Ten new Master Gardeners completed the nine-week Master Gardener training course in November. Congratulations to all of you! We now have nineteen Masters Gardeners, the largest group in eleven years.

If you are interested in becoming a Master Gardener, do not hesitate to contact the CCE-Yates County office at 315-536-5123 or email cj348@cornell.edu.



Using Grow Lights to Start Healthy Indoor Plants

Karen Welch (Master Gardener Volunteer)

If you want to start seeds indoors next season, you will need the aid of grow lights to prevent thin, spindly seedlings, even if they are in a window exposed to some natural sunlight. The first reason is that there are not enough daylight hours in the winter and early spring months. Plants need light to change carbon dioxide and water to form energy like sugar. This is why we need artificial light to give the best start to seedlings indoors. This article will review what kind of lights to use and how to use them successfully to give your seedlings the best start they can get.

Growing indoor plants successfully depends on your ability to imitate sunlight to trigger photosynthesis. The following steps will help you have success:

1. **Choose your bulb wisely.** LED lights are the best option. Try to go for higher-power, full-spectrum LED lights. Full-spectrum lights have a balance of red and blue light, which most plants need. A standard LED light is not appropriate for plant growth. LED lights cost more, but they are reliable, last a long time, and do not emit excessive heat. Fluorescent high-intensity (T5) bulbs can also be used. They also do not put out too much heat and cost less than LED lights. Standard fluorescent bulbs (T12) are weaker in intensity and not your best option.
2. **Put the grow lights close to the plants.** This will require you to hang your lights so the height is adjustable. Lights should be hung about 6-12

inches above the plant, depending on the type of bulb you use. Do a heat check under your lights to assess for excessive heat. The closer you can keep the light to the plants, the more the plant can use the light energy.

3. **Use a timer.** Plants need a rest period from the sunlight, so it is essential not to leave your grow lights on for 24 hours. Leave the lights on for 14-16 hours a day. With a timer attached, you don't have to remember to turn it on and off daily.
4. **Find out how much light your plants need in a day.** Plants such as lettuce require less intense sunlight, and plants such as herbs require a lot. Place your lettuce seedlings where they get less natural, intense sunlight and more light from your grow lights.
5. **Remember to water your plants adequately.**
6. **Maintenance and safety.** Clean your lighting apparatus as needed, but remember to be cautious since water and electricity don't mix!

References

- Eberl, Karuna. (September 25, 2023). "How to Use Grow Lights To Grow Healthy Plants Indoors" (online).
- NYBG. (November 17, 2023). "Artificial Light for Houseplants FAQ: Home ." <https://libguides.nybg.org/artificiallight>



Cornflowers growing under artificial light; photo courtesy of Flickr cc/Vicky Brock



Houseplants' differing light needs are compounded when using artificial light. Short-day flowering plants, like African violet, must be given enough darkness to create buds. Photo courtesy of Flickr cc/Joe Van Petten

Starting Seeds in Winter

Lori Voll-Wallace (Master Gardener, Penn State Extension)

Many annual and perennial seeds require a cold period to germinate. You can provide a controlled cold environment for seedlings with these instructions.

What Is Winter Sowing?

When you consider how seeds germinate in nature, it makes sense to sow seeds the same way. In late summer, left to their own devices, seeds fall to the ground. They slowly get covered with leaves and other natural materials to begin their long winter in the soil. Exposure to cold temperatures and moist conditions breaks dormancy and the seeds germinate when temperatures increase in the spring.



Photo Credit: Lori Voll-Wallace

Winter sowing is the process of planting seeds outdoors in a container during the winter months. The container remains outdoors until the seedlings emerge in the spring. The container protects the seeds from animals and harsh weather, but the exposure to colder temperatures breaks dormancy and the seeds germinate. The container also provides an ideal environment for germination in the spring.

What to Winter Sow?

Winter sowing is ideal for some annuals, perennials, and wildflowers. Check out a seed catalogue: most will have some sort of notation about a seed's germination requirements. Look for seeds that are described with the following terms: reseeds; colonizes; self-sows; hardy seeds; seedlings can withstand frost; sow outdoors in late autumn or early winter; sow outdoors in early spring while frosts may still occur; needs pre-chilling; requires stratification.

When to Winter Sow?

The best time to winter sow perennials and hardy annuals is generally December to March depending on the weather conditions in your area. These seeds require a consistent period of moist, cold temperatures before germination occurs in spring. Tender plants including annuals and vegetables can be sown later in spring (March or April) as they do not require a cold period in order to germinate.

What Are the Benefits of Winter Sowing?

When you direct sow in the ground, the seeds are at the mercy of Mother Nature. They can be washed out in downpours; eaten by critters, bugs, and birds; desiccate in the wind; or rot in the soil.

Containerized seedlings stay more compact and do not need to be hardened off before planting in the garden.

Winter sowing is ideal for those with limited indoor space for seed starting. No special lighting or equipment is required for germination.



Photo Credit: George Schreck

Starting Seeds in Winter

How To

1. **Clean container** — Wash a milk jug or suitable container in warm, soapy water and rinse. Discard the top. The opening allows rain and melting snow to keep the soil moist.
2. **Cut container** — If not using a container with a hinged lid, insert a serrated knife or box cutter into the side of the jug, lay it on its side and cut all the way round, leaving about 1.5 inches (under the handle, if using a jug with a handle) so that the top hinges open. Tip: use coffee mug with marker placed on top. Twirl jug around to mark a perfect cutting line.



3. **Create air holes** — Use a knife, screwdriver or nail to poke holes for drainage in the bottom of the container. This is important--if you don't make drainage holes, your seeds will drown! If using a container with a hinged lid, poke a few air holes in the top of the lid.
4. **Add soil** — Fill the container with 2 to 4" of a soilless seed starting medium. Avoid garden soil which may contain pathogens and weed seeds.

5. **Water the soil** — Lightly moisten growing medium and allow excess to drain.
6. **Sow the seeds** — Follow the directions on the seed package and sow seeds on the surface of the soil. Cover the seeds with a layer of soil and gently pat down.
7. **Seal the container** — Seal the cut edges of the container with light-colored duct tape. Leave the top open. Tip: rather than using tape, make holes for pipe cleaners or twist ties for easy opening and closing without the stickiness of the tape.
8. **Label container** — use a laundry marker (better than permanent marker) to label the type of seed and date of sowing. Place the label in the bottom of the container.
9. **Set outdoors and leave!** — Site the container in an area that receives winter sun. Do not place the container on a covered porch as the seeds require the moisture from the rain and snow. They should experience all the weather conditions they would in nature. Consider placing containers in a milk crate if conditions are windy. Forget about your containers until the spring when the seedlings germinate.

