Alabama 4-H 🍀

Alabama Cooperative Extension System

Creating a Pollinator Garden

Extension

www.aces.edu

This journal is property of _

Creating a Pollinator Garden

This project combines gardening with creating wildlife habitats. Youth will develop a pollinator garden by planting various blooming plants (preferably native plant species) that attract and support a variety of pollinator species, with a primary emphasis on insects. A few host plants may also be included to meet the life cycle needs of specific insects.



Why Should I Plant a Pollinator Garden?

Pollinators are a crucial part of having healthy habitats. In fact, 80 percent of flowering plants and 75 percent of all human food crops depend in part on pollinators. Due to many factors—habitat loss due to urban sprawl and agricultural practices, a decrease in native blooming plants, pesticide exposure, parasites, and pathogens—many pollinators need our help. Whether you have a few feet of space on your balcony, a yard needing landscaping, or several acres, you can make a difference by planting a pollinator garden.



Alabama 4-H Grows Pollinator Garden Project

What Are Some of Alabama's Pollinators?

When people think of pollinators, the honeybee is usually the first species that comes to mind. The honeybee is not native to North America but was brought here from Europe in the seventeenth century. Because of its honey production and importance as a pollinator, the honey bee receives most of the attention in news stories about pollinators and their decline. Actually, there are many native animal pollinators that are also important. These include ants, bees, beetles, butterflies, flies, birds, hummingbirds, and moths. When planning for your pollinator garden, think about other species besides honeybees.



Planning a Pollinator Garden

If you would like to participate in this 4-H Grows Gardening and Wildlife Project, remember that careful planning is essential. Follow these steps to ensure that your pollinator garden is successful.



• Choosing Your Location: Even though some flowering plants can grow in shady and sunny locations, most flowering plants and pollinators like full or at least partial sun with protection from strong winds. It is best if the location has 6 to 8 hours of sunlight per day during the growing season.

The size of your pollinator garden will be determined by the space you have available, the amount of time you want to spend on the project, and, of course, how much you want to spend on the project. If space is limited, you should place your pollinator garden in a few containers. If you have a larger area, such as a corner of your yard or a spot in the garden, you can increase the number and variety of plants.

It is also important to examine the soil in the area where you want to plant your pollinator garden. Is the soil sandy and well drained or more claylike and wet? You should conduct a soil test before planting so you can add the correct soil additives to your garden area. Getting a soil test is covered in more detail in the Preparing the Garden Site section.



 Choosing the Best Plants for Pollinators: To help ensure success with your pollinator garden, research which varieties of plants are native to your area and grow well in your soil and sunlight conditions. Native plants are always the best choice because they are adapted to grow in your area, require less maintenance, and tend to be stronger. You may also need to select some non-native plants to help ensure that pollen and nectar are available throughout the entire year, or at least for as long as possible. Just make sure that if you use any non-native plants, they are not invasive in behavior. (To get started, check the list of native and non-native plants recommended for use in your pollinator garden.)

Seeds versus Starter Plants: As you research and select the plant species you want in your pollinator garden, decide whether to start from seeds, small plants, or a combination of both. Either way is okay to start, but a lot depends on your timeline and budget. Seeds are cheaper, especially for large gardens, but will require more time for the plants to grow from seed to blooming plants. Some species of plants may only bloom if grown from seed in the second year. In addition, some seeds need to be planted during the fall or winter, giving them time to germinate and start growing before summer arrives.

When planting seeds or purchasing plants, it is important to know if the plant is annual or perennial. Annuals grow from seed, bloom, produce seeds, and die within one growing season. With many annuals, you should keep cutting off the spent blooms throughout the blooming season to encourage the plant to continue setting new blooms. With annuals, your goal is to have blooms for as long as possible and only produce seeds if you want to save seeds for next year. Perennials are plants that come back each year from the roots. In addition to coming back each year, the plants will also multiply, giving you more and more plants and blooms each year from your original planting. With many perennials, if planted as seeds, the plant spends the first growing season developing a healthy root system and plant. It will be late in the growing season or not until the second year if it blooms. There is always the risk that your perennials will not come back due to winterkill or some other reason.

