

CAST WEBINAR SERIES ON
FIFRA AND ESA

#5

**FIFRA, ESA and Pesticide Consultation:
Identifying and Overcoming the
Complexities from a Growers
Perspective**

Mr. Michael Aerts

Florida Fruit and Vegetable Association

Dr. David Epstein

Northwest Horticultural Council (retired)

Dr. Michael Willett

Integrated Plant Health Strategies LLC

CAST[®]

CAST Quick Facts

- 501(c)3 membership-supported nonprofit
- Formed in 1972 as a result of 1970 National Academy of Sciences Report
- Nonpartisan and apolitical
- Membership includes 27 scientific societies; 20 universities; 19 libraries; 45 nonprofits; 21 companies; and over 500 individuals from 46 states and 7 countries
- Celebrated its 50th anniversary in 2022





The Science Source for Food,
Agricultural, and Environmental Issues

Mission

CAST convenes and coordinates networks of experts to assemble, interpret, and communicate credible, unbiased, science-based information to policymakers, the media, the private sector, and the public.

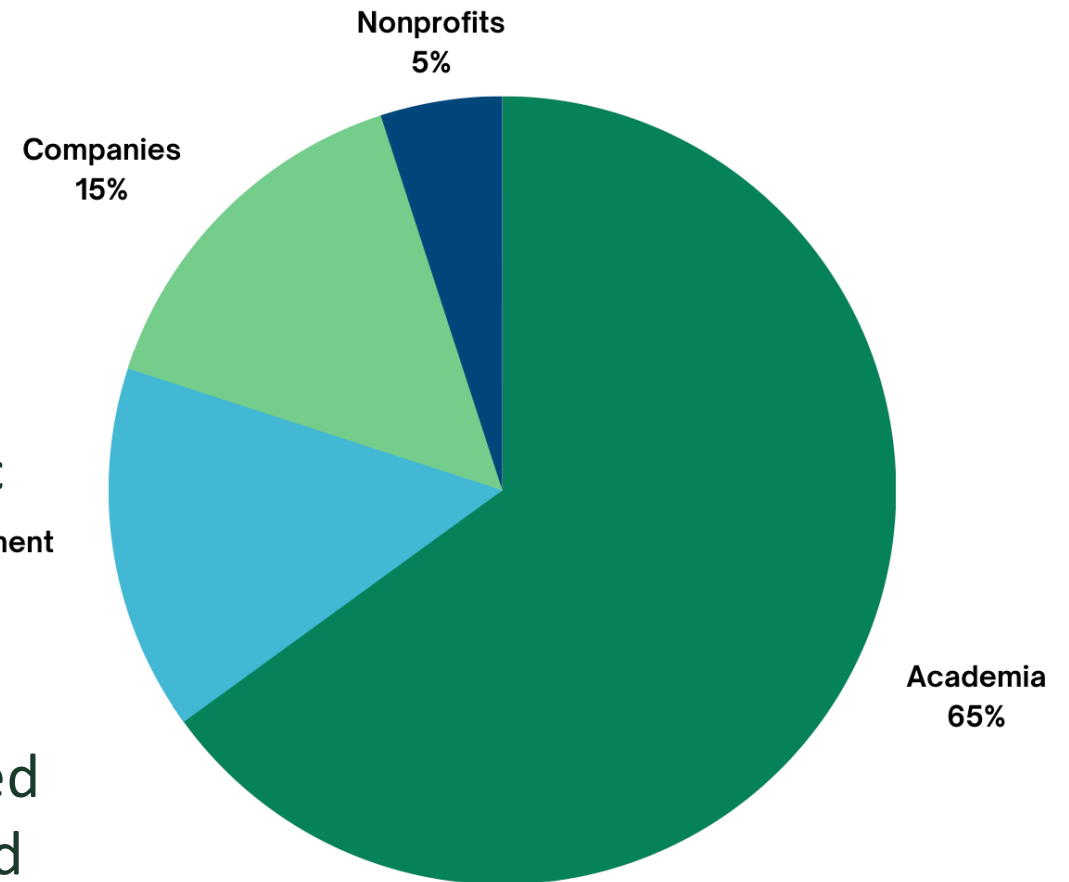
Vision

A world where decision making related to agriculture, food, and natural resources is based on credible information developed through reason, science, and consensus building.

