

U.S. Department of Agriculture

Agricultural Research Service

October 2009

Agricultural Research

**Advances in sheep
breeding, p. 6**



Agricultural Research Service

Solving Problems for the Growing World

October 2009
Vol. 57, No. 9
ISSN 0002-161X

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

Rajiv Shah, 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: William Johnson	(301) 504-1659
Photo Editor: Anita Daniels	(301) 504-1609
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 on the World Wide Web 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, audiotape, 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.

Agricultural Research

Solving Problems for the Growing World

- 4 Breeding and Genetic Change in the Holstein Genome**
- 6 New Ultrasound and Artificial Insemination Techniques Improve Sheep Breeding**
- 8 Ornaments To Brighten Garden Palette**
- 9 Biofilms Have a New Foil**
- Using Doppler Ultrasound To Understand Fescue Toxicosis**
- 10 Working After Hours: A Nighttime View of Insect Predation**
- 12 Closing In on a Citrus Killer: Huanglongbing, the Citrus Greening Disease**
- 14 Hardy New Corn Lines Resist Toxic Fungi**
- 16 Squeezing More Corn and Wheat Out of Each Scarce Drop of Water**
- 18 Sweetpotatoes Pack Potent Protection**
- "Seeing" Poultry Carcass Contamination**
- 19 Why Rye Cover Crops Are Great Natural Weed Killers**
- 20 Kids, Fast Food, & Obesity: Menu Reviews From a Houston Pediatrician**
- 22 Bacterium Identified as Prime Suspect in Zebra Chip Case**
- 23 Science Update**

Cover: Ewes and lambs on a pasture at the University of Wyoming Livestock Farm in Laramie. Recent research by ARS may make artificial insemination of sheep easy enough for producers to tackle on their own. Story begins on page 6. Photo by Stephen Ausmus. (D1656-47)

IN THE NEXT ISSUE

AGRICULTURE AND GLOBAL CHANGE—We've all heard the term "global warming." But warming trends are only part of the picture. The next issue of *Agricultural Research* takes a broader look at what's referred to as "global change" and the role agriculture plays in it. For example, agricultural activities can mitigate carbon dioxide emissions or increase nitrous oxide emissions. Grazing can enhance or harm rangelands, depending on how it's done. And the plants we cultivate may grow more or less vigorously under certain atmospheric conditions. It's a vast and complicated puzzle, but ARS is adding pieces to it all the time.