Growing native plant seeds as a supplemental crop:
A guide for Michigan blueberry growers

MICHIGAN STATE UNIVERSITY | Extension

SUMMARY: This guide is intended for blueberry growers in Michigan who are interested in planting native plants on their farms. Using existing equipment and labor, growers can help increase farm productivity by supporting native plant production alongside standing farm operations.

What are native plants?

Native plants are species that have been growing in an area for hundreds or even thousands of years. They are naturally well-adapted and resilient to the soil types and climate in that region. This makes native plants a functional, low-maintenance addition to an efficient farm system.

A field of black-eyed Susan (*Rudbeckia hirta*) wildflowers. Photo courtesy of Meghan Milbrath.

Why native plants on blueberry farms?

For Michigan blueberry growers, native plants can be a functional, low input addition to the farm—supporting soil health, beneficial insects, and even new income opportunities while fitting within existing labor and equipment schedules.

Improve soil health - Many Michigan native plants develop very deep, fibrous root systems that rebuild soil structure, increase organic matter, improve water retention, and reduce erosion and flooding. These roots break up compacted layers, support diverse soil microbes, and create more stable, biologically active soils over time. Healthier soils improve long-term productivity across the farm, including future blueberry plantings.

Use challenging areas productively - Native plants can thrive in places where other crops are difficult to grow, including sites with marginal soils, inconsistent moisture, or even standing water. Because native species are available for most combinations of soil types, moisture levels, and sub exposure, growers can match plants to the conditions they already have. Field edges, retired rows, unproductive corners, sloped ground prone to erosion, and poorly drained areas can all become productive when planted with natives.

Support crop rotation and land rest - Allowing soil “rest” between blueberry plantings can set up a field for future success. While traditional cover crops (e.g. ryegrass, clover) are commonly used, many of the same benefits can be achieved with native plants. Native plants can help build organic matter with their deep root systems, improving water holding capacity, nutrient cycling capabilities, and overall soil resiliency. During the rest period, growers may still generate an income from harvesting native seeds. Native plants provide ground cover that helps prevent erosion while blueberry plants are removed.

AUTHORS: Heather Chapman, Rufus Isaacs, Meghan Milbrath, Amy Gillan, Cheyenne Sloan, and Christine Charles (2026)

Potential source of income - Demand for native seeds and native plant materials is increasing as more landowners, agencies, and conservation groups restore Michigan landscapes. Most native seeds are ready for harvest in late fall, well after blueberry harvest, so growers who produce native seed can tap into this expanding market using existing equipment and labor during times of the year that do not conflict with blueberry production.

Attract beneficial insects - Native plants provide additional forage and nesting habitat that both pollinators and natural enemies need to thrive. When these resources are available on the farm, beneficial insects become more abundant, which improves blueberry pollination and strengthens natural pest control.

A bumble bee (*Bombus impatiens*) on a *Phecelia sp*. flower. Photo courtesy of Sarah Scott.

Wild bees, including bumble bees, mason bees, and miner bees, use native plants for both forage and nesting habitat. Bumble bees, in particular, need flowers from May through September to build strong colonies that are ready to pollinate blueberries in spring. Locating native plant plots near existing nesting or foraging areas (field edges, windbreaks, sandy soils, lightly disturbed ground) makes these resources easier for bees to access.

Natural enemies such as lady beetles, hover flies, lacewings, and parasitic wasps also rely on nectar and pollen to fuel their search for prey. Even small patches of native flowers can keep these predators active longer and increase their movement into blueberry fields where they help control pest insects.

Fewer inputs and maintenance - Once established, native plants typically require no fertilizers, irrigation, or pesticides. Their long-term persistence reduces labor and input costs compared to many non-native plantings.

Complementary seasonality - Many native plants set their seed outside of peak blueberry harvest, allowing growers to use labor and equipment efficiently without competing with fruit production. This staggered seasonality makes native seed production a practical fit alongside blueberry operations.

Preserve Michigan genotypes – Using Michigan-specifics plant genotypes helps conserve regional genetics of native plants and supports long-term ecosystem stability. These locally adapted plants also tend to perform better under Michigan conditions.

Strengthened farm marketing - Consumers increasingly value farms that demonstrate environmental stewardship. Native plantings can be highlighted in farm marketing, U-pick signage, and agritourism materials to build trust and consumer loyalty.

