2020HITS, MISSES AND INCOMING: A REVIEW OF PESTS OF REGULATORY CONCERN

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Diseases of Federal Concern

Ralstonia Tomato Brown Rugose Fruit Virus Photo credit: The International Potato Center; Lima, Peru **Sudden Oak Death**



https://www.suddenoakdeath.org/diagnosis-andmanagement/

Symptoms of tomato brown rugose fruit virus (ToBRFV) on infected tomato (Solanum lycopersicum) plants. a, d: Brown wrinkled (rugose) patches developed on fruits. b, c: Chlorotic spots on fruits. a, e-q: Mosaic pattern (chlorotic/pale patches) developed on leaves, often on younger leaves in the head and side shoots; and narrowing accompanied by mottling leaves. g: Brown necrotic symptoms on pedicle (stem), calyces, and petioles.





Ralstonia



250,000 geraniums to 44 states



Ralstonia symptoms on geranium. Photo by Margery Daughtrey, Cornell University; Bugwood.org

Ralstonia solanacearum Race 3 biovar 2

Bacterial wilt – tomato, eggplant

Brown rot – potatoes

Southern wilt - geraniums

Geranium Off - Shore Certification Program - 2007



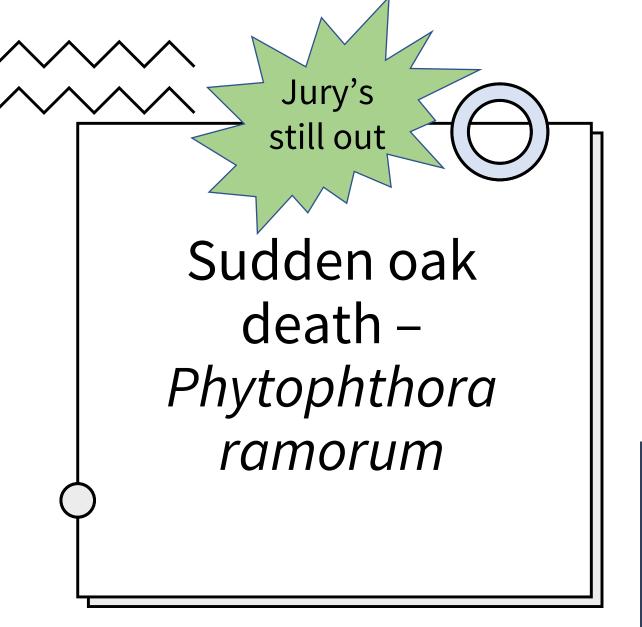


Tomato brown rugose fruit virus

- Tobamovirus:
- Primary hosts tomatoes and peppers
- Seed borne
- Easily transmitted mechanically
- Resistance genes ineffective

Regulatory response Surveyed VT tomato producers – all negative





- Has killed millions of oaks in CA and OR
- Difficult to detect visually
- Over 70 hosts
- In nursery trade rhododendrons, viburnum and more
- Can establish in wild



SODS CONTINUED

Cold intolerant; Drought sensitive

Insects - updates

Velvet longhorned beetle – *Trichoferis campestris* Asian longhorned beetle – *Anoplophora glabripennis*





Opdates continued

Potential incoming!





European cherry fruit fly

Dan Dillner, VT ANR FPR, treating EHS in northern VT



https://www.ncipmc.org/projects/pest-alerts1/european-cherry-fruit-fly-rhagoletis-cerasi/

https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/ecff/cherry-fruit-fly

<u>https://www.aphis.usda.gov/plant_health/plant_pest_info/fruit_flies/downloads/ny-ecff-cherry-</u> <u>systems-approach.pdf</u>

NY eradication efforts ended – Canada is not regulating –CHECK RE NY



Insects of Federal And State Concern

Emerald ash borer – deregulation and biocontrol Spotted lanternfly – recent trace forwards Asian Giant Hornet – the pest of the west