How CAST Accomplishes Its Mission

With the help of many volunteer contributors:

- 65 Board Members representing scientific societies, companies, nonprofits, and universities
- Nearly 200 active task force members working on CAST reports yet to be released
- Volunteer scientific experts as authors and reviewers—more than 1800 volunteers since 2008



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Compliance Services International

Stanley Culpepper

University of Georgia

Reviewer

Andrew Goetz

BASF

Cameron Douglass

USDA

CAST Liaison

Tony Burd

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Growers understand the importance of engaging with pesticide regulatory action agencies

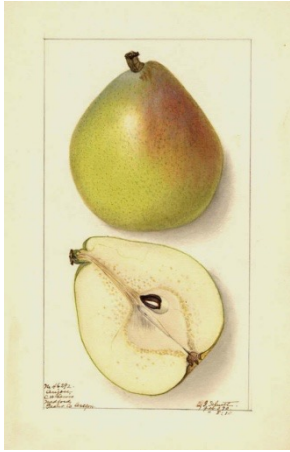
FIFRA
Federal
Insecticide, Fungicide,
and Rodenticide Act

FFDCA
Federal Food,
Drug, and Cosmetic
Act

FQPA
Food Quality
Protection Act

ESA
Endangered Species
Act

- Over 1,200 active ingredients, over 18,000 pesticide products, over 16,300 tolerances (maximum allowable pesticide residue on food)
- 18 major producers, 100 other producers, 2,300 formulators, 20,000 distributors

