

2005 Wisconsin Fertilizer, Agrilime and Pest Management Conference

The National Plant Diagnostic Network: Responding to New and Emerging Diseases

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THE NATIONAL PLANT DIAGNOSTIC NETWORK

CONCERNS FOLLOWING SEPTEMBER 11, 2001

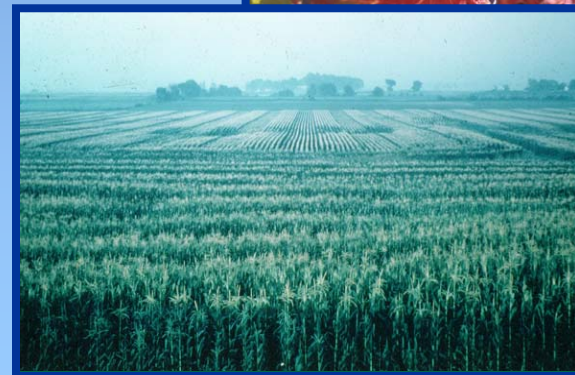
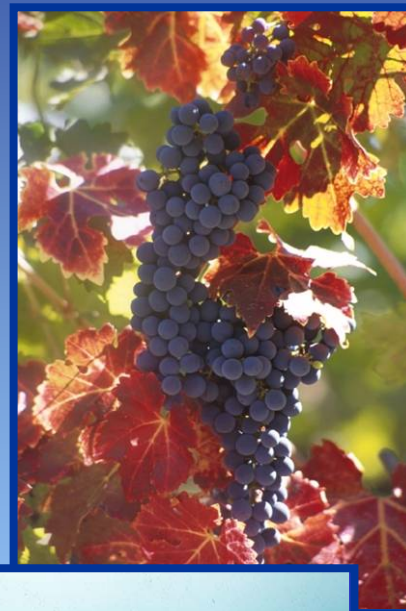
- *Possibility of agricultural bioterrorism and its impact on the health and economic value of crops in the US*
- *Deliberate or unintentional introduction of exotic pests*
 - *Soybean rust*
 - *Ralstonia wilt of geranium and potato*
 - *Karnal bunt of wheat*
 - *Soybean aphid*
 - *Purple loosestrife*



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ORIGINS OF THE NPDN

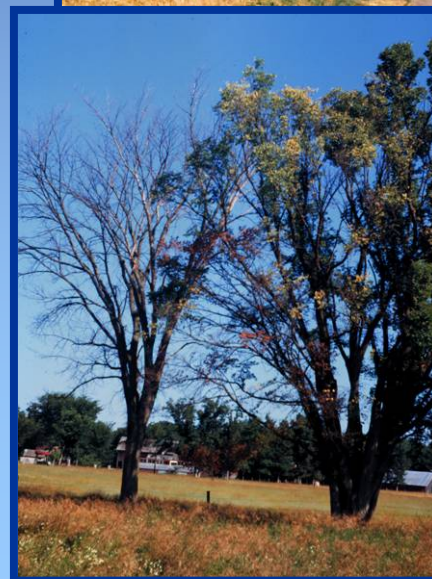
- *In June 2002, the Cooperative State Research, Education and Extension Service (CSREES) was charged by the Secretary of Agriculture with development of a network linking plant disease diagnostic facilities across the country in order to augment regulatory programs.*
- *Land grant university diagnostic laboratories were chosen as the backbone of the network.*



