ARS National Research Programs for Emerging Diseases

s the U.S. Department of Agriculture's in-house research agency, the Agricultural Research Service (ARS) is regularly called on to find ways of dealing with emerging and reemerging diseases that afflict livestock, poultry, and plants.

Billions of dollars are lost through trade embargoes, quarantines, and destruction of livestock and crops when emerging or reemerging diseases strike. Costs to treat or stop these diseases rise exponentially after they become widespread.

ARS takes a coordinated approach to research in emerging diseases, using a wide array of techniques, from studying signs of infection to building a genomic library of a disease-causing agent. Research on emerging diseases in livestock and poultry falls under the ARS national programs Animal Health (www.ars.usda.gov/animalhealth); and Veterinary, Medical, and Urban Entomology (www.ars.usda.gov/vmue). Emerging-disease research in plants comes under the national program Plant Diseases (www.ars.usda.gov/plantdisease).

For emerging diseases to be effectively prevented and controlled, one of the most important steps is to understand the biology and ecology of the pathogens that cause them. Then scientists can seek weaknesses to exploit that will help solve the problem that a new disease presents.

Developing rapid, sensitive diagnostic tests, creating new vaccines and immunization strategies, discovering disease-resistance genes, and creating production practices that short-circuit a disease are all critical components of ARS's response to a new or reemerging disease.

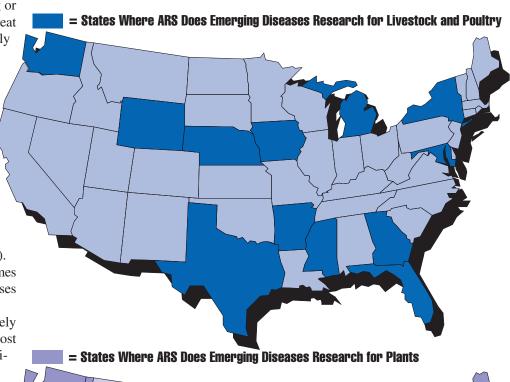
One of ARS's greatest strengths is its ability to assemble a team and begin essential research on a problem. This can involve pulling together experts from a wide variety of scientific disciplines, which ARS usually already has on staff. Research projects can be quickly planned and implemented for a fast turnaround, which is often a crucial part of responding to an emerging disease.

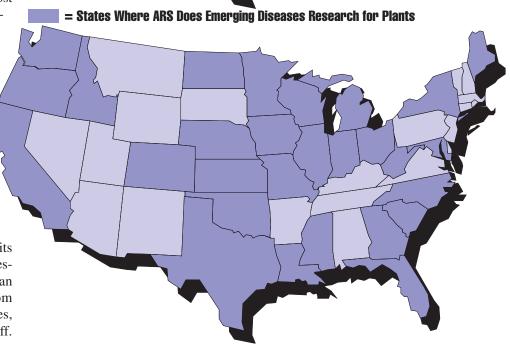
The agency also carries out research to support federal and state regulatory agencies, providing the basis for them to devise the best actions and procedures to handle a new disease problem.

ARS's research programs are directed

at solving the regional and national problems that a new livestock or crop disease represents, but the agency also becomes involved in international research. ARS seeks basic biological information about a pathogen or a control agent in the country of origin and acts as a responsible member of the international scientific community, advancing disease control for all countries. **

23





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