WASINGTON STATE GRAPE PEST UPDATE

Sven-Erik Spichiger,
Managing Entomologist,
Pest Program

WSDA

2018 WASHINGTON STATE GRAPE PEST UPDATE

Washington State Department of Agriculture

Plant Protection, Pest Program

Grape Commodity Pest Survey, Japanese Beetle, Exotic Snails

For Grape Pest Surveys, 5 trappers part time out of Yakima, 4 surveyors part time out of Olympia

For Japanese Beetle, 3 trappers part time

For snails, three surveyors part time

2018 WASHINGTON STATE GRAPE PEST UPDATE

Grape Pest Survey 2018

- Farm Bill Funded Survey

- Demonstrates "Pest-Free" status for trade

- Targets 6 Insects and 5 Pathogens

Scientific Name	Common Name	Survey Method
Spodoptera litura	cotton cutworm	Trap
Thaumatotibia leucotreta	false codling moth	Trap
Cryptoblabes gnidiella	Christmas berry webworm	Trap
Spodoptera littoralis	Egyptian cutworm	Trap
Lycorma delicatula	spotted lanternfly	Visual
Daktulosphaira vitifoliae	grape Phylloxera	Visual/Root Sample
'Candidatus Phytoplasma australiense' 16SrXII-B	Australian grapevine yellows	Visual/Leaf Sample
'Candidatus Phytoplasma vitis' 16SrV-C	Flavescence dorée	Visual/Leaf Sample
'Candidatus Phytoplasma solani' 16SrXII-A	Bois noir; Stolbur	Visual/Leaf Sample
Pseudopezicula tracheiphila	Rotbrenner	Visual/Leaf Sample
Xylella fastidiosa	Xylella	Visual/Leaf Sample

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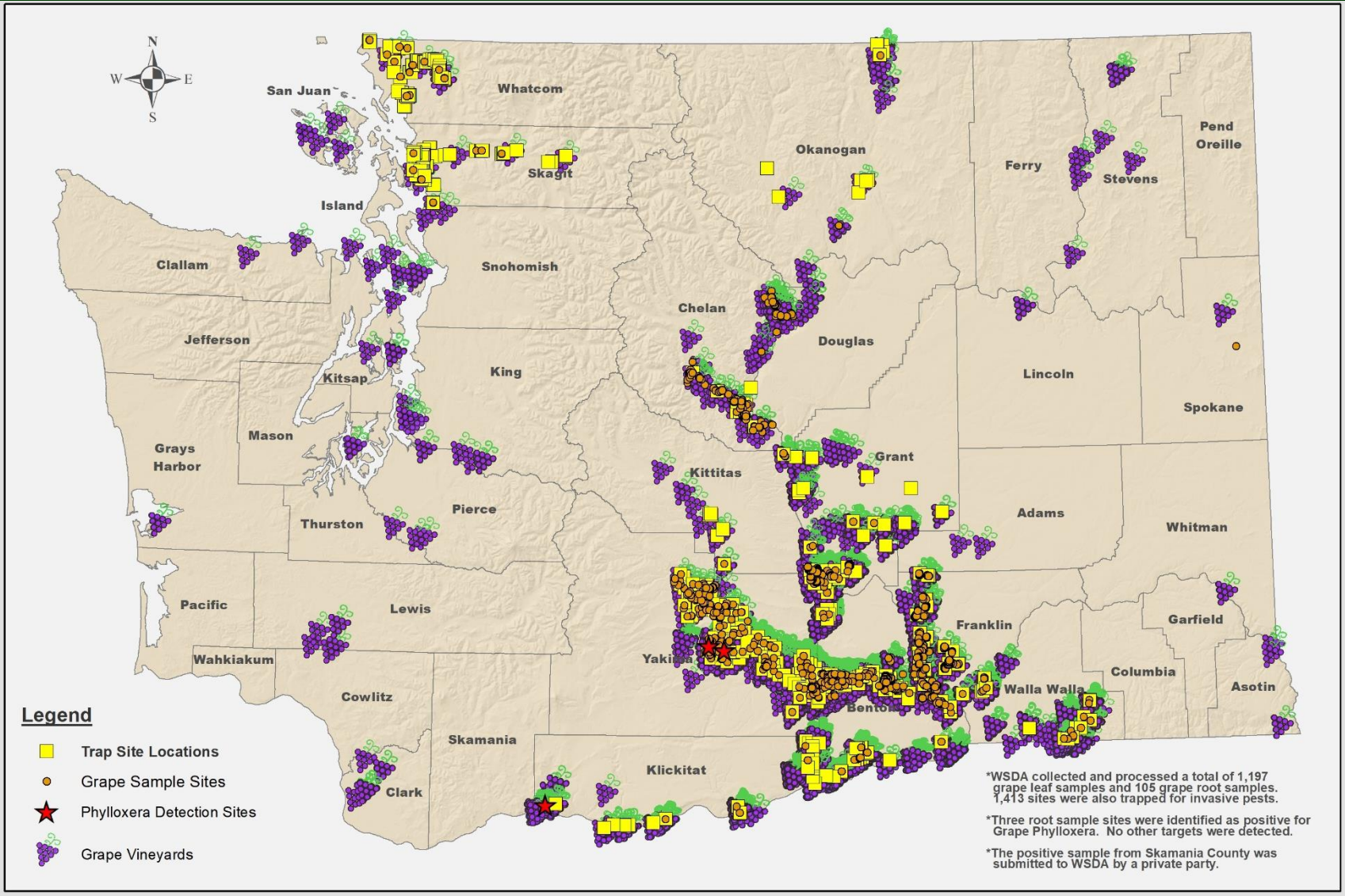
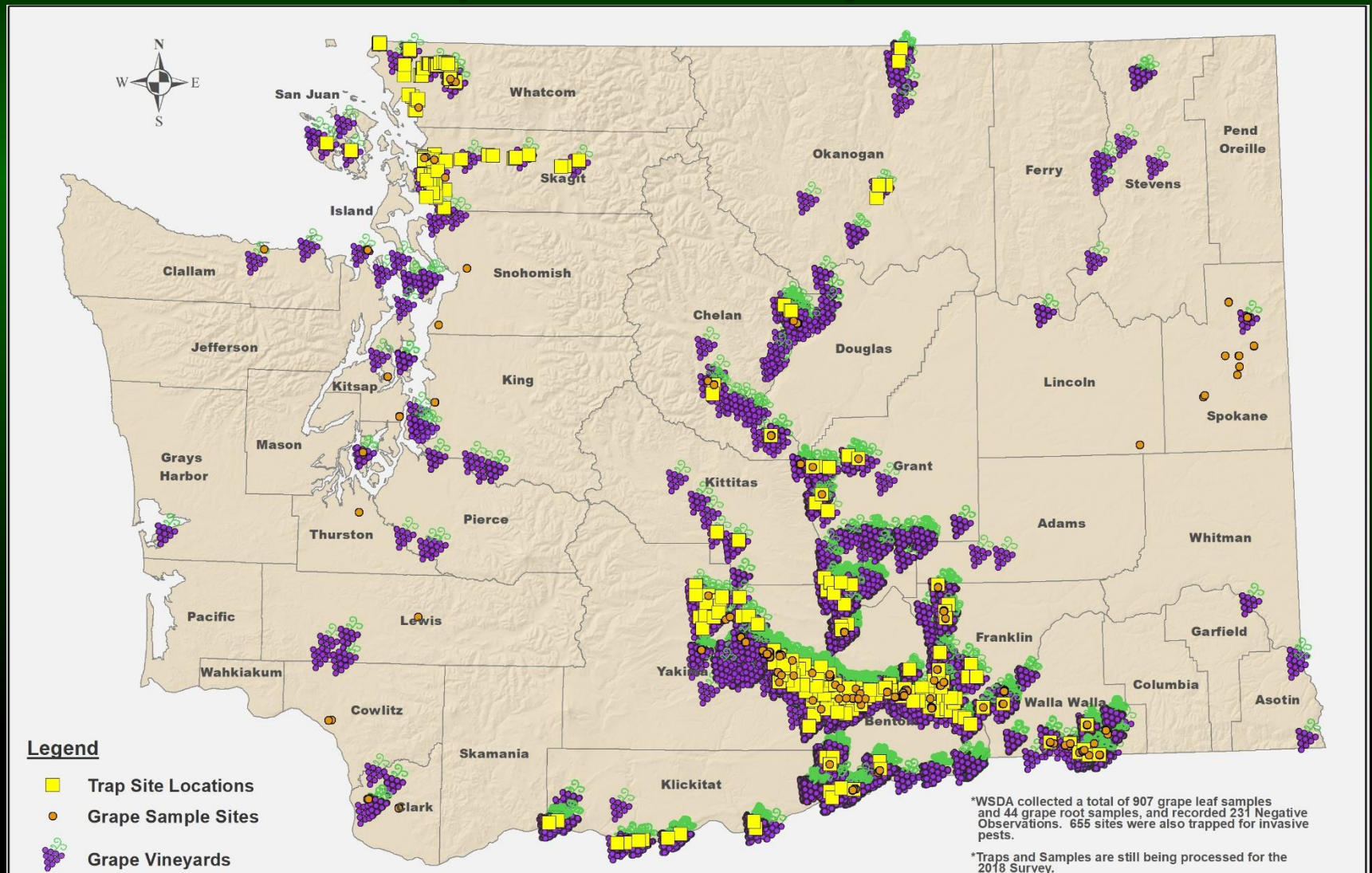
Grape Pest Survey 2017