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Life Expectancy of Vegetable Seeds

James Romer, Department of Horticulture

Have you run out of garden space and found yourself holding half-full packages of vegetable seeds? If you have extra seed, don't throw it away. There are some vegetables that will still be viable.

If you have seed from previous years, examine them. For example, if the seeds are normally round in shape, but now have divots and indentations, the seed may no longer be viable. If you are still unsure of the seed quality, a germination test can be done. Simply take twenty seeds of the vegetable variety. Moisten a paper towel and place the seeds on it. Roll up the towel and place it in a germination chamber at 70 to 80 degrees Farenheight. What? You don't have a germination chamber? A plastic bag with a label of the vegetable variety will work just fine for your purposes. Check the seeds after 2 or 3 days, then every day for a week or two. Divide the number of seeds germinated by the number of seeds tested. This will give you the germination percentage. If handled with care, germinated seeds may be planted in the garden if the danger of frost has past. Another alternative is to plant the seedlings in flats, pots or trays until they can be transplanted outdoors.

To help you in deciding if your vegetable seeds are viable, a chart with approximate life expectancies is provided below. Unused seeds should be stored in a cool, dry location.

Approximate life expectancy of vegetable seeds stored under favorable conditions**.

Vegetable	Years	Vegetable	Years
Asparagus	3	Kohlrabi	3
Bean	3	Leek	2
Beet	4	Lettuce	6
Broccoli	3	Muskmelon	5
Brussels Sprouts	4	Mustard	4
Cabbage	4	New Zealand spinach	3
Carrot	3	Okra	2
Celeriac	3	Onion	1
Cauliflower	4	Parsley	1
Celery	3	Parsnip	1
Chard, Swiss	4	Pea	3
Chicory	4	Pepper	2
Chinese cabbage	3	Pumpkin	4
Collards	5	Radish	5
Corn, sweet	2	Rutabaga	4
Cucumber	5	Salsify	1
Eggplant	4	Spinach	3
Endive	5	Squash	4
Fennel	4	Tomato	4
Kale	4	Turnip	4
		Watermelon	4



Quick Facts*

- Vegetable and flower seeds may be kept for one year without appreciable decrease in germination. Storage may extended to 10 or more years under proper conditions.
- Seed moisture and storage temperature are the most important factors in determining how long seed can be stored.
- The drier the seeds are, the longer they will store.

*Adapted from "Storing Vegetable and Flower Seeds" by J.E.Ells, L.N.Bass, and D. Whiting (5/20) Colorado State University Extension (<https://bit.ly/3tUdhSC>)



**Table modified from D. N. Maynard and G. J. Hochmuth, Knott's Handbook for Vegetable Growers , fourth edition (1997)

This article originally appeared in the April 2, 1999 issue, p. 33.

Know Your Farmer: Red Hammer Orchard and Cider Co.

Dixon Zorovich (CCE-Yates County Master Gardener)

One of the many things that make Yates County such a great place to live and visit is the abundance of farmers' markets, roadside produce stands, and small, family-owned wineries. In recent years, wineries have been joined by a bevy of breweries, distilleries, and cideries, all turning local produce into delicious beverages.



One of Yates County's newest cideries is Red Hammer Orchard & Cider Company in Penn Yan, owned by Lindsey and Tim Dawkins (Pictured above). Moving from Philadelphia and with no prior experience farming, growing apples, or making cider, they dove enthusiastically into the adventure of becoming first-time farmers and producers. With help from others in the farming community, advice from Cornell Cooperative Extension agriculture specialists and the Yates County Master Gardeners, and boundless determination, Red Hammer Orchard and Cider was born. I spoke with Lindsey Dawkins about how she found herself farming in Yates County.

(Interview edited for length and clarity)

How long have you owned Red Hammer Orchard?

We bought the property eight years ago. The property had 350 apple trees and we were excited to learn about them. We had no house, no equipment, and no experience, but we bought some hand tools and began pruning. We took a pruning course, checked out some online videos, and started learning.

How did you decide on cider production?

Originally, we had no idea what we were going to do with the apples. We realized pretty quickly how expensive it is to grow pretty, visually-appealing apples—the kind you can sell at a farm stand or through a “U-Pick” business. What we had was a lot of UGLY apples. So, what can you do with ugly apples? Apple sauce, apple butter, apple pies, apple vinegar, apple cider—we made all of that. But decided that cider was the best outlet for what we had.

How did you get up to speed on producing cider?

Our first effort, we made a small batch of cider for ourselves, basically using a stick, a pillowcase, and a five

-gallon carboy. And you know, we tried it and thought, hey, this isn't too bad! Let's keep going. Once we made the decision, we were able to learn from some of the amazing cideries in the area, who were so welcoming and really helped us on our cider journey.

What was that learning curve like?

We learned that we needed particular trees. You can't just take any apple variety—Macintosh, for example—and make good cider. Since then, we have high-density planted about 1,000 new trees, mostly English cider varieties, with a few French and Spanish varieties and American heritage varieties. We also decided to farm organically. Our original goal for organic growing was ecological, but cost also played a role—even sprays approved for organic use are expensive (sometimes more expensive) and we just didn't have the money. So we do not spray our trees at all.

Working through the state bureaucracy to become a licensed cidery was easier than expected. While there is paperwork involved, we found New York is making a real effort to encourage smaller wineries, breweries, and other producers by eliminating some of the process “rigmarole.” Today, it's been four years since we sold our first product. Our very first sale was to our wonderful neighbors at Abandon Brewery, who supported us with a purchase of a keg. Just another example of how supportive the farming community has been.

What is your biggest challenge?

Frankly, making money. We are a small operation and the economies of scale that you need to be conventionally profitable are a big reach for us.

From an agricultural viewpoint, our biggest challenge is, believe it or not, voles. Over the years, we have lost a number of trees to hungry voles. Obviously, poison is not an option and we are still exploring strategies for dealing with them. We have discovered that keeping the grass in the orchard very short can be an effective deterrent, as it takes away their cover and makes the orchard less attractive habitat. Fungus such as Anthracnose can also be an issue, particularly if it is a wet spring. In fact, I first learned about the Yates County Master Gardener Program when I asked for their help dealing with fungus. They not only helped me, they recruited me to become a Master Gardener!

Best thing about being a farmer in Yates County?

I think the best thing has been, as someone coming from a city, is now really understanding where our food comes from and how challenging and how much work it is to produce something as simple as an apple. Also, we have been happy to learn what a helpful community this is. Our fellow growers, Cornell Cooperative Extension, and our neighbors have all been so supportive of our efforts. We can't imagine our life anywhere else now.