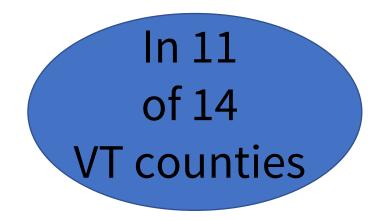


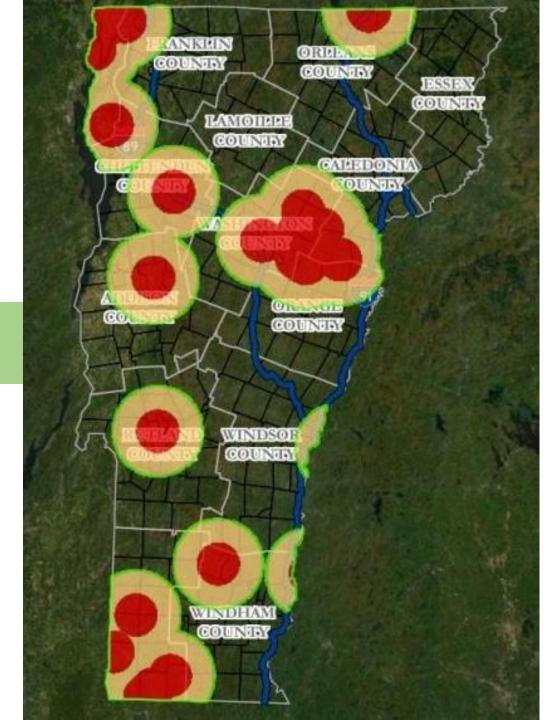






Emerald ash borer

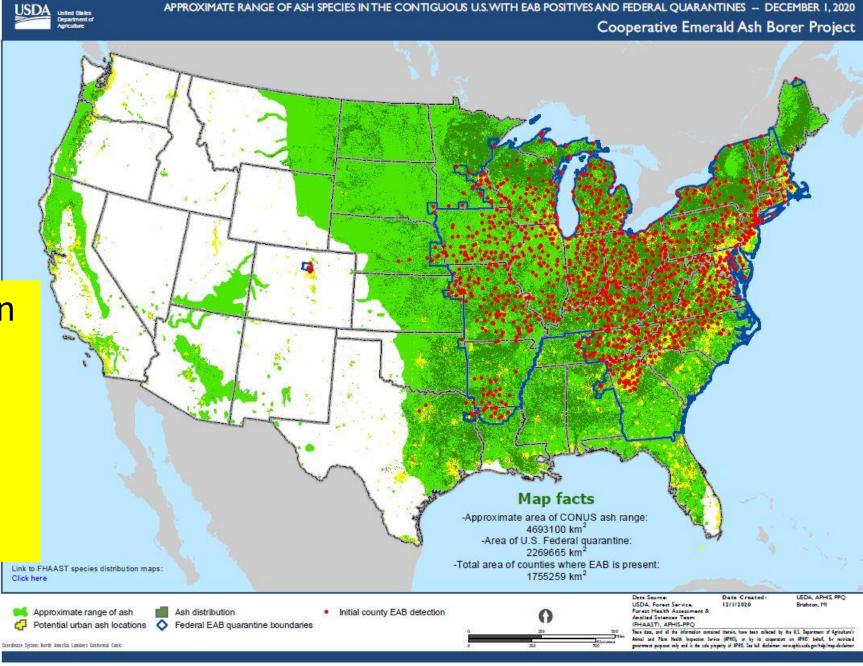




Federal EAB Deregulation

VT has law and recommendations

See vtinvasives.org



APPROXIMATE RANGE OF ASH SPECIES IN THE CONTIGUOUS U.S. WITH EAB POSITIVES AND FEDERAL QUARANTINES -- DECEMBER 1, 2020

• Emerald ash borer

Biocontrol

2020 Releases: LR Jones State Forest South Hero

Tetrastichus planipennisi

Effect on 'aftermath' forest



Photo by Jon Cherico, VT ANR FPR

O EAB and climate change

Temperature in C	Temperature in F	% Larval Mortality
-17.8	0	5
-23.0	-10	34
-29.0	-20	79
-34.0	-30	98