2018 WASHINGTON STATE GRAPE PEST UPDATE

Grape Pest Survey 2018



2018 WASHINGTON STATE GRAPE PEST UPDATE

Grape Pest Survey 2018

- Samples still being processed

- No pests detections to date

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2018 WASHINGTON STATE GRAPE PEST UPDATE

2018 Exotic Snail Surveys

- Farm Bill Funded

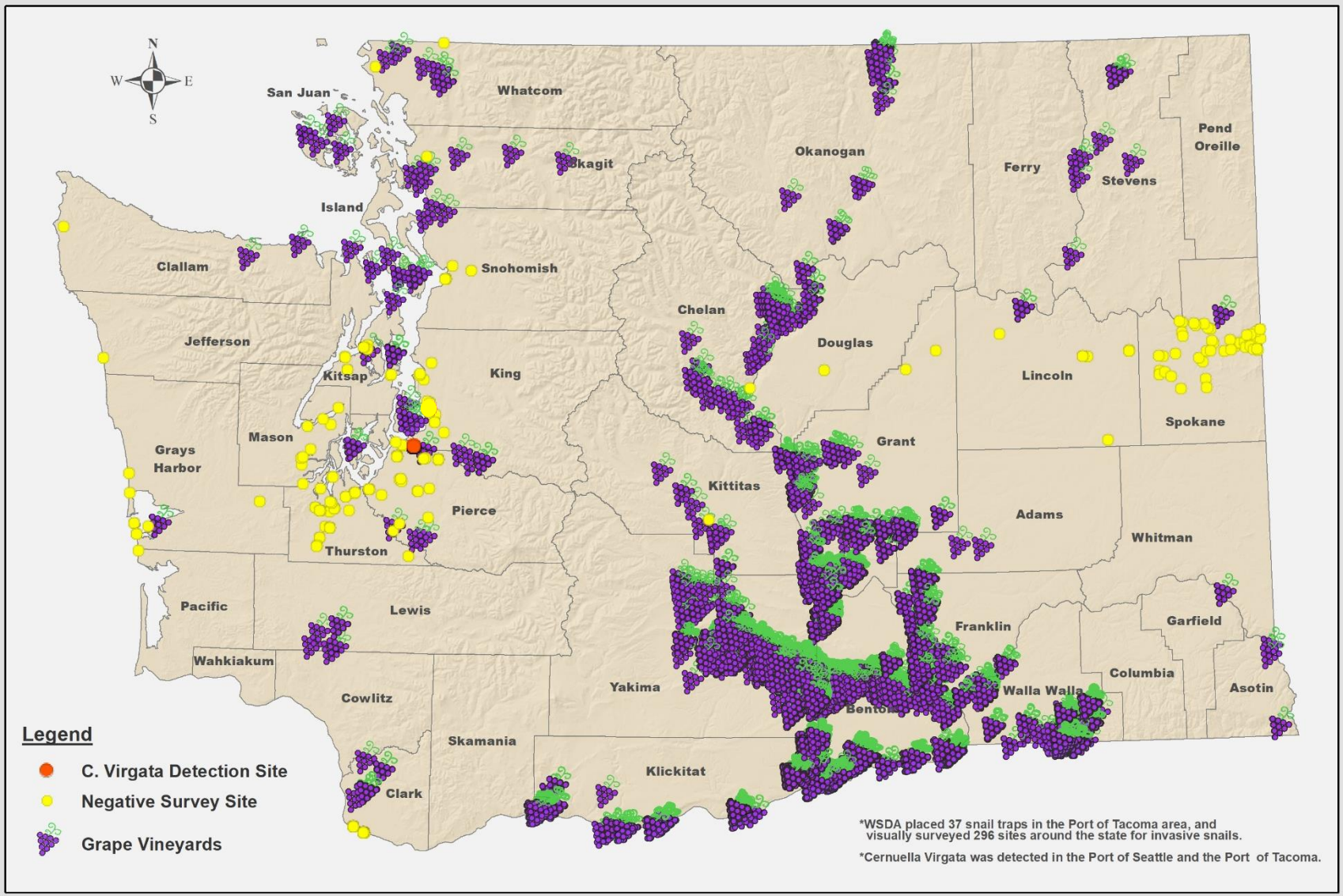
- Demonstrates "Pest-Free" status for trade

- Targets non-native snails

Scientific Name	Common Name
Belacaulus sp.	Leatherleaf slug
Cernuella sp.	Hygromiid snail
Cernuella virgata	Vineyard Snail
Cochicella sp..	Cochlicellid
Colosius sp.	Leatherleaf slug
Laeicaulis	Leatherleaf slug
Lissachatina fulia	Giant African Snail
Monacha sp.	Hygromiid snail
Sarasinula sp,	Leatherleaf slug
Semperula sp.	Leatherleaf slug
Veronicella sp.	Leatherleaf slug
Xerolenta obivia	Hygromiid snail
Helix pomatia	Roman snail
Theba pisana	Helicid snail
Otala lactea	Helicid snail
Cantareus apterus	Green garden snail

2018 WASHINGTON STATE GRAPE PEST UPDATE

2018 Exotic Snail Surveys



2018 WASHINGTON STATE GRAPE PEST UPDATE

2018 Japanese Beetle Survey

2018 WASHINGTON STATE GRAPE PEST UPDATE

2018 Japanese Beetle Survey

- A cyclical pest of turf, ornamentals and fruit in areas of the country where established