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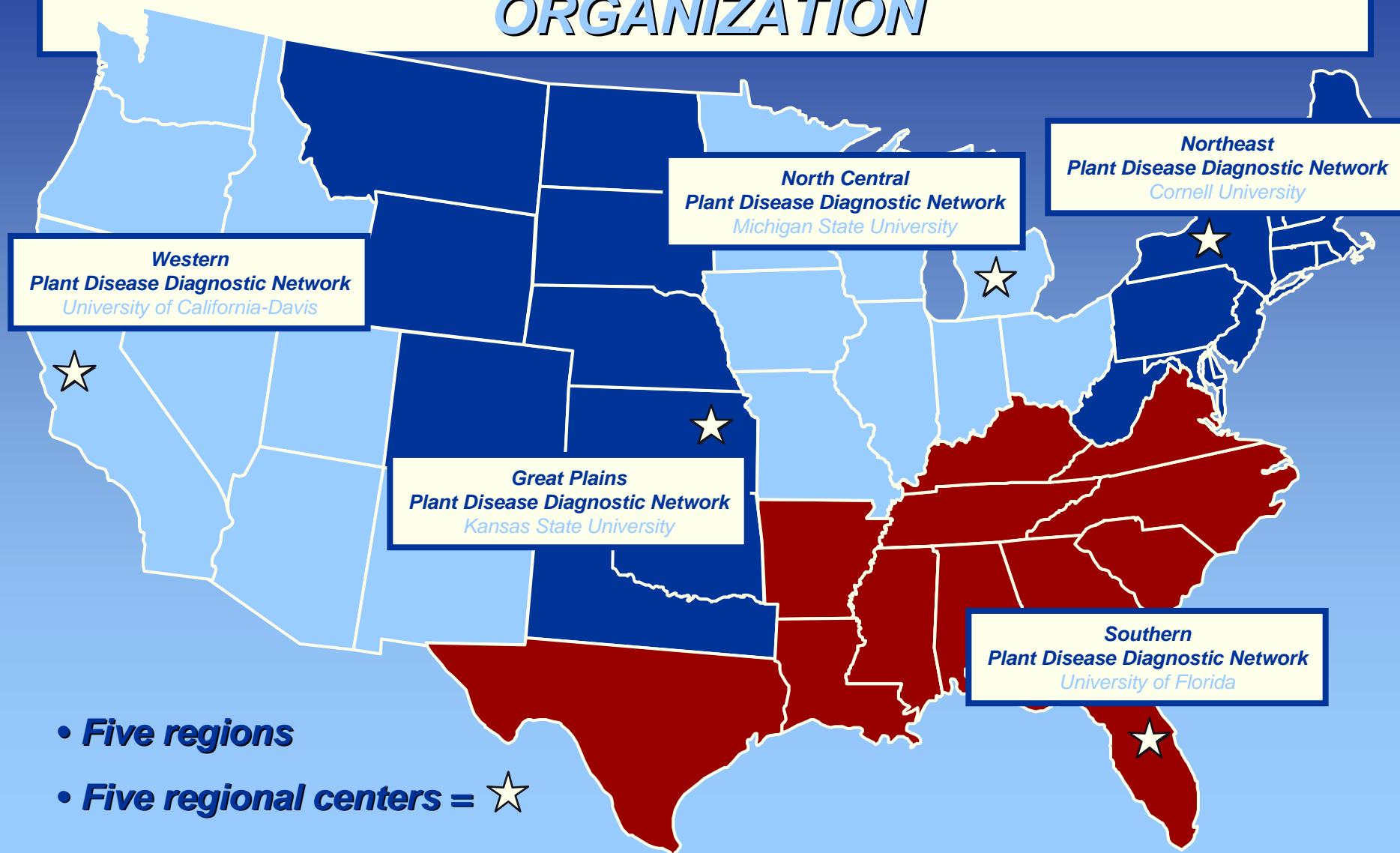
GOALS

- *To link those involved in crop production into a cohesive, distributed system to detect pests (including pathogens, insects and weeds) that have been deliberately or unintentionally introduced into agricultural and natural ecosystems.*
- *To strengthen overall diagnostic and response capabilities.*



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ORGANIZATION



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NCPDN GOALS

- ***To enlist and provide training for first detectors***
- ***To provide up-to-date information about plant pests in the North Central region***
- ***To develop a web-based, distributed plant pest diagnostic and reporting system***



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NCPDN ENHANCED TRAINING

- *How to scout for pest problems*
- *How to recognize common or economically important pests of Wisconsin crops*
- *How to monitor for and diagnose “high risk” pests and the damage that they cause (e.g., soybean rust, Ralstonia wilt, sudden oak death)*

