



Eastern Plant Board
92nd Annual Meeting

Proceedings

Holiday Inn

Martinsburg, WV

April 4—6, 2017

Eastern Plant Board
92nd ANNUAL MEETING AGENDA

Holiday Inn
 301 Foxcroft Avenue,
 Martinsburg, West Virginia, 25401

MONDAY
 April 3, 2017

Time	Topic
	Travel
5:00 – 7:00 PM	Registration
7:00 – 9:00 PM	Reception - Deck
	Hospitality / Discussion Time - Room

TUESDAY
 April 4, 2017

Time	Topic
7:00 – 8:00 AM	Breakfast-provided at Hotel
8:00 - 8:15 AM	Housekeeping Announcements Welcome-(in each meeting room)
8:15 – 10:00 AM	Discussion – EPB Members Only -
8:15 – 10:00 AM	APHIS PPQ Meeting – Matt Royer
8:15 – 10:00 AM	CBP Meeting – Kevin Harriger
8:15 - 10:00 AM	HIS Meeting
8:15 - 10:00 AM	CAPS Meeting
10:00 – 10:30 AM	~ Break ~
10:30 AM – 12:00 PM	EPB Business Meeting – EPB Members Only
10:30 AM – 12:00 PM	APHIS PPQ Meeting
10:30 AM – 12:00 PM	CBP Meeting, HIS, CAPS Meetings
12:00 – 1:00 PM	Lunch
Session Moderator: Vicki Smith, Connecticut Agricultural Experiment Station	
1:00 – 2:00 PM	Welcome Kent Leonhardt , <i>Commissioner, West Virginia Department of Agriculture</i> Dana Rhodes , <i>President Eastern Plant Board, SPRO Pennsylvania Department of Agriculture.</i>
2:00 – 2:20 PM	Scale on Conifers in trade <i>Piera Siegert, SPRO, New Hampshire Department of Agriculture</i> Joint session with with HIS pdf
2:20 – 3:00 PM	Strategies for dealing with online plant sellers <i>Cory Marker, SITC and state panel</i> Joint with HIS
3:00 – 3:15 PM	~ Break ~
3:15 – 3:35 PM	Oak Wilt in New York <i>Chris Logue, SPRO, New York State Department of Agriculture and Markets</i> pdf

3:35 – 3:55 PM	Dickeya Update , Ann Gibbs, Director, Animal & Plant Health Division Maine Department of Agriculture, Conservation & Forestry pdf
3:55-4:15 PM	Spotted Lanternfly Update , Dana Rhodes, SPRO, Pennsylvania Department of Agriculture pdf
4:15-4:30 PM	Pollinator Update , Faith Keuhn, , SPRO, Delaware Department of Agriculture pdf
4:30-4:45 PM	Update on Mobile Solutions , Adam Brookbank USDA APHIS pdf
	Dinner On Your Own
	Hospitality / Discussion Time -

WEDNESDAY

April 5, 2017

Time	Topic
7:00 AM – 8:00 AM	Breakfast- Provided at Hotel
Session Moderator: Dana Rhodes, SPRO, Pennsylvania Department of Agriculture	
8:00 AM – 8:30 AM	View from the National Plant Board Ann Gibbs - NPB Vice President, Director, Animal & Plant Health Division, Maine Department of Agriculture, Conservation & Forestry pdf
8:30 AM – 9:00 AM	View from the PPQ Field Operations, Raleigh Office Matt Royer, Associate Deputy Administrator, APHIS, PPQ pdf
9:00 AM – 9:30 AM	USFS Report: Forest Health Program CANCELLED Replaced with: View from the Eastern Plant Board Dana Rhodes, EPB President, SPRO, Pennsylvania Department of Agriculture pdf
9:30 AM – 10:00 AM	CBP Update – Kevin Harriger Executive Director, Agricultural Inspections, Customs and Border Protection pdf
10:00 AM – 10:30 AM	~ Break ~
10:30 AM – 11:00 AM	Hemp and Medical Marijuana Panel -Various states participating Joint Session with HIS pdf
11:00 AM -11:30 AM	Boxwood blight Dana Rhodes, SPRO, Pennsylvania Department of Agriculture pdf Joint Session with HIS
12 Noon –1:00 PM	Lunch Included
1:00 PM – 4:30 PM	ARS Lab-Tour
6:30 PM – 8:30 PM	Dinner- Provided at Hotel-Confirm time
	Hospitality / Discussion Time -

THURSDAY

April 6, 2016

Time	Topic
7:00 AM – 8:00 AM	Breakfast
Session Moderator: Joe Zoltowski, State Plant Regulatory Official, New Jersey Department of Agriculture	
8:00-8:30 AM	EPB Members on NPB Committees Updates <i>Dana Rhodes, President, Eastern Plant Board</i>
8:30 – 9:30 AM	SANC Update, Dana Rhodes, SPRO, Pennsylvania Department of Agriculture pdf
9:30-10:00 AM	Cost Benefit Analysis for early detection of forest pests <i>Isabel Munck USFS, Piera Siegert, SPRO, NH Dept. Agriculture, Markets & Food</i> pdf
10:00 – 10:30 AM	~ Break ~
10:30 – 11:00 AM	HIS Report (Joint) pdf
11:00 – 11:30 AM	CAPS Report (Joint)
11:30AM – 12:00 PM	EPB Meeting Wrap-Up and Next Steps - EPB Members Only




Scale on Conifers in Trade

Piera Y Siegert
State Entomologist
NH Dept. Agriculture, Markets & Food

OBSERVED:

- An increase in elongate hemlock scale (EHS) detected on shipments of hemlocks and other conifers into NH since 2014
- Detection of a new scale to NH, coniferous *Fiorinia* scale in 2016




How do we get there from here?

DESIRED OUTCOMES:

- ENSURE PURCHASERS OF CONIFERS ARE RECEIVING TREES THAT WILL SURVIVE WITH A REASONABLE AMOUNT OF CARE
- PARTNER WITH NH PLANT DEALERS TO PROTECT THE STATE'S AT RISK HEMLOCK FORESTS
- PARTNER WITH NH PLANT DEALERS & CERTIFYING AGENCIES IN OTHER STATES TO PROVIDE COMMON SENSE APPROACHES TO REDUCE TRADE OF SCALE IN CONIFERS


HEMLOCK'S IMPORTANCE TO NEW HAMPSHIRE

- The hemlock-hardwood-pine forest is the most wide-spread habitat in New Hampshire, covering almost 50% of the state mostly south of the White Mountains. Hemlock is a common and critical tree in this habitat.
- Hemlock is a long-lived, late-successional/climax species
- Hemlock is unique an invaluable in forest ecosystems due to a combination of longevity, shade tolerance, and crown density.
- Real value as a landscape tree. Only shade-tolerant tree that will work as a privacy hedge in New Hampshire. High demand for landscape hemlock. Hemlock's slow growth in NH environment makes it economically disadvantageous to grow it in the state.



THREATS TO HEMLOCKS IN NH

- Development
- Drought
- Pests *incl.*
 - Hemlock woolly adelgid (HWA) *Adelges tsugae*
 - Elongate hemlock scale (EHS) *Fiorinia externa*
 - Sirococcus tip blight *Sirococcus tsugae*
 - Hemlock borer *Melanophila fulvoguttata*





Decline is greatest in NH where multiple threats occur.

~30 Years of Regulating Hemlock Sales: 1988 - 2017

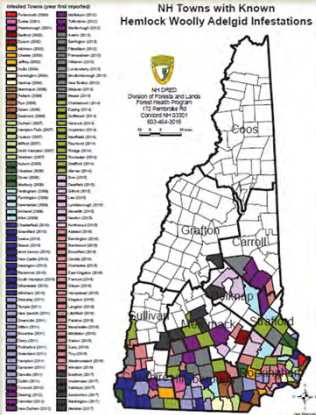
QUARANTINE HISTORY:

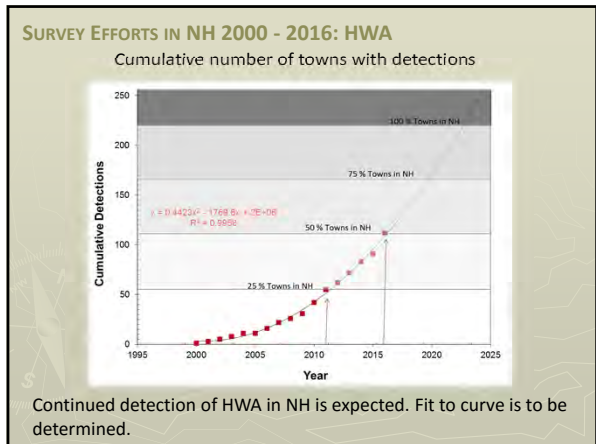
- 1988 - initiated quarantine for HWA. Only trees certified as free of adelgid by PC eligible for import.
- 2000 - HWA detected in state first time in Portsmouth.
- 2004 - **1,499 (66% of 2,286)** hemlocks imported with PC found to be infested with HWA.
- 2005 - Quarantine modified. PC must attest that trees originated in a county known to be free of HWA by annual survey.

DETECTION OF HEMLOCK PESTS IN NH: HWA

- Between 2000 and 2017, HWA was detected in **112 towns**.
- Detection of HWA in NH towns is a function of pest distribution and survey effort. Survey effort is dependent on personnel hours available for survey, success in identifying probable infested target sites, and success in detecting pests at sites.





~30 Years of Regulating Hemlock Sales: 1988 - 2017

Hemlock Woolly Adelgid
Adelges tsugae Annand

QUARANTINE HISTORY:

- 2014 – Quarantine revised as a response to continued spread of HWA within NH & markets supplying hemlocks.
- Requirements in NH counties w/o known HWA: 1) origin from area w/o HWA & PC; 2) PEQ; or 3) treatment w/Safari under CA
- Requirements in NH counties with known HWA populations: hemlocks free of HWA, pre-notification, opportunity for Division to inspect, report sales at end of calendar year.

HWA Inspections: 2014 - 2017

DAMF Targeted Inspection Protocol:

Is this a supplier that we have seen hemlocks from before?

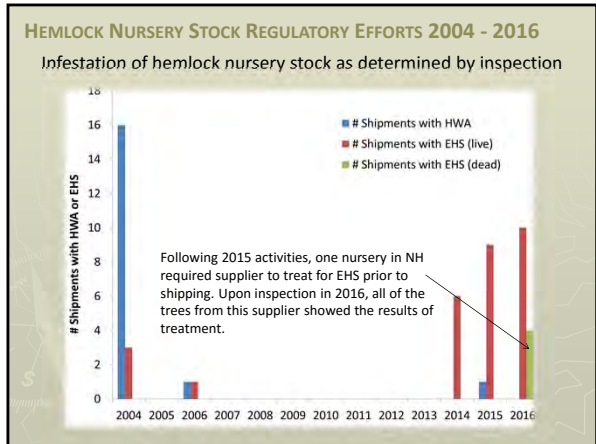
- IF NO – **INSPECT**
- IF YES – Have we detected pests on prior shipments?
 - IF YES – **INSPECT**
 - IF NO – Are these trees being treated by the recipient nursery under a compliance agreement?
 - If YES – Release for sale without inspection
 - If NO – Is this the first shipment of the year?
 - If YES – **INSPECT**
 - If NO – Release for sale without inspection.

Hemlock Quarantine Inspections

- Notification of hemlock shipment.
- Inspector determination of whether inspection will be conducted.
- Conduct inspection.
- Determine release of hemlocks based on inspection findings.

What happened when we modified the HWA quarantine in 2014?

- Few, if any, HWA detections.
- EHS began appearing on several shipments.




ORIGIN OF HEMLOCK NURSERY STOCK SHIPPED TO NH

Elongate Hemlock Scale
Florinia externa Ferris

- Quarantine changes shifted to closer suppliers of hemlocks.
- Increase in EHS detection not necessarily correlated with state of origin, but rather supplier.

ELONGATE HEMLOCK SCALE – UNFORESEEN CONSEQUENCES & NEW CONSIDERATIONS

- EHS has a wide range of coniferous hosts.
- EHS is principally a concern for NH because of its impact on hemlocks.
- It is not programmatically possible to regulate all EHS hosts as we do hemlocks.
- In general, NH policy has been for “zero tolerance” for EHS on stock.
- Increases in EHS on nursery stock coincided with 2014 HWA revision.
- EHS found in shipments on other conifer hosts.




ELONGATE HEMLOCK SCALE – UNFORESEEN CONSEQUENCES & NEW CONSIDERATIONS

1997: First recorded on planted nursery stock.

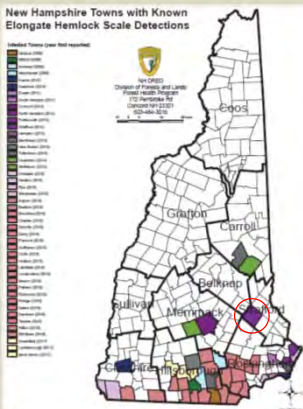
2002: Plant Industry was tracking infestations resulting from planting infested nursery stock, there was an overwintering study, and considerations relating to whether EHS was a good quarantine target.

2006: Forests & Lands detects EHS in natural landscape.



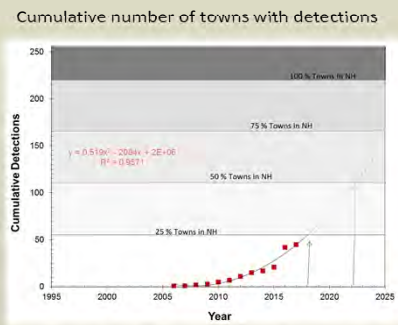
DISTRIBUTION AND HISTORY OF HEMLOCK PESTS IN NH: EHS

- Between 2006 and 2017, EHS was detected in **46 towns**.
- Scale populations generally thrive on stressed trees. NH’s EHS concern is that it increases stress on landscaped and natural hemlocks, promoting faster hemlock decline.
- Detection is a function both of spread and survey effort.