- Adult life stage is the primary pest on grape

- In bad years, grape growers often add sprays

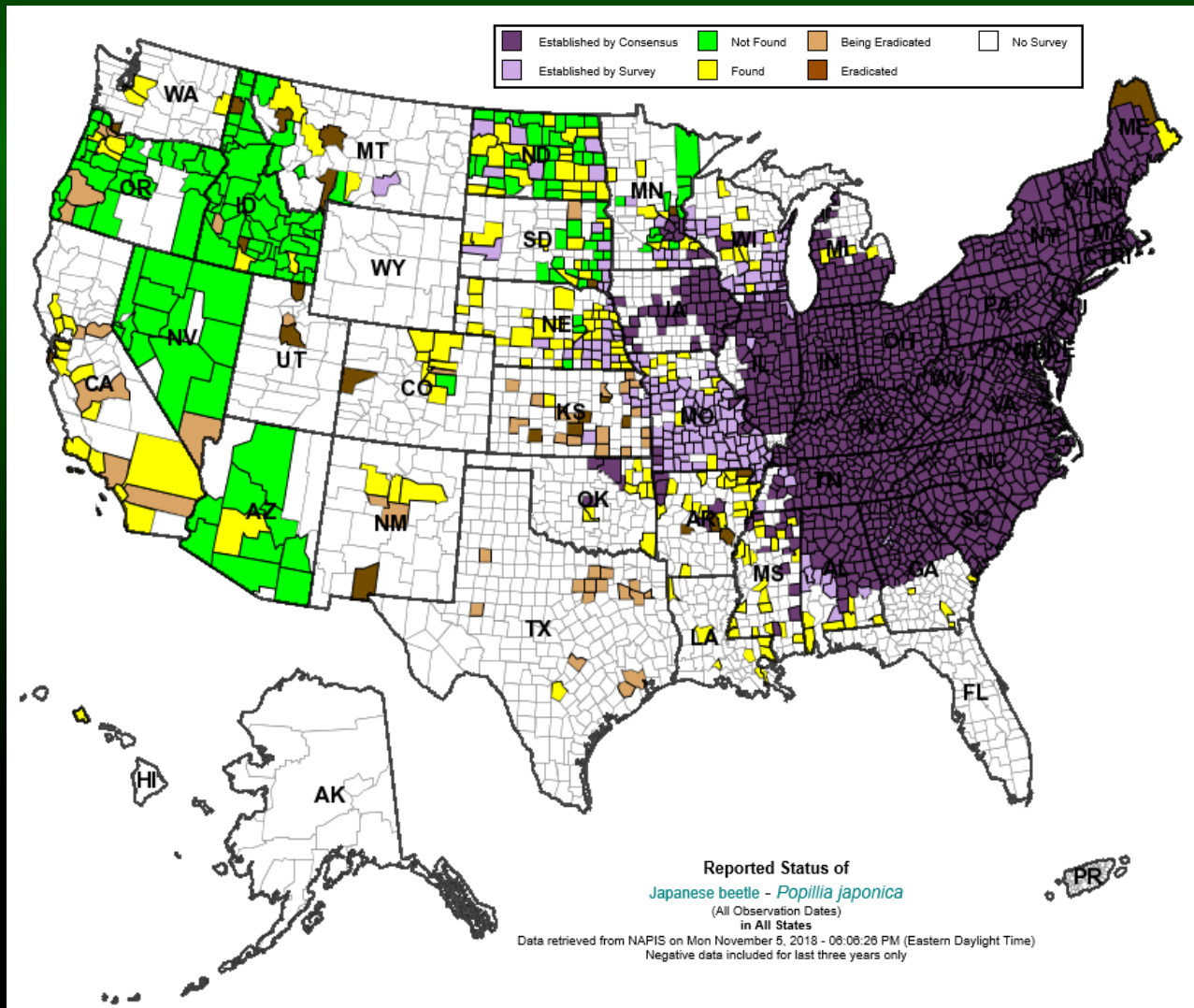
2018 WASHINGTON STATE GRAPE PEST UPDATE

2018 Japanese Beetle Survey

- Native to Japan

- Introduced in 1916, near Riverton, NJ

- Spread as hitchhiking adults or in soil as grubs



2018 Japanese Beetle in Western States

COLORADO- internal/external quarantines. May become a regulated state in the near future. Detections at Denver Int. Airport and Buckley AFB in 2018.

ARIZONA- 0 JB in 2018 **NEVADA- 0 JB in 2018**

UTAH- 0 JB in 2018. Successful eradication was finished in 2014 (4 year project).

CALIFORNIA- 2,236 JB found during airplane inspections. 4,691 flights inspected. Two eradications recently finished.

MONTANA- 1,150 JB detected in neighborhood outside of Billings.

IDAHO- Eradication coming to a close in Boise. Started in 2013 with 3,000 JB detected. As of late September only 19 JB were detected.

OREGON- Eradication started in an area NW of Portland during 2017. Large infestation which has grown. Eradication activities also going on at Portland Int. Airport and in the town of Oakland (North of Roseburg).

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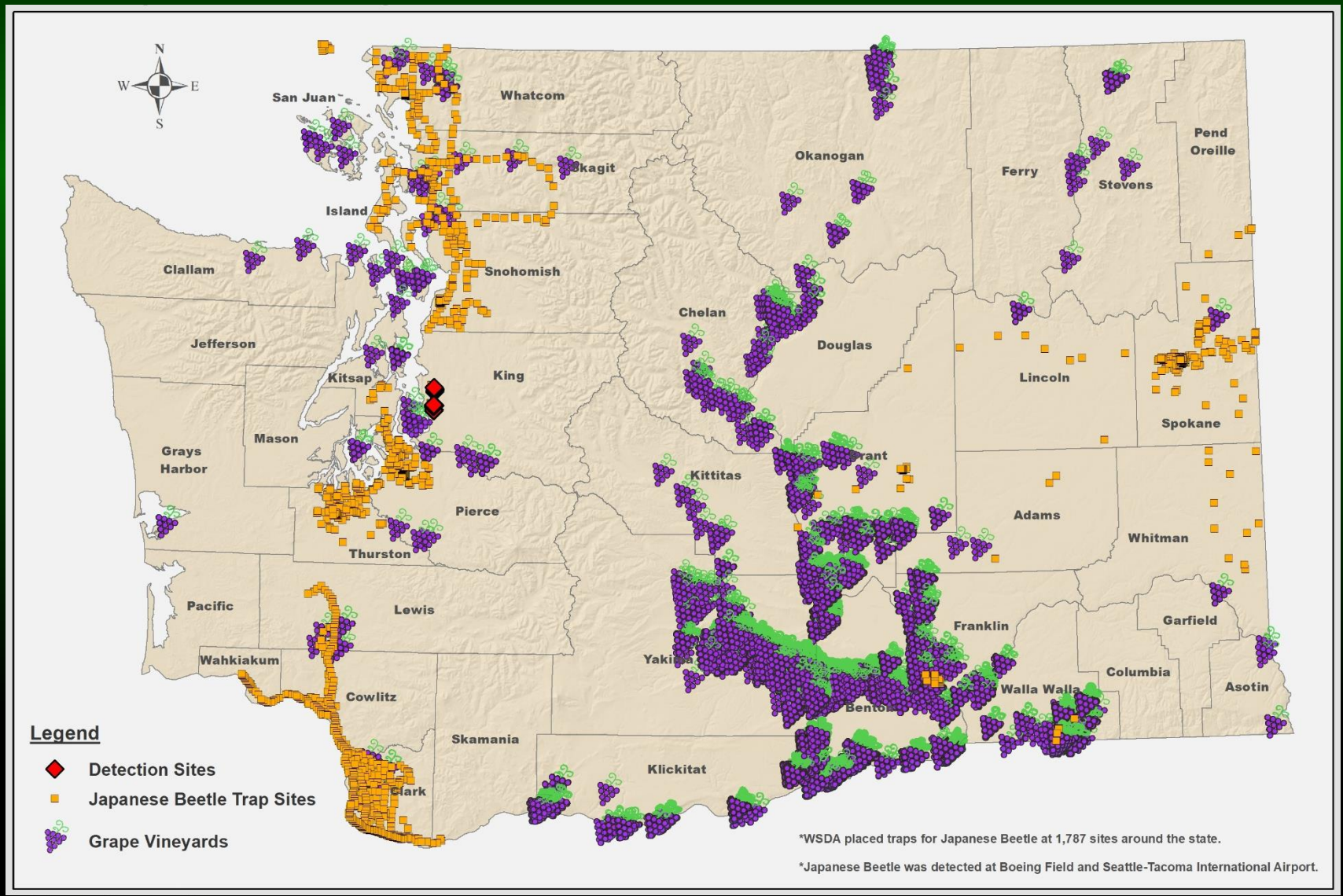
Washington State 2018 Japanese Beetle Survey



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Washington State Japanese Beetle Survey

2017: 16 JB detections (12 SeaTac, 4 Boeing)

2018: 26 JB detections (20 SeaTac, 6 Boeing)

Deployed 1,777 traps statewide in 2018

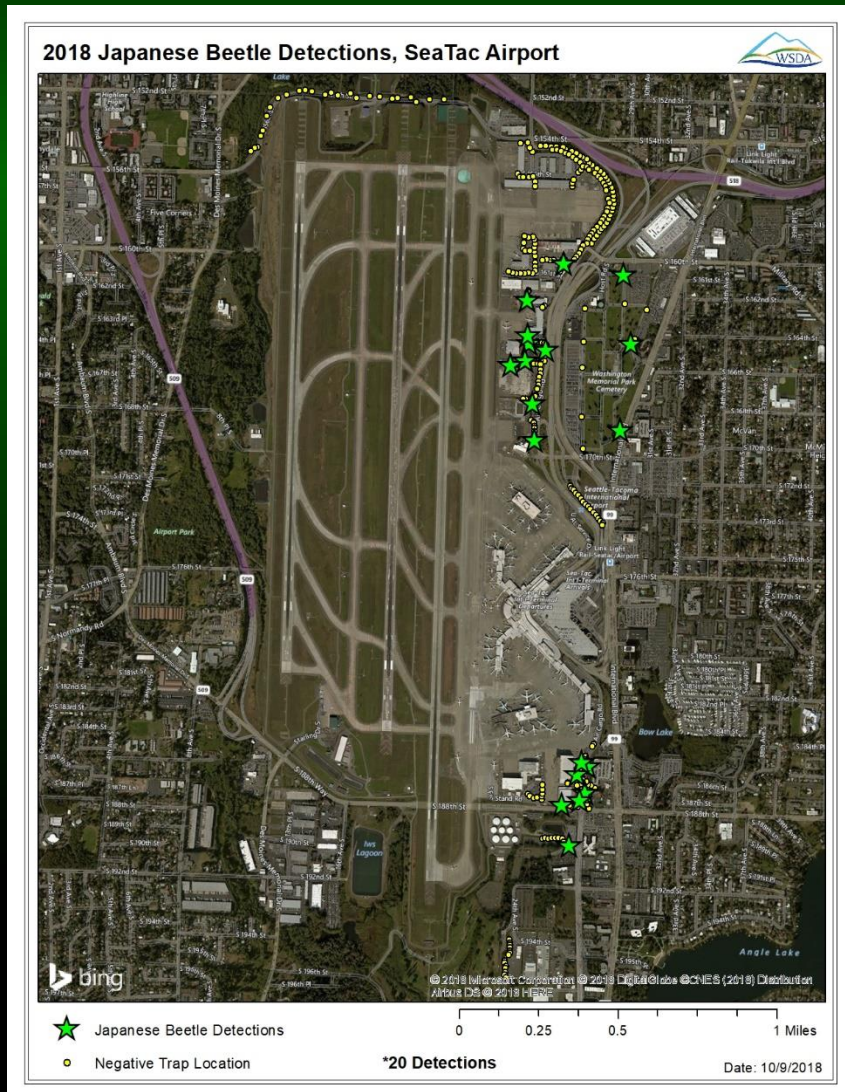
Large focus is on airports and nurseries (46-50% of traps). Focused on the Oregon border in 2017-2018 seasons.