Azalea and Rhododendron Maintenance

New York Botanical Gardens



The Glen Dale hybrid azalea Rhododendron 'Dimity' in the Maureen Chilton Azalea Garden at NYBG; photo by Marlon Co

Pruning

The best pruning jobs begin with a goal, a determination of what needs to be accomplished--reducing size, controlling shape or rejuvenating growth. As with all pruning jobs, the first step is removing the dead and diseased wood. Then step back and look at the plant's structure before moving ahead with your mission.

The best time to prune azaleas and rhododendrons is immediately after bloom until mid-July. If you wait too long, buds will already have formed for the following year. In general, azaleas and rhododendrons need minimal pruning.

Reducing Size

To reduce the height of an azalea while allowing it to retain its natural appearance, follow the branch targeted for removal down to a lower lateral branch, and make a cut just above the point of intersection. The cut should be slightly above where the two branches intersect, so as not to cut into the tissue of the branch that will remain.

Another way to reduce the size of an azalea is to cut it back to just above a whorl of leaves. Also, look for circular scars around the stem, where the leaves once were. Cutting just above these areas should create good bud break. In either case, make the cut just above new buds, whether they are visible or latent.

Controlling Shape

Evergreen azaleas can be sheared back to form nice mounds if desired. If you prune the azalea into a mound, remember to occasionally open up the plant and let some light penetrate into the dense mass of foliage so that it doesn't get too congested.

Azalea and Rhododendron Maintenance

If you'd like to make a young azalea or rhododendron more compact and well branched, the easiest thing to do is to pinch off the vegetative buds in spring. First take a look at the plant to familiarize yourself with the bud system. The fat, swollen buds are flower buds. These buds form during the previous season and overwinter; you'll want to leave these alone. They are generally twice the size of the vegetative buds, which are the narrower, pencil-like, smaller buds.

The number of vegetative buds at the tip of a stem determines the number of new stems that will be produced. Sometimes you will find 2 - 4 vegetative buds, but more often there will be just one. If you snap off this single vegetative bud (it will be about 1/2 inch long) with your thumb and index finger early in the season, immediately after flowering, you will induce the plant to produce more buds. Generally, it then produces 2 - 4 buds at the same location, which will turn into 2 - 4 new shoots. In this way you can influence the branching structure of the plant.



Rejuvenating Growth

Some azaleas and rhododendrons get leggy over time. If the plant is misshapen or too large, you can prune it drastically. Such a rejuvenation pruning should be done early in spring, mid-March to early April in the New York area (usually 2 to 3 weeks before new growth starts). Cut the plant back hard to about 8 to 10 inches from the ground. You can cut the entire plant back or leave 1 or 2 smaller stems as a source of energy (these are cut back later once growth resumes). Remember to water the rejuvenated plant well during its first season. New suckers may need to be thinned mid-season.

Some rhododendrons, particularly the Dexter hybrids such as 'Scintillation', do not rejuvenate well. Many other rhododendrons and azaleas do. When rejuvenating an azalea or rhododendron, fertilize the year before to prepare the plant and then fertilize again in spring (end of April) after the hard pruning to stimulate growth.

For smaller azaleas, use bypass pruners to make the cuts. For larger jobs, you may need a folding saw or a pair of loppers. Work with sharp, clean tools. Tools can be sanitized with isopropyl alcohol.

It would be tedious and time-consuming to deadhead azaleas and small flowering rhododendrons. But since seed production does take energy away from the plant, large flowering rhododendrons can benefit from deadheading.

Hold onto the stem and grab hold of the spent flower head. Snap it off, being careful not to damage the new buds forming on the sides of the stem. Your hands will get sticky from this task but you can clean them with an oil-based hand cleaner.

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Azalea and Rhododendron Maintenance



Rhododendron 'Parker's Pink' at NYBG

Pests and Problems

In general, azaleas and rhododendrons are fairly problem-free. Below are some of the most common problems encountered.

- Lace bugs are rarely a problem for azaleas grown in the shade but can be for those grown in full sun. The underside of the leaves develops stippling or small yellow spots, created when the small, mottled-wing insect pierces the leaves and sucks out fluid. There are several ways to combat these pests. Spray the underside of the leaves with water in mid- to late May to dislodge the nymphs; release natural predators such as green lacewings; or spray the foliage with insecticidal soap or horticultural oil in mid- to late May and again in mid- to late July, making sure to cover the underside of the leaves. Spraying works best with 2 to 3 applications separated by 5 to 7 days. Always read the instructions when applying pesticides.
- Black vine weevils are small beetles with a long snout that eat c-shaped notches into the leaves of rhododendrons and azaleas. These nocturnal feeders hatch in mid-June. Go out at night with a flashlight and either pick them off by hand or place a white sheet under the plant and shake them off. The weevil grubs cause the real damage, hatching at the base of the plant and eating away at the root system. They can be treated with nematodes in April to May and again in August. Nematodes that specifically target black vine weevil grubs are available. Do not apply in direct sunlight; keep the soil moist; and always read application instructions.
- Powdery mildew affects many deciduous azaleas. Good air circulation and increased levels of light help avoid this problem. Options for control include products derived from neem oil, potassium bicarbonate (GreenCure®), *Bacillus subtilis* (Plant Guardian™) and selective pruning.
- Wind burn on foliage is a common problem. It happens when azaleas and rhododendrons are exposed to sun and drying winds in winter. Mulch and water the plants well in fall. A burlap windbreak also helps, as can anti-desiccants: apply once in late November to December and again in late January. Prune damaged foliage in spring.

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URL: <https://libguides.nybg.org/azaleasandrhodes>

Smart Waterfront Plants to Enhance Your Shoreline

Erick Elgin (Michigan State University Extension)



Photo by Mark Bugnaski Photography

Plants that grow in, along, and just outside water play an important role in protecting water quality and providing habitat for many water-loving critters.

Living near water offers moments of serenity and beauty inspired by all aspects of the water's edge. Imagine enjoying the dappled sunlight of a lake shoreline with towering aromatic white pine trees above with delicious blueberries and sparse Pennsylvania sedge below. These plants together with the sounds and cool breeze from the lake can bring a breath of relaxation that Michigan lakes offer. But these plants do a whole lot more than just dazzle our senses. They also protect the water and land.

