





The National Animal Health Laboratory Network.



- Is a group of State funded veterinary diagnostic labs that deal with diseases of animals including endemic, exotic, zoonotic, and emerging diseases
- Is a **partnership** between:
 - USDA (APHIS and CSREES)
 - AAVLD
 - NAHLN Laboratories



The purposes of NAHLN



- Early detection (targeted surveillance based on population density & risk)
- Rapid response (surge capacity to test outbreak samples)
- Appropriate recovery (large numbers of samples tested to show freedom)



Founding principles and features of NAHLN



- Standardized, rapid diagnostic techniques
- Secure communication, alert, reporting system
- Trained personnel, modern equipment
- Quality standards, proficiency testing
- Adequate facility biosafety/biosecurity levels
- Scenario testing



NAHLN Steering Committee



• APHIS NAHLN Coordinator – Barb Martin

NVSL Director – Beth Lautner

FADDL Chief – Acting Director

• CSREES NPL, Animal Agrosecurity – Mark Robinson

NPL, Veterinary Science – Gary Sherman

AAVLD Past President – Barb Powers

President – Grant Maxie

President Elect – David Steffen

• AAVLD Directors Alex Ardans

David Zeman

Lanny Pace

USAHA Ron Wilson

National Assembly Bob Hillman

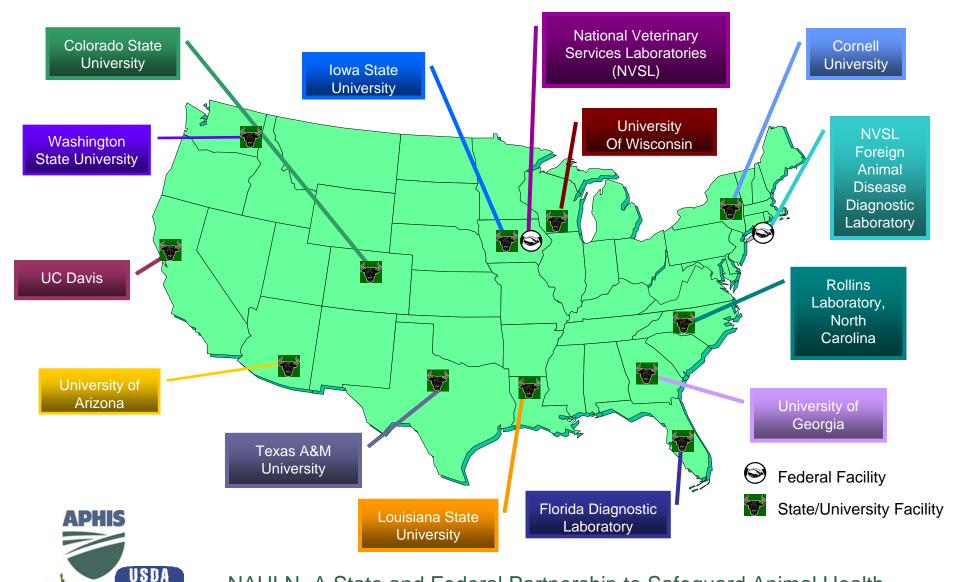
Jay Kammerzell



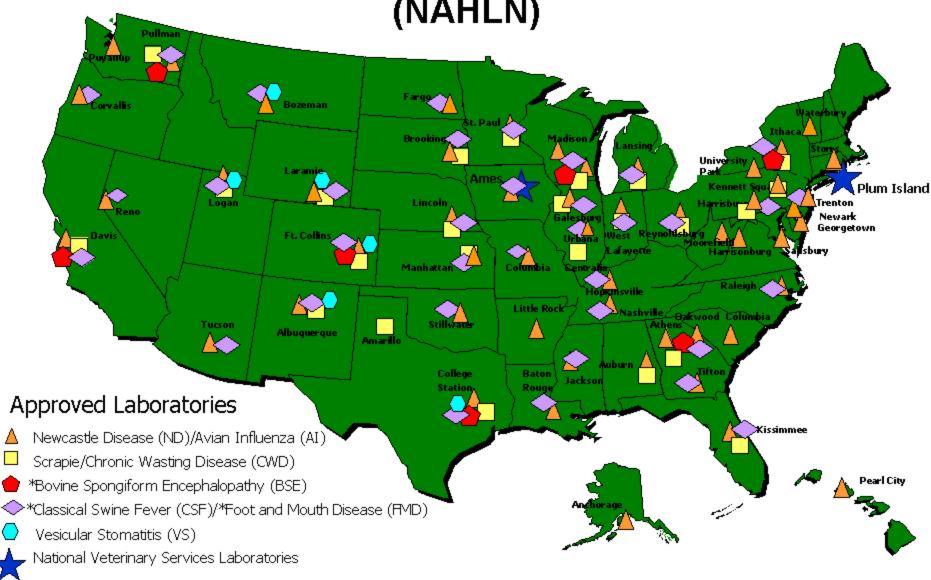
2002 - NAHLN Original Laboratories

∰ CSREES €





National Animal Health Laboratory Network (NAHLN)

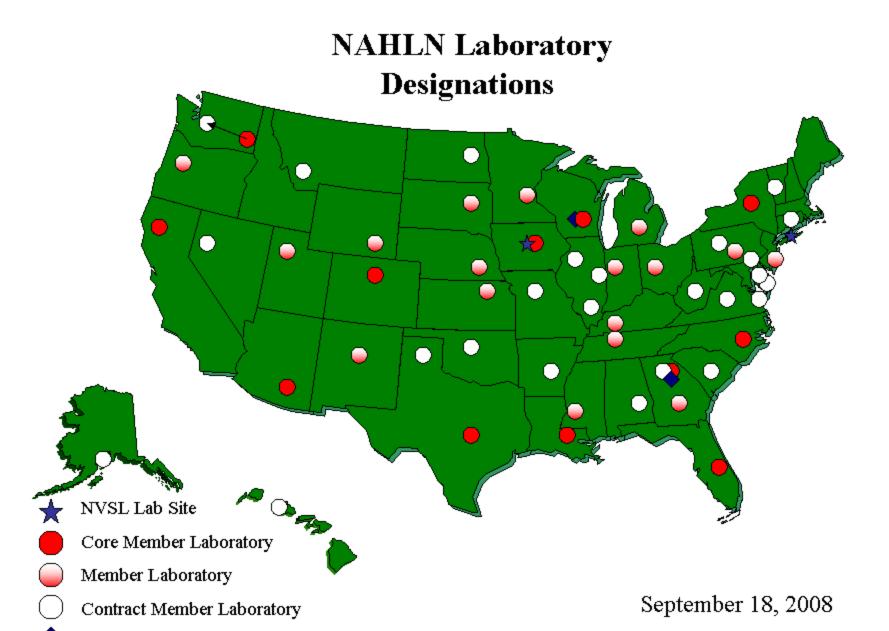


Designation of Laboratories in the NAHLN



- Core Member laboratory labs that are receiving significant infrastructure support and are conducting fee for service testing from USDA. This group currently includes the original 12 laboratories.
- **Member laboratory** labs that are receiving limited annual support from USDA for specific purposes and also perform fee for service testing. Currently there are 16 laboratories in this group.
- Contract Member laboratory labs that are performing fee for service testing for control of specific animal diseases ONLY.
- **Adjunct Member laboratory** labs that wish to be members of the NAHLN but whose primary mission is not domestic animal disease diagnostic work within the United States.