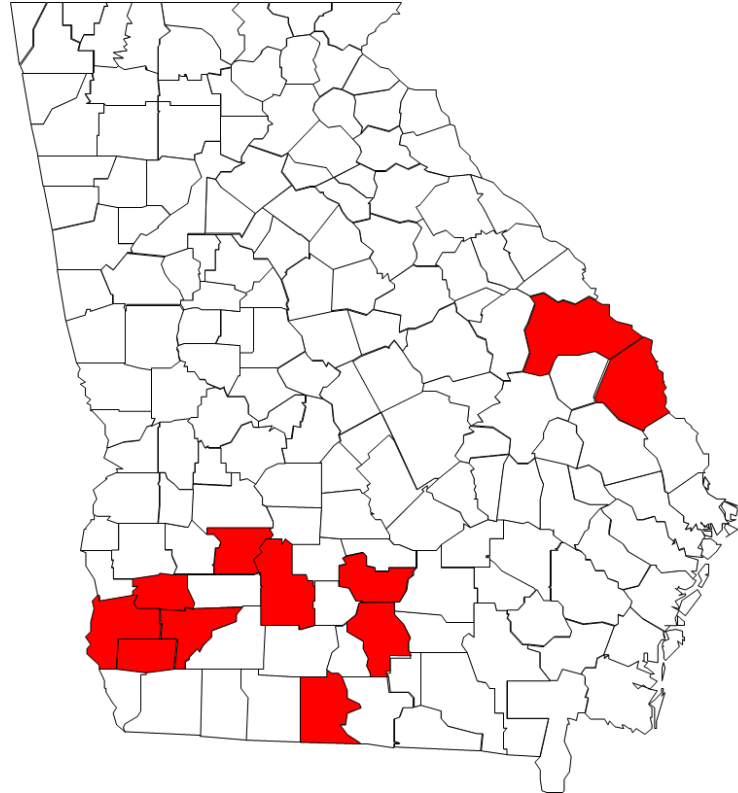


Grower Concerns with FIFRA/ESA Mitigation Process/Requirements

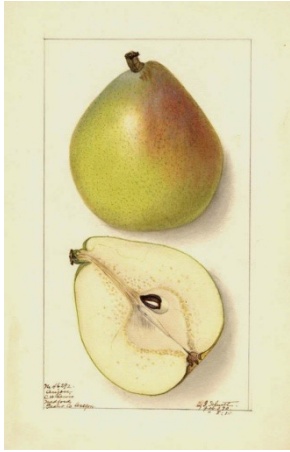
- Improved regulatory cooperation across agencies.
- **Accurate maps for listed species ranges, habitats, and farm fields being treated with pesticides.**
- Regulatory decisions based on practical/historical pesticide use rates as typically applied.
- Decisions based on more realistic predicted pesticide sensitivity levels of listed species.
- **Scientifically sound and flexible mitigation measures that apply to variable crop production systems.**
- **Refined pesticide modeling to reflect likely pesticide exposures more accurately.**
- Improved communication between federal agencies and agricultural stakeholders.



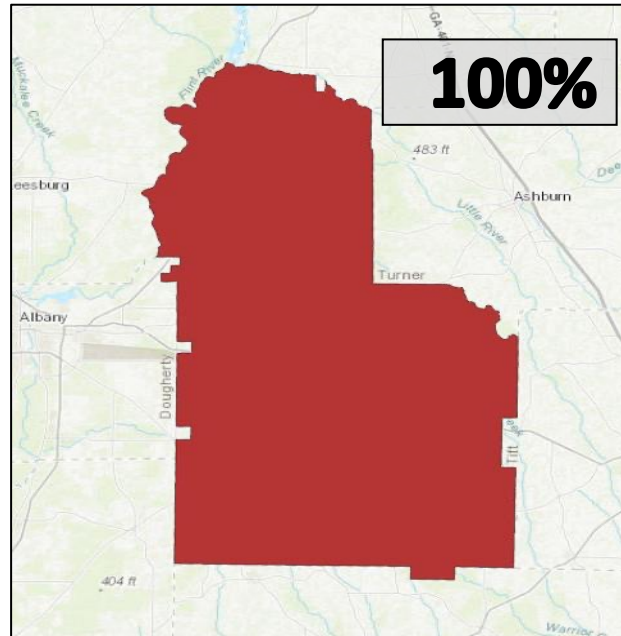
ESA Enlist Duo Application Restrictions



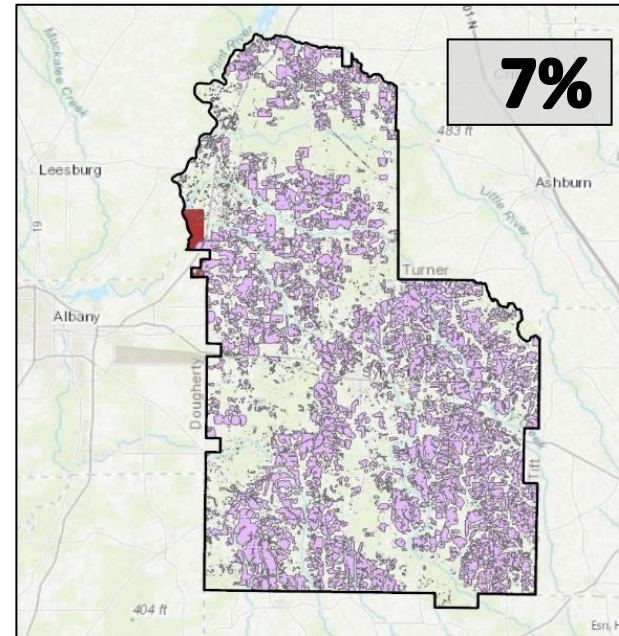
*Baker
Berrien
Brooks
Burke
Calhoun
Early
Irwin
Lee
Miller
Screven
Worth*