SURVEY EFFORTS IN NH 2000 - 2016: EHS

Cumulative number of towns with detections



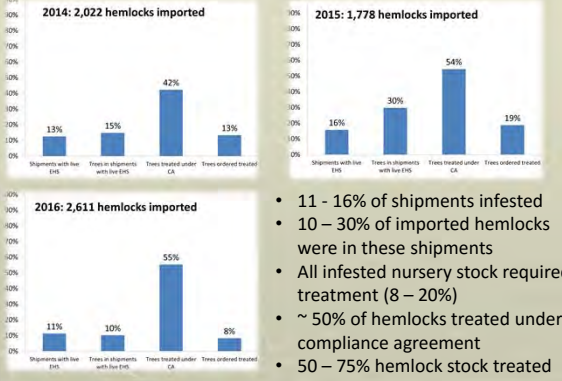
Continued detection of EHS in NH is expected. Fit to curve is to be determined. Detection of scale in natural landscape problematic...

STRAFFORD EHS DETECTION EXAMPLE, Nov. 2012

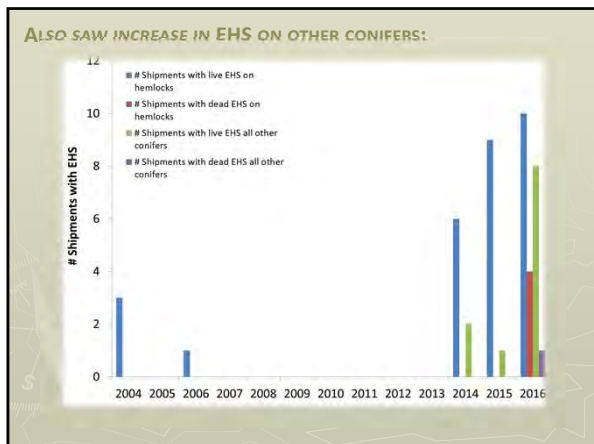


MARCH 30, 2017

EHS INFESTED NURSERY STOCK IMPORTED 2014 – 2016 (%)



- 11 - 16% of shipments infested
- 10 – 30% of imported hemlocks were in these shipments
- All infested nursery stock required treatment (8 – 20%)
- ~ 50% of hemlocks treated under compliance agreement
- 50 – 75% hemlock stock treated



RELATED *FIORINIA* SCALE, POTENTIALLY NEW TO NH, FOUND 2016:

- Heavy scale on spruce was detected during a routine nursery inspection
- Scale was confirmed as coniferous Fiorinia scale (*Fiorinia japonica*)
- Information about risk from this scale is limited at best
- Hemlock is a host for this scale
- Coniferous Fiorinia scale is known in the eastern region
- Origin of scale on nursery stock imprecise

RELATED *FIORINIA* SCALE, POTENTIALLY NEW TO NH FOUND 2016:

- Infested trees originated from 4 nurseries in 3 states
- All trees from those nurseries had scale
- Coniferous Fiorinia scale not reported from all of those states
- Infested trees were intermingled with spruce from other nurseries
- Intermingled trees appeared uninfested
- Some infested trees overwintered at NH nursery; present 1+ seasons
- NH not known to have this scale
- No survey for this scale in NH

How do we get there from here?

SCALE INFESTATIONS ON CONIFER SHIPMENTS ARE A PROBLEM IN NH.

The path forward is likely in how we have been responding since 2014...

DESIRED OUTCOMES:

- ENSURE PURCHASERS OF CONIFERS ARE RECEIVING TREES THAT WILL SURVIVE WITH A REASONABLE AMOUNT OF CARE
- PARTNER WITH NH PLANT DEALERS TO PROTECT THE STATE'S AT RISK HEMLOCK FORESTS
- PARTNER WITH NH PLANT DEALERS & CERTIFYING AGENCIES IN OTHER STATES TO PROVIDE COMMON SENSE APPROACHES TO REDUCE TRADE OF SCALE IN CONIFERS

IS "ZERO TOLERANCE" FOR EHS & OTHER CONIFER SCALES PRACTICAL?:

- NH continues to be concerned about impacts from EHS.
- EHS is listed as a prohibited invasive species in NH.
- The amount of nursery stock coming to NH with EHS makes it impractical to simultaneously follow a zero tolerance policy, provide a level playing field for our nurseries, consistently provide consumer protection, and allow for continued trade in conifers.
- A meeting with nursery industry and forest health stakeholders resulted in the following considerations:

FUTURE DIRECTIONS:

- Revise HWA quarantine to a hemlock pest quarantine.
- Allow hemlocks from states regardless of county HWA or EHS detections, retain pre-notification of shipments.
- Allow for compliance agreements with NH nurseries to treat all hemlock stock entering trade.
- Allow for compliance agreements overseen by state Depts. Agriculture in other states for treatment of hemlocks shipped to NH.
- Continue targeted inspections of hemlocks & required treatments where no CA is in place.
- Require treatments on other conifer nursery stock when Fiorinia scales are present.
- Follow-up on sale of spruce infested with coniferous Fiorinia scale.

THANK YOU & QUESTIONS?:



NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Oak Wilt and Other Oak Diseases

Chris Logue
New York State Department of Agriculture and Markets
Plant Industry

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

What is Oak Wilt ?

- Fungal Pathogen *Ceratocystis fagacearum*
- An aggressive disease which impacts a wide variety of oaks
- First documented and described in the early 1940's but historical records indicate that it may have been impacting oaks in the Midwest as early as the 1890's

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Related Pathogens

- *Ceratocystis fimbriata*- a pathogen of sycamore
- Several cankers and diebacks of poplar
- *Ophiostoma ulmi* formerly *Ceratocystis ulmi*- Dutch Elm Disease

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

What does the pathogen do to susceptible host plants ?

- This fungus kills by growing in the water conducting vessels and plugs them with gummy material that restricts water flow
- Death of the tree (rather quickly) is the usual result

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Hosts

- Many oaks are susceptible
- In the Northeast, members of the Red Oak group are most susceptible

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Table 1. Oak species commonly killed by oak wilt¹

Common name(s)	Scientific name
Northern species	
Black oak	<input type="checkbox"/> <i>velutina</i>
Blue oak ²	<input type="checkbox"/> <i>macrocarpa</i>
Northern pin oak	<input type="checkbox"/> <i>elymifolia</i>
Northern red oak	<input type="checkbox"/> <i>rubra</i>
White oak ²	<input type="checkbox"/> <i>alba</i>
Southern species	
Blackjack oak	<input type="checkbox"/> <i>muricandrus</i>
Spanish live oak	<input type="checkbox"/> <i>perlanus</i>
Shoard oak	<input type="checkbox"/> <i>ilicifolia</i>
Southern red oak	<input type="checkbox"/> <i>blanda</i>
Texas live oak	<input type="checkbox"/> <i>virginiana</i>
Texas red oak (Spanish oak)	<input type="checkbox"/> <i>laevis</i>

¹ All red oaks in the eastern United States are considered susceptible to oak wilt

² Infections are less common in these species and may take years to run their course

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Occurrences in New York State

- Summer 2008 and 2013 in town of Glenville, Schenectady County
- Summer/Fall 2016 Long Island and Canandaigua
- **OAK WILT CAN ONLY BE CONFIRMED WITH A LAB ANALYSIS**

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Range of the Disease

Canandaigua
Schenectady
Long Island

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Schenectady Location

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Schenectady Location

Long Island detection points

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Symptoms

- Crinkling leaves
- Rapid leaf drop
- Wilting
- Drastic, Fast moving

NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets


Symptomatic Leaves

<http://www.anr.msu.edu/robertsd/oakwill/photo1.JPG> David Roberts




NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Symptoms




NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Symptoms



NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Symptoms



NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

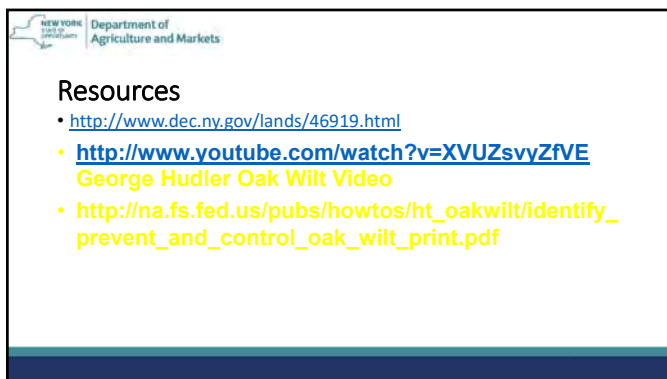
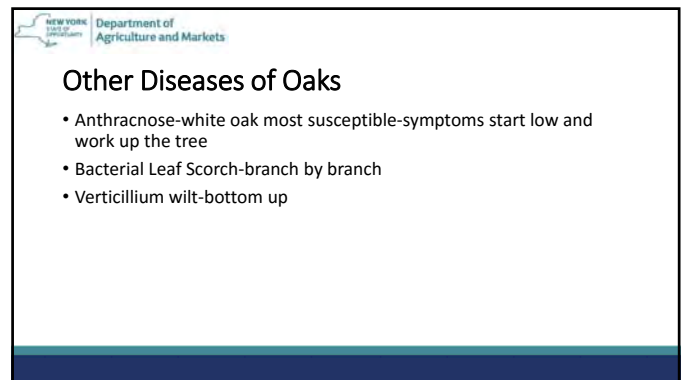
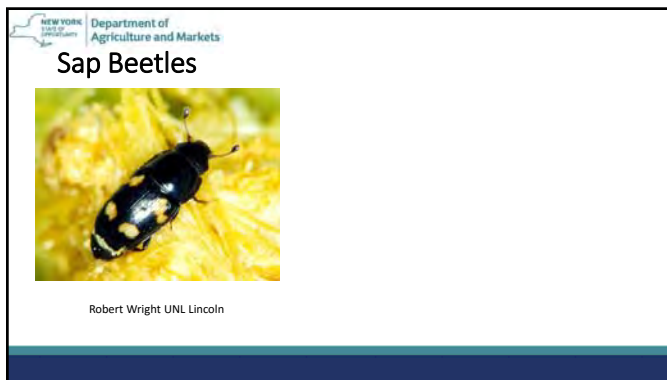
Symptoms



NEW YORK STATE OF AGRICULTURE Department of Agriculture and Markets

Symptoms





EPB Meeting April 2017
Ann Gibbs, Maine Department of Agriculture, Conservation & Forestry

The Dickeya Situation Update

What is Dickeya?

- *Dickeya* is a type of bacteria that causes blackleg.
- Symptoms are blackening and decay of lower stem or the "leg" of the plant
- There are 7 species of *Dickeya* and 3 are found in the US: *D. dianthicola*, *D. dadantii*, *D. chrysanthemi*
- *Dickeya dianthicola* seems to be the most damaging on potatoes

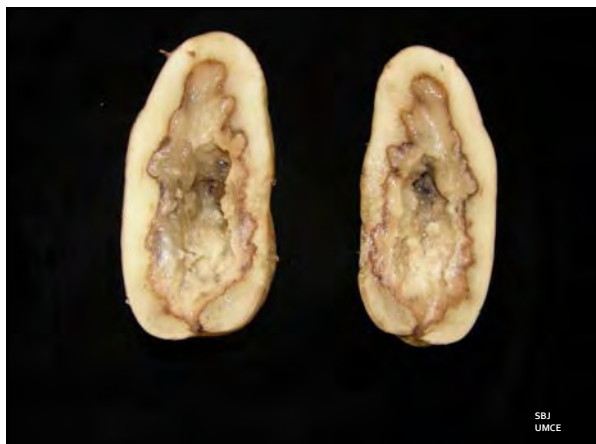
Other related bacteria

- *Pectobacterium* is another bacteria that causes similar blackleg symptoms
- Several *Pectobacterium* species are endemic in US potatoes including:
 - *P. atropeticum*
 - *P. carotovorum* subsp. *carotovorum*
 - *P. carotovorum* subsp. *brasiliense*
 - *P. carotovorum* subsp. *ordoriferum*
 - *P. wasabiae*

Current Dickeya finds

- *Dickeya* has been found in: US (FL, ID, IN, OH, ME, MI, MN, MD, NJ, NM, NY, NC, ND, PA, TX & WI) Canada (Ontario & New Brunswick)
- This past summer *Dickeya* has been reported in potato fields in 11 states (DE, FL, ME, MD, MA, NJ, NC, PA, RI, VA, WV)






Challenges Dealing with Dickeya

- No chemical controls
- No resistant potato varieties
- Disease expression doesn't occur unless conditions are right – favors hot humid conditions
- No visual symptoms on seed

Regulatory Status of Dickeya


- On May 17, 2016 APHIS/PPQ classified *Dickeya dianthicola* as a non-reportable/non-actionable pathogen because it appears to be widespread across the US
- No detections of *Dickeya solani*, which is not known to occur in North America



Maine's Efforts in 2016

Rule changes as of May 2016

- Added a separate field inspection for blackleg
- Established tolerances for blackleg
 - FY 1 – 0.1% FY2 – 0.2%
 - FY3 – 1.0% FY4 – 2.0%
 - FY5 – 2.0%
- Eliminated one FY eligible for certification
- Allow for lab testing of more post harvest samples



Blackleg tolerances

State	FY1	FY2	FY3	FY4	FY5
Wisconsin	Reported but no set tolerance	Reported but no set tolerance	Reported but no set tolerance	Reported but no set tolerance	Reported but no set tolerance
Michigan	Reported but no set tolerance	Reported but no set tolerance	Reported but no set tolerance	Reported but no set tolerance	Reported but no set tolerance
Colorado	0%	0.1%	0.5 – 4.0%*	0.5 – 4.0%*	0.5 – 4.0%*
Montana	Visual regulation	Visual regulation	Visual regulation	Visual regulation	Visual regulation
North Dakota	Reported but no set tolerance	Reported but no set tolerance	Reported but no set tolerance	Reported but no set tolerance	Reported but no set tolerance
Utah	0 – 0.1%	0 – 0.1%	0 – 0.1%	0.5%	1.0%
Minnesota	No regulation	No regulation	No regulation	No regulation	No regulation
Oregon	0%	0.1%	0.3%	1.0% – 3.0%**	1.0% – 3.0%**
Idaho	0%	0.1%	0.5%	1.0%	2.0%
Canada	0%	0.1%	0.2%	0.3%	0.5%