→ Members of a Laboratory System

Adjunct Laboratory



Surveillance Activities



AI and ND

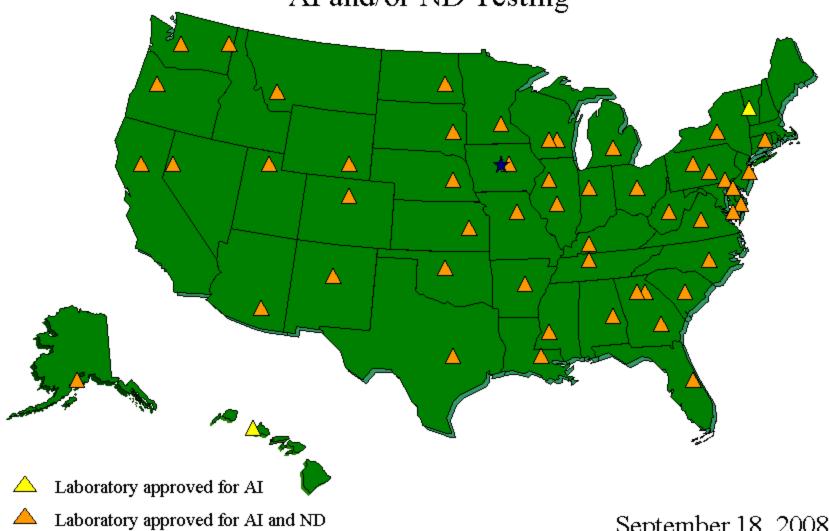


- Personnel from 54 laboratories trained and PT'd
- Conducting surveillance using rRT-PCR
 - Veterinary Services
 - Wildlife Services
- Inter and intra-agency coordination, communication and training





Laboratories Approved to Conduct AI and/or ND Testing



**National Veterinary Services Laboratories

September 18, 2008

CSF

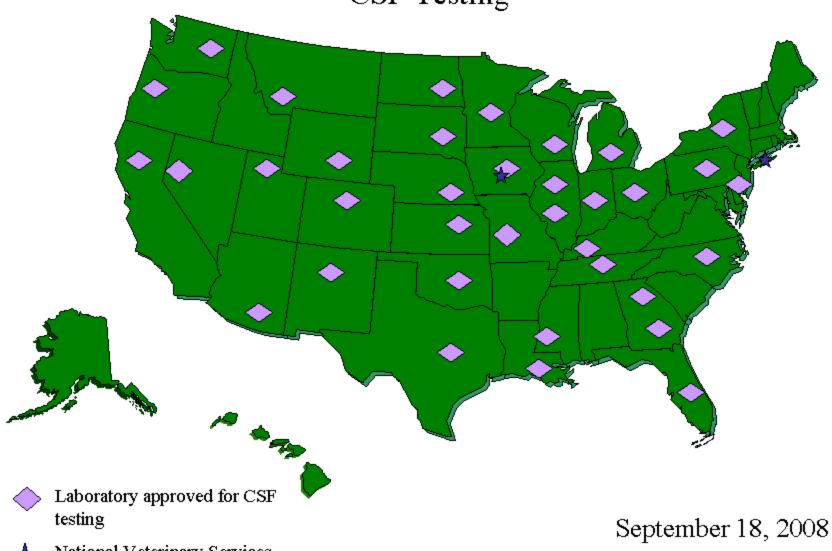


- Plan developed by National Surveillance Unit with stakeholder input
 - Target clinical signs, feral swine, slaughter condemned
 - All high risk states involved
- Implemented January 2006
 - >20,000 samples tested
 - 36 laboratories participating
- Data submission
 - Web based and electronic messaging





Laboratories Approved to Conduct CSF Testing



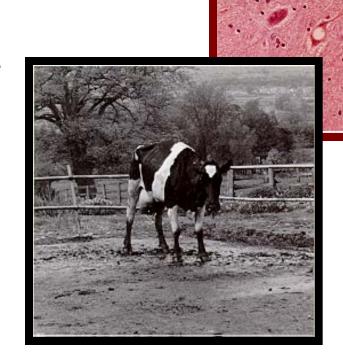
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National Veterinary Services Laboratories

