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Pollinator Peril Rutgers Researchers Tracking Decline in Crop Yields

A native, wild bee, Bombus spp, pollinates blueberry flowers in a New Jersey field.

A team of researchers led by Rutgers scientists has analyzed crop yields of more than 1,500 fields on six continents, and found that production worldwide of important, nutritionally dense foods such as fruits, vegetables, nuts and legumes is being limited by a lack of pollinators. The results, published in *Nature Ecology & Evolution*, showed that across diverse crops and locations, one-third to two-thirds of farms contain fields that aren't producing at the levels they should be due to a lack of pollinators. The phenomenon of a low crop yield because of insufficient visits by insects is known as pollinator limitation. The study is especially timely given recent concern about global declines in insect abundance. This study doesn't apply to major food crops, such as rice and wheat, which don't require pollinators to reproduce. Pollinators support the reproduction of about 88 percent of the world's flowering plants and 76 percent of the leading global food crops, according to previous research by Rutgers professor **Rachael Winfree** and other scientists. Bees are generally considered the most effective pollinators because they visit more flowers and carry more pollen than other insects.

Legislative Tour in Gloucester and Salem Counties

Michelle Infante-Casella, agricultural agent and department head, RCE of Gloucester County, collaborated with the Gloucester County Board of Agriculture and the Salem County Board of Agriculture on a legislative tour of farms in both counties on August 14. Tours were conducted at Lucas Greenhouses, Myerwood Dairy, ZRH Vegetable Farm, and Salem Oak Winery. In attendance were Assemblyman William Spearman Chair of the Economic Development, Commerce and Agriculture Committee, Assemblywoman Heather Simmons, Assemblyman Dave Bailey along with several legislative aides. Secretary of Agriculture Ed Wengryn and staff also attended, along with multiple stakeholders, including NJ State Board of Agriculture (SBOA) President Bob Blew and SBOA member Joel Viereck; Past President of the Gloucester County BOA and Treasurer of VGANJ James Rambo; New Jersey Farm Bureau (NJFB) President Allen Carter, NJFB Field Representative Ben Casella, and NJFB Executive Director Peter Furey. Rutgers Cooperative Extension Director **Brian Schilling** participated in this successful engagement tour organized by Rachel Sickler of the Salem County BOA.

"Beat the Heat" Educational Series

The Rutgers Farm Health and Safety Working Group provided timely education and outreach on the topic of "Heat Stress for Agricultural Workers." One vital tool in making the information accessible to the agricultural community was the "Beat the Heat" series of articles published on the Plant and Pest Advisory website by county agricultural agents who comprise the group: **Kate Brown** (Somerset), **Stephen Komar** (Sussex), **Michelle Infante-Casella** (Gloucester) and **William Bamka** (Burlington). Winter educational events on this topic are bring planned for the 2025 NJ Agricultural Convention.

Of Interest

The following new and updated fact sheets and bulletins are available on NJAES Publications:

E296: Agricultural Management Practices for Commercial Equine Operations
Williams, C. and **Westendorf, M.**

FS1244: Cooking with Kids in the Garden
Quilty, B. and **Hughes, L.**

FS1359: Soil Health: Purpose and Management
Murphy, S. and **Giménez, D.**

FS1360: SNAP Promotion in Schools
Aamer, Z., Kairios, R., and **Salt Taylor, J.**

FS917: Llamas and Alpacas
Westendorf, M. and **Stahl, T.**

Grants

Andrea Gallavotti, professor in the Department of Plant Biology and the Waksman Institute of Microbiology, is the principal investigator of a three-year project, "Collaborative Research: PlantTransform: Morphogenic-based mechanisms of maize regeneration," funded at $1,088.678 by the National Science Foundation. The research will focus on how certain proteins called morphogenic factors can reprogram differentiated cells into forming new maize plants. This is important to improve our ability to rapidly modify plant genomes for generating crops resilient to environmental changes.

Beverly Tepper, professor in the Department of Food Science, is principal investigator on the USDA Specialty Crop Block Grant – USDA-AMS-TM-SCBGP-G-22-0003 – "Growing the New Jersey Wine Industry: Rutgers Grape & Wine Science Certificate Program, 2022–2025," funded at $40,000. The grant supports the certificate program that provides foundational knowledge in grape growing and vineyard management, wine production and operations, and wine marketing through classroom instruction, hands-on workshops and networking with working professionals. The program addresses two critical needs in NJ: to fill current openings in the industry for entry-level workers and to attract new entrepreneurs who wish to develop new grape farming and wine production businesses.

Don Schaffner, Distinguished Professor and Extension Specialist, and Chair of the Department of Food Science, is the principal investigator of the Food Microbiology Risk Reduction project funded at $214,429 by Rutgers Dining Services. This project collects data used by risk managers to assure the safety of foods served in Rutgers University dining halls and cash operations.

RCE Water Resources Program was awarded $35,000 from the New Jersey Sea Grant Consortium (NJSGC) for the continuation of the Sea Grant Extension Program that provides science-based information about marine resources to the public and local communities. The grant period is February 1, 2024, to January 31, 2025. NJSGC funding is made possible by the National Oceanic and Atmospheric Administration, which released full funding to the consortium for the 2024–2025 award year.