Note: This is a sample of states and may not include all states with blackleg tolerances

2016 Field Inspections

- Observing blackleg symptoms in the field
- Added 1 seasonal inspector
- Some fields did not meet blackleg tolerances
- 14 lots out of 1065 lots failed or 1.3%



Dormant Tuber Lab Testing

- Samples submitted voluntarily by growers
- Offered different batch testing to satisfy customer requests – indicated the level of Dickeya and not just a positive or negative result
- A ring (blind) test was conducted with labs across the country to validate results
 - One result of this collaboration was a modification in a PCR testing step

2016 Lab Testing Results

- Testing of 350 field plant samples of the 2016 crop indicated **25% were positive** for Dickeya
- Results from dormant tuber testing for the 2016 crop indicated about **13% incidence of Dickeya** based on 454 samples
- Observations
 - None of the batch samples were all positive – most only 1 positive batch
 - Rotted samples were not always positive

2016/2017 Post Harvest Field Inspections



- Observations by a crop scouting firm in FL
- Results received once a week
- Very slight blackleg symptoms were observed (scale of 0-5 – symptoms were 0-1)

Impacts on Northeast States

- Comments from EPB members in DE, NJ, PA & NY
- Most indicated the marketplace will determine whether Dickeya will impact seed potato sales
- NY requires specific cultivars resistant to GN that be planted on Long Island – one variety Reba has been susceptible to Dickeya

Other state plans dealing with Dickeya

- Some states have a tolerance for blackleg and will focus on blackleg diseases and not just Dickeya
- Most states are noting blackleg on their North American Health Certificates
- Western states did not see much blackleg
- Central states did observe blackleg and are doing testing – WI is the most aggressive

International Perspective

- Comments from Gerry Saddler from SASA
 - Pectobacterium has been the major issue for the past 6 years
 - Dickeya in the US for 50 years why a problem now? New virulent strains, change in variety or industry practice, change in climate?
 - Are we confident it is primarily spread by seed?
 - Are we confident it is not widespread or dormant and spreading?



Research Needs

- Real-time PCR assay for *Dickeya* species for seed lot testing
- Thresholds in seed lots?
- How to test water for *Dickeya*?
- Management during seed cutting and harvest?
- In-field management (irrigation, nitrogen and ??)

Future Suggestions

- Support research – there are lots of unanswered questions regarding this disease
- Management options – for prevention and getting the disease out of the production system
- Common testing protocol
- Better communication between the scientific and the regulatory community
- Others???

Questions?



UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager

On September 22, 2014 the Entomology Program of the Pennsylvania Department of Agriculture received a report from an educator from the Pennsylvania Game Commission

The report detailed damage to *Ailanthus altissima* (Tree of Heaven) on private property in Eastern Berks County, PA being caused by an unknown insect

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager

About the pest

About the Program

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager

The spotted lanternfly is native to Asia and is found in China, Bangladesh, Vietnam

It was introduced to Japan, South Korea and Pennsylvania

In South Korea, it is considered an invasive pest and impacts grapes and peaches

Follow #FLOW

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager

Current Distribution:

2014 – 2017 Lycorma Detection Survey
 Results through 14 February 2017

Spotted Lanternfly Presence

- Presence
- Report

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager

Impact: Potential to damage grape, hops, orchards, hardwood, and nursery industries

In PA, populations have been detected in managed grapes, damage comes from adult feeding waste (honeydew)

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager






Adults: July 24-December



Egg Laying:
September 19-November



Eggs: October-June

One Generation Per Year



Fourth Instar:
July 7-September



Third Instar: June 24-Mid July





Second Instar: June 03- July





Hatch and 1st Instar:
May 12- June



UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager

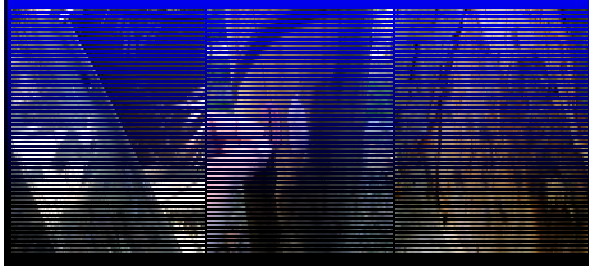
Egg masses have on average between 30-50 eggs and can be laid on trees or any smooth surface

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager

Egg masses have been found on many different objects and often are well hidden



UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager




Egg masses have been found on many different objects and often are well hidden



UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager




Immature stages migrate up and down trees/plants each day and are easily caught on tree bands




UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager




Adults begin to appear in late summer, feed preferentially on Ailanthus, mate, and lay eggs

Males and females mate multiple times





UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven-Erik Sperdinger, Entomology Program Manager





Research Highlights:

- Miriam Cooperband, USDA-OTIS: Host volatiles, chipping, trap efficacy
- Phill Lewis, USDA-OTIS, Dinotefuran longevity, chemical efficacy
- Greg Setliff, Kutztown University: Host Range Study, Feeding Preference
- Mike Saunders/Ericka Smyers, PSU: Impact on Grape
- Julie Urban, PSU: DNA Analysis
- Julie Gould, USDA-OTIS: Parasitoid Studies
- Houping Liu PA DCNR, Bureau of Forestry: Parasitoid Studies
- Tom Baker, PSU: Pheromone Studies

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven-Erik Sperdinger, Entomology Program Manager



A Year in the Life of Spotted Lanternfly

-  Tree of Heaven
-  All Other Trees

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven-Erik Sperdinger, Entomology Program Manager



A Year in the Life of Spotted Lanternfly

October-May Eggs

Just about anywhere on a property

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven-Erik Sperdinger, Entomology Program Manager



A Year in the Life of Spotted Lanternfly

October-May Eggs

You may see only a small % of existing egg masses

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven-Erik Sperdinger, Entomology Program Manager




A Year in the Life of Spotted Lanternfly

October-May Eggs

Scraping will help, but still leave a healthy population

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven-Erik Sperdinger, Entomology Program Manager




A Year in the Life of Spotted Lanternfly

May-July 1st-3rd Instars

On Most Plants, but prefer Tree of Heaven

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager
 pennsylvania DEPARTMENT OF AGRICULTURE



A Year in the Life of Spotted Lanternfly

May-July
1st-3rd Instars

Banding Tree of Heaven will help but still leave a population

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager
 pennsylvania DEPARTMENT OF AGRICULTURE




A Year in the Life of Spotted Lanternfly

July-September
4th Instar and Adults

SLF Concentrates to feed on Tree of Heaven

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager
 pennsylvania DEPARTMENT OF AGRICULTURE



A Year in the Life of Spotted Lanternfly

October-May
Adults laying eggs

SLF Spreads out to lay eggs

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager
 pennsylvania DEPARTMENT OF AGRICULTURE


SPOTTED LANTERNFLY NUMBERS THROUGH 2016

9,582 Trees Banded, Killing 570,431 Lycorma

Egg mass scraping killed 1,413,685 Lycorma

2453 Public reports investigated, 89.7% accurate

Ailanthus removal/trap tree setup underway

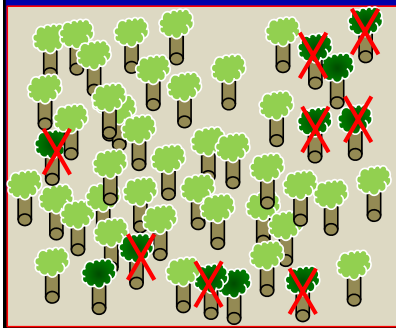


UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager
 pennsylvania DEPARTMENT OF AGRICULTURE

Removal-Trap Tree Method
 Most Ailanthus are removed or killed with herbicide



UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Sperdinger, Entomology Program Manager
 pennsylvania DEPARTMENT OF AGRICULTURE



Host Reduction

Remove Most Ailanthus

Leave a few male trees and treat with systemic insecticide

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Spradling, Entomology Program Manager

Trap trees

July-September
 4th Instar and Adults

SLF Concentrates to feed on Tree of Heaven with insecticide and Die

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Spradling, Entomology Program Manager

Removal-Trap Tree Method

Though this method targets Adult Lycorma, it also impacts the immature stages, which is a bonus

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Spradling, Entomology Program Manager

Removal-Trap Tree Method

The trap trees attract and the insecticide kills

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Spradling, Entomology Program Manager

Impact on Adults is Dramatic

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Spradling, Entomology Program Manager

Impact on Adults is Dramatic

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
 Sven Erik Spradling, Entomology Program Manager

2 Years of Banding indicates a central point of introduction

Spotted Lanternfly (SLF) Field Surveys

Boundaries: Pennsylvania, County boundaries, M.P. Quarantine (1422006)

SLF Counts per Sq. KM

0 - 100	101 - 200	201 - 400	401 - 800	800+
---------	-----------	-----------	-----------	------

2015 Total

2016 Total

UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
Sven Erik Sperdinger, Entomology Program Manager



Current Quarantine:

74 Municipalities in Six Counties

Covers all life stages and conveyances

Spotted Lanternfly Quarantine Map
Municipalities Under Quarantine as of January 28, 2017



UPDATE ON SPOTTED LANTERNFLY IN PENNSYLVANIA
Sven Erik Sperdinger, Entomology Program Manager

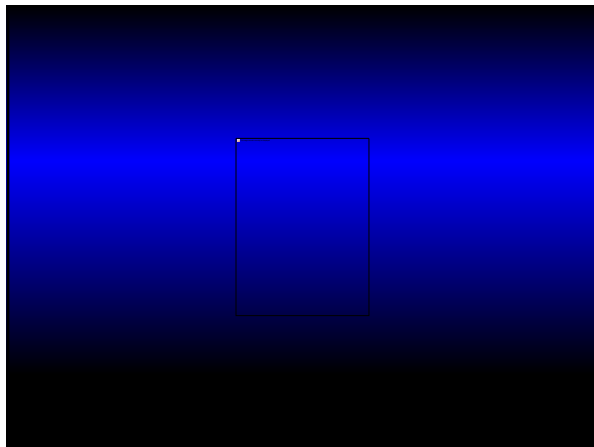


Future of the Program

PDA believes this pest can be eradicated if resources are dedicated.

PA has requested additional support from USDA and has provided a plan of attack.

If the support is not given for planned approach, Spotted Lanternfly will not be contained and will spread to other states.



Pollinator Protection Update



Faith B. Kuehn
Delaware Department of Agriculture
Eastern Plant Board - April 4, 2017

PHOTO: Free Images

Save the Bees!





What can I do for Bees?





Bombus affinis Rusty Patched Bumblebee



- Originally found 28 states, DC and 2 Canadian provinces
- Range < 70-87%
- Abundance < 95%

Endangered species list as of 3/21/2017

US Government Accountability Office Report Factors Affecting Honey Bee Health

- The March 2016 report was critical of USDA and EPA efforts to protect pollinators
- The report highlighted 5 factors that affected pollinator health

GAO Highlighted Factors
Migratory stress from long-distance transport
Habitat loss: degradation, fragmentation, reduced sites for nesting and breeding
Poor nutrition: decreased forage quality and diversity
Parasites and diseases
Pesticide use



PHOTO: *Anthophora bomboidea*, Sam Droege

West Virginia

- MP3 and comments page on website
- Pesticides & Plant Industries developed
- Appalachian Vegetation Management Assoc. managing ROW for pollinators
- Work with IVM (pollinator habitat restoration)
- Use USA Plants (no specific Driftwatch)

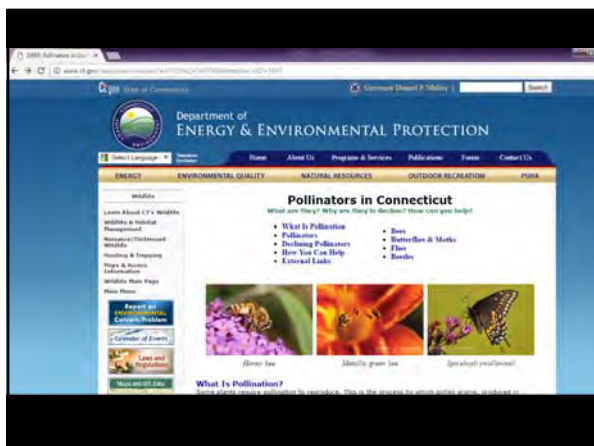
Taraxacum officinale



Maine

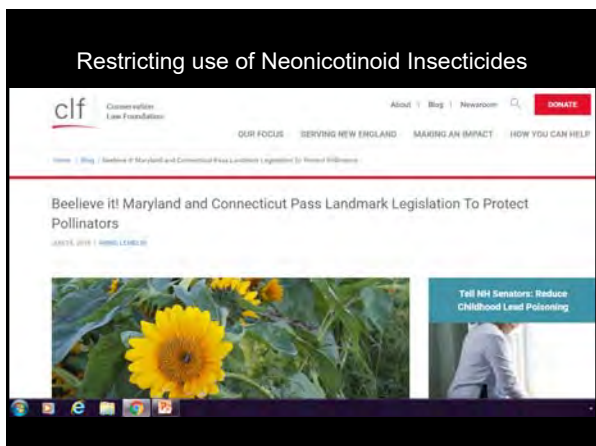
- MP3 is on website, goal of promoting safer habitat for managed and wild pollinators
- Promote bee houses to schools and nurseries
- Provide plant lists to blueberry growers, landscapers
- No Driftwatch or Beecheck