Plants that grow in, along, and just outside water play an important role in protecting water quality and providing habitat for many water loving critters. This is especially true of native plant species. Native plants have extensive root systems that have adapted to living in and around water. The roots and stems minimize erosion and buffer the water from pollutants like phosphorus and nitrogen that may runoff yards. Importantly, they also provide necessary habitat for a variety of animals. For example, common arrowhead, a popular and beautiful shoreline plant, provides a high-energy food for migrating waterfowl and small fish may use big arrowhead beds as shelter.

Native plants along water:

- Hold soil in place with either deep or laterally extensive roots systems
- Absorb and lessen energy from waves created by wind and boats
- Slow down water runoff from a sloping yard or landscape to allow pollutants such as sediments and contaminants to absorb before they reach the water
- Absorb nutrient runoff which helps keep the water clear of algae
- Provide key habitat for fish and wildlife

Planning your waterfront garden

When landscaping around water, it is important to balance your needs with the protection of the waterbody. A well-designed waterfront landscape will maintain access, views and aesthetics along with stabilizing soil, protecting water quality and enhancing habitat for fish and wildlife. When choosing native plants for your waterfront garden consider: (1) how high does it grow, (2) how much will it spread, and (3) when will it bloom.

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Smart Waterfront Plants to Enhance Your Shoreline

It is also critical to plant trees, shrubs, flowers, grasses and sedges in areas where they will have the greatest success. There is often a gradual change in wetness along creek, lake, and pond shorelines. Typically, there is an aquatic zone that is almost always under water, a transition zone with consistently moist soil and an upland zone that is mostly dry. It is very important to plant the right species in the right location so that your plants survive.

For example, plants that grow well in the aquatic zone will typically not do well in dry conditions. Table 1 has a brief list of hardy species that do very well in each zone. When putting the right plant in the right place, you can better assure beautiful blooms and a hardy root mass that slows erosion.

Table 1. Short list of native plants that have high success on shorelines and are commonly available in native plant nurseries. Species derived from Vanderbosch and Galatoxitch 2010.

Zone	Species
Aquatic	<ul style="list-style-type: none"> • River bulrush (<i>Bolboschoenus fluviatilis</i>) • Blue flag Iris (<i>Iris versicolor</i>) • Hardstem bulrush (<i>Schoenoplectus acutus</i>) • Common arrowhead (<i>Sagittaria latifolia</i>)
Transition	<ul style="list-style-type: none"> • Three square bulrush (<i>Schoenoplectus pungens</i>) • Porcupine sedge (<i>Carex hystericina</i>) • Joe-pye weed (<i>Eupatorium maculatum</i>) • Swamp milkweed (<i>Asclepias incarnate</i>) • Blue vervain (<i>Verbena hastata</i>)
Upland	<ul style="list-style-type: none"> • Black-eyed susan (<i>Rudbeckia hirta</i>) • Little bluestem (<i>Schizachyrium scoparium</i>) • Native sunflowers (multiple species in the genus <i>Helianthus</i>) • Wild bergamot (<i>Monarda fistulosa</i>) • Pennsylvania sedge (<i>Carex pennsylvanica</i>)



Left: Blue flag Iris (*Iris versicolor*). Right: Common arrowhead (*Sagittaria latifolia*). Photos by Rob Routledge, Sault College, Bugwood.org.



Wild bergamot (*Monarda fistulosa*). Photo by Elmer Verhasselt, Bugwood.org.

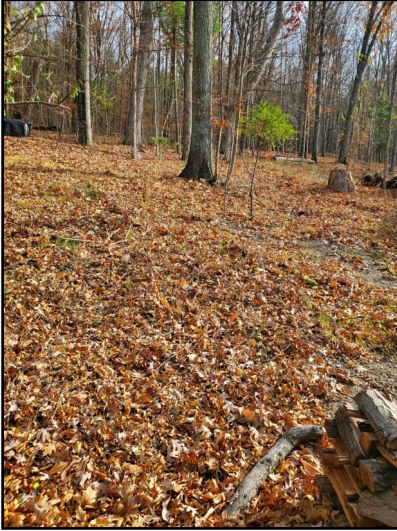
Planting and maintaining a lawn along the water's edge can be uninspiring and more importantly damaging to your lake or stream. The root system of lawn species are not deep or dense enough to protect the soil from the erosive nature of moving water. In addition, fertilizers and pesticides commonly used on lawns may enter the waterbody causing damage to fish and wildlife. Keep in mind, it is important to balance your needs with protecting the waterbody. Replacing lawn along your water's edge with a native plant garden is a great way to accomplish this. Any addition of a native tree, flowering shrub, or a handful of wildflowers can make a difference. Already have some landscaping that isn't native? No need to remove it, just incorporate native species when you can.

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Source: <https://www.canr.msu.edu/news/smart-waterfront-plants-to-enhance-your-shoreline>

A New Garden is Coming...

Beverly Barnwell (CCE-Yates County Master Gardener)



This area doesn't look like much today, but that will all change. Stay tuned in 2024 as this area of our property becomes a pollinator garden. So far we have cleared many trees and saplings, but there are still a lot more to remove in the next few weeks.

This area has sun exposure from the West and South, so it is a great place to start on our property!

*For more information on planting for pollinators, check out this issue's special insert "Planting for Pollinators: Establishing a Wildflower Meadow from Seed" on page 16.

Upcoming Events

Seed to Supper Classes

This free class will teach you how to effectively grow vegetables whether you're gardening in a few pots on your patio or in a large garden, on any budget. We'll cover topics such as garden planning, choosing varieties, planting, weed control and much more. After the class you'll receive free seeds and transplants to get you started on your gardening adventure! This year's class will be held at the Rushville Methodist Church, Saturdays **February 17th-March 9th** (9:00 am-11:00 am).

Call the office at (315) 536-5123 to register or email Caroline Boutard-Hunt with any questions or to register at cb239@cornell.edu



Save the Date!

The Yates County Master Gardeners Present:

Gardening Matters Day!

Saturday, April 13th, 2024
9:00 AM-11:30 AM
Yates County Building Auditorium
417 Liberty Street
Penn Yan, NY 14527



Planting for Pollinators: Establishing a Wildflower Meadow from Seed

*Cathy Neal, Extension Professor/Specialist,
Nursery and Landscape Horticulture*

UNH Cooperative Extension Programs

	Community and Economic Development
	Food and Agriculture ✓
	Natural Resources
	Youth and Family



An established meadow should be dense enough to out-compete weeds and should provide a succession of diverse flowers to support pollinators.

Why Plant Wildflowers?