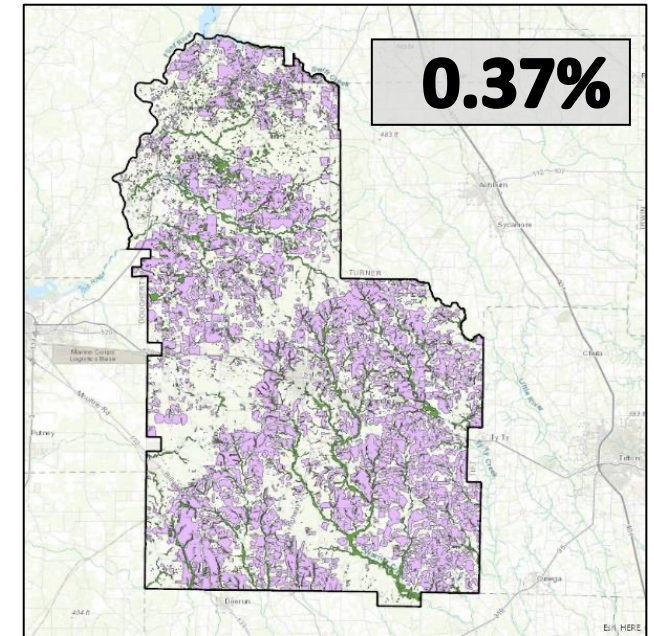
Comparing Three Approaches Identifying Species Location for the Salamander