Bee Informed Partnership



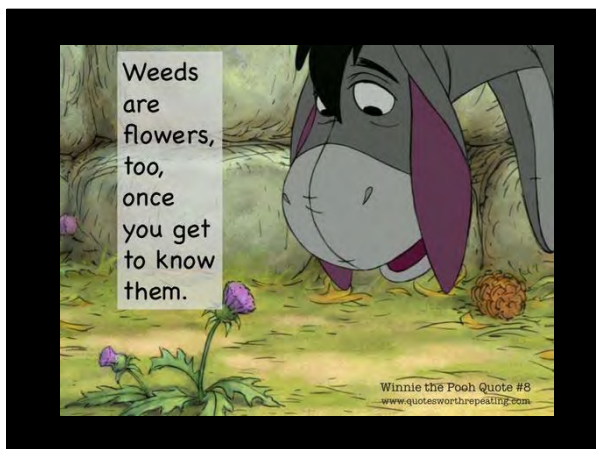
Connecticut

- Established a task force to study the health of pollinators in the state:
- Study proposed and enacted pesticide regulations from other states and countries
- Study public education and outreach plans regarding pollinator health that have been successful in other states
- Evaluate the effectiveness of applicator licensing and other legal requirements, and of incentives, in matters affecting pollinator health
- Identify possible sources of funding for efforts to promote and protect pollinator health
- Investigate the means used by other states to gather data on and monitor populations of bees and other pollinating insects
- Evaluate existing best management practices for applying neonicotinoids in a manner that avoids harming pollinating insects
- Assess the implications and viability of prohibiting the sale of neonicotinoids in the state or establishing a moratorium on such sale



EPA Proposed List of Pesticides to be Restricted During Bloom for Commercial Honey Bees (Contact LD₅₀ < 11 ug/bee)

Carbamates	Neonicotinoids	Organophosphates
Aldicarb Carbaryl Carbofuran Methomyl Oxamyl	Acetamiprid Clothianidin Thiamethoxam Imidacloprid	Diazinophos Ethionon Malathion Diazinon Naled Pirimiphos-methyl
	Pyrethroids	Miticides
	Alpha-cypermethrin Beta-cyfluthrin Cyfluthrin Cyphenothrin Esfenvalerate Permethrin Tefluthrin Cypermethrin Deltamethrin D-trans-allethrin Gamma-cyhalothrin Imiprothrin Lambda-cyhalothrin Momfluorothrin Permethrin Resmethrin	Abamectin Pyridaben Chlorfenapyr Emamectin benzoate
	Naturals	Herbicides
Azadirachtin Spinosad Spinetoram Rotenone Arsenic acid		Bertholite Sethoxydim Duron
		Others
		Sulfoxalor Metalfumizone Fosfiazate Fipronil Tolterpyrad Fenazaquin Bifenazate Endosulfan Cyantranilprole Indoxacarb



- ## Massachusetts
- MP3 on website
 - Expect new initiatives on habitat creation with DOT and Fish and Wildlife departments
 - Largest agricultural area is cranberry production. Beehive placement is bogs is perscribed



New Hampshire

- MP3 is in draft form (modeled after Maine and North Dakota's plans)
- Not crop specific, given diversified agriculture
- #1 in USA for organic crops sold directly to consumers

NY Pollinator Task Force

- Develop BMPs for all pollinator stakeholders
- Habitat enhancement efforts to protect and revive pollinator populations
- Research and monitoring efforts to better understand and prevent pollinator losses
- Outreach and education program to public, engage them in becoming active participants.

“While our nation is a mosaic of land uses and ownerships, pollinating animals do not recognize human drawn boundaries. They make use of food and habitat anywhere it is found, whether on National Park land, a roadside strip, the edge of an agricultural field, or a schoolyard garden. **Therefore, no single organization, federal or private, can independently shoulder the burden of helping pollinators.**”

Pollinator Conservation is a shared national responsibility.

Pollinator Health Task Force

Vermont

- (M)P3 *DRAFT* covers all pollinators, not just managed
- PP committee is developing recommendations for legislature

Gund Institute – University of Vermont

BEE DECLINE THREATENS U.S. CROP PRODUCTION
 First U.S. wild bee map reveals 139 pollination 'trouble zones'

**U.S. WILD BEES:
139 COUNTIES AT RISK**

THE UNIVERSITY OF VERMONT

A LUNA study of wild bees identifies 729 counties in key agricultural regions of California, the Pacific Northwest, the Midwest, west Texas and the Mississippi River valley that face a worrisome mismatch between falling wild bee supply and rising crop pollination demand (PNAS doi:10.1073/pnas.1517685118)


DELAWARE: Promoting Bee Health & Safety 2015-2018


- Expand safeguarding systems to reduce bees' potential for pesticide exposure
- Increase amount and quality of bee forage
- Increase honey production



PHOTO: TC Davis




HONEY BEE HEALTH COALITION
The Situation
About the Coalition
How We Help Bees
How You Can Help Bees
Coalition Updates



Healthy Bees Healthy People Healthy Planet

[LEARN MORE ABOUT THE COALITION](#)

Providing landscapes that include native plants rich in pollen and nectar is the most significant action you can take to support pollinators.

PHOTO: TC Davis



DO YOU REALLY WANT ALL THAT LAWN?



American lawns now cover an area three times larger than any irrigated crop in the US, estimated at 63,000 m², an area about the size of Texas.

Million Pollinator Garden Challenge



POLLINATOR SITES REGISTERED 201475

Invasive Plants

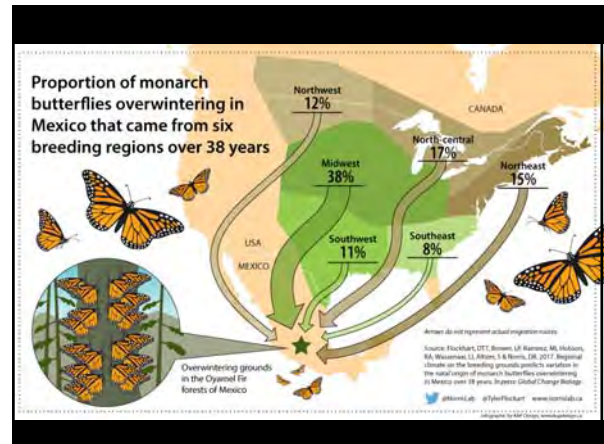
Lythrum salicaria, Purple loosestrife

PHOTOS: Jasma Guy (L), Ronnie Hazlett II (R)




Invasive Plants Producing Pollen and Nectar

- *Elaeagnus umbellata* – Autumn olive
- *Lonicera japonica*, *L. maackii*, and *L. tartarica* – Honeysuckle
- *Alanthus altissima* – tree of heaven
- *Lythrum salicaria* – Purple Loosestrife
- *Buddleja davidii* – Butterfly Bush



Pollinator Buffers – Poultry Farms



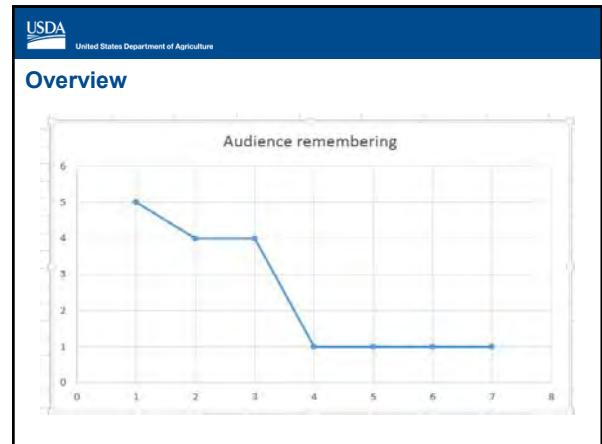
Delaware Veterans Beekeeper Program





USDA
United States Department of Agriculture

Overview of Mobile Data Collection Tools/Teams

USDA
United States Department of Agriculture

Data collection tools for field survey

- Last year PPQ hosted a tools workshop in Raleigh to showcase the approved mobile applications for field data collection.
- PPQ Program representatives were invited to the workshop with the intent of learning and understanding the four approved applications.

USDA
United States Department of Agriculture

Data collection tools for field survey

- The four approved applications verified by PPQ Analysis Information Management (AIM) team are:
 - IPHIS Mobile Collector
 - Collector for ArcGIS - ESRI Collector
 - ROAM
 - eTRAP

USDA
United States Department of Agriculture

Data collection tools for field survey

- Within PPQ programs are already using one of the four applications for collecting field data.
 - IPHIS Mobile Collector – Citrus Health Response Program (FL)
 - ESRI Collector – Asian Gypsy Moth (GA, OK, SC)
 - ROAM – Asian Long horned beetle (OH, MA, NY)
 - eTRAP – Fruit Fly (FL)

USDA
United States Department of Agriculture

IPHIS latest tools – IPHIS Mobile Data Collector app

Version 3.0 will include:

- Implement the ability to load local map layers.
- Place a “current position” dot on the map
- Implement the ability to upload pictures of a sample
- Implement Trap Relocation

USDA
United States Department of Agriculture

Collector for ArcGIS – Field survey data

- COTS Software
 - Commercially Off The Shelf Software
- ESRI Product for Mobile Data Collection
 - Designed to replace ArcPAD
- Three Operating Systems supported
 - iOS Android, Windows 10


USDA
United States Department of Agriculture

Collector for ArcGIS – Field survey data

- Data is collected on the device
- Data can be synchronized to either:
 - ESRI's Cloud
 - The new APHIS GIS Portal
 - Data can be available in real time or near real time
 - Connected or disconnected environment
- Allows data to be QA/QC quickly and efficiently

USDA
United States Department of Agriculture

How do I obtain mobile applications?



USDA
United States Department of Agriculture

PPQ teams associated with mobile tools

- BISSM - Business Information Systems Strategy and Management
- IT CS – Information Technology Customer Service in Field Operations
- DART – Data Analysis Risk and Targeting in Field Operations – End User Tools

USDA
United States Department of Agriculture

PPQ teams associated with mobile tools

- PPQ is working on a National Plan for mobile technology
- The Plan will guide customers through the workflow of:
 - ✓ Building requirements
 - ✓ Loading applications onto devices
 - ✓ Training
 - ✓ Feedback

USDA
United States Department of Agriculture

What is needed

- Current applications have flexibility to work on Windows, iOS and Android environments.
- Need eauthentication
 - Cooperators need at least eAuth Level 1 which is free and easy to obtain by going to <https://identitymanager.eems.usda.gov/registration/index.aspx>
- Need input from program Cross Functional Working Group.

USDA
United States Department of Agriculture

PPQ Field Ops DART End User Tools Group

- PPQ Field Operations standing up a group to assist with:
 - Training
 - QC
 - Feedback on mobile survey applications

USDA
United States Department of Agriculture


Questions?

2017 National Plant Board Updates


*Ann Gibbs
NPB Vice President, ME*




NPB leadership




Joe Collins
Kentucky




Ann Gibbs
Maine



Aurelio Posadas
NPB Executive Sec.
California



John Caravetta
Arizona



Geir Friisoe & Magnus
Minnesota

NPB Website

- Content manager Charles Elhard – ND
 - Webmaster Brad White – WA
- Committee assignments
 - We need your help!
- State Summaries
- Meeting info
- Minutes
- Basement
 - Password protected
 - Useful tools
 - Past presentations/webinars
 - PPQ contact list
- Strategic Alliance docs



Members on Standing Committees

Resolutions

- Collin Wamsley (CPB) Chair
- Piera Siegert (EPB) up and coming Chair
- Brian Kuhn (CPB)
- Kenneth Calcote (SPB)
- Chris Logue (EPB)
- Brad Lewis (WPB)

Awards

- Julie Van Meter (CPB) Chair
- Ann Gibbs (EPB)
- Joe Collins (SPB)
- Mitch Yergert (WPB)

EPB Members on Non-NPB Committees

- | | |
|---|--|
| <p>Cooperative Agreements
Joe Zoltowski</p> <p>Domestic Data & Systems Task Force
Chris Logue</p> <p>GM Manual Review
open</p> <p>GM Moving Industry Group
Joe Zoltowski</p> <p>LBAM Trapping review
Joe Zoltowski</p> <p>National CAPS Committee
Piera Siegert</p> <p>NCPN
Vicki Smith</p> | <p>NPAG
Vicki Smith</p> <p>P. Ramorum regulatory
Vicki Smith, Dana Rhodes</p> <p>Potato Wart Working Group
Ann Gibbs</p> <p>Farm Bill
Dana Rhodes, Ann Gibbs, Vicki Smith, Chris Logue</p> <p>Pollinator Issues
Faith Kuehn</p> <p>PPQ/NPB Interagency Relations Committee
Ann Gibbs</p> |
|---|--|

EPB Reps on Non-NPB Committees

- | | |
|--|--|
| <p>CARPOL (PPQ initiative)
Saul Vaiciunas (NJ)</p> <p>Cooperative Agreements
Margaret Kelly (NY)</p> <p>Export Certification
Sarah Scally (ME)</p> <p>National CAPS Committee
Katya Nikolaeva SSC (PA)</p> <p>NCPN
Margaret Kelly (NY)</p> | <p>Post-Entry
Bob Trumbule (MD)</p> <p>NAPPO Expert Group
Margaret Kelly (NY)</p> <p>National GM Mgmt Board
Don Eggen (PA)</p> |
|--|--|

SPHD/SPRO Dialog

- Opportunity for state and federal program discussions
- Items for discussion
 - Cooperative agreements
 - MOUs
 - Personnel available/specialities
 - State regulations
 - Who has authority in certain situations
 - Data collection
- Organizational charts
- Complete over time
 - Revisit over time



- New pest(s) found in your state
- New to US
- Sent email by president asking for permission to share with NPB
- If needed, sharing can be delayed
- If no response within 2 weeks, message will be forwarded

PPQ Weekly Reports You Should Receive

- PPQ 264 reports
 - State Propagative Plant Shipment Report
- EAN
 - Emergency Action Notification
- Phytophthora ramorum updates
- SITC reports
 - Smuggling Interdiction & Trade Compliance
 - Current or projected operations/activities

PPQ 526 review

- Regional calls
- Online improvement

Gypsy moth - PODS

- High populations of GM in eastern US
- New pathway for GM
- Egg masses detected at CA border states
- Marshalling yards
- Common courier
- PPQ outreach to PODS & Pack Rat
- NPB/PPQ working group:
 - Joe Zoltowski (NJ), Larry Nichols (VA), Scott Schirmer (IL), Jeff Knight (NV), Helmuth Rogg (OR), Nick Condos (CA)
- Follow up ~Aug after egg mass surveys are completed in GM regulated areas



Interagency Relations Committee

- Committee under the strategic alliance umbrella to strengthen and enhance the partnership between PPQ & NPB by improving communication
- Utilized case studies looking at different scenarios from across the country
- Conducted focus groups on three case studies – TCD, Chinese Hickory and Chinese Pine Furniture
- Data from the focus groups was reviewed by the committee at a meeting in March and formed the basis for identifying and developing strategies to improve communication.
- Draft implementation plan will be presented at the June NPB BOD/PPQ meeting

Greer Gardens



- APHIS requested Office of General Counsel (OGC) to take action
 - End of FY 2016
- OGC is reviewing administrative filing and penalty recommendation
- Review may take some time
 - Large file
 - Transition of new administration
- Greer Gardens responded to initial investigation findings
- Greer will respond to administrative filing when OGC review is complete

Chinese Log furniture



- Raw wood furniture
 - Majority sent to MN & WI
- Business operates under multiple names
- Velvet longhorned beetle
- Trapped in the environment in MN
 - Established in UT
- PPQ looking into long term solutions
 - Reviewing APHIS authorities
 - Updating manuals, procedures etc
 - Coordinating with CBP

NPB "projects"



- New SPRO training
 - Mentor system
 - SPRO "manual"
 - Your input
- Website review
 - Content
 - Format
 - HIS using website
 - www.nationalplantboard.org/hiscc
- NPB review
 - Are we hitting the mark?