From: Venette, Robert C.; Abrahamson, Mark. 2010. Cold hardiness of emerald ash borer, *Agrilus planipennis*: a new perspective. In: Black ash symposium: proceedings of the meeting; 2010 May 25-27;. Bemidji, MN. Cass Lake, MN: U.S. Department of Agriculture, Forest Service, Chippewa National Forest. 5 p. <u>https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5191794.pdf</u>

Possible lower cold tolerance in parasitoids when T fluctuates

Burlington VT most recently -20 F in 2018

<u>https://www.currentresults.com/Yearly-</u> <u>Weather/USA/VT/Burlington/extreme-annual-</u> <u>burlington-low-temperature.php</u>

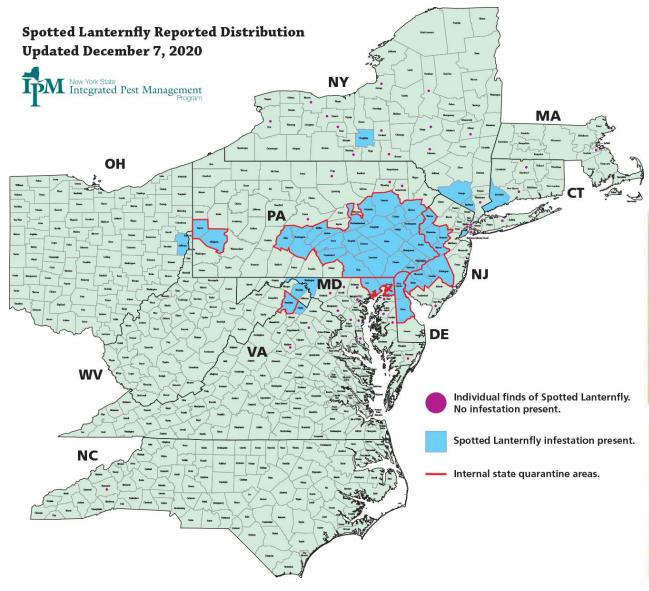


EAB parasitoid *Tetrastichus planipennisi*. Photo by D. Cappaert



EAB parasitoid *Spathius galinae* Photo by T. Petrice

• Spotted lanternfly – Lycorma delicatula

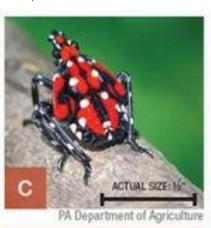


A Concharge

B Swackhamer PA Departmen



PA Department of Agriculture



Incoming!

- A. Egg masses
- B. Early nymph
- C. Late nymph
- D. Adult, wings closed
- E. Adult, wings open

PA Department of Agriculture

• SLF trace forward 2020

PA trees to NH nursery Apr - Sept 44 nurseries/landscapers had trees No SLF egg masses found on maples

SLF on the move-Good hitchhikers Check your poinsettias Check your car if in PA





BEES REACTING TO THE NEWS OF THE ARRIVAL OF THE MURDER HORNETS

ASIAN GIANT HORNET – VESPA MANDARINIA



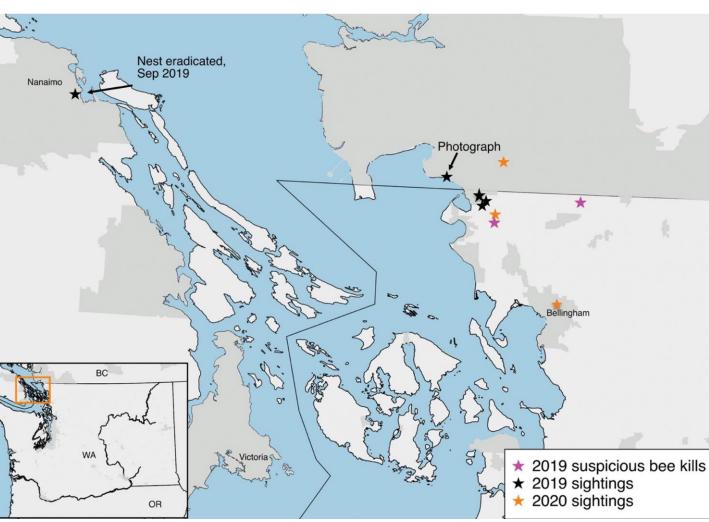
homets are most often 1.5"-2" in length, and usually kick off act fing in April. (Photo courtesy of WSDA)



