

SEARCH FOR EXCELLENCE: CONSUMER HORTICULTURE

Bee A Friend to Pollinators: Pollinator Education & Agricultural Literacy for SC Educators

Educational Objectives:

"Bee A Friend to Pollinators: Pollinator Education & Agricultural Literacy for SC Educators" has a twofold educational approach focused on content and application. Throughout the course and within each module, educators acquire foundational knowledge about pollination, pollinators, and their importance; then, they develop the skills to teach that content in their educational contexts using lesson plans, activities for students, and other curricular resources. By the end of the course, educators develop a plan for engaging students and the school community in pollinator projects and activities such as pollinator habitat implementation, small-scale pollinator gardens, or other pollinator-friendly activities.

Program Activities:

Each participant in the class receives a curated course materials box that includes curriculum and educational materials that align with the activities and lessons throughout the course.

The comprehensive pollinator curriculum *Nature's Partner's* offered by Pollinator Partnership and the companion document, *Educator's Curriculum Guide*, written by The Bee Cause Project, is organized by module on a thumb drive.

The Bee Cause Project's *Book Club Challenges* include learning activities to accompany children's books aligned with standards, discussion questions, and printable worksheets for students. These provided books and activities promote pollinator literacy and scientific thinking:

Slade, S. (2010). *What If There Were No Bees?: A Book About the Grassland Ecosystem (Food Chain Reactions)*. Picture Window Books; Illustrated Edition.

Levine, S. (2019). *Flower Talk: How Plants Use Color to Communicate*. Millbrook Press™; Illustrated Edition.

Milner, C. (2018). *The Bee Book (Conservation for Kids)*. DK Children; Illustrated Edition.

Additional printed materials provided:

Dabbs, A. L., Dailey, M., Enright, T., Davern, T., & Robertson, A. (2019). *Bee A Friend to Pollinators: Create and Advocate for Pollinator-Friendly Schools and Outdoor Community Spaces*

Braman, K., Hale, F., & Majumdar, A. (2014). *Beneficial Insects, Spiders and Mites in the Southeast* (Cir. 1055). The University of Georgia Extension.

Shepard, B. M., Ph.D., Farnworth, E. G., Ph.D. , Williams, D., Ph.D, & Bisner, A., B.S. (2017). *Insect Pollinators of the South Carolina and Georgia Lowcountry* (1st ed.). Lowcountry Biodiversity Foundation. www.lcbiodiversity.org

Elingburg, Emilee. "My Pollinator Journal." *The Bee Cause*, www.thebeecause.org/2-support-materials/my-pollinator-journal/.

Teaching Methods:

Throughout the five-week online course, educators actively engage in the course through instructional videos, hands-on lesson plans and learning activities, and module quizzes. They also interact with fellow educators through discussion boards. To meet the course requirements, learners must complete instructional videos, quizzes, and discussions according to course criteria.

Modules and topics covered include:

Module 1: The Critical Role of Pollinators in Our Food System

Module 2: Identifying Key Pollinator Species

Module 3: How Plants and Pollinators Interact

Module 4: Creating Pollinator-Friendly Landscapes

Module 5: Implementing Pollinator Education Programs – "Bee an Advocate"

Results:

Participants in the initial cohort were experienced extension agents, formal and informal educators, and other stakeholders who agreed to provide suggestions and feedback for improving the course.

The pilot cohort of the class, held in the Summer of 2022, had more than 40 teachers from Georgia and South Carolina enrolled. The teachers earned interactive digital badges and renewal credits from the South Carolina and Georgia Departments of Education.

Impact Statement:

At the end of the course, the online course participants joined a multi-state Zoom meeting to learn about the Great Georgia Pollinator Census and how they could participate. As a result of this partnership, South Carolina was the first additional state to participate in the citizen science project. More than 17 South Carolina counties contributed to the pollinator census in 2022. Beginning in 2023, The Great Southeast Pollinator Count will expand to include Georgia, South Carolina, and North Carolina.

As a result of the success of the pilot cohort, the Bee Cause Project established the *Bee A Friend to Pollinators Habitat Grant Program*. The organization awarded 15 participating South Carolina schools a total of \$15,000 in grants to put their pollinator-friendly habitat plans into place. In addition, with funding from the Bee Cause, Clemson Extension and other community partners

will implement two educational pollinator habitat sites to serve as demonstration gardens. These sites will operate as living laboratories for school groups and educator workshops.

An additional Bee Cause Project grant-funded cohort of the online course is planned for Summer of 2023. The aim is to provide all participants in the online class with funding to implement a pollinator habitat garden at their school.

Evaluation:

Participants evaluated their experience and knowledge gained in the course and provided demographic information using a Qualtrics survey. Twenty-eight participants completed the survey. Participants were asked to identify the grade levels they teach: (14) grades K-2, (17) grades 3-5, (8) grades 6-8 and (3) grades 9-12. The group covered a wide array of subject areas including English/language arts, mathematics, science, agriculture, environmental education, STEAM/STEM, special education, gifted and talented resources and school counseling. Eighteen participants said they work at a Title 1 school. When asked about their community, 55.6% said they live in a rural area, 40.74% in the suburbs of a city, and 3.7% in an urban area.

All 28 respondents indicated they have taken an online course before and were either 'very satisfied' or 'satisfied' with the course overall. Twenty said that "in a perfect world" they would prefer a hybrid course of online and in person training while eight responded they would prefer online only.

Participants were asked to rate [their] pollinator knowledge before and after the *Bee A Friend* course on a scale of 1 (minimum) to 10 (maximum) on average. Participants' knowledge increased from 3.65 to an average of 8.04. When asked to rate [their] confidence with teaching about pollinators before and after the *Bee A Friend* course on a scale of 1-10, the average confidence level also increased; 4.15 from before to 8.50 after the course.

When participants were asked "how can you see yourself using what you learned in the course?", 15.97% stated they would be "starting a school-wide pollinator project", 17.65% said "starting class pollinator project", and 21.85% "applying pollinator-friendly techniques in [their] yard or home garden".

When asked 'what is the best thing about this class?', participants comments included:

"I absolutely loved everything about this course. I especially love the activities that can be used immediately and easily in the classroom. I also appreciate the videos that I can share with my class as well."

"This course was friendly to adult learning, easy to navigate, and the resources were amazing!"

"Bee A Friend to Pollinators: Pollinator Education & Agricultural Literacy for SC Educators" is the first Clemson Extension professional development course to receive the Quality Matters (QM) certification. QM™ standards and review processes are recognized nationally and internationally for being supported by research and based on best practices.