Enhance farm aesthetics - Beyond their ecological benefits, native plants can transform the appearance of blueberry farms. Their vibrant displays of colors, textures, and seasonal changes create a visually appealing landscape. Rows of native plants along field edges or buffer zones can soften the look of production areas, while plantings near driveways, walking paths, or U-pick entrances can elevate the visitor experience and support agritourism.

Pollinator-supportive plants of various colors and sizes. Photo courtesy of Emily Noordyke.

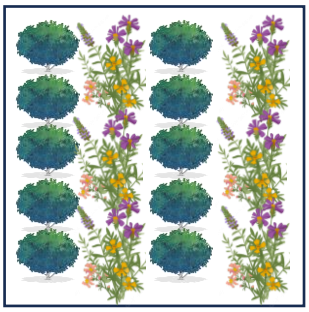
Site Selection and Design

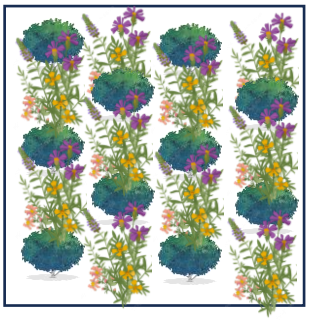
Native plants can fit into many parts of a blueberry farm, especially areas that are difficult to manage or no longer productive. When choosing locations, consider where plantings can improve pollination, support soil recovery, or enhance the farm's appearance. Clear design choices help ensure long-term success and efficient use of labor and equipment.

Possible design options within established blueberry farms include (blueberry bushes designated by round, dark green bushes, natives designated by the taller, light green plant):

Row plantings

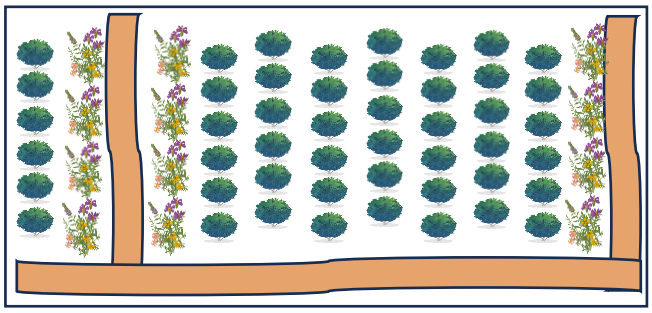
Integrate native plants into existing rows of blueberry bushes. Select species that can withstand tractor traffic and remain short in stature.





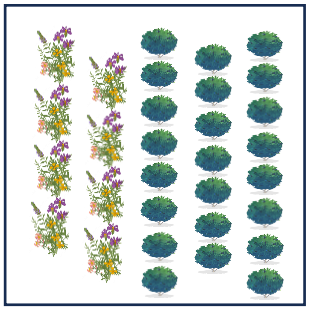
Borders and buffers

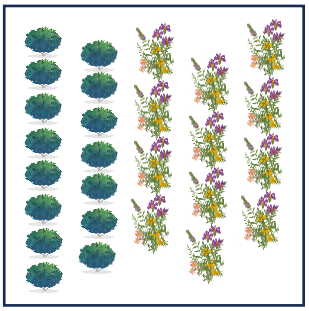
Plant native species along field borders or buffer zones to add habitat without much interference to current plantings.



Cover crops/rotational plots

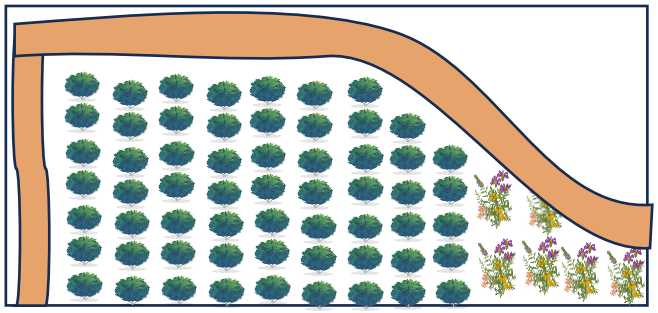
Use native plants as cover crops when letting soils rest between blueberry plantings or rebuilding soil quality.