Current County Wide Restriction
951,557 GA acres
for all 11 counties

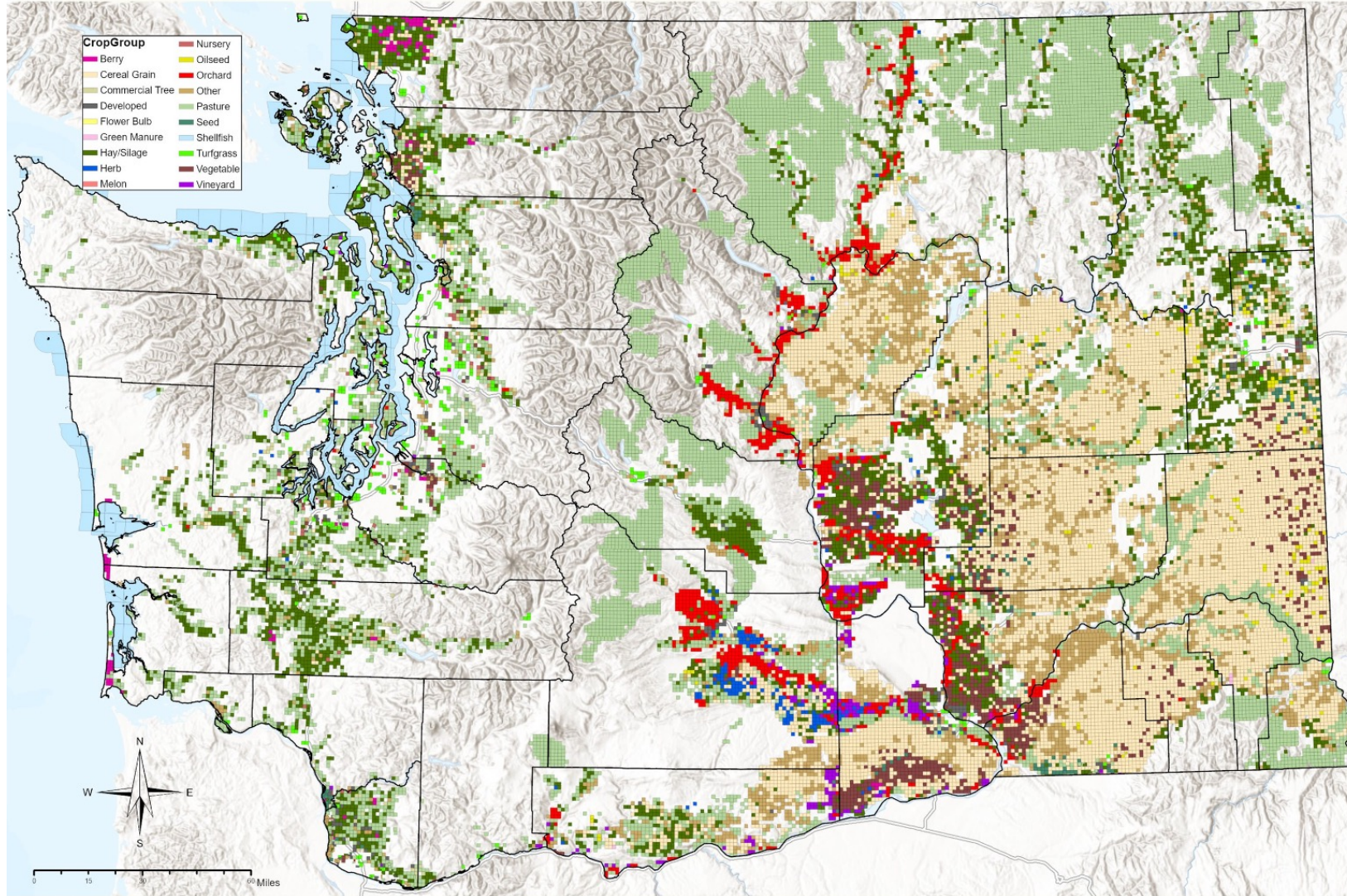


Historical Habitat
69,167 GA Acres
for all 11 counties



2023 Newly Defined Habitat
3,526 GA acres
for all 11 counties

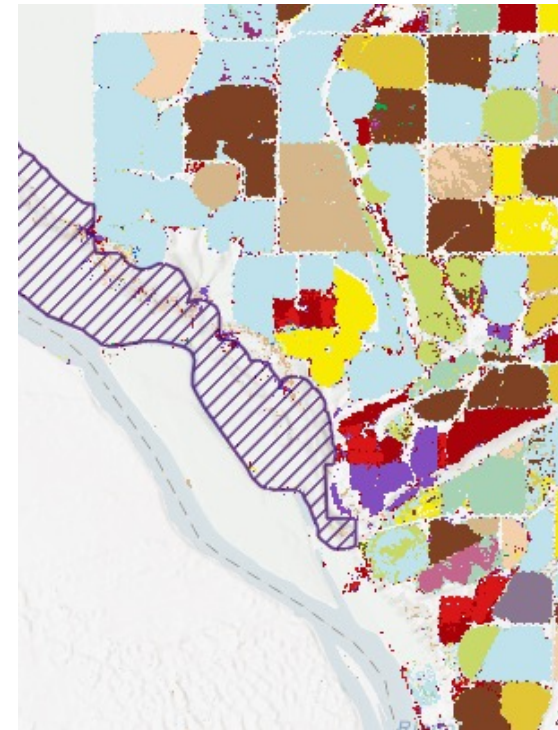
2022 Washington State Agricultural Land Use





White Bluffs bladderpod

Found growing on dry, barren, nearly vertical exposures of Calcium carbonate soil (high pH) in the Columbia Basin on the upper edge and upper face of White Bluffs