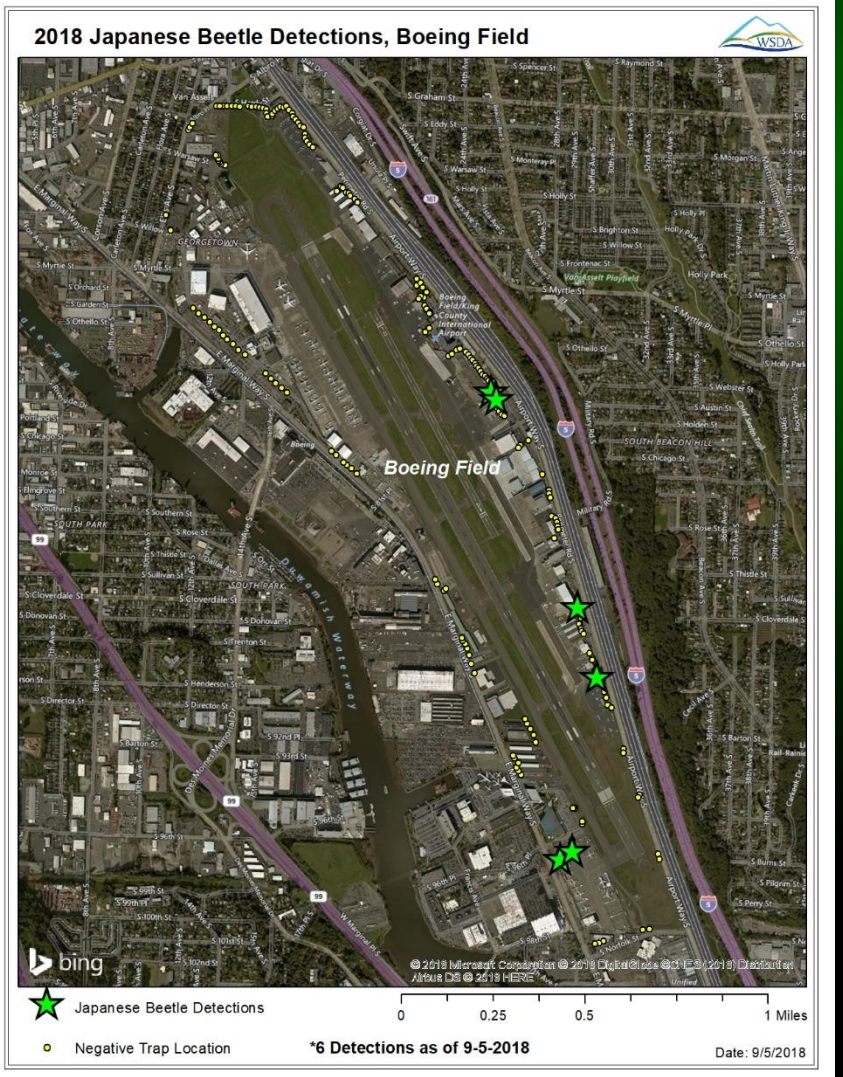
Apples, cherries, grapes, roses and turf are major hosts in Washington.

SeaTac Airport will do granular treatments in Spring 2019. Washington State has never had a JB eradication project.

2018 WASHINGTON STATE GRAPE PEST UPDATE

Washington State Japanese Beetle Survey





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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

2018 WASHINGTON STATE GRAPE PEST UPDATE

Lycorma delicatula (WHITE):

A Planthopper in the Family Fulgoridae

696 Species of Lanternflies in the world

Only 17 species in North America

Like most planthoppers, Lycorma pierce the stems of plants, trees, and vines and feed on phloem.

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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

FLOW

Follow FLOW:

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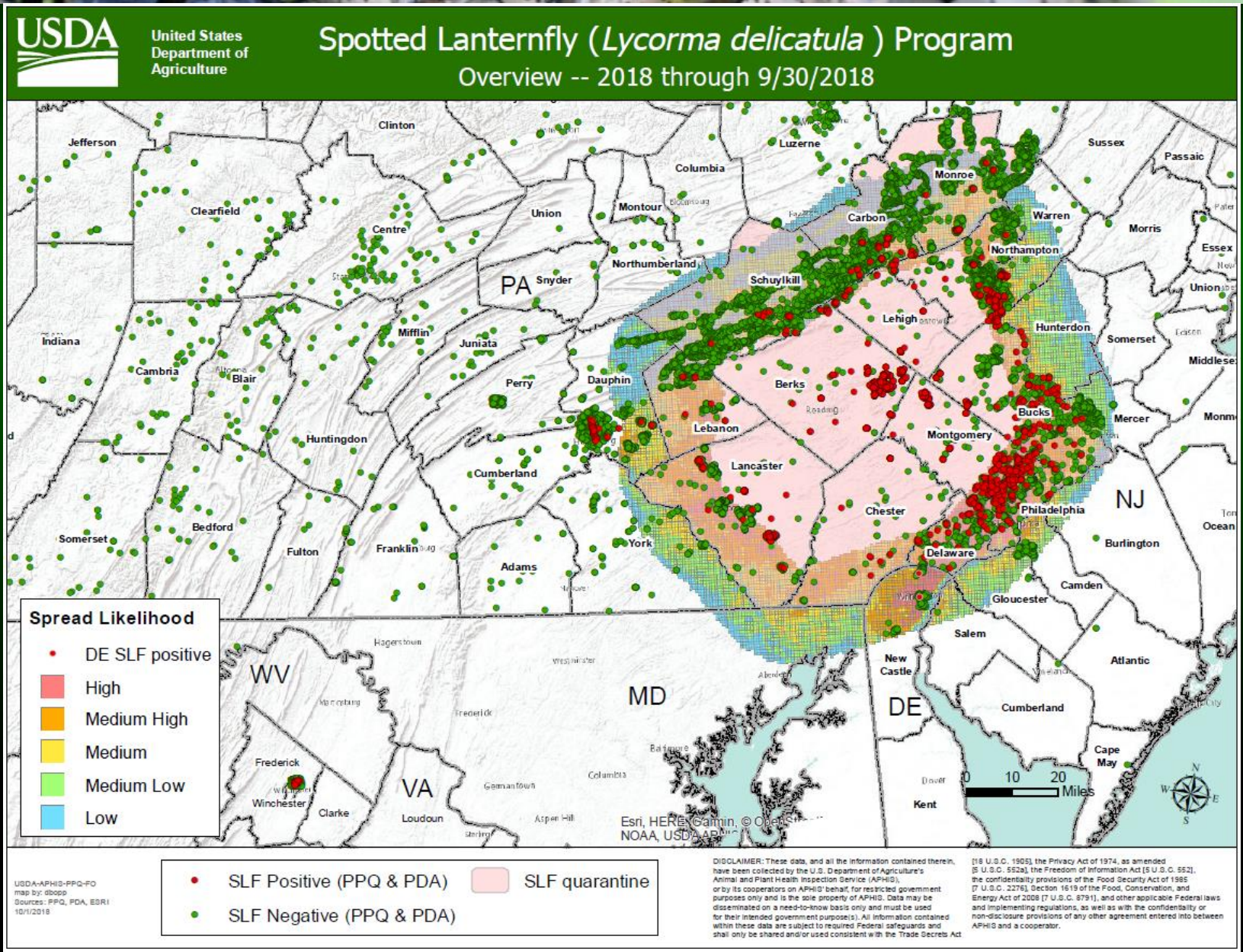
Current Distribution:



