Food Security

PHOTO: University of Guam Western Pacific Tropical Research Center

Advancing sustainable food production in soilless environments

Land-grant universities across the nation are working to make the food supply more secure by exploring the best ways to produce crops without soil. Hydroponic and aquaponic systems have many benefits, including reducing the inputs and space needed to produce food. Researchers are studying how to make the foods grown in these controlled environments safer and better. Extension personnel are taking the message to the public, helping them learn to implement these soilless systems.

Here are a few examples of that work:

- In an effort to boost local food production in **Guam**, researchers are studying aquaponics, a system that produces both plants and fish as food while using 90% less water than traditional agriculture. Researchers are evaluating three approaches to aquaponics that use different equipment setups to determine which methods are most efficient, affordable and durable. *University of Guam Western Pacific Tropical Research Center; Hatch. See full statement.*
- Leafy greens like lettuce can be grown in hydroponic systems, but are especially vulnerable to pathogen contamination and disease. In **Ohio**, researchers studied microbial dynamics in hydroponic systems and identified beneficial microbial species that promote plant health and mitigate disease and food safety risks. *Ohio Agricultural Research and Development Center; Other USDA competitive. See full statement.*
- **Nevada** Extension educators are teaching residents of areas with limited access to healthy foods about hydroponic vertical farming, which is a way to cultivate high-value, nutrient-dense greens and herbs without soil. The indoor farm facility is open to tours and features a model hydroponic system that beginner producers can easily reproduce at home using supplies from a hardware store. *University of Nevada Cooperative Extension; Other USDA capacity – Extension, Integrated. See full statement.*

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The National Land-grant Impacts Database (NIDB) documents the individual and collective impacts of the national Land-grant University System of joint research, education and Extension. Much of this work is supported by capacity and competitive funds through the USDA's National Institute of Food and Agriculture.

This document was prepared by the NIDB communications team. The Association of Public and Land-grant Universities' Board on Agriculture Assembly manages the NIDB.

APLU Board on Agriculture Assembly

USDA National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

02/2025

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- Extension professionals in **Texas** offered training to underserved producers on innovative soilless growing systems. The initiative is important as urban and rural producers alike cope with soil limitations due to natural disasters such as flooding and wildfires, which affect their productivity and profitability. *Prairie View A&M Cooperative Extension Program; Other USDA capacity – Extension. See full statement.*