Native bees and other pollinators are essential to the successful production of many fruit and vegetable crops and the reproduction of many plant species in our surrounding environment. Wildflower meadows and gardens are extremely valuable habitat, providing floral resources, nesting sites and a protected environment for hundreds of bee species, moths and butterflies, and other insects. Many birds, bats, small mammals and some amphibians also thrive on the food and shelter that a meadow ecosystem provides.

Meadows provide many important ecosystem services including infiltration and filtration of stormwater, carbon storage, nutrient recycling, soil building, and provisioning of food and shelter for biodiverse communities of flora and fauna. By establishing native perennials and grasses in a dense and diverse meadow planting, property owners can enjoy the beauty of a succession of flowers and plant forms and experience a renewed connection with nature. Done properly, wildflower meadows are ecologically-friendly landscape components that, once established, have minimal maintenance requirements.

Soil testing can provide you with useful information regarding pH and organic matter content, but wildflowers generally prefer low fertility sites. Determine whether the soil tends to be wet or dry, and if the site gets full sun, filtered sun or shade.



A bumble bee delves into foxglove beardtongue.



A pollen-loaded native bee on yellow coneflower.



Common milkweed flowers support many bees and butterflies.

Choosing a Site

Not all wildflowers are suitable for all conditions. A site with full sun and good drainage is ideal for many species, but partial shade and/or wet areas can be tolerated by many others. Consider your site and soil conditions carefully in order to select an appropriate wildflower mix.

It's best to start in a small area, but consider 400 square feet to be a minimal size for a wildflower meadow – this space can support a good diversity of wildflower species. Some types of wildflowers get quite tall and may tend to lean or flop, but they will help hold each other up if planted densely in an area where they will not interfere with walkways or other landscape features. A wildflower meadow is informal by nature, and can be a bit wild and untidy looking at certain times of the year, so locate it where it will be viewed from a distance of several meters or more. For a neater, more designed meadow look, purchase small transplants instead of starting from seed, and plant in intentional groupings as in a garden.

A place where bees can come and go safely with little disturbance or exposure to pesticides or other household chemicals is ideal. Many native bees need patches of bare soil nearby in which to make their nests; others will nest in small holes in dead wood or stems, in cavities in stone walls or in leaf litter or debris piles. These features are often found along the edges of fields or woodlands and should be preserved. Some people build or purchase bee boxes or bee houses to encourage mason bees and other solitary bees to nest near their crops or gardens.

Seed Mixes and Species Selection

There are many wildflower mixes available from reputable seed companies¹, or you can design your own mix. Pre-made mixes may be convenient, but must be selected carefully to avoid paying for species that are unlikely to be successful in New England, or that might be overly aggressive. Less expensive mixes frequently contain a higher proportion of grasses than desired for good pollinator habitat.

Knowing your site characteristics (wet, medium or dry soil and full sun, filtered sun, or shade, at a minimum) is essential to understanding which species will thrive on your site and create a mixed meadow that knits together in a mosaic of colors and textures.

An ideal meadow mix will provide a continuous sequence of bloom from a dozen or more native perennial wildflowers (a.k.a. forbs). A few native warm-season grasses should be included to create habitat and shelter for many organisms, and to create dense cover that suppresses weed growth. Some mixes contain annuals, which will give you first-season color but are generally not native species and not sustainable over time. You are better off in the long term to spend your money on

perennial species. By including black-eyed Susan, and perhaps dotted horsemint, you can still get some blooms the first season to satisfy the need for color and provide some flowers for bees.

A suggested wildflower mix for medium to dry sites in full to partial sun is given in Table 1. This list is composed of reliable species that have performed well in research trials at the NH Agricultural Experiment Station in Durham and elsewhere around the state. Not every species will thrive (or even survive) on every site, but most are widely adaptable.

Seed mixes can be customized to meet your objectives and budget. The cost for the seed mix in Table 1 will run an average of \$60-80 per 1000 square feet, if seeded at a rate of 20 lbs per acre (0.5 lbs/1000 square feet). If budget is not a limiting factor, you might want to add seeds of native lupine and butterfly weed, both of which require very dry soils. If your site tends to be wet, a more appropriate mix would contain cardinal flower, blue vervain, Culver's root, golden Alexanders, boneset, swamp milkweed and Joe-Pye weed.

You can either purchase seed packets and mix the seed yourself, or a wildflower seed company may mix it for you on request. Order seed early in the summer to avoid shortages of popular mixes or species. Ask to have the (large and fluffy) native grass seed packaged separately from the (mostly tiny) wildflower seed. Store the wildflower seed in the refrigerator until planting time. The grass seed would ideally be refrigerated as well, but if there isn't room for it, keep it in another cool dry place.

Table 1: UNH custom mix of reliable species, suitable for sunny sites with medium to dry soils and a pH of 5.5 or above. Suggested seeding rate is 0.5 lbs per thousand square feet of area.

Wildflower Species	Common Names	Percent of mix by weight
<i>Aquilegia canadensis</i>	Red columbine	3%
<i>Asclepias syriaca</i>	Common milkweed	3%
<i>Chamaecrista fasciculata</i>	Partridge pea	8%
<i>Coreopsis lanceolata</i>	Lance-leaved coreopsis	3%
<i>Echinacea purpurea</i>	Purple coneflower	7%
<i>Echinacea pallida</i>	Pale purple coneflower	11%
<i>Eutrochium purpureum</i>	Purple Joe-Pye weed	1.5%
<i>Heliopsis helianthoides</i>	Sunflower ever-lasting	2%
<i>Monarda fistulosa</i>	Wild bee-balm	0.50%
<i>Monarda punctata</i>	Dotted bee-balm	0.50%
<i>Oligoneuron rigidum*</i>	Stiff goldenrod	0.50%
<i>Penstemon digitalis</i>	Foxglove beardtongue	1.5%
<i>Ratibida pinnata</i>	Yellow coneflower	3.5%
<i>Rudbeckia hirta</i>	Black eyed coneflower	2%
<i>Solidago species*</i>	Goldenrod	1%
<i>Symphyotrichum novae-angliae</i>	New England aster	1%
<i>Symphyotrichum laeve</i>	Smooth blue aster	2%
Grass Species	Common Names	
<i>Elymus canadensis</i>	Great plains wild-rye	10%
<i>Shizachyrium scoparium</i>	Little bluestem	30%
<i>Sorghastrum nutans</i>	Indian grass	10%

*There are many goldenrod species with very high pollinator value but if there is already lots of goldenrod nearby, you may omit it from the seed mix.

Site Preparation

Successfully establishing a meadow from seed is a three-year process, with the first year devoted to good site preparation. This isn't the fun part but eliminating competitive weeds before you plant is essential to long-term success. How to get started depends on the beginning site conditions and what materials and methods you decide to use. The following methods have been developed based on research and demonstration plantings in New Hampshire and are appropriate for the Northeast and other areas with similar climate patterns.