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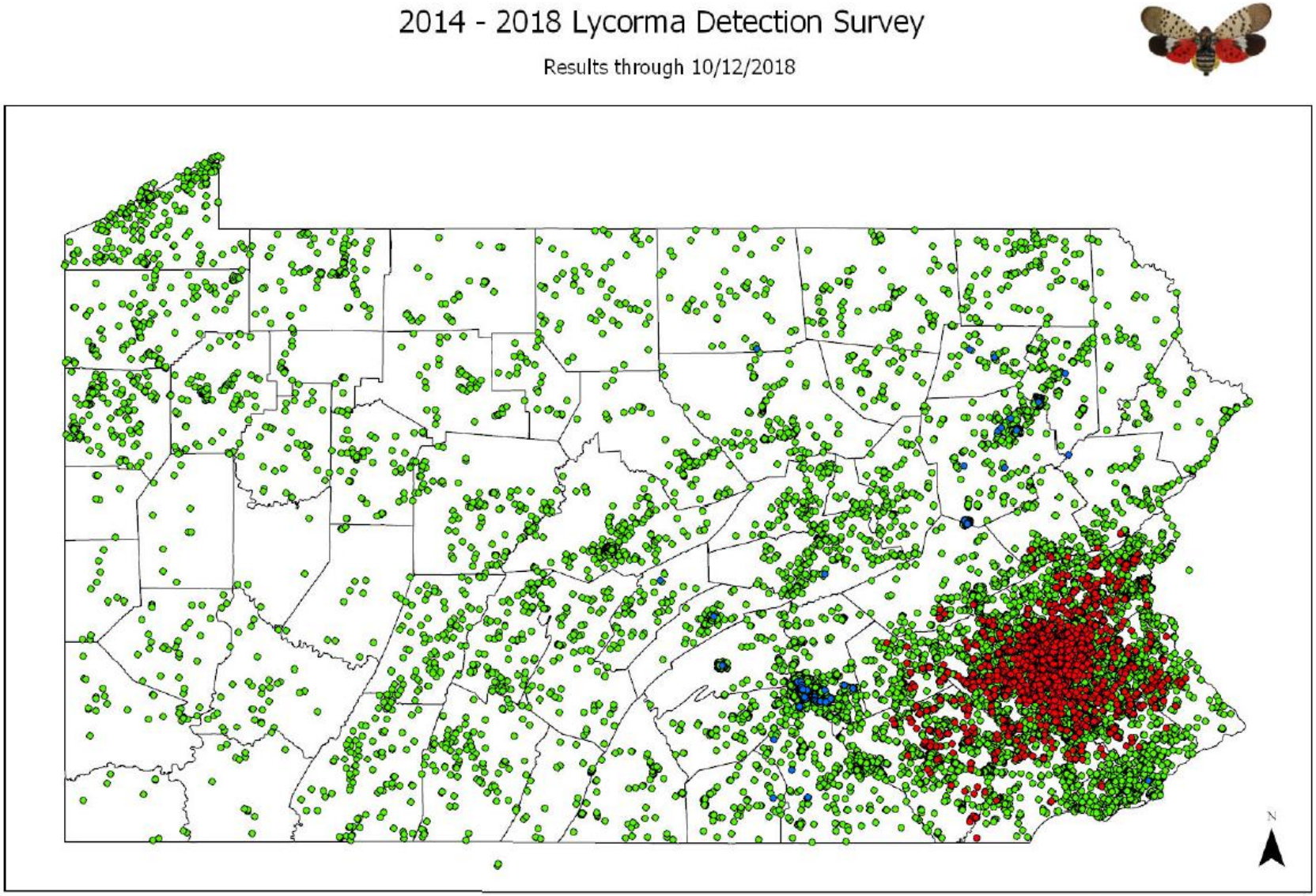
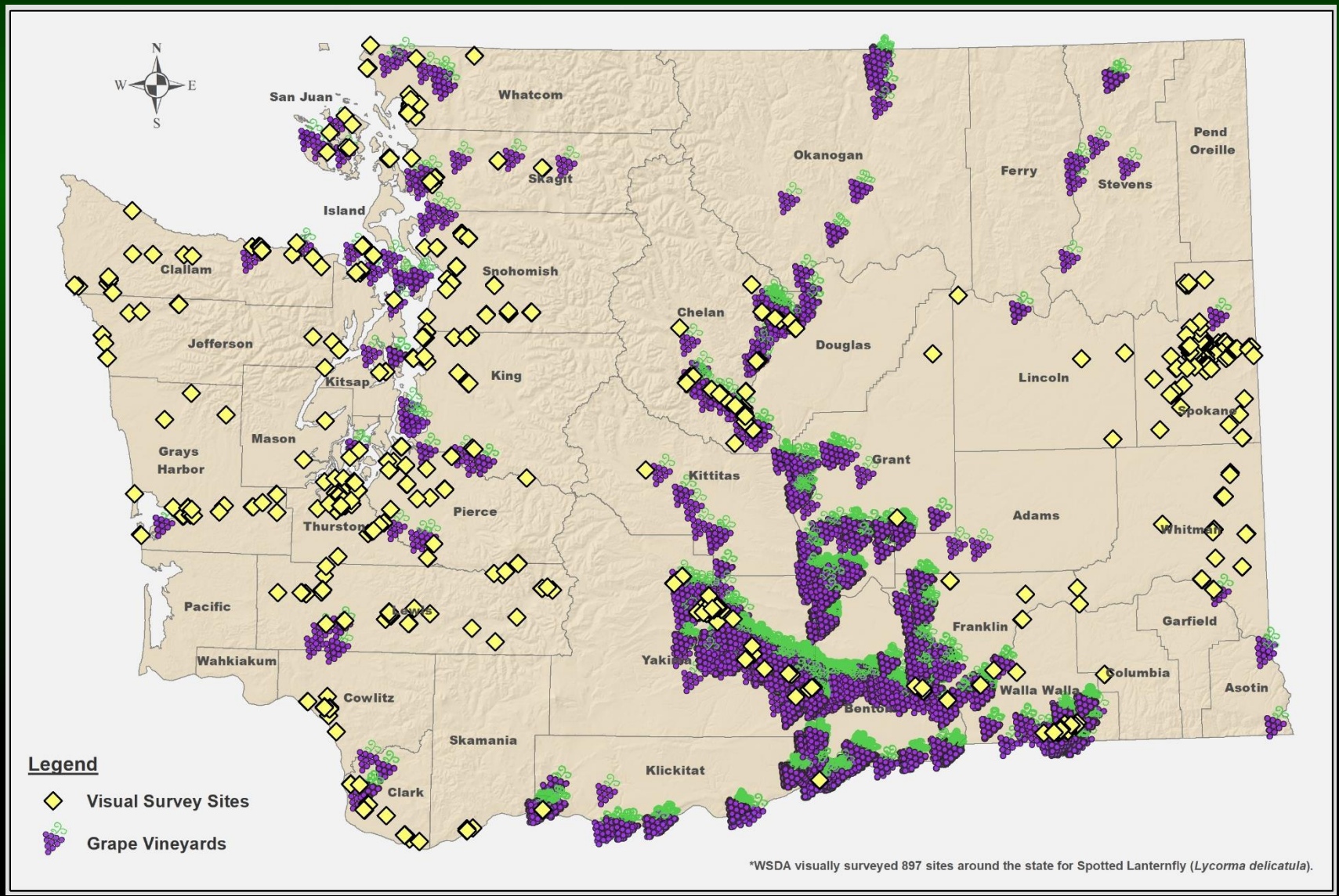


2018 WASHINGTON STATE GRAPE PEST UPDATE

Washington State 2018 Spotted Lanternfly Survey



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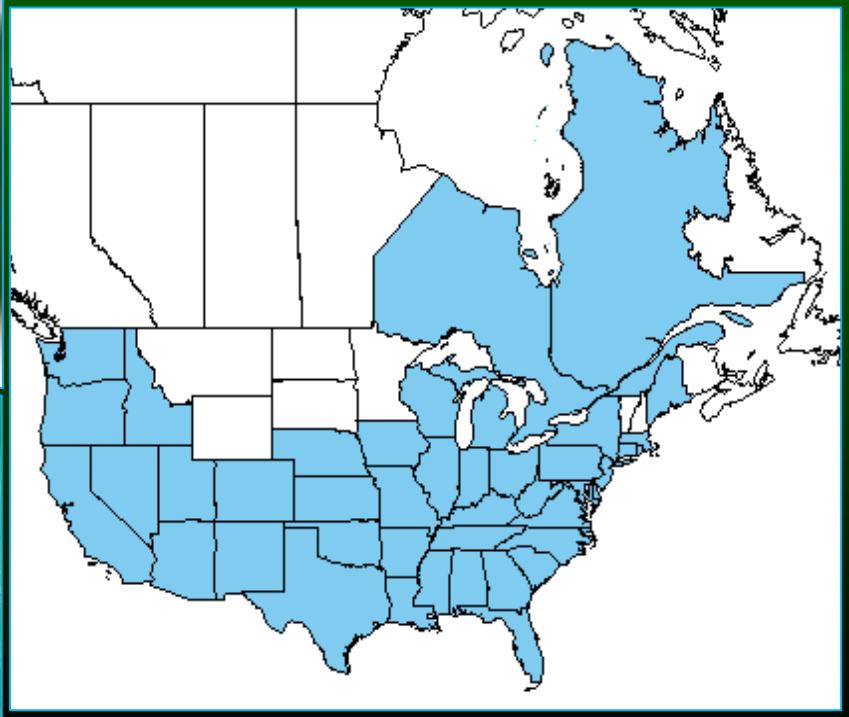
Spotted Lanternfly Makes use of over 70 different plant species but strongly prefers the invasive "Tree of Heaven"