In most cases, purchase nursery-started plants for most of the perennial species. They cost more but will provide blooms sooner, giving you a faster return on your investment and attracting pollinators into your garden much sooner. Reserve the seed planting for the annual species, as they will grow quickly and give you blooms by midsummer. Preparing the Garden Site: If your garden site was previously covered with grass or other vegetation, you would need to remove the previous vegetation and turn the soil to loosen it up. One way to kill the existing vegetation is to treat it with a glyphosate herbicide. Follow label directions. A more labor-intensive way is to carefully dig up the existing vegetation and remove it from the garden area. Once the vegetation is removed or killed, loosen the soil to a depth of 6" to 8" using a shovel or garden tiller.



As with any garden area, you will also want to add compost and soil additives to the soil and work them in. To make sure you are adding the right nutrients and additives, you should take a soil sample and have it tested. Auburn University



has a soil testing lab. For information on how to conduct a soil test and send it in for analysis, visit "Home Soil Testing: Taking a Sample" on the Alabama Extension website at www.aces.edu. The cost for a soil test is \$10 and typically takes 7 to 10 days to get the results. If you submit a soil test, it will need to be conducted a few weeks before you are going to plant, so you will have time to get the results and implement what is suggested.

Garden Design & Planting: While you are waiting for the soil test results, use this time to lay out and design your pollinator garden. When deciding on plant arrangement, consider the mature plants' heights, widths, and blooming time. A common mistake is to crowd plants when you first plant them, not allowing enough space for them as they mature, or to plant tall plants in front of shorter plants. Since many plants require a lot of sunlight, look at their mature heights and arrange them in a stair-step pattern, placing shorter plants on the side that will receive the most sunlight and taller plants toward the back or center. This pattern will also help display the blooms better for viewing as taller plants will not hide the blooms of shorter plants.

Some colors of blooms are better at attracting pollinators than others. Bees are especially attracted to blue, purple, violet, white, and yellow, while butterflies like white, pink, orange, yellow, red, and purple.

Arranging the blooming plants in groupings or clusters is also helpful, as large splashes of the same color are easier for pollinators to see. You should also plant them in odd numbers. A grouping of three or five of the same plant species usually is more appealing to the eye than an even number of plants.

These suggestions still apply if you have limited space and plant your pollinator garden in containers. Place the taller plants in the center of the container or the center of a grouping of containers, and arrange shorter plants around the edge of the container or in containers around the taller plant's container. • Selecting the Best Pollinator Plants for Your Garden: The following tables list several native plants that would be great to include in your pollinator garden, if your space permits. You will discover through your research that there are many other native plants besides those listed.

Forbs

Species Name	Mature Height & Width	Plant Type	Blooming Season	Exposure		
Butterfly Weed	1′–2′ H 1′–2′ W	Perennial	Throughout summer	Full sun		
Lanceleaf Coreopsis Tickseed	1′–2′ H 1′–2′ W	Perennial	Spring and part of summer	Full sun		
Joe Pye Weed	4′–7′ H 2′–4′ W	Perennial	Summer and fall	Full to partial sun		
Swamp Sunflower	5′–8′ H 2′–4′ W	Perennial	Fall	Full to partial sun		
Liatris spicata Gayfeather/ Blazing Star	2′–4′ H 9″–2′ W	Perennial	Summer to fall	Full sun		
Wild Bergamot/ Wild Bee Balm	2′–4′ H 2′–3′ W	Perennial	Summer to fall	Full to partial sun		
Rudbeckia/ Blackeyed Susan	2′–3′ H 1′–2′ W	Perennial	Summer and fall	Full sun		
Ironweed	4'–6' H 3'–4' W	Perennial	Late summer and fall	Full sun		
White Wild Indigo	2′–5′ H 2′–3′ W	Perennial	Early summer	Full to partial sun		
Penstemon Laevigatus Eastern Smooth	2′–3′ H 2′–3′ W	Perennial	Early to mid-summer	Full sun		
Aster	-	Perennial	July–September	Full sun		
Gallardia	1′–2′ H 1′–2′ W	Perennial	June–September	Full sun		
Verbena	6"–1' H 1'–3' W	Perennial	June-September	Full sun to light shade		
Echinacea-Purple Coneflower	2'-4' H 1'-3' W	Perennial	June–September	Full sun to light shade		
Achillea Yallow	2′–4′ H 1′–3′ W	Perennial	June–September	Full sun to light shade		

 In addition to the native plants listed above, you may want to plant some annual blooming plants, as they are a great way to fill open areas within your pollinator garden. These plants grow from seed to bloom in a few weeks. In addition, once they start to bloom, some of these plants keep blooming all summer as long as you clip off (deadhead) the old blooms and keep them watered and fertilized. The following is a list of annuals that grow well and attract pollinators in Alabama.