What are You Starting with?

Rough turf or lawn areas – It is essential to completely kill existing grasses and other perennial weeds in a turf area before planting wildflowers. A full season of site preparation is critical to success, because young wildflower seedlings stay small and low to the ground their first year of growth and are not able to compete against more vigorous weeds. Perennial grasses, such as our cool season lawn and pasture grasses, spread from strong underground roots and rhizomes and are especially troublesome when trying to establish wildflowers. These and other perennial weeds can be effectively killed by a process called “smothering” during the course of the summer prior to planting wildflower seeds. Steps to take:

1. Mow the area as short as possible once or twice after it greens up in the spring. Scalp it! Then, rake off any excessive organic matter to create a smooth surface. Leaving a light layer of clippings is okay. Do not till the soil.
2. Lay sheets of thick (4- or 6-mil) black plastic over the entire area, overlapping the edges by about a foot if you use more than one sheet or roll of plastic. Bury all the outside edges with soil, and/or hold the plastic down with rocks, cinderblocks, bricks or other available materials. The objective is to exclude light from the grass and weeds trying to grow under the plastic. Weeds without light are unable to photosynthesize and will eventually run out of energy and die. Any seeds that germinate under the plastic are likewise unable to survive for long.

Opaque tarps, landscape cloth, or thick layers of organic mulch can be used in place of black plastic if desired. If you prefer to use an organic mulch, it's best to start with a layer of cardboard so that grass and weeds cannot grow up through the mulching material. Watering the cardboard and pinning it down may help it stay in place. Applying shredded bark, leaves or other material over the top may make it less conspicuous than an expanse of plastic or cardboard. However, all the organic material should be raked off and redistributed elsewhere before seeding, to avoid enriching nutrient levels in the soil.

Smothering with black plastic excludes light from the underlying weeds, preventing photosynthesis which is essential for plants to survive over time. Although black plastic absorbs some heat during the day, soil temperatures underneath do not get high enough for long enough to kill weed seeds. Solarization, in contrast, acts by trapping solar radiation and converting it to heat underneath clear plastic sheeting. Extreme temperatures for long durations can reduce viability of sensitive weed seeds, although the results are inconsistent in our climate.

3. Leave the soil covered from mid-June until mid-September. When you remove the plastic or other mulch materials, you will have bare soil on which to plant. Avoid disturbing this clean seed bed; do not till the prepared area or you may stimulate more weed growth. Do not apply compost, manure or other nitrogen-rich material, because wildflowers do best in soil that is low in nutrients. If needed, rake lightly to remove dead grasses and surface debris just before spreading the wildflower seed.

Smothering is an easy, inexpensive, no-till method for preparing small to medium size areas. Alternatively, in turf areas you could remove the top layer of sod with a sod cutter and then apply one of the site preparation methods described for cultivated soil, below.

Cultivated soil (such as an agricultural field or garden) – A piece of land that has been recently cultivated for crops may appear to be relatively weed-free; however, there is usually a reserve bank of weed seeds lying dormant in the soil. Eliminating seedlings as they appear (and before they set seed) will diminish the weed seed bank over time.

Four options for reducing the weed seed bank are presented below. Any of these strategies should be implemented for the entire growing season prior to planting the meadow mix. The first two methods tend to be most effective for annuals and some perennials reproducing from seeds, but are less effective where perennial grasses are already well-established; if that is the case, use of herbicides or the smothering method described above is more effective.

1. **Repeated tillage or cultivation.** If weed pressure is low, manually pulling or hoeing to kill germinating seedlings may be sufficient, but for large areas and/or heavy weed pressure, a mechanical cultivator is recommended. If perennial grasses or deep rooted weeds are present, the area should be tilled deeply first, then shallower cultivations used subsequently. Cultivating at a shallow depth should suppress germinating annuals and some broadleaf perennials but is less effective on clover and grasses, especially those coming back from root pieces or rhizomes. Repeat the operation whenever a flush of weeds appears.
2. **Cover crops.** Planting a dense summer cover crop will suppress weeds by shading and competing for space. Buckwheat is a good choice and will bloom and provide floral resources for bees during the summer. Mow or roll it at the end of the bloom period to prevent seed set; any live tissue remaining will be killed by freezing temperatures in fall. A late season crop of oats is also a good option, as oats will be killed by winter temperatures. Cover crop residue must decompose before seeding wildflowers, however, so fall planting is not feasible. Rake off debris and smooth the soil surface before seeding the following spring, but tilling is not recommended as it will bring up more weed seeds.



A clean seed bed is exposed when black plastic is removed in September, after being in place for several weeks.



Overview of research trial comparing various methods of site preparation for killing existing vegetation before seeding a meadow mix.



A buckwheat cover crop in front of a previously established meadow.

Use herbicides with caution. Follow all label instructions including the use of protective clothing. Do not spray when weeds are in bloom or bees are present.

3. **Herbicides.** Two or three applications (early season, mid-season and possibly early fall) of a nonselective systemic herbicide is a highly effective method for killing actively-growing annual and perennial weeds. There are alternative “burn down” and/or organic products which may be used, but these are not translocated in the plant to kill roots and rhizomes; therefore, more applications are needed to eliminate weeds as regrowth occurs and/or new seeds germinate throughout the growing season. Do not till the soil after using herbicides in order to avoid bringing up more weed seeds.
4. **Solarization.** This method involves covering bare, moist soil with clear (not white) plastic from mid-June through mid-September or longer. Effective solarization depends on trapping solar radiation as heat, raising the soil temperature high enough to kill weed seeds. Solarization is most reliable in hot, arid climates, but may yield some success if the site is fully exposed to sun and the edges of the plastic are buried to effectively trap heat. Use 4- or 6-mil UV resistant plastic, such as growers use to cover high tunnels or greenhouses. Used plastic is okay but will develop tears and holes more quickly from photo degradation or from animals such as deer walking across the surface. Use heavy-duty clear repair tape to seal up any tears and holes which occur as soon as possible, or the openings will act as vents and make the solarization process less effective. There are conflicting reports on the effectiveness of soil solarization on weed suppression in northern climates and results may vary from year to year. In a cloudy, cool season it is apt to be unsatisfactory.