Tree of Heaven Distribution-USDA PLANTS Database

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Impact: Damage grape, hops, orchards, hardwood, and nursery industries

Damage comes from feeding waste (honeydew) Which turns into sooty mold

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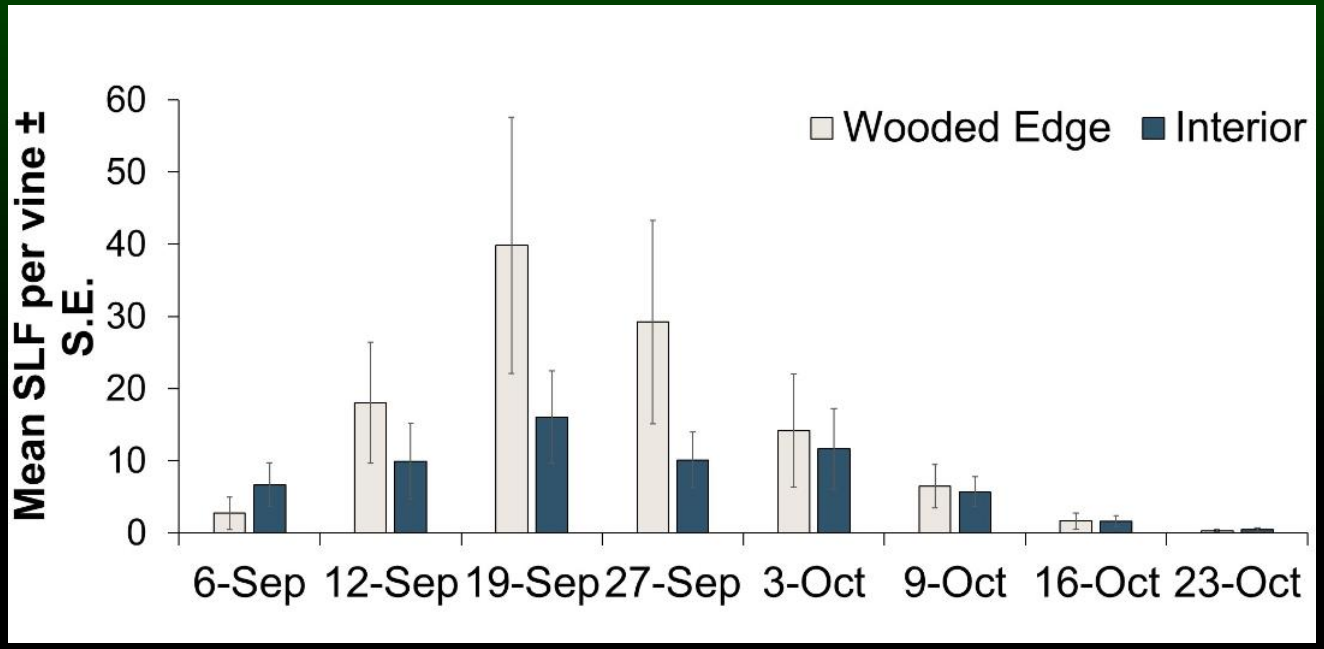
2018 WASHINGTON STATE GRAPE PEST UPDATE

2018 update from Heather Leach, PSU

"3 grape growers had both vine death and vines that did not produce fruit from 2017 SLF damage"

"The maximum number of SLF observed feeding on a single vine was 365, with the season-long average maximum at 187"



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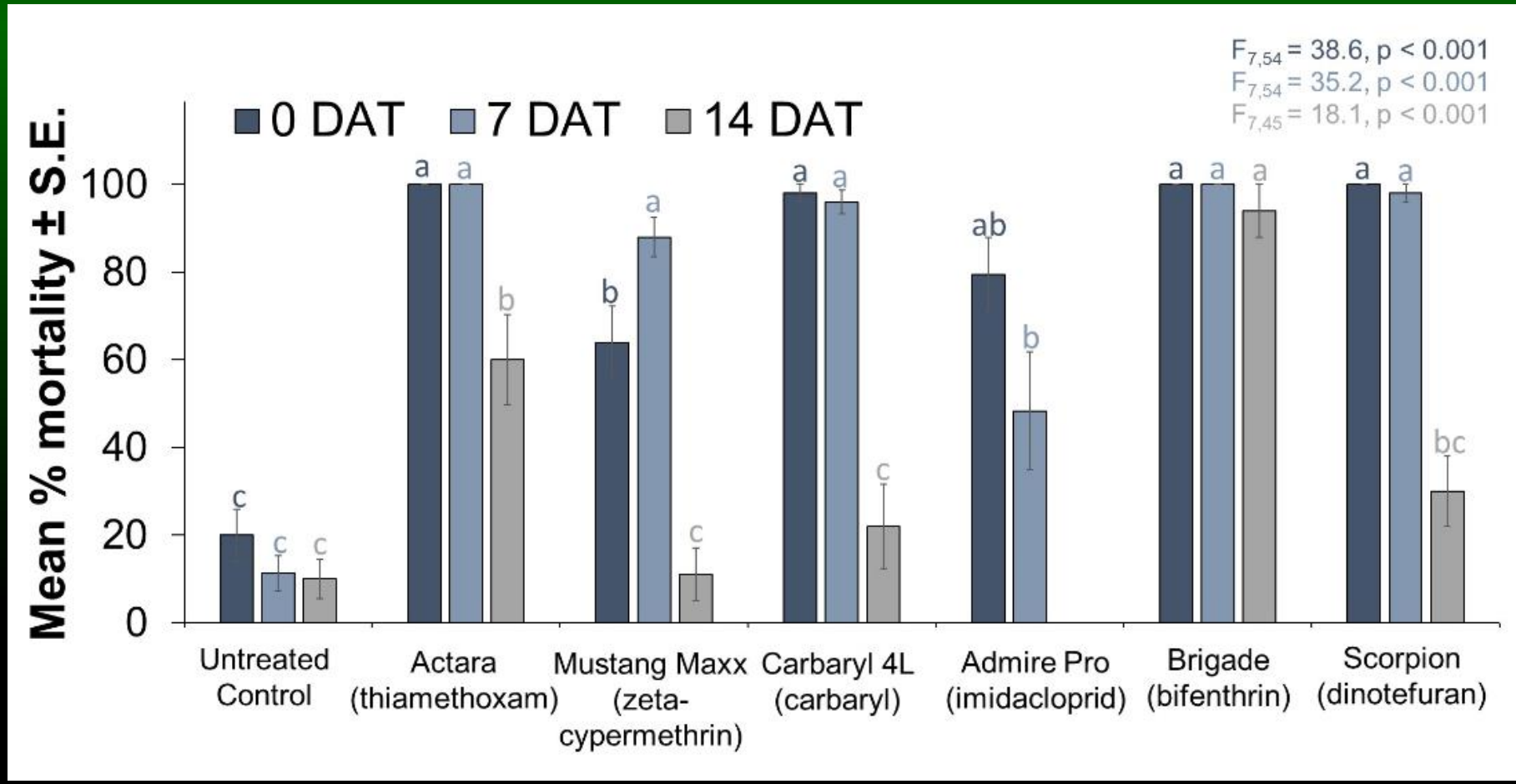
2018 update from Heather Leach, PSU

Researchers are starting to compile results from pesticide trials on grape from this past growing season



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Impact: Damage reported on basil, oregano, blueberry, cucumber and horseradish in 2018

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Impact: Heavy Feeding on Walnut, Red Oak, Maple, and Hickory resulted in flagging and dieback