Program Reviews

- Oct held states only IFA program review in St Louis
 - Idea was born out of the WPB
 - 26 states represented
 - Mixture of fully quarantined, partially quarantined and non-quarantined states
 - Open and frank discussions
- Template for other reviews
 - Firewood – is it time to try a harmonized quarantine again?
 - TCD quarantine
 - P. ramorum
 - Others

SANC update

- Full implementation of program by 2021
- Existing SANC states move forward w/ new facilities
- SANC plants coming to your state this spring
 - Conard Pyle SANC logo on boxes
 - McKay SANC logo on invoices
- 2 regional trainings planned 2017
 - Southern CA – July
 - PA – Nov w/ large #CA inspectors

Status of Phase I Nurseries

	Conard Pyle	Forest Keeling Nursery	McKay Nurseries	Oregon Pride Nurseries	Southern CA Nurseries	Oregon Nurseries	Forest Keeling Nurseries	Southwest Nurseries
Site Assessment	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
Plant Management Plan	Complete	Complete	Complete	Complete	Unsure of status	Complete	Complete	Complete
Compliance and Financial	Complete	Complete	Draft in progress	Complete	Unsure of status	Complete	Complete	Complete
Staff and Training	Complete	Complete	Draft in progress	Complete	Unsure of status	Complete	Complete	Complete
NPB Management	Complete	Complete	Draft in progress	Complete	Unsure of status	Complete	Complete	Complete
Regional North Presentation	Complete	Complete	Draft in progress	Complete	Unsure of status	Complete	Complete	Complete
Regional South Presentation	Complete	Complete	Q2 2017	Complete	Unsure of status	Complete	Complete	Complete
Grow Review of Nurseries	Complete	Complete	Q2 2017	Complete	Unsure of status	Complete	Complete	Complete
External Audit	Complete	Complete	Q2 2017	Complete	Scheduled for 3/17	Complete	Scheduled for 3/20/17	Complete
SANC Inspections	Accredited 11/16	Accredited 2/17	Accredited 12/16	Accredited 12/16	Accredited 12/16	Accredited 12/16	Accredited 12/16	Accredited 12/16

Shipping under SANC logo Spring 2017:

- Conard Pyle
- McKay Nursery
- Oregon Pride
- Forest Keeling

Status of Phase II Nurseries

	Grandview Nursery TX	Intersect Nursery DC	Southwest Nursery OK	DS Cole-German	Inventory Nursery	Evergreen Nursery	Northern Nursery	CA 1925
Risk Assessment	In Progress, Site Review by April	Complete on-site scheduled for March 21-22	Complete on-site scheduled for March (29)	In Progress	Complete w- on-site review complete	Delayed until late summer 2017	In Progress	2Q 2017
Pest Management Plan	2Q 2017	2Q 2017	2Q 2017	2Q 2017	In Progress	3Q 2017	2Q 2017	2Q 2017
Documents and Records	2Q 2017	2Q 2017	2Q 2017	2Q 2017	2Q 2017	3Q 2017	2Q 2017	3Q 2017
Staff and Training	2Q 2017	2Q 2017	2Q 2017	2Q 2017	2Q 2017	3Q 2017	2Q 2017	3Q 2017
SANC Management	2Q 2017	2Q 2017	2Q 2017	2Q 2017	2Q 2017	3Q 2017	2Q 2017	3Q 2017
Internal Audit Procedure	2Q 2017	2Q 2017	2Q 2017	2Q 2017	2Q 2017	3Q 2017	2Q 2017	3Q 2017
Market Review	3Q 2017	3Q 2017	2Q 2017	3Q 2017	2Q 2017	3Q 2017	3Q 2017	4Q 2017
Site Review of Market	3Q 2017	3Q 2017	2Q 2017	3Q 2017	2Q 2017	4Q 2017	3Q 2017	4Q 2017
External Audit	3Q 2017	3Q 2017	2Q 2017	3Q 2017	2Q 2017	4Q 2017	3Q 2017	4Q 2017
SANC Procedures								

- Sister operations
 - Greenleaf (2)
 - Southeastern Growers
- New facility but state was in Phase 1
 - Evergreen Nursery - WI
- New states
 - Dickman – NY
 - DS Cole – NH
 - Willoway – OH
 - Altman – CA (2 locations)

NPB Annual Meeting Savannah, GA August 12-17, 2017

One of the most haunted cities in the US



Hyatt Regency – Bay Street Host: Mike Evans





Chippewa Square Forrest Gump

It's going to be warm!!!
Average high temperature in August is 90° with 79% humidity.
Plan accordingly!

Why attend NPB?

- Federal and Partner updates
- New and emerging pests
- Hemp – find out what other states are doing
- Pollinators
- SANC – it's coming. Are you ready? How will it affect you even if you are not a shipping state?
- Meet new members, and network with state and federal colleagues
- **Provide needed input on NPB business at the Annual Business Meeting**
- We hope to see you there!




USDA United States Department of Agriculture

APHIS

PPQ Field Operations

Matt Royer Ph.D.
Associate Deputy Administrator
USDA-APHIS-PPQ Field Operations
Eastern Region Plant Board Meeting
Martinsburg WV April 5, 2017



USDA United States Department of Agriculture

Field Operations Realignment

AED & SPHD
Area of Responsibility



Area	SPHD	Contract
Alaska
Arizona
California
Colorado
Florida
Georgia
Illinois
Indiana
Iowa
Kansas
Michigan
Minnesota
Missouri
Montana
Nebraska
Nevada
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
South Carolina
Texas
Utah
Virginia
Washington
West Virginia
Wisconsin
Wyoming


USDA United States Department of Agriculture

Diana Hoffman Scott Sanner Clint McFarland

Katie Hough

Craig Southwick

Sherry Sanderson: PPQ IT and DART Calvin Shuler



USDA United States Department of Agriculture

Field Operations Management Team



USDA United States Department of Agriculture

Financial Information


The five largest Allocation areas were:

1. Specialty Crops- \$118,022,724
2. AQI User Fees- \$101,341,780
3. Tree and Wood Pests- \$43,465,572
4. Farm Bill- \$35,535,471
5. AQI Appropriated- \$23,254,316

Total budget amount: \$387 million

Financial Information and Resource Management


FY15 ALLOCATION



USDA United States Department of Agriculture

Regional Programs

UPDATES ON SELECTED PROGRAMS



Asian Longhorned Beetle Eradication

There were no adult beetles found by the Massachusetts ALB eradication program

- ❖ a first since the start of the program in 2008
- ❖ Final surveys were completed in eastern Queens, New York
- ❖ An insecticide treatment study started in Clermont Co, OH
- ❖ Roam- a new data management system for ALB was implemented

Asian Longhorned Beetle Program

The distinctive-looking Asian longhorned beetle is native to China and Korea. It feeds on a wide variety of trees in the United States, and feeding eventually kills the trees.

Field Operations is working to eradicate this beetle from the United States.

The Department eradication program for our first six adult beetles in 2014, which is the first time the longhorned beetle eradication effort began in 2008.

Asian longhorned beetle program officials developed and implemented a new data management system called Roam.

An insecticide treatment study began in Clermont County, Ohio.

Final surveys were completed in eastern Queens, New York.




Photo by Stevie Sledge, USDA Forest Service, Massachusetts


Emerald Ash Borer Program

The emerald ash borer (EAB) is an invasive beetle that kills ash trees. The Field Operations EAB program works to maintain ash as a viable component of the American landscape.

- Added 29,000 square miles to EAB regulated area to protect against human mediated movement
- Conducted surveys for EAB in 33 states
 - Detected 19 times outside of regulated area
 - Five new states had detections
- Raised multiple biological control agents and released in 24 states and two Canadian provinces
- Transferred technology to rear *Spathius galinae*. Reared over 20,000 from a starter colony of 500.

Field Operations conducted surveys for EAB in 33 States. In 2016, we successfully detected EAB outside of regulated areas 19 times, which includes detections in 5 new states.

We added 29,000 square miles to the regulated area to protect against human mediated movement of EAB.



Field Operations also worked to release over 1 million parasitized branches to act as biocontrol agents for this beetle.

We raised the following parasitoids and released them in 24 states, 2 U.S. and two Canadian provinces:
 43M ABD (Dacnusa areolaris) were collected from 2011-2016.
 27,448 Spalangia were collected in 14 states and 33 provinces.

We successfully reared parasitoids from more than 20,000 Spalangia pupae. The collected parasitoids are being reared in 14 states and 33 provinces.


Photo by Stevie Sledge, USDA Forest Service, Massachusetts

Plum Pox Virus Eradication

Niagara County New York
 Continues to remain negative for PPV


A single find of PPV occurred in Ulster County New York. Resulted in quarantine and regulated areas in parts of Ulster and Orange Counties.

Ongoing challenge:
 PPV program in two areas of New York separated by over 400 miles



Plum Pox Virus Eradication Program

- Orchard Survey
 132,454 samples taken from 1,057 blocks
- Residential Survey
 7,665 samples were collected from 39,106 properties



Niagara County New York has remained negative for PPV for the past several years. A single PPV find in NY, occurred in Ulster County.

Farm Bill- 10007


The Eastern Plant Board States received: **\$6,429,906** for FY 17 projects

A total of 84 suggestions were funded to State Departments of Agriculture or Academic Institutions

- 43 Goal 1- Survey
- 15 Goal 6-Emergency Response and Mitigation
- 13 Goal 5- Outreach and Education
- 10 Goal 3-Enhance Pest ID and Technology
- 3 Goal 4-Safeguard Nurseries

Safeguarding American Agriculture and Trade

Fruits of the Farm Bill Section 10007 include...



STRATEGIC GOALS

Mobile Data Solutions

PPQ is currently supporting four mobile solutions:

- IPHIS Collector
- ESRI Collector
- E- trap
- ROAM

Demonstrations available:
 Adam Brookbank
 Mark Crane



GENERAL UPDATES


ezFedgrants and Agreements

The new portal to handle agreements: ezFedGrants and Agreements System is in place. External Cooperator Information Links and help is available.

Field Operations typically processes **500** agreements in a fiscal year

To date there have been **30 obligated** and **103 pending**

In FO **\$24 million** has been obligated and typically **\$26.8 million** has been obligated by APHIS at this time of the year



Budgets

2017

- Operating under a continuing resolution until April 28, 2017
- Funding estimates are based on 2016 allocations
- Programs with challenges:
 - GM
 - CHR
 - FF
 - Predeparture

2018

- Budget Blueprint
- Early in the process of budget development
- Updates provided
- APHIS mission remains constant and unchanged

Annual Report- 2016

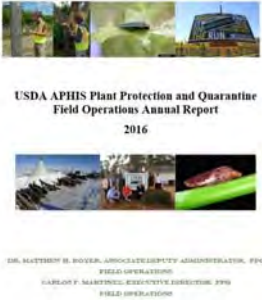
Storage drives containing the report

Complete version- 214 pages

Infographic version- 40 pages

Additionally on the drive:

- An updated National Operations Manager (NOM) directory
- Field Operations maps
- Other information pieces (IT, etc.)



Questions?

STATE OF THE REGION

Eastern Plant Board
2017

State	Licensed	Inspections	State Phyto	Federal Phyto	Apiary Inspections
CT	479	500	67	308	1300
DE	728	*	2	9	1013
MA	1276	197	*	646	*
MD	311	1745	326	*	6167
ME	1321	826	11	467	9794
NH	782	181	10	10	*
NJ	1089	786	66	93	2285
NY	5953	4387	*	*	*
PA	8142	3908	505	434	*
VT	492	182	*	*	*
WV	455	188	*	2735	*

CONNECTICUT



185 Federal Phytos to Dominican Republic for Tobacco
10,000 plants inspected for CWR
192 Bee colonies sampled for National Honeybee Survey

DELAWARE



Honeybees pollinate \$20 million of fruit and vegetable crops.
Emergency Response Plan for 15 high-impact pests developed.
RIFA inspections conducted at 35 sites – zero found.