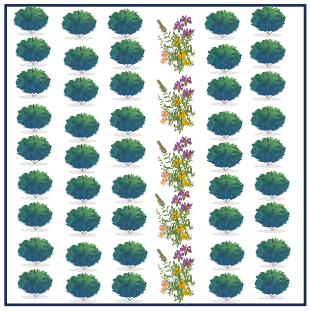
Block plantings

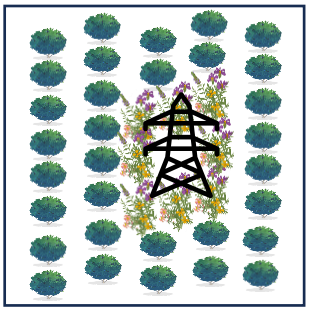
Dedicate entire blocks to native plants, especially in unproductive, hard to manage, or otherwise challenging areas.



Strips, alley cropping, islands

Concentrate native plants in strips, alleys, or islands to manage difficult areas, such as drainage ditches and powerline corridors.





Graphics created by Heather Chapman.

Plant Selection

Choosing native plant species depends on the grower's goals, site conditions, and budget. Because the native seed market varies by species, it is best to work directly with the growers or nurseries who will eventually purchase the harvested seed. They can recommend species that are well suited to the site and in strong demand.

Aim for a diverse mix that provides bloom from spring through fall. Season-long flowering supports pollinators and natural enemies, improving pollination and biological control in nearby blueberry fields.

Growers must also decide whether to establish the plantings using seeds or plugs. Seeds are generally more affordable and easier to use in large areas, especially when planted in late fall, but they take longer to establish. Plugs offer a headstart and can be planted at any time (avoiding hot, dry, or windy periods), but they require more labor and consistent watering until established.

Michigan's ecological history also provides a practical guide for plant selection. Much of western and southwestern Michigan was historically dominated by dry-mesic prairie, a plant community adapted to sandy, acidic, well-drained soils. Because these soils closely resemble those found on many blueberry farms today, a wide range of native species and seed mixes are already available that match these conditions. The Michigan Natural Features Inventory (MNFI) offers fact sheets describing these ecosystems and the species commonly found in them, which can help growers choose plants that are naturally suited to their fields.

Butterfly weed (*Asclepias tuberosa*) provides beneficial early summer bloom in Michigan. Photo courtesy of Martin LaBar CC BY-NC 2.0.

Plants like Joe Pye-weed (*Eutrochium purpureum*) and Boneset (*Eupatorium perfoliatum*) are adapted to wetland soils. Photo courtesy of Peter Gorman CC BY-NC-SA 2.0.

Plants like Yellow Coneflower (*Rudbeckia fulgida*) and Purple coneflower (*Echinacea purpurea*) can live in very sandy soil with little water. Photo courtesy of John Munt CC BY-NC 2.0.

Site Preparation

Preparing a site for native plants is one of the most important steps in the process. Native species are slow to establish and can be outcompeted by aggressive weeds or leftover root systems from previous crops. It is crucial to begin preparations early enough to create favorable soil conditions that allow time for root development. The goal is to eliminate existing vegetation, reduce the weed seedbank, and create clean, open soil where native plants can thrive.

The first step is to remove existing vegetation. This may involve pulling or digging out our perennial weeds and invasive species or removing old blueberry bushes and their root systems. Even small root fragments can resprout and regrow. Growers may also mow the area as short as possible to encourage uniform regrowth, which can then be much easier to kill in the next step.

Landscaping fabric may be used to smother out weeds prior to planting. Photo courtesy of Amy Gillan.

Next, growers typically choose one of three primary preparation methods: smothering, cultivation, or herbicide use. No matter which method is chosen, creating a “stale seedbed“ is necessary to ensure weeds are fully eliminated to reduce weed pressure for the critical first year of native plant establishment.

- Smothering involves covering the site with material such as ground cloth or tarps that block sunlight and gradually eliminates the vegetation underneath. This works best when the material is kept in place for many months during the summer and is especially useful for small or irregularly-shaped areas or where soil disturbance is undesirable.
- Cultivation may be ideal for larger fields, using repeated discing or tilling to uproot weed seedlings and expose the weed roots to drying. Site prep using cultivation often requires multiple passes for success, as repeated disturbance is necessary to gradually exhaust the weed seedbank.
- Herbicides may be necessary when dealing with persistent weeds but should be used judiciously and in conjunction with another method whenever possible. When used correctly, herbicides can be very effective and significantly shorten the preparation timeline.

The final preparation step is to create a clean seedbed, as native seeds require soil contact for germination. When planting seeds, growers may choose to lightly till or cultivate the soil to expose clean, bare soil prior to planting. For plugs, finely tilled soil is not necessary, as long as the area is mostly free of debris, roots, and large soil clumps. If the site is prone to erosion, soil stabilization may be necessary to help with establishment, which can be done using mulch or ground fabric. Once the site is fully prepared and weed pressure is suppressed, the next step is to select native plant species that best fit the site’s conditions and the grower’s goals.