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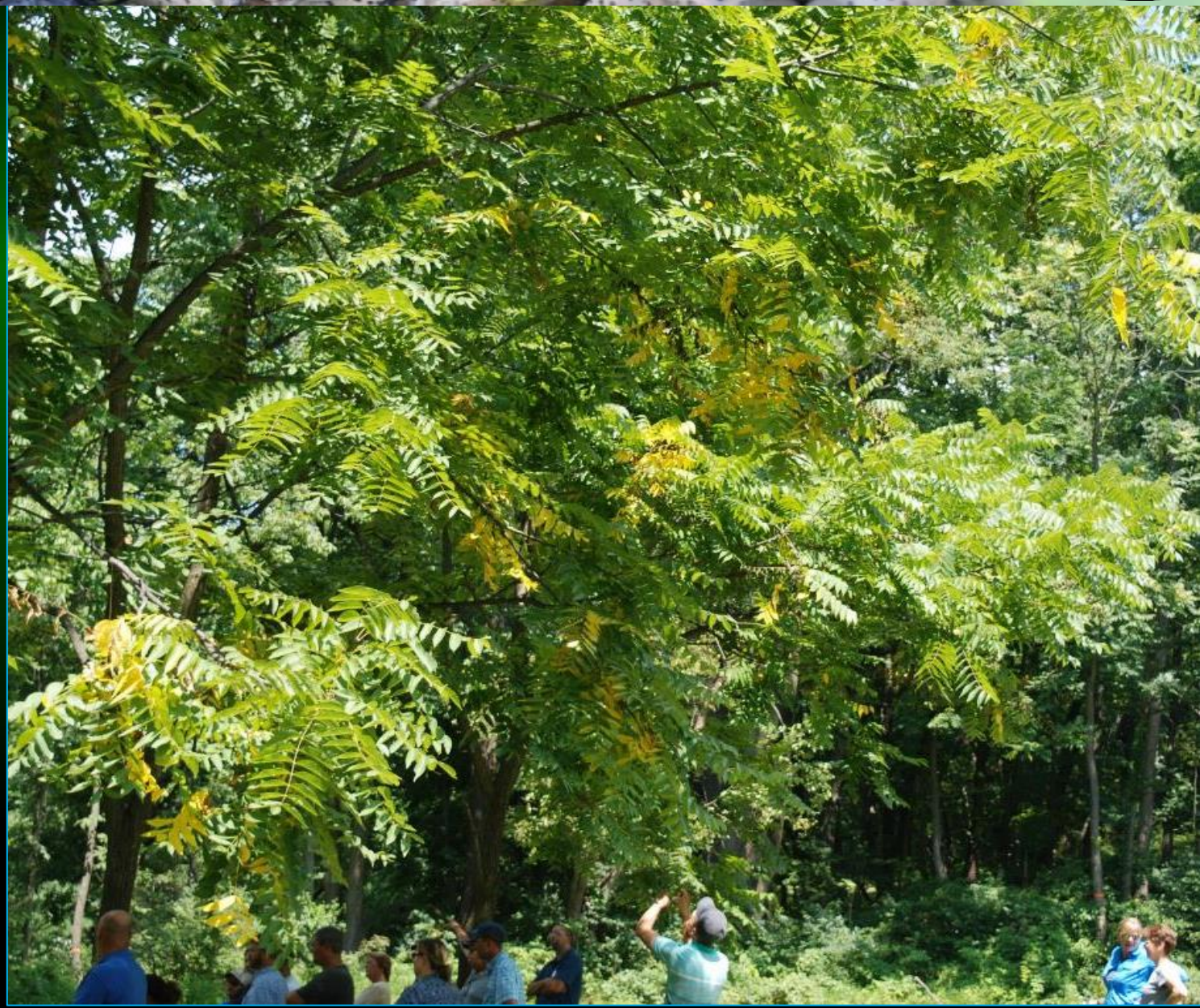
Impact: Flagged branches had several spotted lanternflies feeding



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Impact:
Presence on other crops, alfalfa, soy, corn with reports of reduced yield on alfalfa.
No feeding documented

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Impact : Adult Clustering, swarming and Honeydew accumulation can impact quality of life

2018 WASHINGTON STATE GRAPE PEST UPDATE

Adults: July - December

Egg Laying:
September - November

Eggs: October - June

Fourth Instar:
July - September

One Generation Per Year

Hatch and 1st Instar:
April - June

Third Instar: June - July

Second Instar: June - July

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

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

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Egg masses that can be seen or reached are easily controlled by scraping

2018 WASHINGTON STATE GRAPE PEST UPDATE

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

2018 WASHINGTON STATE GRAPE PEST UPDATE

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

Males and females mate multiple times

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All life stages can hitchhike to new areas, but egg and adults pose the greatest risk for movement