BSE

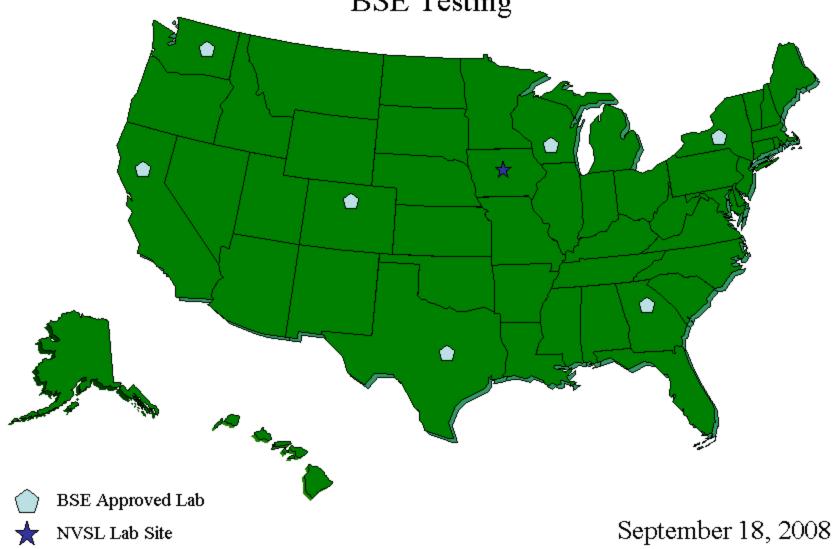


- Personnel from 7 laboratories trained and PT'd
- Enhanced surveillance
 - >850,000 samples tested since June 2004
- Maintenance surveillance
 - September 2006
 - 40,000 samples/year





Laboratories Approved to Conduct BSE Testing



CWD and Scrapie IHC

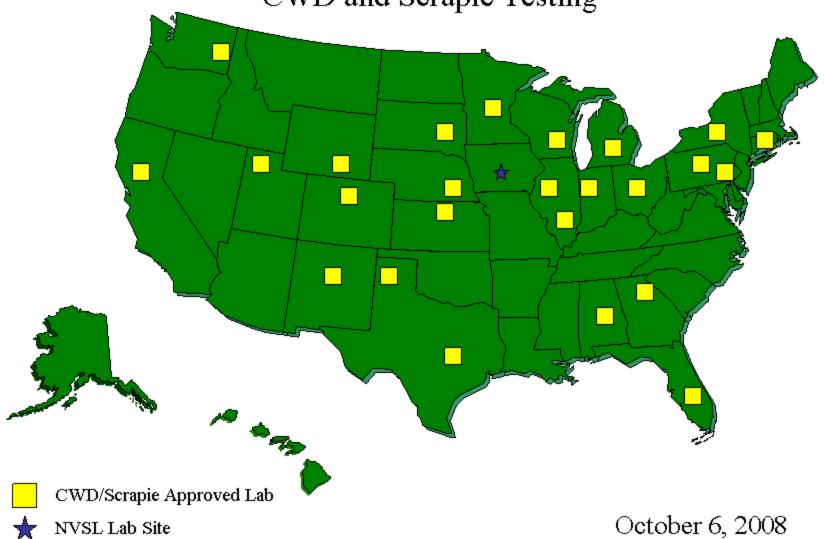


- Personnel from 24
 laboratories trained and
 PT'd
- >250,000 samples tested/year





Laboratories Approved to Conduct CWD and Scrapie Testing



Technology Development FMD real time PCR

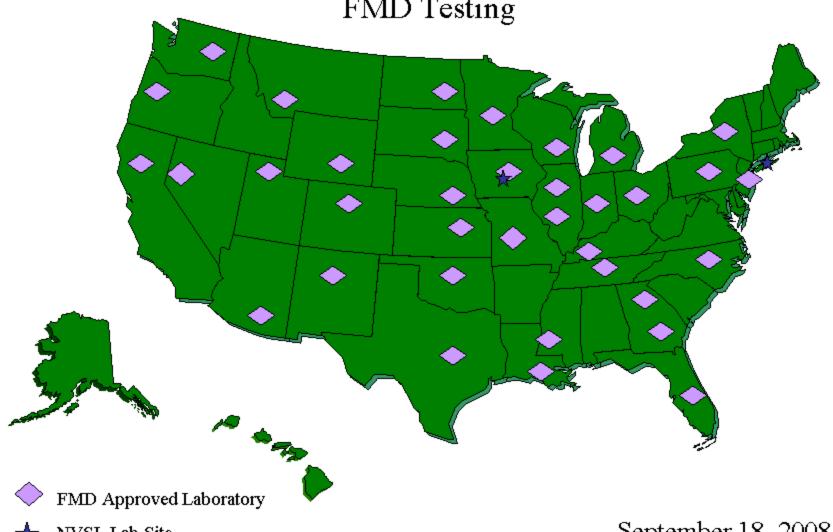


- Assay validated
 - Dossier review in 2007
- Personnel from 36 laboratories trained and PT'd
- Development of vesicular disease surveillance plan
- Use of assay in an outbreak situation