Annuals	
Name	Information
Zinnias	Zinnias come in many varieties, colors, and sizes, so select what you like. They will blooming in late spring through fall, until the first frost.
Sunflowers	The many varieties of sunflowers come in different colors, sizes, and heights. Lemon Queen, Henry Wilde, Autumn Beauty, Evening Sun, and Sonja are some of the branching sunflowers that pollinators like. Keep in mind when selecting the variety of sunflower to plant in your garden that some are single bloom and some are multibloom. Also consider height and whether the variety is a pollen-free hybrid. They bloom in late summer.
Cosmos	There are many colors of cosmos to choose from, but orange is attractive to insects. They bloom from spring to fall.
Salvia	It is probably best to buy salvia as a nursery plant, but you can grow it from seed. Salvia is an easy-care, long-blooming plant that shows off colorful blooms. They come in red, blue, purple, pink, salmon, and white. They bloom late spring to fall.
Clasping Coneflower	This plant features a showy daisy-like bloom. They bloom from summer to fall.
Pentas	It is probably best to buy pentas as nursery plants, but you can grow them from seed. They come in pink, purple, red, and white. They like sun to partial sun and bloom summer to fall. This plant works great in containers.
Mexican Sunflower	This is an easy-to-grow plant that features multiple orange blooms from midsummer to the first frost. It is a tall plant, reaching a height of 8'. This plant needs a lot of room.

• In addition to blooming forbs, if space allows, consider planting shrubs and vining plants that also attract pollinators. Remember that when you choose these plants, you plan to have them for many years.

Shrubs and Vines				
Species Name	Mature Height & Width	Plant Type	Blooming Season	Exposure
Wild Passion Flower	6′–8′ H 3′–6′ W	Perennial climber	Summer to fall	Full to partial sun
Highbush Blueberry	6′–12′ H 8′–12′ W	Perennial	Spring (Flower) Summer (Fruit)	Full to partial sun
Button Bush	5′–12′ H 4′–8′ W	Perennial	Summer	Full to partial sun
Native Azalea	6′–8′ H 3′–6′ W	Perennial	Spring	Partial sun
Abelia	2′–10′ H 2′–8′ W	Perennial	Spring to fall	Full to partial sun

• Designing Your Pollinator Garden:

Now that you have identified your garden spot, made a list of plants, and have set your budget, it is time to create a plan. First, take measurements of the garden area and then lay it out on graph or grid paper or use your computer to create a drawing.

Garden measurements: 13' W x 7' H at the widest points of the oval.

The following is an example of a simple pollinator garden created using Microsoft Word. **Scale:** Each square is 1' x 1'. **Budget:** \$300



- Maintenance and Upkeep of Pollinator Garden: Once you have installed your pollinator garden, it will require care throughout the growing season. If you have planted perennials, you will need to provide fall and winter maintenance so plants will be ready for another growing season next spring, summer, and many years after. The following is a list of things to do:
 - Throughout the spring and summer, ensure that your garden receives adequate moisture. If you do not receive at least 1" of rain per week, supplement by watering the garden.
 - Since blooming plants require a lot of nutrients, you will need to fertilize the plants at the beginning of the season and then about midsummer. Use an all-purpose fertilizer designed for flowers.
 - Remove weeds as they appear to help keep them from taking over the garden. This should be done weekly. If you plant any seeds, make sure you know what they look like as seedlings. This way, you won't accidentally pull them when weeding.
 - As a bloom fades, carefully prune (deadhead) the spent bloom. Many flowering plants will send out more flowers if they are not allowed to develop seeds. Continue pruning until late summer and allow the final blooms to reseed in your garden.
 - Once the plants are established/planted, mulch around them to help the garden retain moisture and suppress weed germination. Mulching can be done with pine bark, pine straw, or other organic material.
 - If plants get too tall, you may need to stake them up. In the case of a vining plant, you may need to put in a climbing pole and help train the plant to climb by guiding it up the pole.