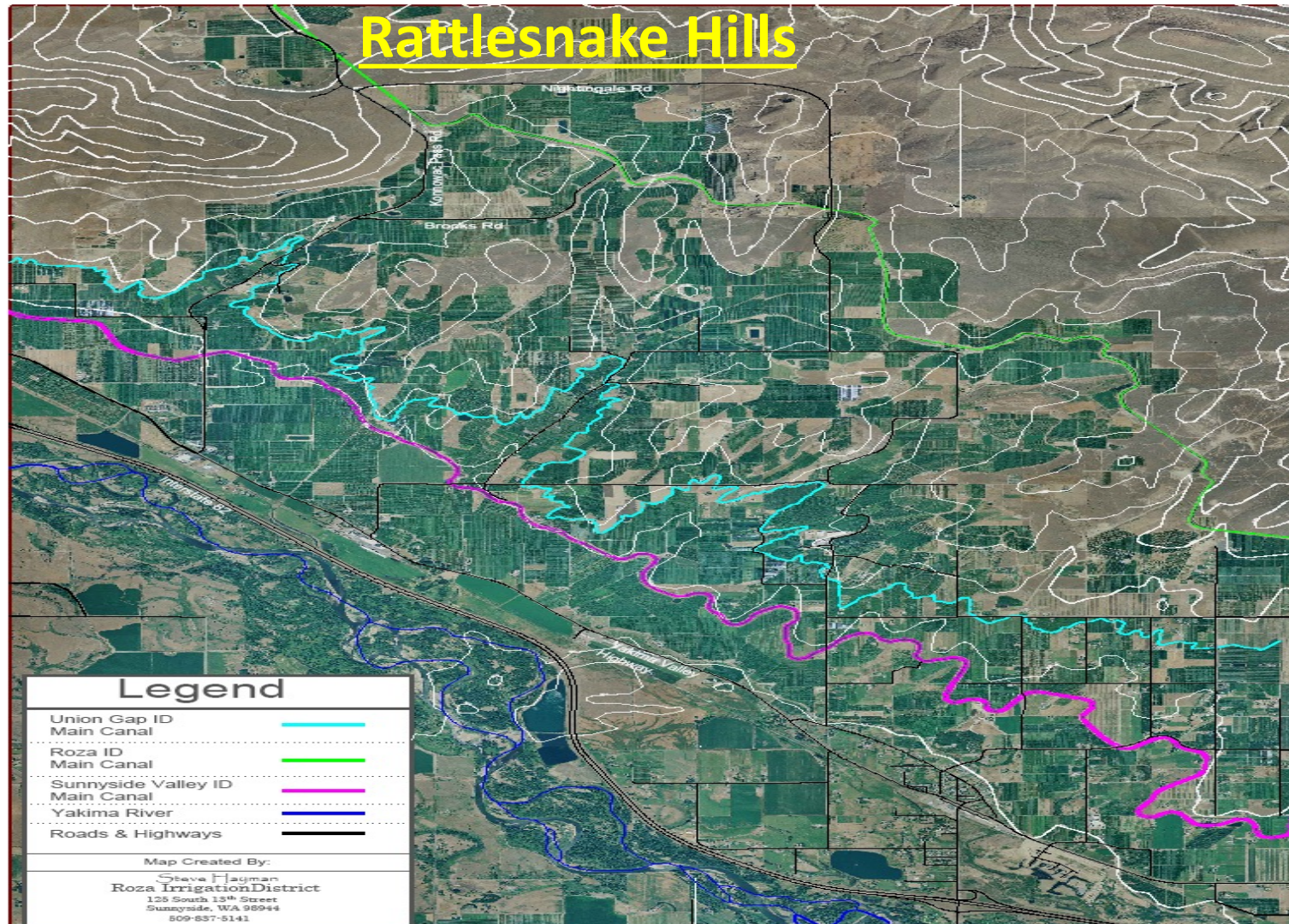


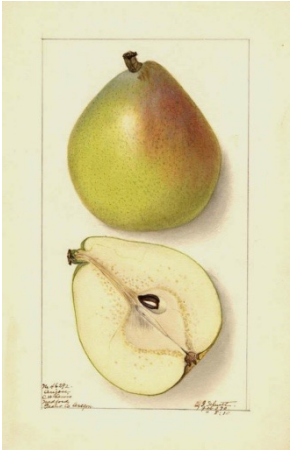
Irrigated land value in Pacific Northwest fruit growing districts: \$15,000/acre

