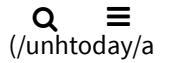




# NEWSROOM (//WWW.UNH.EDU/UNHTODAY/NEWS)



## UNH Scientists Develop Wildflower Mixes and Strategies to Support State's Native Pollinators

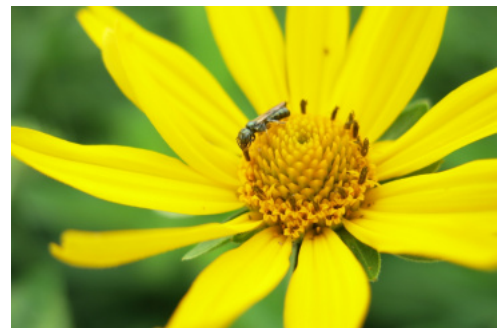
Monday, July 2, 2018

(HTTPS://WWW.UNH.EDU/UNHTODAY/NEWS/2018/07/02/UNH-SCIENTISTS-DEVELOP-WILDFLOWER-MIXES-AND-STRATEGIES-TO-SUPPORT-STATES-NATIVE-POLLINATORS)

DURHAM, N.H. – Scientists with the New Hampshire Agricultural Experiment Station at the University of New Hampshire have developed a list of the most beneficial wildflowers to plant to support the state's native wild bees in response to the interest of Granite State land owners, property managers, farmers, and landscapers.

“The interest in helping pollinators has been astounding,” said researcher Cathy Neal. “There are literally hundreds of pollinator gardens and habitats that have been installed in New Hampshire alone in the last few years.”

Neal has conducted nearly 10 years of wildflower meadow trials at the Woodman Horticultural



NEAL HAS CONDUCTED NEARLY 10 YEARS OF WILDFLOWER MEADOW TRIALS AT THE EXPERIMENT STATION'S WOODMAN HORTICULTURAL RESEARCH FARM. CREDIT: CATHY NEAL/UNH

Research Farm. She has found that wildflower meadows comprised of a mixture of herbaceous perennials such as golden rod, asters, black-eyed Susans, bergamot, coneflowers and potentially many more, are extremely valuable places for bees to forage for food. The New Hampshire wildflower mix is ideal for medium to dry soils in full sun. Neal has also evaluated different seeding rates, to find the optimal balance between wildflower density and cost, since wildflower seed is expensive.

“The more species of wildflowers we can pack in, the better, with the goal being to have something in bloom for the bees from May through late October,” said Neal, who also is a horticulture specialist with UNH Cooperative Extension.

Pollinators are essential for most of the fruit and vegetable crops produced in New England. The value of pollination to agriculture is estimated at more than \$200 billion a year worldwide. However, the abundance of and diversity of pollinators are declining in many agricultural landscapes across the United States.

In addition, maintaining a robust and diverse natural environment also requires healthy populations of pollinators. New Hampshire has a rich diversity of native bees (<https://colsa.unh.edu/nhaes/article/2016/05/nhbees>) that provide pollination services, often more efficiently than managed colonies of honey bees. However, habitat loss associated with development is one of the leading threats to pollinators. Neal's research focuses on how to best provide safe habitat and a healthy food supply for native bees in gardens, fields, and neighborhoods.

According to Neal, the first step to starting a meadow from seed is to eliminate existing vegetation since non-native, spreading grasses are the biggest challenge to wildflower establishment. This can be done several ways: use of a non-selective herbicide, which is most effective; covering with black plastic for the whole summer; covering with clear plastic; or repeated tilling. Covering with black plastic in the summer following by fall seeding was proven to be nearly as effective as herbicide use.

"Even with the best practices, establishing a wildflower intensive meadow is a three-year process," she said. "With the first year spent on site preparation, the second season will produce green seedlings but few flowers. Weeds such as crabgrass are apt to dominate so a mid-summer mowing is often essential. The third year is when you – and the bees – finally see the results of your efforts, with a sequence of colorful blooms emerging from tall, robust plants. Once established, a dense, diverse meadow requires virtually no inputs such as irrigation, fertilization or pest control."

Neal's meadow plots at the farm range from one to nine years old. With the help of student assistants, she continues to inventory and evaluate them several times each year, keeping records on how the species and weed competitors change over time. Some of the early species such as black-eyed Susan and lanceleaf coreopsis, do not persist once more competitive species such as New England aster, bergamot, and perennial sunflowers grow in.

More recently, Neal has been evaluating the relative attractiveness of new varieties of old standards such as purple coneflower, a common garden perennial. It appears that the breeding process, which has resulted in hundreds of novel forms and colors of coneflowers, has inadvertently reduced the incentives for bees to visit them. Bees also have divergent preferences.

"Watching the evolution of the meadow and monitoring bee species to determine the best 'bang for the buck' when investing in a wildflower meadow, continues to bring surprises and generate new ideas," she said.

For more information on establishing a wildflower meadow, visit <https://extension.unh.edu/tags/wildflower-meadows> (<https://extension.unh.edu/tags/wildflower-meadows>).

This material is based upon work supported by the NH Agricultural Experiment Station, through joint funding of the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 1010449, and the state of New Hampshire.

Founded in 1887, the NH Agricultural Experiment Station (<http://colsa.unh.edu/nhaes>) at the UNH College of Life Sciences and Agriculture (<http://www.colsa.unh.edu/aes>) is UNH's original research center and an elemental component of New Hampshire's land-grant university heritage and mission.

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Neal has conducted nearly 10 years of wildflower meadow trials at the experiment station's Woodman Horticultural Research Farm. She has found that wildflower meadows comprised of a mixture of herbaceous perennials such as golden rod, asters, black-eyed Susans, bergamot, coneflowers and potentially many more, are extremely valuable places for bees to forage for food. Credit: Cathy Neal/UNH

<https://colsa.unh.edu/nhaes/sites/default/files/media/images/echinaceacomparisons.jpg>  
(<https://colsa.unh.edu/nhaes/sites/default/files/media/images/echinaceacomparisons.jpg>)

Neal has been evaluating the relative attractiveness of new varieties of old standards such as purple coneflower, *Echinacea purpurea*, a common garden perennial.

Credit: Cathy Neal/UNH

<https://colsa.unh.edu/nhaes/sites/default/files/media/images/seedrateplots.jpg>

(<https://colsa.unh.edu/nhaes/sites/default/files/media/images/seedrateplots.jpg>)

Neal's meadow plots at the Woodman Horticultural Research Farm now range from one to nine years old. Credit: Cathy Neal/UNH

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