

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Agricultural Research Magazine

U.S. Department of Agriculture: Agricultural
Research Service, Lincoln, Nebraska

4-2012

Table of Contents April 2012 *Agricultural Research Magazine*

Follow this and additional works at: <https://digitalcommons.unl.edu/usdaagresmag>



Part of the [Agriculture Commons](#), [Animal Sciences Commons](#), [Food Science Commons](#), and the [Plant Sciences Commons](#)

"Table of Contents April 2012 *Agricultural Research Magazine*" (2012). *Agricultural Research Magazine*. 142.

<https://digitalcommons.unl.edu/usdaagresmag/142>

This Article is brought to you for free and open access by the U.S. Department of Agriculture: Agricultural Research Service, Lincoln, Nebraska at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Agricultural Research Magazine by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Agricultural Research is published 10 times a year by the Agricultural Research Service, U.S. Department of Agriculture (USDA). The Secretary of Agriculture has determined that this periodical is necessary in the transaction of public business required by law.

Tom Vilsack, Secretary
U.S. Department of Agriculture

Catherine E. Woteki, Under Secretary
Research, Education, and Economics

Edward B. Knipling, Administrator
Agricultural Research Service

Sandy Miller Hays, Director
Information Staff

Editor: **Robert Sowers** (301) 504-1651

Associate Editor: **Sue Kendall** (301) 504-1623

Art Director: **BA Allen** (301) 504-1669

Photo Editor: **Tara Weaver-Missick** (301) 504-1663

Staff Photographers:

Peggy Greb (301) 504-1620

Stephen Ausmus (301) 504-1607

Most information in this magazine is public property and may be reprinted without permission (except where copyright is noted). Non-copyrighted articles and high-resolution digital photos are available at ars.usda.gov/ar.

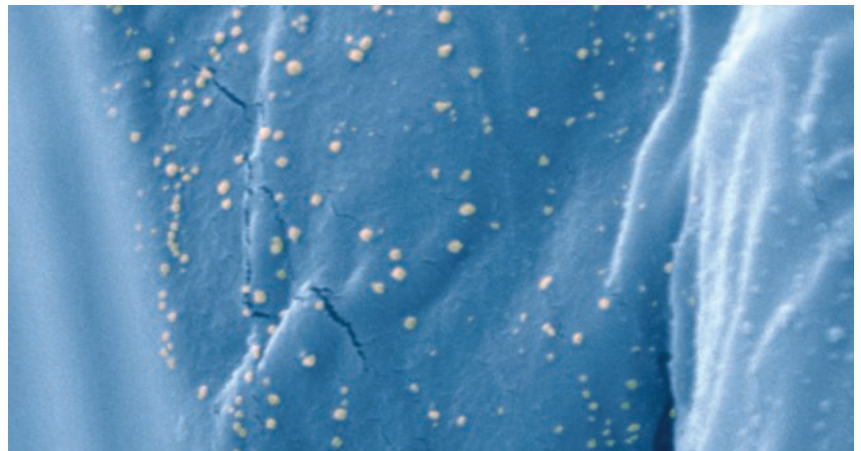
Paid subscriptions are available from the U.S. Government Printing Office (Superintendent of Documents). See back cover for ordering information. Complimentary 1-year subscriptions are available directly from ARS to public libraries, schools, USDA employees, and the news media. Call (301) 504-1638 or e-mail armag@ars.usda.gov.

This magazine may report research involving pesticides. It does not contain recommendations for their use, nor does it imply that uses discussed herein have been registered. All uses of pesticides must be registered by appropriate state and/or federal agencies before they can be recommended.

Reference to any commercial product or service is made with the understanding that no discrimination is intended and no endorsement by USDA is implied.

The USDA prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

PHOTO BY SUNGHYUN NAM, COLORIZED BY STEPHEN AUSMUS (D2468-1)



Scanning electron microscope image of silver nanoparticles on the surface of cotton. The silver helps cotton fabric resist microbial growth. Magnification about 12,000x. [Story begins on page 14.](#)

- 4** A Bit of Gold and Nanotechnology Bring Viruses to Light
- 6** Digital Detectives Decipher Ingredients
- 8** SERS: High-Tech Tactic May Newly Expose Stealthy *Salmonella*
- 10** What's in Your Blood? The Ongoing Hunt for Metabolites
- 12** Protein Biomarkers Identify Disease-Carrying Aphids
- 13** A New Approach to Molecular Plant Breeding
- 14** Cotton Gets Nanotech and Biotech Treatment in New Orleans
- 16** Barcoding Insects To Control Them
- 18** Metagenomics Offers Insight Into Poultry Diseases
- 20** Longstanding Erosion Calculator Enters 21st Century
- 23** Locations Featured in This Magazine Issue



Cover: At ARS's Food Composition and Methods Development Laboratory, in Beltsville, Maryland, postdoctoral associate Jianghao Sun prepares for HPLC/MS analysis of extracts from teas and supplements made from teas. The purpose is to evaluate the differences in the ingredients in the teas and supplements. Story begins on page 6. Photo by Peggy Greb. ([D2473-2](#))