A disc and cultipacker can help improve seedbeds. Photo courtesy of Fahimeh Baziari.

Rows of newly planted plugs alongside existing blueberry bushes. Photo courtesy of Amy Gillan.

Year 1 and 2 Maintenance

During the first two years, the primary focus will be on helping the plants establish strong root systems while minimizing weed pressure. In the first year, avoid disturbing the soil to allow the plants to develop and concentrate on weed control. Regular mowing – likely once per month in the summer – prevents weeds from flowering and setting seed.

By the second year, maintenance needs may shift depending on your site. Some areas may require additional mowing, while others may only benefit from spot-treating invasive species. Monitoring pests and addressing issues early will help protect the young plants. Once mature, the native plants become more resilient and require less support.

Harvesting Seeds

Seed harvesting can be done by hand or with small-scale equipment, depending on the planting size and the grower's goals. Hand harvesting can be inexpensive, require minimal to no harvesting equipment, and allows for a gentle selective harvest. It allows growers to harvest only mature seed heads, reducing the need for extensive cleaning. Small-scale equipment offers speed and efficiency but may be costly if you do not already have the necessary equipment; however, it may also require more cleaning if immature seeds are also harvested.

Plan native seed collection after blueberry harvest in late summer to early fall. If you align your species selection with this harvesting window, the seeds should be dry, firm, and detach easily in this timeframe, allowing for transition of work from blueberry harvest into seed collection.

Resources

Growers seeking more detailed information on species selection, site preparation, or Michigan's native plant communities may find the following resources helpful:

- Michigan Natural Features Inventory (MNFI)
- Michigan Native Seed and Plant Producers directory
- MSU's Large-scale Pollinator Plantings page
- USDA NRCS programs supporting habitat establishment

To complement these resources, the following case study shows how one Michigan blueberry grower used similar tools and guidance to establish native plant habitat on her farm.

Case study: how a Michigan blueberry grower incorporated native plants into their existing farm

Gillan laying landscaping fabric in preparation for plug installation. Photo courtesy of Amy Gillan.

Background

Amy Larrison Gillan owns ToadSettle Farm, a small blueberry farm in Berrien County, Michigan. Her academic journey - from undergraduate studies to a doctorate in geoenvironmental science education - fueled a lifelong passion for the natural world. Throughout her career, Gillan has focused on teaching how the natural world operates, the importance of protecting it, and practical ways to do so. In 2018, she purchased her blueberry farm, which consists of about 200 highbush blueberry bushes.

In late 2021, Gillan came across Project Wingspan, a previously funded program sponsored by Pollinator Partnership that offered online training courses. These courses enabled her to become certified in best management practices for native seed collection. While not required for collecting native seeds, the courses strengthened Gillan's understanding of the proves and led to a volunteer position as a Project Wingspan team leader for Berrien County of Michigan. In this role, she organized seed collecting events and coordinated the mailing of seeds for processing and distribution. Through this experience, Gillan gained extensive knowledge in identifying Michigan native pollinator plants and seed collection techniques. Gillan was hooked; she sought new ways to implement pollinator habitat and continue her devotion to supporting the natural world.

Gillan achieved many Michigan Agriculture Environmental Assurance Program (MAEAP) verifications for her farm beforehand – Farmstead System, Cropping System, and Forest, Wetlands, and Habitat Systems. These verifications would supplement her application to the USDA Environmental Quality Incentives Program (EQIP), that was awarded to her farm. With this financial support, Gillan established and maintained a pollinator pasture in a half-acre meadow on the farm. EQIP financially supported Gillan to remove invasive species from the farm's woodlot and replace them with native plants.

While attending a field day at Michigan Wildflower Farm hosted by MSU as part of a SARE grant, Gillan met the owner, Esther Durnwald, who provided extensive information on the farm's history, production, and seed processing facilities. This meeting also initiated the conversation about MSU's interest in this case study on implementing pollinator habitat within an existing blueberry farm. Gillian became a partner with MSU through the USDA SARE Partnership grant "Income through conservation: Training farmers to produce plant materials for specialist butterflies."

Rows of plants seen during the field day at Michigan Wildflower Farm. Photo courtesy of Heather Chapman.