Forest/woodland sites – recently logged or cleared woodlands usually have low soil pH and nutrient levels, but still can become successful meadow areas. Stumping, grading and/or excavating and raking is usually necessary. The period of time between clearing and seeding may be bridged with an annual grass crop or cover crops. Watch to see what weeds (or tree sprouts!) emerge during this time and use herbicides and/or mechanical controls as needed. Cover crops which are winter killed, such as oats or buckwheat, will help smother new weeds that come up during the growing season, but essentially prevent fall planting, as they must first decompose or be removed. It is best not to till, in order to prevent new weed seeds from being brought to the surface, as well as rocks and roots.

An effort should be made to select species that are tolerant of acid soils. However, if pH is very low (<5.5), it may be prudent to make an application of lime and other amendments as recommended by a soil test. Incorporation of amendments by tilling creates disturbance and may result in high subsequent weed pressure, but may be needed to improve growth on poor, acid sites. Tilling may bring up roots, rocks and other items, requiring more raking and smoothing before seeding.

Other disturbed sites – construction sites or other sites which have been excavated, graded and/or filled with soil from off-site present a special challenge because conditions are hard to predict. Gathering as much information as possible will help you select appropriate meadow species for planting. Have the soil tested for soil texture, pH, nutrient levels, and organic matter. Once the site work is done, observe water movement and do a percolation test to check drainage. Using all this information, select a mix of species most suitable for the conditions.

To determine what the potential weed pressure is, observe what types of weeds come up over time. To expedite this process, you can fill several nursery pots (or other large containers with drainage holes) with soil and water them regularly to see what weeds emerge. Based on your observations, determine whether there is a significant weed bank, in which case you should proceed as if it was a previously vegetated area, or if weed competition is minimal and you can plant soon.

Planting – When and How

After a season of site preparation, you are ready to plant! Remove plastic or other mulch materials and rake off any loose tree roots, leaves, cover crop residues, etc. to prepare a clean seed bed. Fall is a good time to seed, as wildflower germination will be enhanced by exposure to cold temperatures and damp soil during the winter. The fall planting season in northern New England extends from late September through early December, depending on the year. A safe strategy is to aim for mid- to late-October, whereas November weather is unpredictable and snow could cover the ground at any time. If that happens, or if there are other reasons you choose to plant in the spring, store your seed in the refrigerator or other cold (35-40°F), dry place for the winter and then plant it as early in the spring as possible.

Broadcasting (spreading seed by hand) is the preferred method for small areas. A carrier such as vermiculite or sand is needed to “bulk up” the volume of material to be distributed.

You might want to practice distributing the moistened carrier without any seed at first, to practice getting the right amount evenly distributed over the desired area. Use a broad sweeping throw for each handful, much like feeding the chickens.

When it's time to plant, measure the area to be planted and perhaps divide it into smaller subplots of 400-500 square feet each to make seed distribution more precise. Calculate the amount of each type of seed (grasses and wildflowers) you need for each subplot and set it aside.

Mix the seed with vermiculite or other carrier for one subplot at a time in a plastic paint bucket or similar container. Start with the dry carrier then add small amounts of water at a time, stirring until it is



Broadcasting seed by hand over a small area.



Mixing the wildflower seed with moist vermiculite keeps the seed uniformly well-mixed and easy to spread evenly.



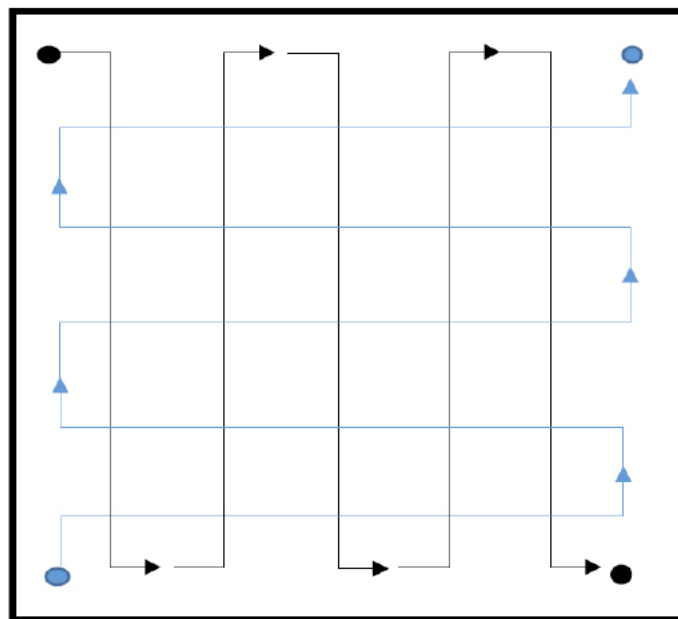
Raking lightly after broadcasting helps work the seeds into the soil.

slightly damp but not wet. Now you can mix in your seeds; the small seeds will stick to the carrier particles, keeping everything well-mixed for distribution. Add the wildflower seeds first, then the grass seeds, adding more water or vermiculite if needed. The precise amount isn't important, but using 0.5 to 1 gallon of the carrier per 500 square feet area is adequate. Wearing latex gloves will keep the seed from sticking to your hands.

For each subplot, apply half the amount of seed while walking back and forth in one direction, then repeat in the other direction, as shown in the diagram below. Using a light-colored carrier such as vermiculite allows you to see how evenly you have distributed the mix on the soil surface. Scatter any remaining seed where needed.



Rolling with a cultipacker (shown here) or lawn roller ensures good seed to soil contact.



When broadcasting seed, divide the total amount of seed in half. Mix the first half with the carrier and spread it as evenly as possible, going back and forth in one direction (following the black lines), then mix and spread the other half in the other direction (blue lines). For large areas, divide the total area into several areas of 400-500 square feet each and spread the seed in each area in this manner to get the most uniform distribution of seed possible.



After rolling, cover with a light mulch of clean straw.

Raking lightly with a metal lawn or leaf rake after broadcasting helps work the seeds into the soil, but rake only $\frac{1}{4}$ " deep so you do not bury the tiny wildflower seeds. If the soil is firm and level, skip raking and go straight to rolling the area with a lawn roller, or a cultipacker, which will press the seed into the soil. Good seed to soil contact is essential for holding the seed in place over the winter and helps keep the seedlings from drying out once they germinate in the spring. And finally, a thin layer of clean straw (one bale per 1000 square feet) distributed lightly over the top helps keep the seed in place.

If seeding a large area (of several thousand square feet), you might want to try a mechanical seeder. A slit-seeder or seed drill can be used on smooth level sites, such as an agricultural field, but most people don't have access to that equipment, which may also be difficult to calibrate. A whirlybird-type broadcast lawn seeder or chest-carried crank seeder may work satisfactorily, but it is hard to keep the seed well-mixed and feeding properly; the tiny wildflower seeds tend to fall to the bottom and get used up first. Calibrate your seeder with a dry carrier (such as sand or rice hulls) before mixing in any seed. Then mix small batches of seed with the carrier, use half the amount going back and forth in one direction, then repeat in a perpendicular direction. In this case, do not add water to moisten the carrier, as it will prevent it from feeding through properly.