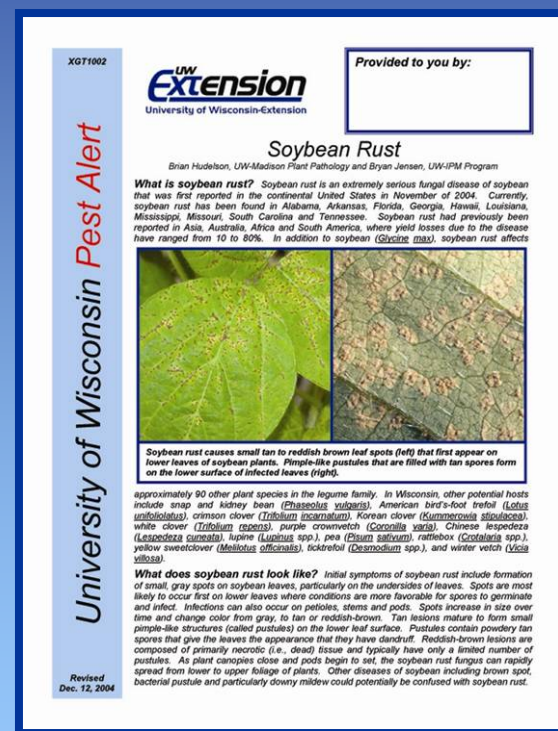


Soybean rust training

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NCPDN ENHANCED TRAINING

- **Increased distance education opportunities**
 - Remote web access to clinic digital microscope images
 - Video/teleconferencing
- **Improved educational resources for professionals**
 - Fact sheets
(www.plantpath.wisc.edu/pddc)
 - Powerpoint presentations
(www.npdn.org)
 - Subscription to the Agricultural Alert System (www.pdis.org)

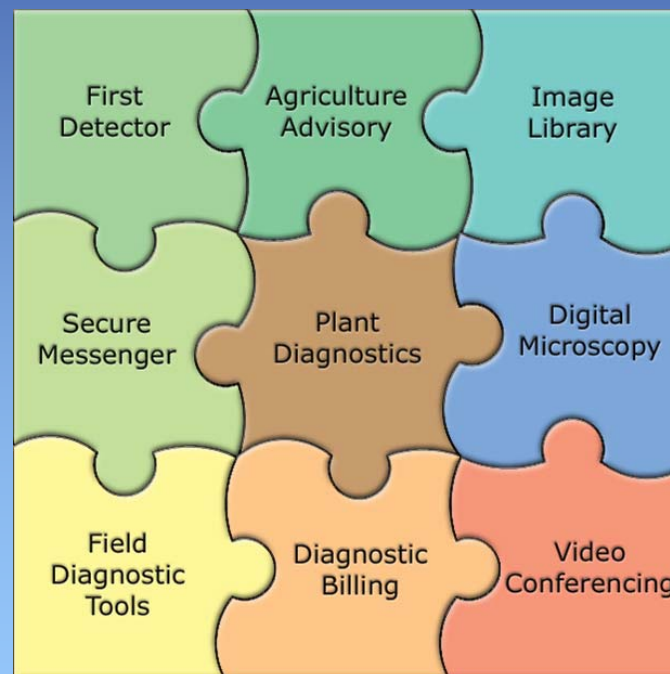


Pest Alert fact sheets

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NCPDN WEB-BASED SAMPLE REPORTING