MASSACHUSETTS



Top pests/pathogens found Scorch, Winter Moth and Gypsy Moth.
ALB outreach 40 events.

MARYLAND



Mack inspected 1736 bee colonies.
129 locations inspected for RIFA with 2 positives.
Maryland Certified Professional Horticulture program expanded to high school students with 70 taking the exam.



MAINE
Home of the next NPB President!
1045 samples taken representing 9592 acres of seed potatoes.
No EAB or ALB found.



NEW HAMPSHIRE
Grower DS Cole entering SANC Phase II. They are currently in GCP.
Inspected lots of Hemlock!
NHbugs launched a new facebook page for forest pest health risks.



NEW JERSEY
6 NJ growers participated in the Blueberry Plant Certification program.
1,557,515 blueberry plants inspected.
31 NJ blueberry growers were approved for the 2016 Canadian Blueberry Fruit Certification Program



NEW YORK
HEMP! HEMP! HEMP!
One grower grew 30 acres of hemp for research to utilize hemp for baby salad greens.
Dickman Farms SANC Phase II
4983 soil samples collected representing 134 fields, no new detections outside of golden nematode quarantine.



PENNSYLVANIA
Conard Pyle SANC Certified Participant!
2 business beginning Risk Assessment for SANC.
Hemp Law passed
Control Plant and Noxious Weed Act looks good to pass in 2016.



Surveyed for 14 pests for CAPS program in 2016.
Collected 92,193 mosquitoes to test for West Nile Virus and Eastern Equine Encephalitis.
Increase in number of registrants and acres for growing Hemp.



WEST VIRGINIA
Gypsy Moth Slow The Spread
trapped 34,060 male moths.
Treated 550 hemlock woolly adelgid
on state lands.



NEW OFFICERS
Chris Logue, NY – President
Piera Siegert, NH – Vice President
Tim Schmalz, VT – Sec./Treasurer

**Office of Field Operations
Agriculture Programs and Trade Liaison**



**Eastern Plant Board
April 5, 2017**



Kevin C. Harriger



A Day in the Life...

FY 2016

Passenger Inspections	23,200,264
Cargo Inspections	740,992
Quarantine Material Interceptions	1,772,372
Pest Interceptions	
Submitted	152,850
Reportable Pests	61,873
Total Civil Violations	78,787



Federal Noxious Weeds

Pathway	FY 15	FY 16
Passenger	6,613	5,915
Cargo	3,353	4,047
Total	9,966	9,962



3



Federal Noxious Weeds (continued)

Common Name	FY 15	FY 16
Itchgrass	292	146
Cogongrass	936	1,757
Chinese Water Spinach	818	947
Liverseed Grass	19	7
Crofton Weed	0	1
Mile-a-Minute Weed	2	0
Common Crupina	1	0
Tropical Soda Apple	1	1
Three-Cornered Jack	1	0



4



Don't Pack a Pest (DPAP) Campaign

- DPAP is partnership between State Departments of Agriculture, USDA, and CBP in FL, TX, and CA
- Expanded into the Caribbean and Mexico, and will be facilitated into PreClearance locations by CBP
- “When You Travel, Don't Pack a Pest. Declare Agriculture Items”



5



Emergency Action Notifications (EANS) and Pest ID

- APTL facilitated national training at the Miami Seaport and via webinar
- All CBPAS were given ITDS training to meet phased-in deployment dates
- New EAN and Pest ID modules are operational, and have only required minor adjustments following the initiation phase



6



Agriculture Risk Based Passenger Assessment

- APTL is currently delivering the ARBPA methodology to ports to improve passenger secondary efficacies
- The methodology is an improved assessment and selection system that focuses on existing port methods for improved passenger selection.
- The ARBPA is a two week course that teaches improved passenger systems skills, basic risk analysis, and rehouse passenger data reporting skills
- APTL will train a cadre of CBPAS Field Trainers



Field Operations



7

National Agriculture Cargo Targeting Unit (NACTU)

- NACTU has assumed a field support role and is available via a direct field support hotline to provide guidance and assist with research requests to analyze field agriculture intelligence
- Conducted three apprenticeships in FY2016 to develop field targeting expertise under the guidance of permanent NACTU members
 - Will conduct four additional apprenticeships in FY2017
- Developing multiple user defined parameters to automate the targeting process for ports and expedite referrals



Field Operations



8

Agriculture Bio-Terrorism and Countermeasures

- ABTC has advised on development of training to provide a realistic approach to Handling Biological Agents and Vectors (HBAV)
- DHS and USDA will be coordinating on providing instructors
- A pilot class was conducted at the end of FY2016
- This course will be implemented in New Officer Training in 2017



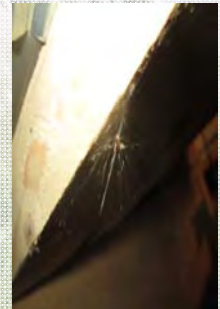
Field Operations



9

First in Port Interception of FNW

- Shipment of mixed autoparts into Calais, ME
- Seeds found on the back of a crate
- Identified as FNW
Saccharum spontaeum



Field Operations



10

Camel Chaps



- John F. Kennedy International Airport
- Manifested as "souvenirs," CBPAS discovered eight camelid fur chaps

- Upon inspection, the fur was found to be heavily contaminated with weeds
- Interceptions were identified as *Rumex spinosus*



Field Operations



11

K9 Sniffs Out Plant Materials

- Newark Liberty International Airport from Burma
- CBP K9 "Waldo" alerted to checked baggage with undeclared planted materials
- Citrus leaves were found have Citrus Canker



Field Operations



12

Mediterranean Menace

- Philadelphia Seaport
- Fruits were found to be infested with *Ceratitis capitata*, the Mediterranean fruit fly (MFF)
- Subsequent discovery of MFF resulted in a Federal Order prohibiting Moroccan Citrus from the Berkane region of Morocco

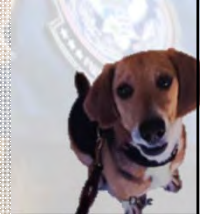


13

Field Operations



Please direct your questions to Murray



14

Field Operations



NEW YORK STATE OF OPPORTUNITY | Department of Agriculture and Markets | Division of Plant Industry Industrial Hemp Research Pilot Program

Industrial Hemp Pilot Research Pilot Program in New York State

Chris Logue, Division Director

NEW YORK STATE OF OPPORTUNITY | Department of Agriculture and Markets | Division of Plant Industry Industrial Hemp Research Pilot Program

Federal Landscape

- Section 7606 2014 Farm Bill- https://www.votehemp.com/PDF/Pages_from_farm0127.pdf
- Omnibus Budget Bill-
- Guidance document issued by FDA, DOJ and USDA-Summer 2016 <https://www.federalregister.gov/documents/2016/08/12/2016-19146/statement-of-principles-on-industrial-hemp>

Chris Logue, Division Director

NEW YORK STATE OF OPPORTUNITY | Department of Agriculture and Markets | Division of Plant Industry Industrial Hemp Research Pilot Program

History of the Program

- Original bill signed December, 2014
- First set of regulations developed in 2015
- Applicants limited to institutions of higher education (by regulation)
- Authorizations limited to ten (by statute)

Chris Logue, Division Director

NEW YORK STATE OF OPPORTUNITY | Department of Agriculture and Markets | Division of Plant Industry Industrial Hemp Research Pilot Program

Current status and Future Directions

- 2017 State of the State address
- Recent open application period
- Legislation to remove the 10 license limit
- Development of new regulations

Chris Logue, Division Director



NEW YORK STATE OF OPPORTUNITY | Department of Agriculture and Markets | Division of Plant Industry Industrial Hemp Research Pilot Program

- Interim Program Guidance Document <https://www.agriculture.ny.gov/PI/PIHome.html>
- Questions ??


Chris Logue, Division Director

Boxwood Blight in Pennsylvania






History




- First Found in US 2011 in CT and NC
- First Found in PA 2012 Lancaster County




History

- First discovered in 2011
- NPB, AmericanHort, and USDA Response
- Boxwood Clean Program Compliance Agreement
- Pennsylvania supported initiative for industry to regulate the disease




Boxwood Blight in PA




Trace Forward/Inspections

- 2012 – 2 locations with positives
- 2013 – 12 Locations with positives
- 2014 – 62 samples submitted
 - 9 Positive
- 2015 – 150+ locations for trace forwards
 - July – 69 samples
 - 20 Positive
 - October – 32 samples
 - 10 Positive
- 2016 – 94 Samples
 - 15 Positive




Boxwood Blight in PA

Sources



- No PA Producer has been found with positive for Boxwood Blight
- All positives traced to incoming material from out of state producers/suppliers




Pennsylvania Response

2015

- Reviewed information regarding trace forwards
- Determined that state needed assistance

2016

- Determined Quarantine was needed to manage disease
- Notified industry reps for production, retail, landscape, gardens.




What Do We Know?

The Disease

- Plant Diseases are difficult to regulate
- Systems approach programs helpful
- Due to preventative applications disease presents 4-6 weeks after being received in trade
- Not established in the environment in PA


Gardens

- Boxwood are considered a foundation plant for landscapes
- Historic established gardens have boxwood.
- Public Gardens large gardens featuring boxwood.




PA Response

Quarantine




- Destruction of positive material in trade or for residential setting
- ALL producers/suppliers found positive must implement systems approach to mitigate disease
- Positive find at one chain location, all stores subject to "Stop Sale"




PA Response

Quarantine



- Requires no compliance agreement or clean boxwood program until after the 1st positive is associated with a producer.
- Does not require non-producers to use clean boxwood participants.
- Does require non-producers to have compliance agreement after 1 positive.




PA Response

Requirements for Positive material

- No requirement other than AD on phyto or inspection until there is a positive
- 1st Positive implement clean program
- 2nd Positive more intensive sampling and destruction
- Producer/Supplier not allowed to ship *Buxus (sp)* to Pennsylvania locations after 3rd positive


Wholesales/Retailers or Non-Producers

- Implement Clean Boxwood Non -Producers Program
- New Policy: If boxwood material purchased from grower in a "Clean Program" for more than 12 months, may sell plants immediately




PA Response

Quarantine



- Different from other Quarantines
- Equal for PA Suppliers/Producers and Out of State Suppliers/Producers
- Preventative
- Utilizes Systems Approach
- PDA Staff will:
 - Plant Inspectors work with companies on Boxwood Clean Program
 - Implement systems approach to disease control
 - Verify systems approach working
 - Customize programs to the facility



Results for 2016

- 15 Positives in State in 2016
 - Landscapers
 - Retail Operations
 - Small Independent Garden Centers
 - Medium Chain - 7 locations
 - Decided to no longer sell boxwood
 - No Large Box Store Positives




Other State Response to Quarantine



- Helped Industry Take Boxwood Blight Seriously
- Made Clean Programs Mandatory to ship into PA
- Creating a demand for Clean Program boxwood material
- Creating dialogue between industry producers, inspectors, and suppliers



Future



- Additional states working on quarantine language
- Industry working to find solutions to shipping, safeguarding, and educating customers
- More participants in clean programs which mitigate disease issues



Federal Recognized State Managed Program - FRSMP



- APHIS cannot require state imposed regulations to CDFA
- PDA will be filing for FRSMP
- Other states considering quarantine may want to consider



Continued Needs



- Work with USDA when positives received from Canada – disease can take time to present
- Additional outreach to industry - AmericanHort
- Continued research for cure, recommendations for plantings, etc.



Questions



Longwood Gardens





Systems Approach to Nursery Certification

Regional Plant Board Update
2017

Dana D. Rhodes, PA Department of Agriculture, SANC Chair

What is "systems approach?"



SANC
Systems Approach to Nursery Certification

Plant certification which is based on identification of those areas which pose a risk for introduction or spread of plant pests and implementation of Best Management Practices to mitigate those risks
At least 2 systems in place for mitigation



History of SANC.....

- ▶ Began in 2010
- ▶ Cooperative effort involving:
 - AmericanHort / OFA
 - National Plant Board (State Departments of Agriculture)
 - USDA APHIS
- ▶ Pilot Phase I – Began October 2014
- ▶ Pilot Phase II – Began October 2016



SANC Leadership



Ken Rauscher
NPB Program Associate



Dana Rhodes-PA
SANC Chair



Wayne Dixon
NPB Program Associate



Aurelio Posadas
NPB Executive Secretary




Regional Participants – Eastern

- ▶ Eastern Plant Board
 - CT– Vicki Smith
 - ME– Ann Gibbs, Sarah Scally
 - NH–Piera Siegert, Morgan Dube
 - Phase II facility – DS Cole
 - NJ– Joe Zoltowski, Galen Ettinger, Ryan Rieder,
 - Pilot Facility – Lucas Greenhouses
 - NY– Chris Logue, Dorthea Duell
 - Phase II Facility – Dickman Farms Nursery
 - PA– Dana Rhodes, Tina Stimmler, Sarah Gettys
 - Pilot Facility– Conard Pyle



Phase I Update

Grower	RA	PMP	SANC Manual	Internal Audits	External Audits	Certified Participant
Conard-Pyle	✓	✓	✓	✓	✓	✓
Forrest Keeling	✓	✓	✓	✓	✓+	
Walla Walla Nursery	✓	✓				
Lucas Greenhouses	✓	✓				
Oregon Pride Nursery	✓	✓	✓	✓	✓	✓
Greenleaf Nursery	✓	✓	✓	✓	✓+	
Southeastern Growers	✓	✓	✓	✓	✓	
McKay Nursery	✓	✓	✓	✓	✓	✓



What We've Learned- Phase I

- ▶ Companies like the definition of structure provided
- ▶ Employees taking more ownership
- ▶ In the original 8 Pilot Companies - 7 experienced major management changes and continued
- ▶ Even though some are not progressing as they had hoped they don't want to stop
- ▶ Upper management MUST be engaged
- ▶ SPRO's MUST be engaged