Establishment costs: ca. \$50,000/acre

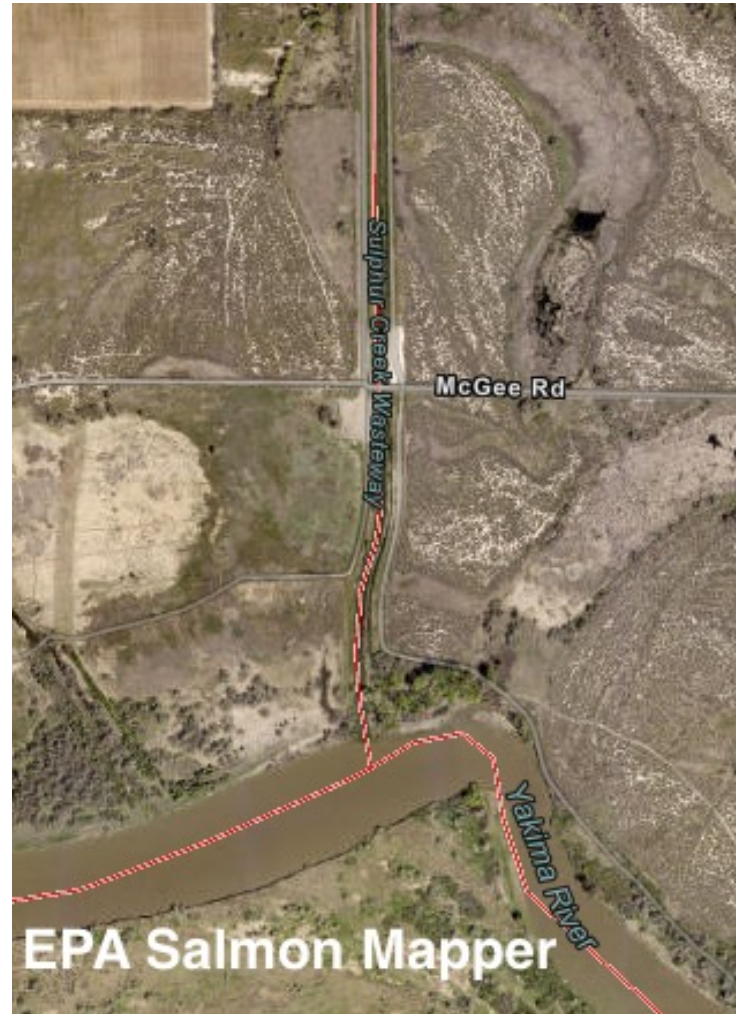
Photos courtesy Greg Lang, Michigan State University, and Smartcherry.world

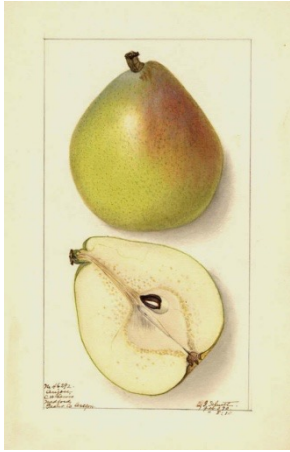
Rattlesnake Hills





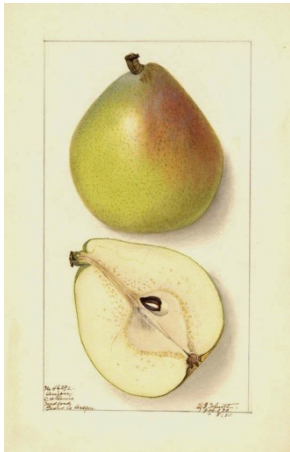
Mapping Salmon Habitat





Best available scientific data and information

- Pesticides in surface water studies
 - What should be the standard for studies to allow use of the data.
 - Recognize that changes in use patterns inform use of the data.
- Labels and pesticide recommendations
 - Labels on products currently distributed and used should be the basis for risk assessment
- NASS and third-party pesticide use data
 - USDA NASS Chemical Use Survey data
 - IPM pesticide use surveys
 - Private data sources



Hoping for Change in Spray Drift Mitigation

- Education credit??
- Credit for ultra-coarse droplets??
- Layby rig and hooded sprayer credit??
- Windbreaks - more options/credit??
- Pesticide application number credit??