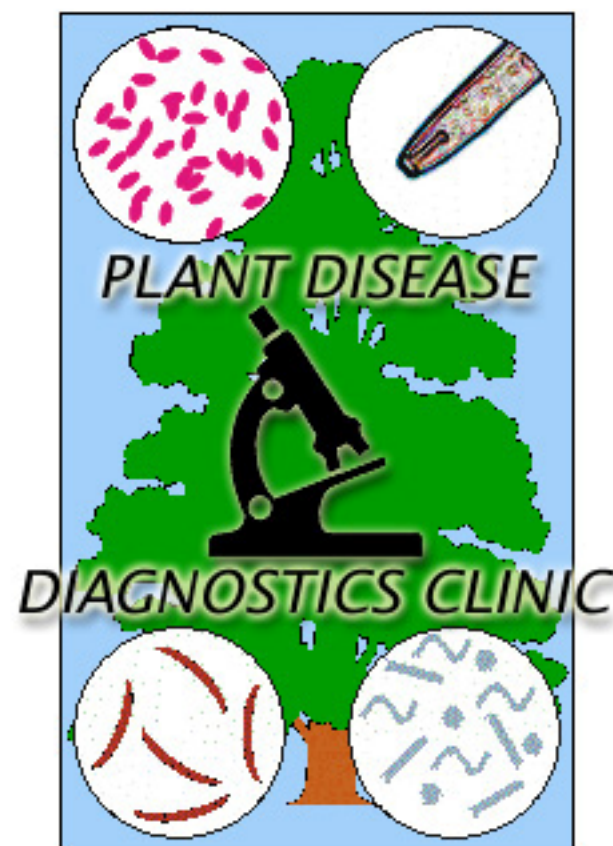
- *In development by Kansas State University (www.pdis.org)*
- *Desired outcomes*
 - *Will allow for convenient electronic submission of sample information including digital photos*
 - *Will allow easy and quick reporting of unusual pest occurrences for faster follow-up*
 - *Will allow quicker reporting via email or fax, as well as traditional reporting via snail mail*



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IMPLICATIONS FOR THE PDDC

- ***Expanded staff***
 - *Increase preparedness*
 - *Expand services*
 - *Enhance web-based activities*
- ***Expanded services***
 - *Tests using newer technologies*
 - *ELISA-based testing*
 - *PCR-based testing*
 - *New tests for old diseases/pathogens*
 - *Bacterial ring rot of potato*
 - *Verticillium wilt soil tests*
 - *Tests for new diseases/pathogens*
 - *Soybean rust*
 - *Ralstonia wilt*
 - *Sudden oak wilt*



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DISEASES OF CONCERN

- *Disease: Soybean rust*
- *Cause: Phakopsora pachyrhizi
Phakopsora meibomia*
- *Favorable environment*
 - *Long periods of leaf wetness*
 - *Moderate temperatures (59-77°F)*
 - *High relative humidity (75-80%)*



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DISEASES OF CONCERN



- *Disease: Soybean rust*
- *Control*
 - *Fungicide treatments*
 - *chlorothalonil*
 - *azoxystrobin*
 - *pyraclostrobin*
 - *propiconazole*
 - *tebuconazole*
 - *myclobutanil*
 - *tetraconazole*
 - *trifloxystrobin*
 - *boscalid*
 - *Use resistant varieties*

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DISEASES OF CONCERN

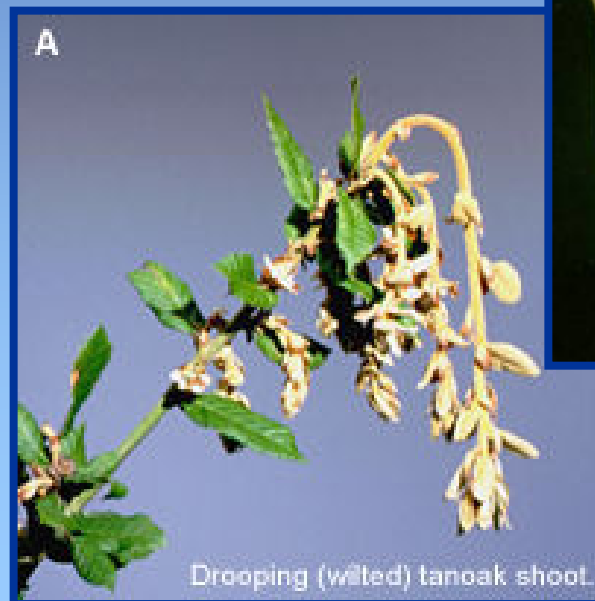
- *Cause: Ralstonia solanacearum
race 3, biovar 2*
- *Hosts:*
 - *Geranium*
 - *Many other herbaceous plants*
 - *Potato*
- *Control:*
 - *Start with clean propagation materials*
 - *Follow strict sanitation procedures*
 - *Keep plants from different sources separated*
 - *Disinfect pruning tools*
 - *Disinfect hands when working with plants*