Laboratories Approved to Conduct FMD Testing





NVSL Lab Site

September 18, 2008

VSV

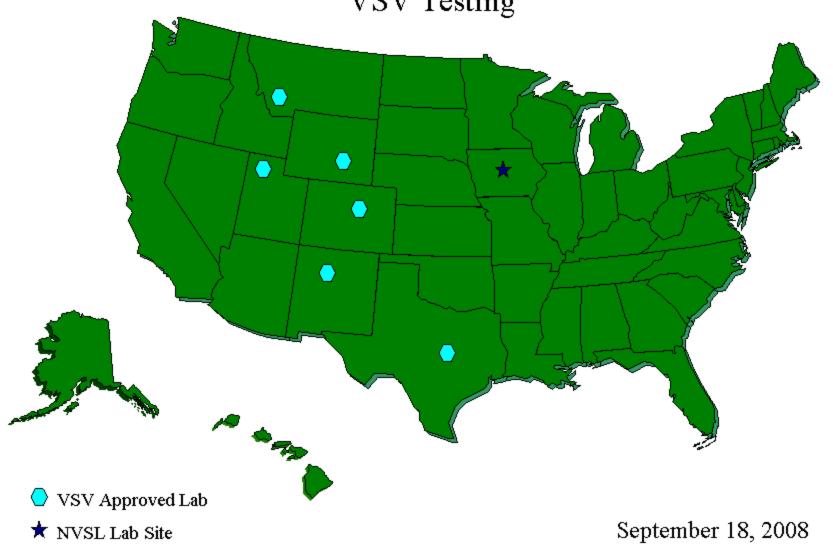


- Activated following confirmation of an outbreak
- Personnel from 6 laboratories trained and PT'd
- Equids only
- Serology CF test





Laboratories Approved to Conduct VSV Testing





NAHLN IT Systems



NAHLN IT Systems



- Establishing a system with data and messaging standards to ensure accurate and consistent diagnostic information is quickly and securely transmitted.
 - NAHLN IT CCB and CEAH
- Successful electronic test results messages sent by 25 labs
- Increased emphasis on electronic messaging
 - Cooperative agreements
 - Plan to increase the number of labs submitting results electronically
- NAHLN IT System Review will be conducted in 2008





Current Activities



NAHLN Symposia



- 2005 AAVLD/USAHA
 - NAHLN and QA
- 2006 AAVLD/USAHA
 - Laboratory Emergency Management
- 2007 AAVLD/USAHA
 - Validation of Diagnostic Assays
- 2008 AAVLD/USAHA
 - Emergency Response
- 2009 WAVLD
 - Implementation of Veterinary Diagnostic Networks



Train the Trainer



- Need to increase the number of people able to respond to an animal health emergency
- 2005 Activities
 - Implemented with CSF & FMD
 - Increased the number of trained labs from 12 to 28 and personnel from 24 to ≈100
- 2006 Activities
 - Incorporated AI & END
 - Cross training for PCR accepted across diseases
 - Interlaboratory Training
- 2007 Activities
 - Increase personnel trained and PT'd to ≈200
- 2008 Activities
 - High Throughput System Training



High Throughput Testing



AI Implementation Plan

- Double testing capacity in NAHLN
- Semi-automated high throughput equipment
 - 31 Systems
 - Distributed to laboratories
 - Equivalency of 96 well platform
 - CSF/FMD
- Training
 - KSU cooperative agreement
 - Manual developed
 - Pilot September 24-25, 2007



NAHLN Methods Technical Working Group



- Purpose to provide input on various aspects of methods validation and approval including:
 - Review of available methods and associated gaps
 - Identification of potential new technologies
 - Validation criteria
 - Dossier review
 - Assay approval process
 - Equivalency of modified methods or for adaptation to new platforms
 - Continual performance assessment of assays
 - Development of performance characteristic summary documents for NAHLN assays
 - Issues associated with transfer of existing and new technologies to laboratories



NAHLN Exercises and Response



- NAHLN Exercises and Drills Working Group
 - Formed September 2007
- Facilitated Tabletops
 - Focusing on laboratory issues with field input
 - Training and reusable tabletop exercise will be provided to each NAHLN lab
 - Beta testing to be initiated in February 2008
 - Iowa and Ohio
 - Regional presentations 2008
 - NAHLN labs
 - State Vets and State animal health officials
 - VS Field Staff and AVICS
 - Other interested groups