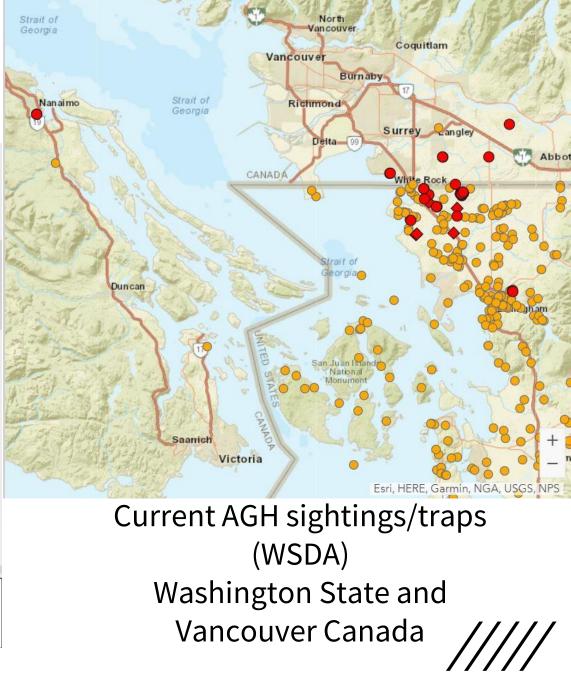


https://www.aphis.usda.gov/aphis/ourfocus/pl anthealth/plant-pest-and-diseaseprograms/honey-bees/agh/asian-giant-hornet and click on lookalikes for a good ID resource

• AGH - Where is it now?



AGH sightings over time in Pacific Northwest



• Efforts to eradicate AGH

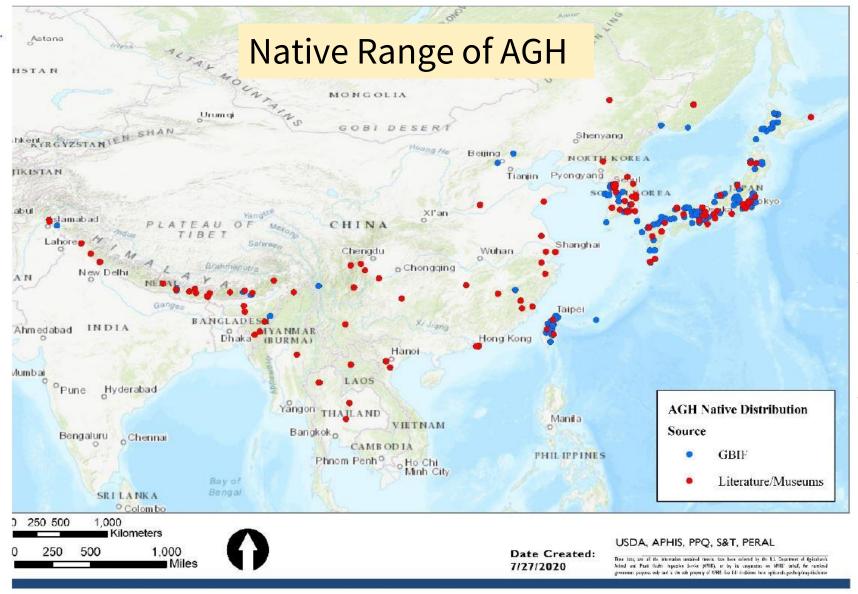


Photos and story at <u>https://www.cbsnews.com/pictures/murder-hornet-spotted-in-the-united-states/</u> Photos by WSDA; tracker by WSDA Karla Salp/AP





Eastern US climate more favorable for AGH but west obviously suitable too



From: Using native distribution of Asian giant hornets to model climate suitability in the US. USDA APHIS PPQ. October 2, 2020.

See

https://www.biorxiv.org/content/10.110 1/2020.05.25.115311v1.full.pdf Scroll below references to see graphics

Climate change will not be a deterrent https://www.eenews.net/stories/106308 2699 2020 was a good year for pests and pestilence. Let's hope that 2021 is a good year for the rest of us.

Any questions?

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