



United States Department of Agriculture National Institute of Food and Agriculture



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NIFA invests in and advances agricultural research, education, and extension and promotes transformative discoveries that solve societal challenges. | [www.nifa.usda.gov](http://www.nifa.usda.gov)

# Biosecurity to Protect America's Food and Agricultural System

Tactical science programs protect the integrity, reliability, sustainability, and profitability of the U.S. food and agricultural system against threats from pests, diseases, contaminants, and disasters. It is necessary to mitigate the threats posed by these foreign and emerging constraints to our nation's economy and food supply. NIFA is committed to supporting programs that provide readily available, science-based tactics to help prevent, prepare for, detect, respond to, and recover from known and emerging threats.

## Ag Grows the Economy



**\$992B**

The amount of money the agriculture industry contributed to the U.S. GDP in 2015.

**21M**

Jobs filled by the agriculture industry in 2015.



**EXPORTS GENERATE A SURPLUS IN U.S. AGRICULTURAL TRADE**

## Examples of Threats to our Food Supply



### PORCINE EPIDEMIC DIARRHEA VIRUS

\$900M to \$1.8B annual estimated cost to the pork industry



### CITRUS GREENING DISEASE

\$4.5B cost to the citrus industry from 2006-2010



### HIGHLY PATHOGENIC AVIAN INFLUENZA

\$3.3B cost to the poultry industry in 2015



### SPOTTED WING DROSOPHILA

Up to \$718M in costs due to strawberry, raspberry, blackberry, and blueberry losses annually



## Tactical Science Programs

### Programs that Enable America to Act with Immediacy in the Face of Disaster

- Crop Protection/Pest Management Program (CPPM) ■■■■
- Extension Disaster Education Network (EDEN) ■■■■
- Food Animal Residue Analysis Database (FARAD) ■■■■
- National Animal Health Laboratory Network (NAHLN) ■■■■
- National Plant Diagnostic Network (NPDN) ■■■■
- Minor Crop Pest Management Program (IR-4) ■■■■
- Minor Use Animal Drug Program (NRSP-7) ■■

- Prevents
- Prepares
- Detects
- Responds
- Recovers



## RECENT EXAMPLES OF SCIENCE-BASED TACTICS TO PROTECT OUR FOOD SUPPLY

1

Development and deployment of the biopesticide HopGuard II to manage Varroa mite to protect honey bees

2

Integrated pest management methods have increased the safety of pest management strategies while protecting our food supply

3

Development of novel approaches to manage livestock diseases and thus protect availability of antimicrobials for public health

NIFA's Partnership with the Land-grant University and Cooperative Extension System: Boots on the ground translating research to protect our food supply

Congressional funding

Administration of federal funds by NIFA

Land-grant universities use federal plus matching state and local funds to manage extension programs

Extension professionals translate knowledge to meet the unique needs of communities across America

Extension professionals are integrated within more than 3,000 counties and county equivalents across all U.S. states, districts, and territories. These professionals are often the first line of defense in reporting new pest and disease threats and implementing solutions.

**SOURCES:** Ag and Food Sectors and the Economy. [www.ers.usda.gov](http://www.ers.usda.gov). | eFly Working Group. (2015). <http://swd.ces.ncsu.edu/swd-impacts-2014/> | Greene, Joel L. (2015). Update on the Highly-Pathogenic Avian Influenza Outbreak of 2014-2015. *Congressional Research Service*. | Hodges, Alan W. and Spreen, Thomas H. (2012). Economic Impacts of Citrus Greening (HLB) in Florida, 2006/07 – 2010/11. *University of Florida Institute of Food and Agricultural Sciences*. <http://ufdc.ufl.edu/IR00005615/00001> | Paarlberg, Philip L. (2014). Updated Estimated Economic Welfare Impacts of Porcine Epidemic Diarrhea Virus (PEDv). Purdue University, Department of Agricultural Economics, Working Paper #14-4. | U.S. Agricultural Trade. [www.ers.usda.gov/topics/international-markets-trade/us-agricultural-trade/](http://www.ers.usda.gov/topics/international-markets-trade/us-agricultural-trade/)

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