What We've Learned - Phase I

- ▶ Companies value the SANC Logo
- ▶ States are strengthening relationships with participating companies
- ▶ SANC is being sought by companies hearing about it from Pilot companies and industry trade shows



Phase II Update

Grower	RA	PMP	SANC Manual	Internal Audits	External Audits	Certified Participant
Angel Creek, GA						
Greenleaf Nursery, NC	✓					
Greenleaf Nursery, TX						
DS Cole, NH	✓					
Willoway, OH	✓					
Evergreen, WI	✓					
Dickman Nursery, NY						
Altman Growers, CA						



Considerations for Phase II

- ▶ US/Canadian Greenhouse Certification Program (GCP) and SANC compatibility
- ▶ Sister Operations
- ▶ States with Prior Facilities
- ▶ New States little to no SANC involvement



SANC - Advantages for States

- ▶ Improved Working Partnership with Industry
- ▶ Reduction in the spread of plant pests
 - Eliminates reliance on inspections based on "snapshot in time"
 - Reduces issuance of stop sales, destruction
 - Reduction in trace-back investigations
- ▶ Improved time management
- ▶ Receiving States know the steps taken to be certified



SANC - Advantages for Growers

- ▶ Business Operations Planning
- ▶ Product Ownership by ALL Employees
- ▶ Finding creative ways to implement change
- ▶ Participants willing to share information with new companies
- ▶ Want to find SANC Certified growers as suppliers - Start Clean-Stay Clean




SANC – The Final Product

- ▶ Scalable
 - Works for small and large operations
- ▶ Consistent across states
- ▶ Accepted by states
- ▶ Ease of Implementation
 - Not cumbersome (but it does require considerable effort)




Ongoing Committee Work

- ▶ Training
 - Shift to Regional Trainings
 - Web based Training options being explored
- ▶ Pilot
 - Phase I and II Progress
 - Transition
- ▶ Document Review
 - Accuracy/Consistency
- ▶ Evaluation
 - Learn what works and what to improve
- ▶ Outreach
 - Recognize Participants
 - State/Industry Awareness
 - Review web page
- ▶ Inspector
 - HIS Training Tools



Next Steps

- ▶ Vote by NPB Membership to acknowledge SANC Program
- ▶ Transition
- ▶ SANC Electronic Risk Assessment – SERA
- ▶ Full Implementation of SANC program to states by the year 2021
- ▶ Implement Governance Board for SANC
 - Representatives from
 - AmericanHort
 - USDA-PPQ
 - NPB – Regional Representation
 - NPB – Executive Committee/Executive Secretary
- ▶ Engage more Extension Educators
- ▶ Raise awareness of program with industry and states



Transition

- ▶ States with Certified Participants may work with new companies in their own state beginning June 1
- ▶ Phase I and Phase II continue to work towards certification



For more information:

<http://sanc.nationalplantboard.org/>




For Outreach Materials:

<http://sanc.nationalplantboard.org/>




From Concept to Program



To All The Ones Who Make It Happen!



Questions?



...Promoting a harmonized, risk-based systems approach to nursery and greenhouse certification



USDA Forest Service State and Private Forestry

Molecular techniques for early detection of forest pathogens

Isabel Munck, Plant Pathologist
USDA Forest Service

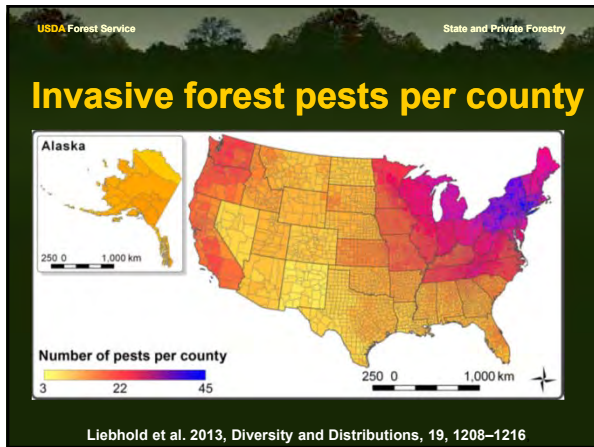
Piera Siegert, State Entomologist,
New Hampshire Department of
Agriculture, Markets and Food



USDA Forest Service State and Private Forestry

Cost of invasive forest pests

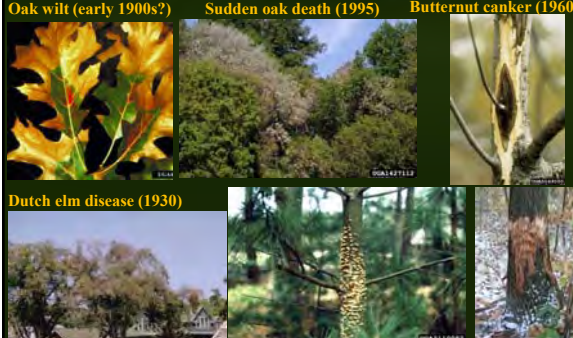
- Billions of \$ annually
- Costs borne by Federal, State, local agencies
- Most of the cost, inferred by home owners; loss of value & tree removals
- Cost associated with loss of ecosystem services?



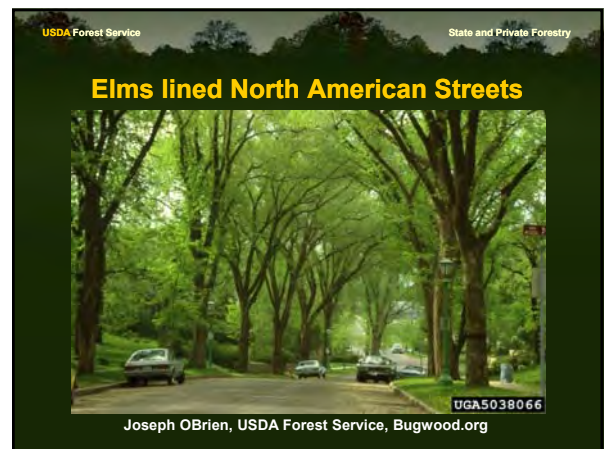
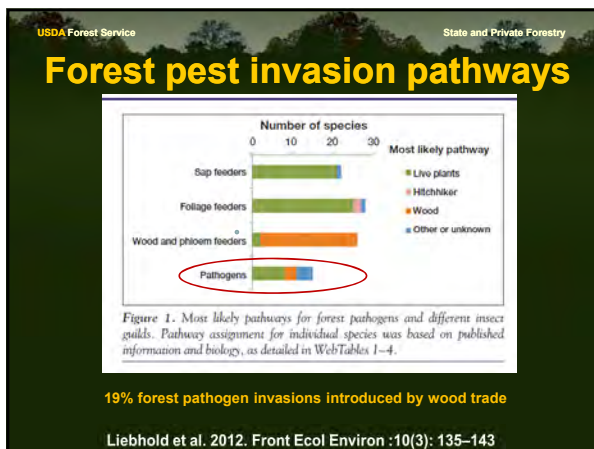
USDA Forest Service State and Private Forestry

Introduced forest diseases

Oak wilt (early 1900s?) Sudden oak death (1995) Butternut canker (1960s)



Dutch elm disease (1930) White pine blister rust (1906) Chestnut blight (1904)



USDA Forest Service State and Private Forestry

Cost of Dutch Elm Disease (DED)

- DED introduced via wood trade
- 75% (77 million) elms lost in North America
- 90% elms lost in France
- Winnipeg spends \$3 million annually to combat DED

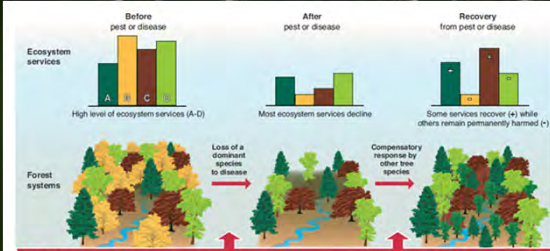
USDA Forest Service State and Private Forestry

Cost of DED-related loss of ecosystem services?



Minnesota Department of Natural Resources, Bugwood.org

USDA Forest Service State and Private Forestry



Before pest or disease: High level of ecosystem services (A-D)

After pest or disease: Most ecosystem services decline

Recovery from pest or disease: Some services recover (a) while others remain permanently harmed (c)

Forest systems: Loss of a dominant species to disease → Compensatory response by other tree species

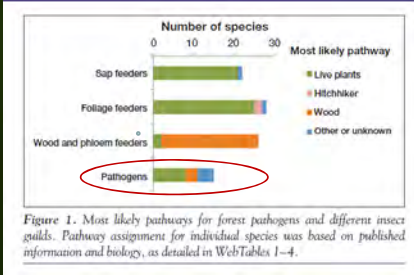
Possible management interventions: Prevention policies (e.g. rules-based logging) → Adaptation policies (e.g. planning, breeding, management)

Fig. 1. A forest providing numerous ecosystem services is subject to a disease epidemic that reduces the abundance of a dominant native species, resulting in a change in forest structure. Initially, a wide range of ecosystem services (A to D) are harmed. But as trees grow to replace lost species, some (perhaps carbon storage or water purification) are regained, whereas others are permanently disrupted (perhaps the biodiversity supported by the diseased tree species). Policy measures can both help prevent new diseases being introduced (the first stage) or improve recovery through management practices or planting resistant trees.

I. L. Boyd et al., Science 342, 1235773 (2013).

USDA Forest Service State and Private Forestry

Forest pest invasion pathways



Guild	Most likely pathway
Sap feeders	Live plants
Foliage feeders	Wood
Wood and phloem feeders	Wood
Pathogens	Live plants

Figure 1. Most likely pathways for forest pathogens and different insect guilds. Pathway assignment for individual species was based on published information and biology, as detailed in WebTables 1-4.

49% forest pathogen invasions introduced by live plant trade
Liebhold et al. 2012. Front Ecol Environ :10(3): 135-143

USDA Forest Service State and Private Forestry

White pine blister rust (WPBR) introduced via live plant trade in the early 1900s



USDA Forest Service State and Private Forestry

Cost of WPBR

- From ~1920-1970: \$150 million spent on alternate host, *Ribes*, removals
- \$2 million annually searching for resistant trees and management

USDA Forest Service State and Private Forestry

Cost of WPBR-related loss of ecosystem services?



<https://www.nrdc.org/experts/matt-skoglund/future-whitebark-pine-trees-west>

USDA Forest Service State and Private Forestry

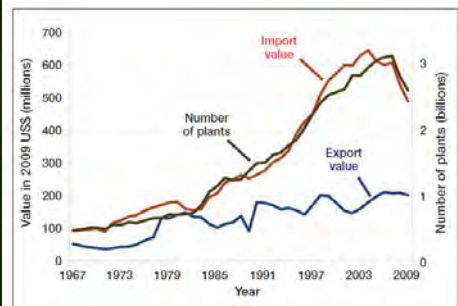


Figure 2. US imports and exports of live plants, 1967–2009. Values are adjusted to 2009 US\$. Data obtained from the US Department of Commerce (2011).

Liebhold et al. 2012. *Front Ecol Environ* :10(3): 135–143

USDA Forest Service State and Private Forestry

Web Table 5. Sources of annual US imports of live trees and shrubs, including fruit trees, rhododendrons, and azaleas

Import source	Average annual imports (in 1000s of plant units)		Percent change
	1989–1993	2003–2009	
Total world	64 838	111 009	7.7%
North America	72 949	114 390	57%
Canada	6	7	
Mexico	0	142	
Central America and Caribbean	0	138	
Costa Rica	0	4	
Asia	12	806	6.617%
Japan	0	55	
China	5	667	
Republic of Korea	0	2	
Taiwan	3	28	
Thailand	0	6	
India	0	1	
all other	4	47	
Europe	1 863	2 042	10%
Netherlands	1 607	837	
France	129	133	
Italy	9	0	
Germany	3	180	
Belgium and Luxembourg	90	236	
United Kingdom	35	3	
Spain	0	633	
South America	11	2	-82%
Venezuela	9	0	
Ecuador	3	0	
Chile	0	1	
Colombia	0	1	
Middle East	2	0	-100%
Israel	1	0	
Turkey	1	0	
Oceania	1	412	41 100%

USDA Forest Service State and Private Forestry

Web Table 5. Sources of annual US imports of live trees and shrubs, including fruit trees, rhododendrons, and azaleas

Import source	Average annual imports (in 1000s of plant units)		Percent change
	1989–1993	2003–2009	
Total world	64 838	111 009	7.7%
North America	72 949	114 390	57%
Canada	6	7	
Mexico	0	142	
Central America and Caribbean	0	138	
Costa Rica	0	4	
Asia	12	806	6.617%
Japan	0	55	
China	5	667	
Republic of Korea	0	2	
Taiwan	3	28	
Thailand	0	6	
India	0	1	
all other	4	47	
Europe	1 863	2 042	10%
Netherlands	1 607	837	
France	129	133	
Italy	9	0	
Germany	3	180	
Belgium and Luxembourg	90	236	
United Kingdom	35	3	
Spain	0	633	
South America	11	2	-82%
Venezuela	9	0	
Ecuador	3	0	
Chile	0	1	
Colombia	0	1	
Middle East	2	0	-100%
Israel	1	0	
Turkey	1	0	
Oceania	1	412	41 100%

USDA Forest Service State and Private Forestry

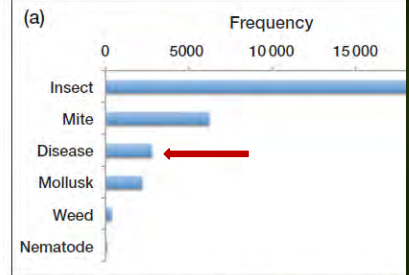


Figure 4. Frequency (number of shipments infested) fiscal years 2003–2010. (a) Types of pests detected. (b)

Liebhold et al. 2012. *Front Ecol Environ* :10(3): 135–143

USDA Forest Service State and Private Forestry

Challenges

- Most plant pathogens are fungi
- Most fungi have not been described
- Of the described fungi, little is known of their biology
- A fungus can live in one plant species without symptoms and be lethal to another species (butternut canker pathogen does not cause symptoms on maple)
- Fungi can hybridize to create new pathogenic races

USDA Forest Service State and Private Forestry

Challenges (continued)

- Most disease surveys at ports of entry are based on visual symptoms
- Pathogens are cryptic
- Most disease surveys in nurseries, etc. are targeted
- What about the unknowns?