Goals

With a focus on developing skills as a relatively new farmer, Gillan hoped to implement the pollinator habitat into her existing farm with the equipment she already had. This project introduced several firsts for her: using plugs instead of seeds, experimenting with landscape cloth for weed control, and scaling beyond her prior efforts. To ensure success, Gillan did her research and connected with experts. She had many conversations with Michigan Wildflower Farm and Wildtype Native Plant Nursery to discuss the details and obtain recommendations on each part of the project. Two resources she found helpful were *Landscaping with Native Plants of Michigan* by Lynn Steiner (2006) and *Using Native Plants to Restore Community in Southwest Michigan and Beyond* by Nancy Cutbirth Small & Tom Small (2011).

Site Selection

ToadSettle farm covers seven acres: five acres of woodlot, half an acre of pollinator pasture and vegetable garden, plus a farmhouse, garage, a pole barn, and roughly 200 highbush blueberry bushes. Gillan's first site was alongside the blueberry rows – sunny, easily accessible, and strategically placed to enhance pollination. The second site was under the partial shade of pine trees on the farm, which was previously used for years as a site for rubble. Both sites had acidic sandy loam soils, lawn grass, and non-native aggressive weeds.

The many rolls of landscaping fabric Gillan used to prepare the sites. Photo courtesy of Amy Gillan.

Gillan's first site alongside the blueberry bushes. Photo courtesy of Amy Gillan.

Site Preparation

Preparations started in April, months before planting began. The pine tree site required the removal of many raspberry vines and piles of old concrete blocks. Gillan then began by mowing each site twice – first with a John Deere riding mower, then with a push mower – to reduce existing vegetation as much as possible. The following day, she began covering the rows with ECOgardener Premium 5oz Landscape Fabric (4ft x 100ft) purchased from Amazon. The fabric was held in place using heavy-duty L-shaped Earth Staples (6in) purchased from FedCo Seed Company. The L-shaped staples were preferred for their extra holding power and ease of removal. By mowing as low as possible and laying the fabric this early, by the time the plants arrived in September, all the existing vegetation was dead. No additional soil preparation was needed. Gillan mowed between the rows from April through fall to keep the area tidy and weed-free and thus tick-free.

Gillan's second site under pine trees during rubble removal. Photo courtesy of Amy Gillan.

The propane tank and torch transported on a dolly to burn fabric holes. Photo courtesy of Amy Gillan.

In early September, Gillan began making the 2-inch holes in the landscape fabric for the plugs. She purchased a propane torch from Amazon. It had a 1.9in nozzle diameter (ideal for plug sizes), an adjustable flame intensity, and an integrated ignitor. Both of the latter saved tons of time and headaches, though still required a bit of practice to make the correct-sized hole efficiently. The propane tank used was donated by a neighbor who previously used it for their gas grill. A measuring stick was used to measure the distances between holes recommended by Michigan Wildflower Farm and Wildtype: 24in for butterfly milkweed and columbine, 12in for nodding onion. This was also done under drought conditions; for safety, all torch use was carefully done with a large bucket of water close by and a close eye watching for any smoking grass.

The plugs arrived in mid-September. Gillan planned to have them all planted by the end of the month to provide adequate time for them to establish before the cold weather. With an unusually warm early fall period, Gillan finished planting by the beginning of October.

Gillan bought a used 35-gallon water tank with a pump sprayer that fit into her John Deere garden wagon pulled behind a John Deere lawn tractor. This setup was used to water plugs that were too far to reach with the garden hose. This process functionally worked but was extremely time-consuming compared to watering with the garden hose due to its fine spray and the constant need to move the tractor to reach the plants.

The 35-gallon water tank transported on a lawn tractor's trailer. Photo courtesy of Amy Gillan.

Plant Selection

When selecting plant species, Gillan relied heavily on advice from experts based on her specific conditions. Wildtype, Michigan Wildflower Farm, and Hidden Savanna Native Plant Nursery all provided feedback and suggested species that would thrive on her farm and were available for purchase. These conversations allowed Gillan to provide site details, her availability & limitations, and preferences. She was also advised that purchasing only 2-3 different species may be a better option, as this would allow her to have lots of seeds from only a few species rather than lesser amounts of seeds from many species. Fewer species would ease the harvesting and selling process later.

The many flats of plugs upon delivery. Photo courtesy of Amy Gillan.