What to Expect

Year 1 is the season for site preparation, an essential but not very attractive process. Time and effort spent this year will provide a clean seedbed to be planted and mulched in the fall or following spring. Skipping the site preparation process is sure to result in failure over the long run.

Year 2 – you will most likely be disappointed in how your meadow area looks the first season after planting. Patience is the key this year. You should see wildflower seedlings germinate and emerge as the soil warms up in the spring, but it's hard to tell the wildflowers from the weeds at this point. Some wildflowers won't even germinate for 2-3 years following planting, and most grow low to the ground the first season. If you haven't done a great job of preparing the site and killing existing vegetation, weeds will grow up quickly and can easily smother or shade out the wildflowers. Hand-weeding may disturb germinating wildflower seedlings, so is not recommended. Consider mowing in mid-summer at a 4-6" mowing height, whacking the weeds back but going right over the top of most wildflower seedlings. Few wildflowers will bloom this year anyway, as they are devoting their energy to growing strong roots and shoots rather than flowers and seeds. Black-eyed Susan is the exception to the rule, so be sure to include it in your seed mix to provide cheerful yellow flowers this year. It will even recover and re-bloom after that mid-summer mowing.

Crabgrass is a special challenge on some sites. A thick blanket of crabgrass can smother out germinating wildflowers, and is not sufficiently managed by mowing. There are few options for controlling crabgrass other than use of a post-emergent selective grass herbicides that can be sprayed over-the-top of wildflowers. One application to actively growing crabgrass before it goes to seed will effectively kill it, reopening the area to allow light to reach the underlying wildflowers. As with all herbicides and other pesticides, follow label directions carefully, and consider whether hiring a licensed applicator is required or prudent for the situation at hand.

Year 3 – If they survived last year, the wildflowers will emerge quickly in the spring and grow much faster and larger this year. Most weeds are slower to get started and pose much less of a problem this year, often being out-shaded and out-competed by a dense wildflower mix. By late June, you should see some flowers on coreopsis and columbine, if they are in your mix, followed by foxglove beardtongue and black-eyed Susan. In mid-summer, wild bergamot (bee balm) and oxeye sunflowers will bloom prolifically, and perhaps a few yellow and purple coneflowers will appear. Wild Rye shoots up and provides a pleasant contrast with its distinctive seed heads. Other warm-season grasses may still be slow and inconspicuous.

Year 4 and beyond – You and the bees will reap the rewards of your efforts, enjoying a dense, diverse mix of colorful wildflowers from spring through late fall, when goldenrods and asters provide a fall feast for bees. Black-eyed Susan, coreopsis and a few others will diminish in numbers and tend to migrate to the edges of your meadow. The mid-summer meadow buzzes with bees and other insect pollinators, and birds reap the benefit of bugs and seeds to eat. Milkweed finds its place in the meadow, and monarchs

feast on the nectar of many meadow flowers before laying their eggs on the undersides of milkweed leaves. Warm-season grasses fill in areas where the wildflowers are less dense, providing clumps that shelter ground-nesting bees and other creatures.

These photos show the growth and development of the same meadow planting over time.



First year after planting (mid-June).



First year after planting (mid-August).



Second year after planting (mid-June).



Second year after planting (early August).



Third year after planting (early June).



Third year after planting (early August).



Third year after planting (late September).



A meadow does not need a dormant season mowing every year, just often enough to keep shrubs and trees from growing up.

Long Term Changes and Maintenance

Once you have an established meadow, there is little you need to do. Monitor for tall and aggressive weeds such as sumac, pokeberry, purple loosestrife and bittersweet vine, removing them by hand in the fall when you can pull or wrench the roots out. Try not to disturb the soil any more than necessary in the process, because disturbance creates openings for future weeds and invasives. You can continue to edit the meadow by adding plants to sparse areas and preventing some of our volunteer wildflowers (a.k.a. weeds) from taking over. Some to watch for include daisy fleabane, evening primrose and common mullein. These are all good pollinator plants but may outcompete some of the more desirable species you planted, reducing diversity. Cutting them back before they set seed will help keep them in check.

Once the meadow is finished flowering and freezes kill the last of the asters to the ground, consider the beauty in the structure and golden colors of standing seed heads and grasses, which the birds will appreciate well into the winter. If you need to tidy up, mow the meadow down in November or leave it stand until early spring. Mow high (6-8" or higher) and wildlife will continue to nest and forage in the meadow through the winter and spring. Mowing every year is not required; its primary purpose is to discourage woody shrubs and trees from taking over. If you have a large meadow area, consider mowing only one-third or one-quarter of it each year, leaving the rest for winter habitat.

The meadow is an ever-changing landscape. Weather variations, soil conditions, and wildlife will determine which wildflowers and grasses become dominant and which fade away over time. In a wet year, plants like Joe Pye-weed and cardinal flower may flourish, while in a dry year bergamot and coneflowers may abound. Take a step back and enjoy the changes – a meadow is a process, not a product!

¹Seed Sources for New England Meadows. UNH Extension, 2018.
<https://extension.unh.edu/blog/seed-sources-new-england-meadows>

For more information on wildflowers meadows and pollinator habitat:

<https://extension.unh.edu/tags/wildflower-meadows>
<https://extension.unh.edu/tags/pollinator-habitats>
<https://extension.unh.edu/tags/test-your-soil>



The meadow in winter.

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The Master Gardener Program is a national program of trained volunteers who work in partnership with their county Cooperative Extension Office to share information throughout the community.

Master Gardeners are neighbors teaching neighbors about landscapes, vegetables, fruits, herbs, houseplants, beneficial and harmful insects, plant diseases, integrated pest management, wildlife management, soils, birds, composting, water conservation, and much much more.

Master Gardeners are considered researchers rather than experts. They participate in 40 hours of training provided by experienced staff from Cornell Cooperative Extension to gain a basic understanding of horticulture and available horticultural information and online resources. Course topics include plant nutrition, soils, vegetable, fruit culture, trees, shrubs, lawns, diseases and insects that affect plants, pruning and more.

You don't need to be an expert to join; if you enjoy gardening as a hobby, this may be perfect for you.

To become a Master Gardener, all you need to do is attend a 10-week training offered by Cornell Cooperative Extension.

For more information, please call us at 315-536-5123!



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