USDA Forest Service State and Private Forestry

Molecular Techniques

- Create a list of most “unwanted” forest pathogens in USA and molecular probes for these
- Blind screen a portion of imported live plants prioritizing woody hosts
- Use high-throughput sequencing to identify most common pathogens in live plants

USDA Forest Service State and Private Forestry

Canada’s most unwanted

Molecular Detection of 10 of the Most Unwanted Alien Forest Pathogens in Canada Using Real-Time PCR

Abstract

Recent years have witnessed a rapid increase in the number of alien forest pathogens introduced to North America. Early detection is essential for preventing their spread and subsequent damage to forest resources. To this end, we have developed and validated 10 real-time PCR assays for the detection of 10 of the most unwanted alien forest pathogens in Canada. The pathogens are: *Armillaria mellea*, *Phytophthora ramorum*, *Phytophthora kernoviae*, *Phytophthora cinnamomi*, *Phytophthora alberta*, *Phytophthora cambivora*, *Phytophthora caryocarpae*, *Phytophthora kernoviae*, *Phytophthora ramorum*, and *Phytophthora viticola*.

Species	Target gene	Limit of detection (LOD) ^a
<i>Armillaria mellea</i>	β-tubulin	3
<i>Phytophthora ramorum</i>	β-tubulin	3
<i>Phytophthora kernoviae</i>	EP1	10
<i>Phytophthora cinnamomi</i>	IS5	10
<i>Phytophthora cambivora</i>	β-tubulin	2
<i>Phytophthora caryocarpae</i> (EU race)	PPS2	1
<i>Phytophthora viticola</i>	ITS	1
<i>Sclerotinia pseudobidana</i>	Hsp90	5
<i>Phytophthora kernoviae</i>	Chitinase	5

^a Represented as the copy number of the target gene region.

doi:10.1371/journal.pone.0150855.t001

USDA Forest Service State and Private Forestry

Fungal community analysis by high-throughput sequencing

```

    graph TD
      A[Sampling] --> B[Storing]
      B --> C[Sub-sampling]
      C --> D[DNA/RNA extraction]
      D --> E[Marker and primers]
      E --> F[Multiplexing - PCR]
      F --> G[Sequencing]
      G --> H[Data filtering & denoising]
      H --> I[Sequence clustering]
      I --> J[Taxonomic annotation]
      J --> K[Biological Interpretation]
  
```

Lindahl et al. 2013. *New Phytol* 199: 288-299

USDA Forest Service State and Private Forestry

Potential Solutions

- Use high-throughput sequencing to identify most common pathogens in blind surveys of live plants at ports of entry
- Include commonly introduced pathogens identified in blind surveys in priority pests lists
- Use molecular probes of “unwanted” pathogens in nursery, horticultural, and forest surveys
- Share information with partners!!!

USDA Forest Service State and Private Forestry

Thank you for your attention!!!

Questions????

USDA Forest Service State and Private Forestry

Webites

- Alien Forest Pest Reporter:
<http://www.nrs.fs.fed.us/tools/afpe>
- NA invasive species
<http://www.na.fs.fed.us/fhp/id/index.shtm>

USDA Forest Service State and Private Forestry

Contact:
Isabel Munck
USDA Forest Service
271 Mast Rd
Durham, NH 03801

E-mail:
imunck@fs.fed.us



Text NEPB 2017

Slide #:

1. Intro-molecular techniques are becoming affordable and could be very helpful for early detection of forest pathogens
2. Forest pests cost billions of dollars in prevention, control and restoration. Some costs are incalculable? How do you account for the loss of species? Wildlife habitat, food, species diversity, water quality, forest structure, etc.
3. The coast have a greater number of invasive forest pests. The east coast has the greatest proportion in part because of hardwood hosts, proximity of forests to ports, population density with \$, and history of horticultural introductions for parks and gardens.
4. Along with the plants came the pests. Several devastating forest pathogens have been introduced since the early 1990s. Some have decimated populations of relatively rare tree species such as butternut whereas others other have affected dominant tree species in the landscape such as chestnut blight and sudden oak death.
5. Liebhold et al (researchers from the USFS and universities) examined the invasion pathways of forest pests and diseases that have become established in the USA. An important invasion pathway of forest pathogens, accounting for 18% of invasions, is wood trade.
6. An example of a forest pathogen that was introduced via the wood trade is Dutch Elm Disease. Elms once lined many streets in American cities because of their majestic, V-shaped crowns. DED was introduced in the 1930s via logs from the Netherlands. The pathogen is from Asia and is also an introduction in Europe.
7. DED is a vascular disease that clogs the trees water conducting vessels and causes rapid death. The fungus spreads via root grafts or by bark beetles. Millions of trees died in USA and Europe and many cities still continue to invest heavily to maintain their elm resource.
8. Elms are a riparian species. The loss of trees along streams and river ways and in the ecosystem is impossible to calculate in \$
9. As tree species are taken out by invasive forest pests, some ecosystem services such as carbon sequestration may recovered when other tree species fill in the gaps. Other ecosystem services, such as biodiversity, are permanently lost.
10. Most forest pathogens in the US have been introduced via the live plant trade.
11. White pine blister rust (WPBR) is an example of a forest disease that was introduced in live plants. Although eastern white pine is native, during the early 1900s the demand of seedlings for reforestation exceeded the American supply and seedlings were imported from Europe to the East coast and BC. Some of these were infected with rust, which comes from Asia. The first plant quarantines in the US were established to halt the importation of pines with WPBR
12. Millions of dollars were send of eradication the alternate host of WPBR, currants and gooseberries both native and cultivated. Millions of dollars are spent on restoration
13. Many western white pine species are very susceptible to WPBR including white bark pine a keystone species in Western alpine ecosystems.
14. The importation of live plants is increasing and with that the risk of forest pathogen introductions could also increase

15. The importation of woody plants, which is also increasing, is of particular importance because these are more likely to carry pathogens that would affect trees and be planted outdoors in the proximity of native tree species
16. Most woody plants are imported from Canada (similar tree pathogens) but the proportion of woody plants imported from Asia and Oceania is increasing exponentially.
17. Insects and diseases are intercepted at ports of entry. The number of diseases might be underrepresented due to the cryptic nature of pathogens
18. Most fungal species are unknown. We know very little about the biology of known fungi. Host range? Virulence? Alternatively a fungus could be an endophyte in one plant species (maple) and a pathogen in another (butternut). Fungi can also hybridize and create new races as was the case with DED
19. Many inspections rely on visual symptoms and often infected plants do not have symptoms. Targeted surveys could be missing potential forest pathogens. How do we find the unknowns?
20. Molecular techniques have become the standard to identify fungi. Initially, these were difficult to use and expensive but many labs have standard tests now and the cost of sequencing has become affordable. Molecular probes, or primers, could be developed for a set of pathogens of most concern to the USA. The development of these probes and standardization techniques to use them would greatly help in the detection of pathogens to be of greatest risk. In addition, blind screen could be used to detect potential pathogens that are coming in live plants. A small subsample could be shipped to diagnostic labs.
21. The Canadians have already developed a list of the most unwanted forest pathogens not yet found in Canada. Forest health specialists from Provincial and Federal agencies and universities developed this list based on a set of standard criteria such as probability of establishment, importance of host species, virulence, etc. Molecular probes were developed for these and are being used by diagnostic labs
22. High throughput sequencing and bioinformatics have helped tremendously in the analyses of fungal communities in soils or plant samples. Before one had to isolate fungi, extract their DNA, grow the DNA in Ecoli, sequence, etc. Now the process has become much more streamline with the development of standard DNA extraction kits and modern sequencing machines
23. Knowledge gained from using this type of molecular techniques to identify the fungi imported with the live plant trade could be used to develop targeted lists for surveys. It is also very important to share information across agencies. The USFS, APHIS, State Ag Departments all collect information and it is often difficult to gain access from outside the agency

Horticultural Inspection Society Eastern Chapter

Report of the 43rd Meeting
April 3-6th, 2017
Martinsburg, West Virginia

Horticultural Inspection Society Eastern Chapter 2017 Annual Meeting

18 Inspectors Present From 9 of the 12 Member States

* Connecticut	* New Jersey
* Delaware	* New York
* Maine	* Pennsylvania
* Maryland	* West Virginia
* New Hampshire	

Guest: Western HIS President- Bethany Abrahamson- New Mexico

SANC Update and Discussion

Topics

- Role of the Inspector
- Sharing SANC principles with interested nurseries
- Training opportunities
- Sister facilities
- Scalability studies
- Meshing SANC and USCGCP

2017 Funds

- Awarded \$5000
 - Spending guidelines
 - Harmonizing Inspection Practices
 - Trainings




EHIS Interstate Inspection Training Workshop Concord, NH October 18-20th, 2016

Attended by 15 HIS members representing 9 states



Workshop Focus- Comparing

- Audit programs
- How states work to prevent the spread of invasive plants and pests on nursery stock

Thank you for hosting New Hampshire!!

EHIS Interstate Inspection Training Workshop Highlights

- * Overview of the USCGCP
 - * Process of certifying a greenhouse
 - * Challenges NH faced and solutions developed
 - * Development of an approved plant list
 - * Numbered labeling system created to help with shipment tracking/auditing.
- * NHBugs.org- Cooperating with other agencies to provide information on invasive pests in a one stop reference, and a model for the benefits of collaboration.
- * Update on the SANC program
 - * Progression of pilot programs
 - * Role of inspectors in SANC process
- * Prep for following day's mock audit activities.

EHIS Interstate Inspection Training Workshop Highlights

- * NH invasive plant laws and control efforts
- * Millican Nurseries
 - * efforts to control hitchhiking Japanese stilt grass
- * Lēf Farms- state of the art hydroponic salad greens growing facility
- * D.S. Cole Growers
 - * Owner gave description of the facility/business
 - * Discussed how the USCGCP has worked for their shipping needs
 - * Conducted mock audit at certain CCPs according to USCGCP guidelines
- * Discussion comparing the USCGCP and SANC audit process.

Presentation of Going the Extra Mile Award Presented To Mike Arnold

State Report Highlights Topics of Discussion

Boxwood Blight	Industrial Hemp	Invasive Plant Regulations	Electronic Licensing Programs
NY ALB Eradication Unfinished	EAB Movement and Damage	Spotted Lanternfly	Walnut Twig Beetle

Joint Sessions with EPB

- Scale on Conifers in Trade
- Strategies for Dealing with Online Plant Sellers
- Hemp and Medical Marijuana Panel

Common Errors on Phytosanitary Certificates

Presented by Tim Hall
ECS at USDA APHIS PPQ

"Don't get creative with additional declarations"

- Put a face with the name
- View through the eyes of an ECS
 - Biggest concerns
 - Why review PC for errors
- How to avoid errors
- Where on the PC the most common and/or serious mistakes are made

Identifying and Dealing with Belligerent Individuals

Presented by Ken White WV Dept. of Natural Resources Police

- Goal is to go home un hurt
- How to stay safe during inspections- Situational Awareness
 - Trust your gut feeling
 - Have an exit plan
 - Identify unusual behaviors from people you know
 - Disengagement strategies
 - Don't let it get to "that" point
- Demonstrations
 - What is too close
 - How to give yourself space
 - Attack and response times

Exclamation of the day:
"Can I slash him more than once?!"
-Lian Colon role playing volunteer

Great Tour:

USDA Agricultural Research Station Appalachian Fruit Research Station

HORTICULTURAL INSPECTION SOCIETY AWARD NOMINATIONS

Carl E. Carlson Distinguished Achievement Award in
Regulatory Plant Protection
Michael Arnold, West Virginia

Eastern HIS Distinguished Service Award
Jeffrey Brothers, Delaware



EHIS Officers for 2017-2018

✔ President	Carole Neil	Maine
✔ Vice President	Morgan Dube	New Hampshire
✔ Secretary	Deborah Hayes	Maryland
✔ Treasurer	Lian Colon	Delaware
✔ Past President	Mark Taylor	Maryland
✔ Archivist	Tia Blevins	Connecticut
✔ Newsletter Editor	Morgan Dube	New Hampshire

RESOLUTION ADOPTED BY THE HORTICULTURAL INSPECTION SOCIETY, EASTERN CHAPTER, APRIL 6, 2017, Martinsburg, West Virginia

WHEREAS the Eastern Chapter of the Horticultural Inspection Society has had the opportunity to participate in field oriented training with the purpose of harmonizing inspection protocols,

WHEREAS the Eastern Chapter of the Horticultural Inspection Society recognizes the value of facilitation of nursery certification with audit based programs,

WHEREAS the National Plant Board has provided funds for Eastern Chapter of the Horticultural Inspection Society personnel to attend field training that improves member states plant regulatory efforts,

WE RESOLVE THAT: The Eastern Plant Board communicate to the National Plant Board the value of our positive experiences and encourage their continued financial support for these beneficial activities.

RESOLUTION ADOPTED BY THE HORTICULTURAL INSPECTION SOCIETY, EASTERN CHAPTER, APRIL 6, 2017, Martinsburg, West Virginia

WHEREAS the Eastern Chapter of the Horticultural Inspection Society was established to promote education, cooperation and interaction among state horticultural inspection personnel,

WHEREAS the Eastern Chapter of the Horticultural Inspection Society values and appreciates the participation of inspectors from member states during the annual meeting,

WHEREAS the Eastern Plant Board has supported the attendance of state personnel,

WE RESOLVE THAT:
The Eastern Chapter of the Horticultural Inspection Society at its 43rd Annual Meeting recognizes the Eastern Plant Board for their continued support and the state of West Virginia for hosting this meeting.