She ultimately settled on three species: Nodding onion (*Allium cernuum*) and Butterfly milkweed (*Asclepias tuberosa*) for the sunny blueberry site and Columbine (*Aquilegia canadensia*) for the shaded pine site. Only plugs were purchased despite the initial labor required to plant them; this was due to plant availability, funding availability, and long-term goals. These species were readily available from Wildtype, fit the requirements of Gillan's farm and goals, covered by existing funding, and would give the plants a good headstart in seed production over seeds. Columbine, in particular, thrives in acidic, partially shaded areas and does well under pine trees – the exact description of the second site she had chosen; a perfect plant choice.

The second site after planting. Photo courtesy of Amy Gillan.

Harvest and Maintenance

Seed harvest will involve snipping seed heads into containers and then separating the seeds by hand. Gillan had gained experience locally collecting seeds from the three species she planted, giving her an edge when it comes time to harvest her own. For Butterfly milkweed, perfect harvest timing will be critical – when the seed heads have barely split open, the seeds are brown, and fluff has not started expanding. After this window, the fluff may become a significant annoyance, though it is still possible to harvest. The columbine may also be tricky to harvest, requiring constant surveillance; once the tiny seeds are ready, they readily drop to the ground.

Maintenance will consist of keeping weeds at bay, regular inspections for insect pests, and watering during drought periods as the plugs become established. The landscape fabric was advertised to last beyond the establishment period of the plugs, which Gillan hopes will help with most of the weed control. The fabric holes only being 2 inches in diameter should also prevent significant weeds from thriving. Any weeds surrounding the plugs will be pulled by hand.

Reflection

Gillan's experience establishing native plants alongside her blueberry operation illustrates both the challenges and rewards that are possible. Despite the numerous conversations with experts and the many hours of reading and planning, this project demanded significantly more work than Gillan anticipated. Each step – from laying and stapling landscape fabric, to mowing between rows, melting fabric holes, purchasing and testing equipment, and watering plugs through the drought – required extensive time, labor, and flexibility. Aphids attached the butterfly milkweed before she even got to plant them, adding to the time it took to plant each plug. Despite the effort, the process was deeply rewarding.

After weeks of preparations and plantings, the stack of empty plug flats showed the results of her hard work. Photo courtesy of Amy Gillan.

The timing of planting required flexibility. With the original plan to plant in the spring and the original plug supplier having to back out, plans had to change to a fall planting. Missing spring rains was unfortunate as September brought drought conditions. It was a struggle for Gillan to finish planting the remaining plugs while also maintaining water for those that were just planted. On the bright side, however, the vegetation under the landscape cloth had all summer to die and decompose, making weed control much easier.

Many rows of landscape fabric that required hours of laying and placing staples. Photo courtesy of Amy Gillan.

As the project continues, Gillan is eager to see the survival rate of the plugs. Though the species were meticulously chosen for each site, some plug losses can be anticipated, especially when watering them was so demanding. She has many things to consider in the upcoming warmer season: Will she replant any losses? Will she replant with seeds or more plugs? Will the landscape fabric hold up for a second season? Will the plugs require additional watering this summer? Is there a more efficient way for her to water the remote areas? Will seeds be produced for harvest this first year?

Despite the many unknowns and months of waiting ahead, Gillan expresses how much this project has been worth every minute. The impact this project could have on pollinators, the seed production industry, and others looking to do something similar easily makes it worthwhile for her. These sites serve as tangible evidence of what can be accomplished on a small-scale farm with simple equipment.

Key Takeaways

Plan for extra time and labor. Each step of the process takes time, potentially more time than you think. Give yourself extra time when scheduling.

Site preparation pays off. Though early mowing and stapling hundreds of staples into landscape fabric take many, many hours, it makes the planting easier and long-term maintenance much easier.

Know the physical demands. Laying fabric, melting holes, drilling holes, planting 1,800 plugs – these each require strength, agility, patience, and tenacity.

Ask experts for advice. When selecting suitable species, there is much to consider, including ease of growing, site considerations, the current seed demand for each species, and harvesting and cleaning seeds. The seed and plant producers often know much of this information.

Flexibility is key. Even with precise planning and expert consultations, plans may have to change. It is important to be flexible with each step of the process to ensure long-term plant survival and habitat success.

Funding support helps. Look into programs that can offset costs associated with habitat plantings, such as the Farmer First Regeneration Pilot Program.

Funding for this project was through the USDA Partnership Grant ONC23-128 "Income through conservation: Training farmers to produce plant materials for specialist butterflies."