Modeling to Determine Diagnostic Capacity



- Data used
 - Current laboratory information
 - Location
 - BSL-2 and BSL-3 space
 - Trained personnel
 - Equipment
 - Animal populations
 - Risk
- Other uses for model
 - Prioritization need for new/remodeled laboratory space
 - Assistance development of policy concerning where samples will be tested



NAHLN Review



- March July 2007
 - VS, CSREES, AAVLD, State Vets, Industry representatives
 - Questionnaires and matrix developed
 - Telephone interviews (65 people)
 - Final report to NAHLN Steering Committee
- NAHLN as an overall concept
 - What were the initial objectives?
 - How well is NAHLN meeting those objectives?
 - What are the current objectives?
 - How well is NAHLN meeting those objectives?
 - What changes in objectives are needed?



NAHLN Review Report



- The initial objectives are appropriate and valid
- Significant progress has been made towards meeting those objectives
- Additional progress needed

Recommendations:

- 1. NAHLN Program Leadership, Management, and Organization
- 2. Laboratory Network Structure
- 3. Information Technology
- 4. Communication
- 5. Priority Agents
- 6. Laboratory Quality

Next steps:

NAHLN Steering Committee and Stakeholder input



Challenges



- Funding needed
 - \$300 \$400K/ year in 50 labs
 - \$20 M
 - IT support and maintenance
 - \$2 M
 - Reference lab (NVSL) support
 - \$3 M
 - Deployment of new assays
 - \$2 M
- Funding justification
 - Modeling with CEAH
 - Laboratory (space, trained personnel, equipment)
 - Animal populations
 - Risk



Successes of the NAHLN



- Strategically combines the infrastructure and expertise in the state veterinary diagnostic laboratories and the National Veterinary Services Laboratories.
- Established the animal health laboratory backbone of the United States emergency response and recovery program.
- Implemented national, standardized surveillance for high priority diseases.



Conclusions



- From 12 to 54 State/University veterinary diagnostic laboratories
- Surveillance for foreign animal diseases in State facilities
- Increased levels of coordination and collaboration
- Much remains to be accomplished
 - Increased infrastructure support needed
 - Strategic planning and growth
- Partnerships are key to the success of NAHLN!



NAHLN Information



- Brochure and Information Cards
- Posters
- Website:

http://www.aphis.usda.gov/animal_health/nahln

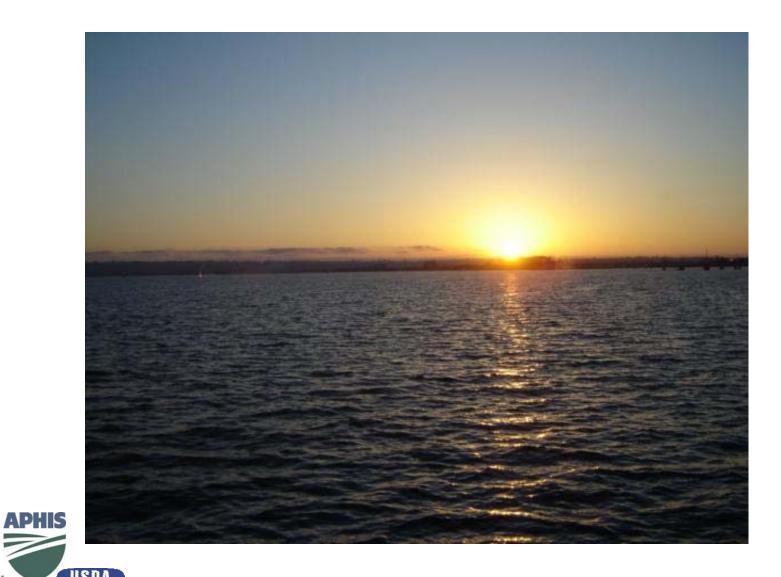
Contact information:

E-mail <u>nahln@aphis.usda.gov</u> or phone 515-663-7731



Questions?





NAHLN- A State and Federal Partnership to Safeguard Animal Health