



# NSHS

National Seed Health System

## US Phytosanitary System

- Can only be issued by USDA or USDA authorized agencies
  - ▣ Usually state departments of agriculture
  - ▣ In California, county agriculture commissioners
- Seed producers usually get a phyto in the state where the seed is held before shipping

# Creation of the NSHS

- Prior to development of the National Seed Health System only official state or federal seed labs could test seed for a phytosanitary certificate
  - ▣ Few standardized testing methods
  - ▣ Limited facilities doing seed health testing
- Needed a system to allow other labs or companies to perform seed testing

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## National Seed Health System Stakeholders

- USDA-APHIS-PPQ
- American Seed Trade Association
- Association of American Seed Control Officials
- Association of Official Seed Certifying Agencies
- National Plant Board
- Seed Science Center, Iowa State University

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# National Seed Health System

- Established by 7 CFR 353 in July 2001
- The NSHS specifies standards for laboratory seed health tests, seed sampling, visual inspection of seed and phytosanitary field inspections
- Results are used for issuing U.S. Phytosanitary Certificates

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## Three main objectives of the NSHS

- To develop standardized seed health laboratory test procedures, seed sampling procedures for laboratory seed health testing, visual inspections procedures, and phytosanitary field inspection procedures;
- To develop a process to accredit private and public entities to carry out the above mentioned activities
- To leverage this initiative as well as other international initiatives to promote international phytosanitary reform and foster fair and equitable trade.

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# Administration

- USDA-APHIS PPO
  - ▣ Accreditation Manager: Sarika Negi
  - ▣ National Seed Health Coordinator: Ed Podleckis
- Iowa State University
  - ▣ Maintains oversight functions of the accredited portion of the National Seed Health System on behalf of the Administrators of APHIS.
  - ▣ Co-director: Gary Munkvold
  - ▣ Co-director: Charlie Block
  - ▣ Administration Coordinator: Tracy Bruns

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# NSHS Structure

- Policy and Procedures Advisory Board (PPAB):
  - ▣ Comprised of 8 members that represent the major stakeholders
  - ▣ Primary body giving direction to the NSHS through recommendations to APHIS

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# Policy and Procedures Advisory Board

- Dr. Samantha Thomas, Monsanto (Chair)
- Dr. Wayne Wiebe, HM Clause (Industry member, ASTA)
- Dr. Scott Heuchelin, DuPont Pioneer (Industry member, ASTA)
- Doug Miller, IL Crop Improvement Association (AOSCA)
- Johnny Zook (AASCO)
- Deborah Meyer, CDFA/ National Plant Board (NPB)
- Ric Dunkle, American Seed Trade Assoc. (ASTA)
- Dr. Gary Munkvold, Iowa State University (non-voting member)
- Dr. Sarika Negi, USDA-APHIS PPO (non-voting member)

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## Administrative Unit

- Co-Directors:
  - Dr. Gary Munkvold, Professor of Plant Pathology
  - Dr. Charlie Block, Scientist
- Accreditation Coordinator:
  - Dr. Tracy Bruns
- Administrative Assistant:
  - Cindy Robertson

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# Accredited Entities

- ▣ Any public or private organization that meets the requirements for accreditation.
- ▣ Will be audited for ability to perform desired accreditations and maintain an effective quality management system.
  - On site audits are repeated at least every 3 years
- ▣ Will be allowed to perform only those seed health tests and/or phytosanitary inspection procedures for which they have been accredited.
  - See list of accredited groups & what they are accredited for at <http://www.seedhealth.org>

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## NSHS accredittees

- ▣ 23 accredited organizations
  - ▣ 8 private testing labs/inspection services
  - ▣ 9 seed companies
  - ▣ 4 crop improvement associations
  - ▣ 2 public seed testing labs

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# 4 categories of accreditation

- Seed Sampling for Seed Health Testing
  - ▣ 12 accredited
- Visual Inspection of Seed
  - ▣ 4 accredited
- Phytosanitary Field Inspection
  - ▣ 6 accredited
- Seed Health Testing
  - ▣ 13 accredited

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## Seed Sampling for Seed Health Testing

- Use American Association of Seed Control Officials (AASCO) sampling manual
- Sampling seeds that require laboratory seed health tests
- All samples for phytosanitary export must be sampled by NSHS certified lab personnel, or a state or federal official

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# Seed Sampling

- Specifies the number of samples that must be taken based on the size of the seed lot
- Instructs samplers on the size and type of equipment that is used for obtaining a sample

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## Visual Inspection of Seed for Phytosanitary Certification

- Done according to the USDA-APHIS Export Manual
- Visual inspection of seed shipments at exporter's facility prior to issuance of phytosanitary certificates.
- Inspections verify the seed type is correct, and check for noticeable shipping issues such as insects, damage, or soil peds.





# Phytosanitary Field Inspections

- Disease inspection of plants grown to produce seed in the field, nursery, or greenhouse.
- Inspected one or more times at appropriate intervals during the growing season.
- Seeds from fields that fail field inspections are often re-tested in the laboratory, if allowed by phytosanitary regulations



## Field inspection methods

- Inspection patterns
- Sampling and confirmation of diseases
- Must have written agreement with any 3<sup>rd</sup> party labs doing diagnosis of field samples
- Accredited groups must have disease ID materials for each crop

# Seed Health Testing

- Must use an accredited method
  - Currently 80 methods approved
- Tests can only be performed on validated seed species
- New methods are evaluated by technical review panels and voted on by PPAB

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## NSHS Policies

- How are seed health testing methods evaluated?
  - Peer review process:
    - Technical panel of experts formed for each disease
    - Review of protocol and validation data
    - Evaluation criteria defined by NSHS
    - Compared to existing methodologies
  - Technical Panel recommendation:
    - **Class A:** Method acceptable as a standard
    - **Class B:** Method needs further research before acceptance as a standard
    - **Class C:** Test should not be accepted as a standard
- PPAB votes on technical panel recommendation

# International Alignment

- Seed Health testing method evaluation criteria
  - 2016 international working group
    - NSHS
    - ISTA
    - ISHI
    - EPPO
    - APHIS
    - NAL
  - Assessment of procedures and criteria used by each group
  - Goal of move toward harmonization, especially between NSHS and ISHI

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# Accreditation Audits

- Done by NSHS trained personnel who are very familiar with the seed industry
- Include an on-site inspection of facilities, equipment and staff
- Quality Manual for the facility is reviewed in detail
- Done at least every 3 years, more frequently if needed

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# Accreditation Process

- Application and submission of quality manual and all associated documents
- Review of quality documents by administrative Unit
- Onsite audit covering all areas of accreditation, document review, facility review
- Audit reports filed with administrative unit and USDA-APHIS
- USDA-APHIS reviews audit reports, any quality documents needed and decides to grant or deny accreditation
- USDA issues documents of accreditation

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Questions?