4-H Pollinator Garden: Citizen Science Project

The 4-H Pollinator Garden Project will allow Alabama's youth to be volunteer citizen scientists. Through this project, participants share with others what they observe from the natural world as they collect and analyze data, interpret results, formulate research questions, and may even discover a new species.

Recording Pollinator Garden Activities & Monitoring Your Pollinator Garden

Throughout the planning, maintaining, and monitoring processes, use your Pollinator Garden Journal to record your activities, observations, and records of the various pollinators seen visiting your garden. It will be important to take photos of the pollinators that visit your garden, identify them, and share what you see. Once the project is completed in late September, give the finished journal to your county's 4-H regional Extension agent for evaluation.

Sharing Pollinator Information Through the iNaturalist Website

To help make the sharing and compiling of the pollinator species we observe during the project easier, we will use the iNaturalist website and app. Throughout the project, participants will use their smartphones or computers to share on iNaturalist observations and photos of pollinators. In addition, if a participant is not sure of the identification of a species or identifies it incorrectly, iNaturalist will help to identify it correctly. Experts will also be able to verify the correct identification and provide feedback.

Only those signed up for the Alabama 4-H Pollinator Project can post observations directly to the project. Specifics about how to sign up for iNaturalist and access the Alabama 4-H Pollinator Garden Project on its website will be shared directly with participants through an email in April.

Since the iNaturalist app and website are not owned and controlled by Auburn University or Alabama Extension, the final decision on whether you use this app will be up to the youth's parents or guardians.

iNaturalist website: www.inaturalist.org

Timetable for the Pollinator Garden Project

- March 1—Begin promoting the program to 4-H youth
- March 1 through May 15—Youth may sign up on 4-H Online to participate in the pollinator project.
- April 3—Zoom webinar for participants at 4:00 .pm. During this Zoom meeting, we will discuss pollinator gardens, pollinators, and expectations. The webinar will be recorded and shared with those unable to participate.
- April 1 through May 30—After signing up, participants need to select a garden site, design, and plant their pollinator gardens. If needed, plants may be added to the garden throughout the growing season.
- April 1 through the entire project— Once you have enrolled in the project, you will receive an email explaining how to sign up on the iNaturalist website. This step is not required but is highly recommended for this project.
- May 1 through June 30—Participants must submit a photo(s) of their pollinator garden to their county 4-H REA once it is completed.

- Keep maintaining and monitoring the pollinator garden throughout the summer and fall. Enter observations and pollinator species and activity in journal.
- **Take photos** of the pollinator garden and the pollinators that visit the garden. Share these photos with the 4-H REA from your county.
- August 1—Participants must sign up for the Pollinator Project Part II on 4-H Online to complete project.
- October—During this month, participants must complete a final report on the pollinator project and submit it to their county 4-H REA.

Good luck with your pollinator garden!

Weekly Journal

Participants are required to keep a record of their activities and observations throughout the length of the project (two years—from April/May of first 4-H program year to October of second 4-H program year). During this time, participants need to plant their pollinator gardens and then maintain and monitor them for use by pollinators throughout the garden season.

Two official journal entries should be made at least twice a week, once in the morning and once in the afternoon. These entries will help track your activity and document pollinators as they visit the garden. Be sure to record the time of day and weather during the garden visits to see if these factors influence pollinator activity. You may also make additional entries of pollinators that are sighted at other times. Just add them to the previous entry.

By the end of September or early October of the second 4-H program year, all data collected during the project must be submitted to the county 4-H REA.

Pollinator Garden Record

Pollinator Garden Specifics:

Location (Take a photo of your garden area before starting on the project. Attach it in the area below or insert it behind this page.)

Approximate dimensions of your garden:

Did you get a soil test? Yes or No (If you did, attach a copy of the report to your journal.)

What did you do to get your garden site ready for planting?

4-H Pollinator Garden Design and Planning

Use the following page to list the plant varieties and number of plants you are going to plant in your pollinator garden. Attach a copy of your receipts to this page. (Duplicate page if needed.)

Plant Varieties & Number of Plants							
Plant	Plant/Seeds	Quantity/Cost per Plant	Cost	Extended Cost			
Ex: Pentas	Plant	6/\$8.00	\$48.00	\$48.00			

4-H Pollinator Garden Design and Planning

Use the following grid as you lay out your pollinator garden. Please include your scale (For example: each square is $1' \times 1'$) and a compass rose to show direction. Use this grid vertically or horizontally. If you need more than one page, please make an additional copy.