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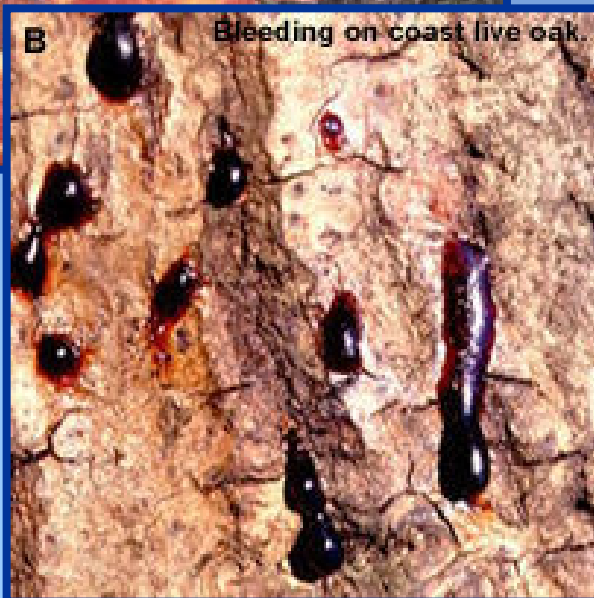
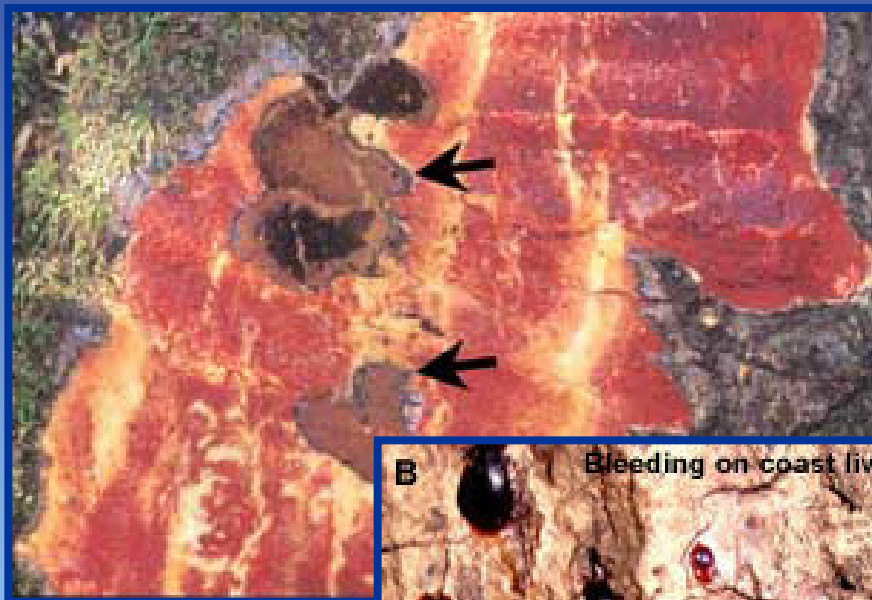
DISEASES OF CONCERN

- Disease: Sudden oak death
- Cause: Phytophthora ramorum
- Hosts:
 - coast live oak, California black oak, Shreve oak, tanoak, big leaf maple, rhododendron, huckleberry, California bay laurel, madrone, manzanita, huckleberry, California honeysuckle, toyon, California buckeye, California coffeeberry, arrow wood, *Viburnum* spp.
 - Northern red oak, northern pin oak (by inoculation)



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DISEASES OF CONCERN



- *Disease: Sudden oak death*
- *Control*
 - *Buy woody ornamentals from a reputable source*
 - *Inspect plants prior to purchase for symptoms of the disease*
 - *Keep new plants isolated from established plants*
 - *Remove and destroy infected plants*

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