2018 WASHINGTON STATE GRAPE PEST UPDATE

Swarming adults present a biosecurity challenge, and can impact trade

-Video, Erica Smyers, PSU

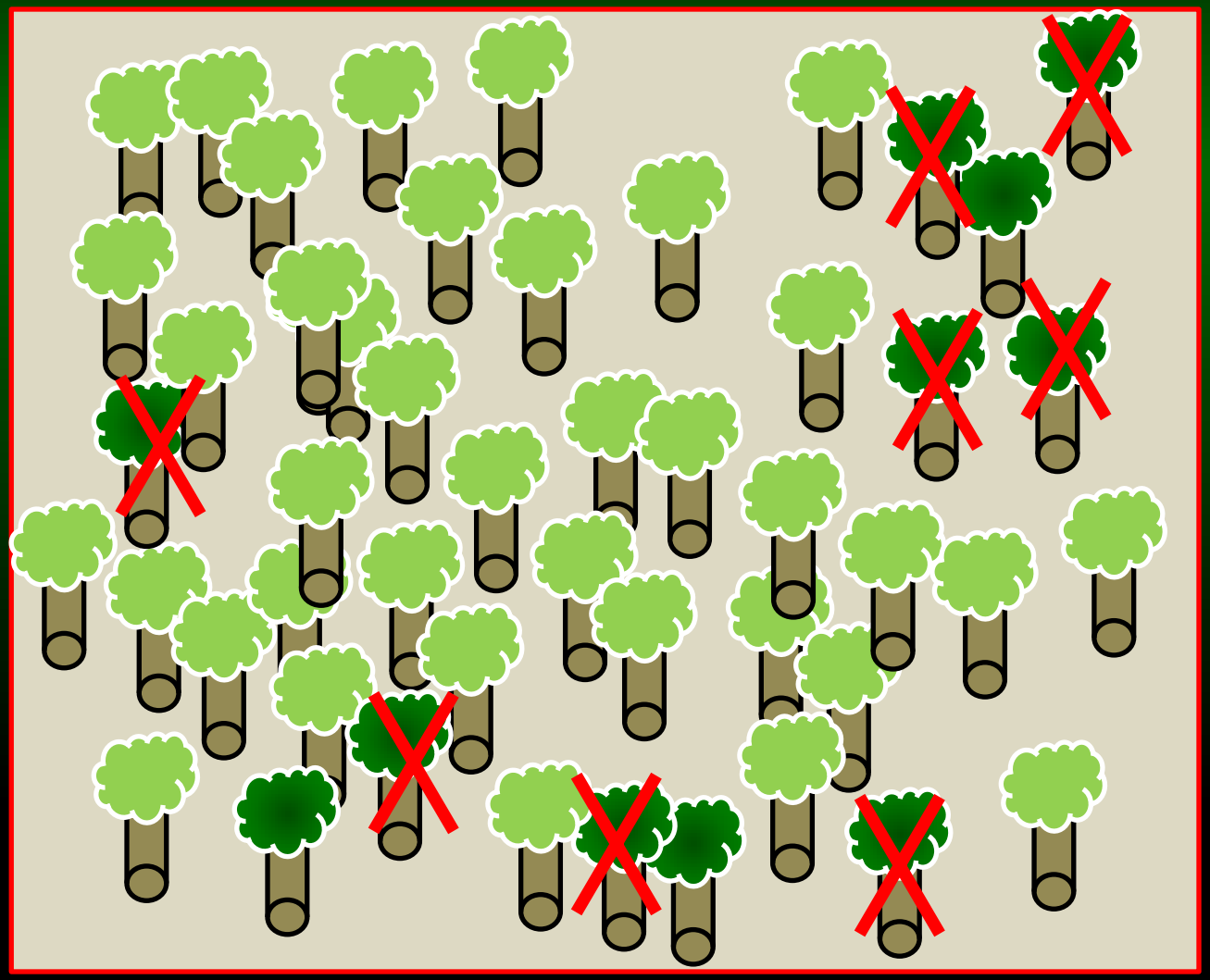
2018 WASHINGTON STATE GRAPE PEST UPDATE

Removal-Trap Tree Method

Most Ailanthus are removed or killed with herbicide

Remaining trees are treated with insecticide

2018 WASHINGTON STATE GRAPE PEST UPDATE



Host Reduction

Remove Most Ailanthus

Leave a few male trees and treat with systemic insecticide

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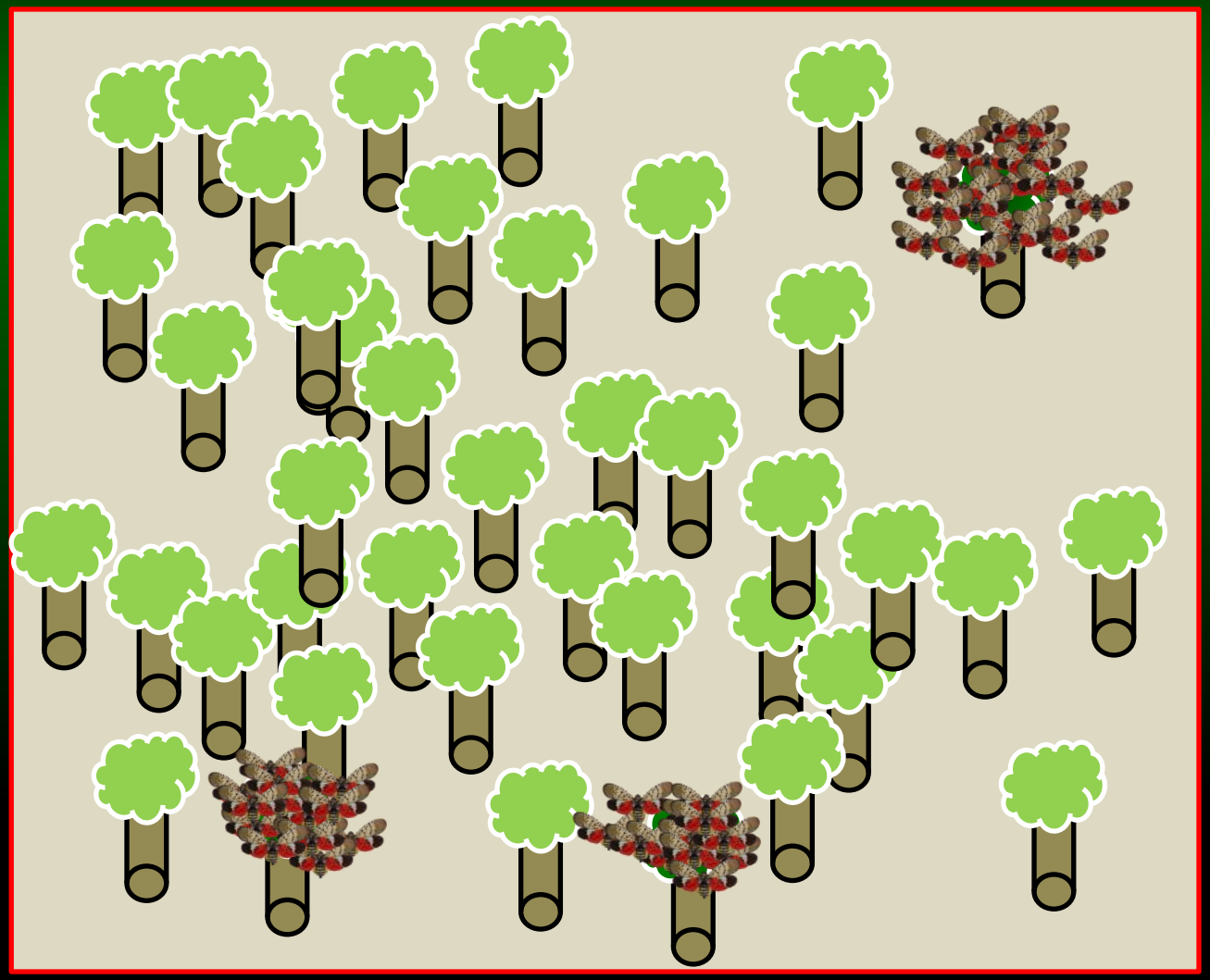

Trap trees

July-September
4th Instar and
Adults

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

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Removal-Trap Tree Method

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

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Removal-Trap Tree Method

The trap trees attract

and the insecticide kills

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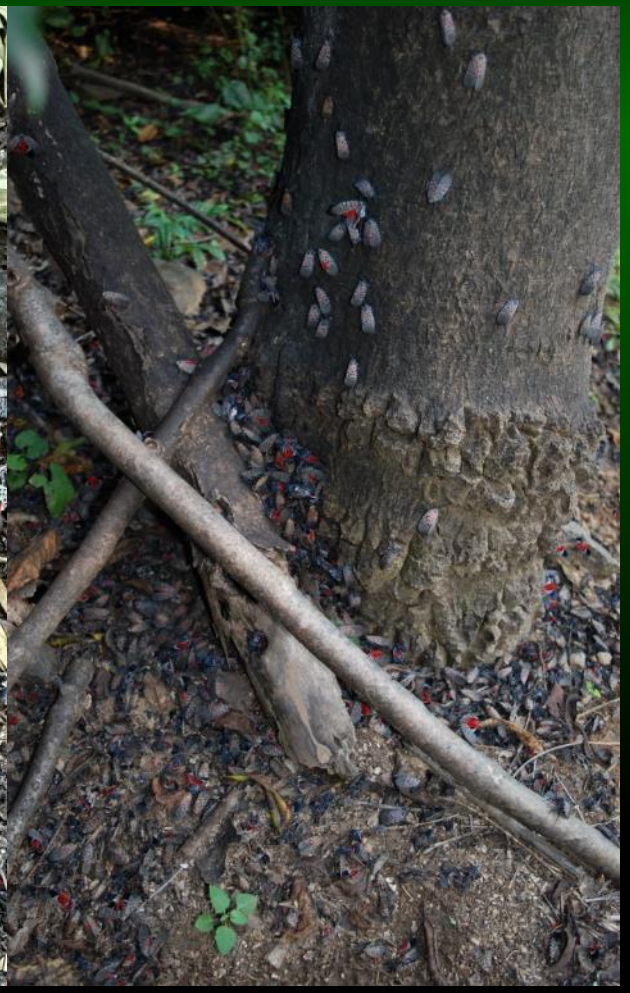
Impact on Adults is Dramatic



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Impact on Adults is Dramatic

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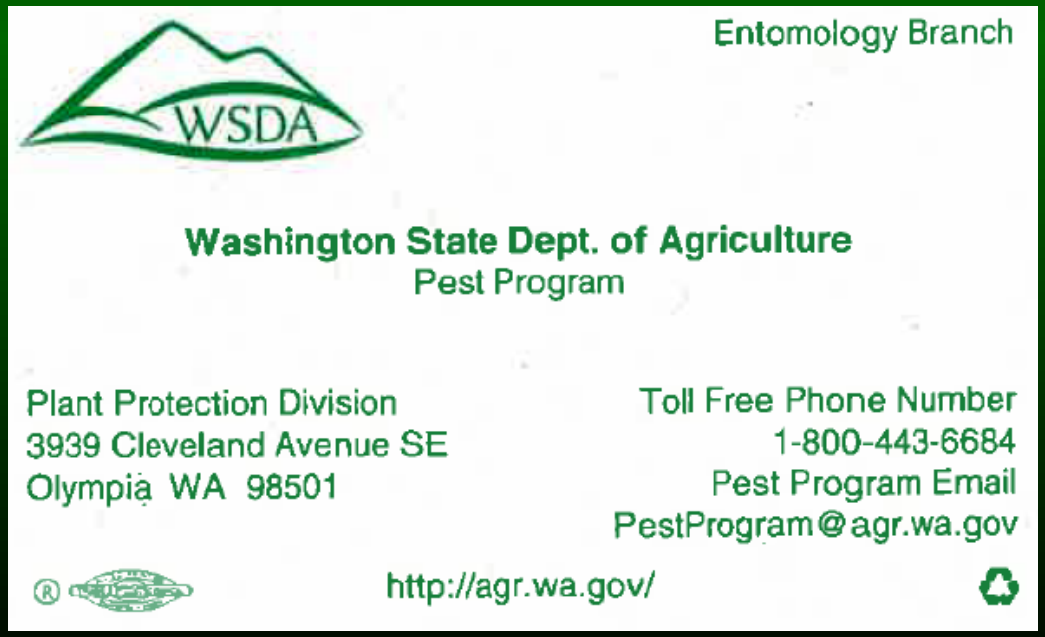
As the population of spotted lanternfly grows, and the insect adapts, new threats to multiple industries emerge

It is clear that more help is needed to contain this pest

-Video, Erica Smyers, PSU

2018 WASHINGTON STATE GRAPE PEST UPDATE

THANK YOU



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