<u> </u>													

Costs in Addition to Plant	S	Costs in Addition to Plants							
ltem	Quantity/ Price Per Item	Total Cost for This Item	Extended Cost						

 Total Expenses:
 +
 =

 Plants
 Additional
 Total Expenses

Monitoring Pollinator Garden

(Additional pages may be added as needed.)

Please use the following to record observations and your activities in the garden. To enter pollinator species that you observe, go to page 20; to enter photos, go to page 24.

Date/Time	Activities/Observations

Date/Time	Activities/Observations

Date/Time	Activities/Observations

Date/Time	Activities/Observations

Date/Time	Activities/Observations

Date/Time	Activities/Observations

Recording Pollinator Observations

During your visits to the pollinator garden, record any pollinators you see. Take photos of these pollinators and share them on iNaturalist in our 4-H Pollinator Garden Project. Print a photo and add it to the photo section of this journal on page 24. When recording pollinators below, try to identify the species and then keep a sighting total of that species. (Make additional copies as needed.)

Species	Record Date of Each Sighting and Tally
Example: Carpenter Bee (<i>Xylocopa virginica</i>) First Sighting 4/30/2023	First sighting: 4/30 Other sightings: 5/3, 5/5, 5/9, 5/12, 5/16, 5/18, 5/23, 5/26, 5/29
	Total number of sightings: 10
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:

Species	Record Date of Each Sighting and Tally
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:

Species	Record Date of Each Sighting and Tally
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:

Species	Record Date of Each Sighting and Tally
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:
	First sighting: Other sightings:
	Total number of sightings:

Photo Record of Pollinators

Starting on this page, print a photo(s) of each species of pollinator that you see in your garden and add the photo behind this section of the journal, including extra pages as needed.

Reporting Observations & Data

When the pollinator garden project is completed in September, give the finished journal to your 4-H REA for evaluation.

In addition, throughout the project and if approved by parents, participants will be reporting pollinator sightings to the iNaturalist 4-H Pollinator Garden Project. This list will give us an idea about the diversity of pollinators that visited the garden projects.

On what date did you observe the first pollinator in your garden?

Please summarize the list of pollinator species that visited your garden during the project.

Species	Species
Example: Eastern tiger swallowtail–Butterfly	Example: Mason Bee–Bee

Please share your thoughts about this project and what you learned from it.



For more information, contact your county Extension office. Visit www.aces.edu/directory.

Trade and brand names used in this publication are given for information purposes only. No guarantee, endorsement, or discrimination among comparable products is intended or implied by the Alabama Cooperative Extension System.

In accordance with Federal law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, this institution is prohibited from discriminating on the basis of race, color, national origin, sex (including gender identity and sexual orientation), age, disability, and reprisal or retaliation for prior civil rights activity.

Program information may be made available in languages other than English. Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, and American Sign Language) should contact the Alabama Cooperative Extension System Human Resources Department at (334) 844-5531 or the State of Alabama Governor's Office on Disability (GOOD) at (888) 879-3582 or USDA's TARGET Center at (202) 720- 2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339.

To file a program discrimination complaint, a complainant should complete a Form AD-3027, USDA Program Discrimination Complaint Form, which can be obtained online at www.usda.gov/sites/default/files/documents/usda-program-discriminationcomplaint-form.pdf from any USDA office, by calling (866) 632- 9992, or by writing a letter addressed to USDA. The letter must contain the complainant's name, address, telephone number, and a written description of the alleged discriminatory action in sufficient detail to inform the Assistant Secretary for Civil Rights (ASCR) about the nature and date of an alleged civil rights violation. The completed AD-3027 form or letter must be submitted to USDA by: U.S. Department of Agriculture | Office of the Assistant Secretary for Civil Rights | 1400 Independence Avenue, SW | Washington, D.C. 20250- 9410 | Fax: (833) 256-1665 or (202) 690-7442; or Email: program.intake@usda.gov.

This institution is an equal opportunity provider.

New March 2023, 4HYD-2508 © 2023 by the Alabama Cooperative Extension System. All rights reserved

www.aces.edu