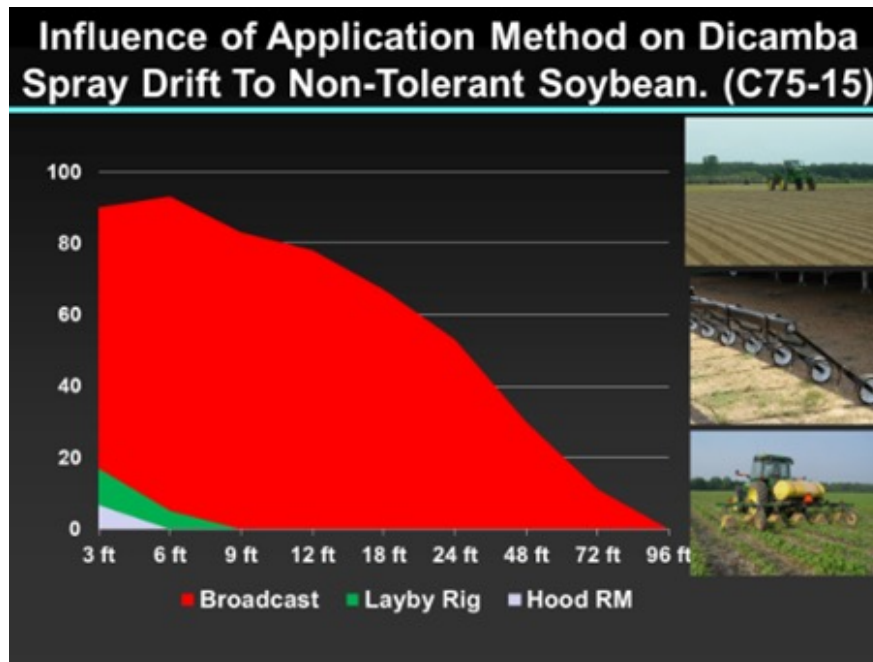
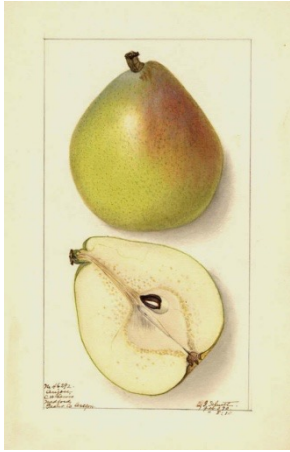


Table 1. Survey of Extension agents to determine the use of ultra coarse droplets when applying herbicides in Georgia's row crop agriculture.

County	Cotton, corn, peanut, and soybean acres per county ¹	Herbicide applications (%) made in cotton, corn, peanut, and soybean with ultra coarse droplets	Acres in cotton, corn, peanut, and soybean treated with ultra coarse droplets
Appling	47676	72	34326.72
Ben Hill	22608	70	15825.6
Berrien	57011	70	39907.7
Blecklev	28026	90	25223.4
Brooks	61694	95	58609.3
Bulloch	75168	35	26308.8
Burke	71600	25	17900
Candler	18053	70	12637.1
Coffee	69639	70	48747.3
Cook	32498	95	30873.1
Colquitt	85046	60	51027.6
Crisp	45852	70	32096.4
Dodge	28510	20	5702
Dooly	111800	55	61490
Echols	2000	25	500
Emanuel	30450	75	22837.5
Evans	6687	70	4680.9
Grady	41158	75	30868.5
Irwin	63172	50	31586
Jeff	31068	50	15534
Davis			
Jefferson	45700	50	22850
Mitchell	108610	40	43444
Morgan	5296	100	5296
Oconee	413	100	413
Peach	4338	30	1301.4
Pierce	33215	45	14946.75
Pulaski	37900	75	28425
Seminole	57916	40	23166.4
Taylor	5100	30	1530
Terrell	54479	75	40859.25
Tift	41114	70	28779.8
Toombs	19046	70	13332.2
Wilcox	46235	45	20805.75
Worth	95811	75	71858.25
All Counties	1,484,889	61.38235294	911459.8068

¹Values arrived from the University of Georgia 2021 Farm Gate Value Report. [https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-value-reports/2021_GeorgiaFGVReportDec2022%20\(1\).pdf](https://caed.uga.edu/content/dam/caes-subsite/caed/publications/annual-reports-farm-gate-value-reports/2021_GeorgiaFGVReportDec2022%20(1).pdf)



Encouraging Precision Orchard Sprayer Technology

Photos courtesy of Gwen Hoheisel



Herbicide Strategy: Runoff mitigation point system

Practice	Points
Sandy loam soil	1
Western agriculture	1
Irrigation management	1
Adjacent to field vegetative filter strip	2
Contour farming with strips	3
Multiple categories	1
Total points	9



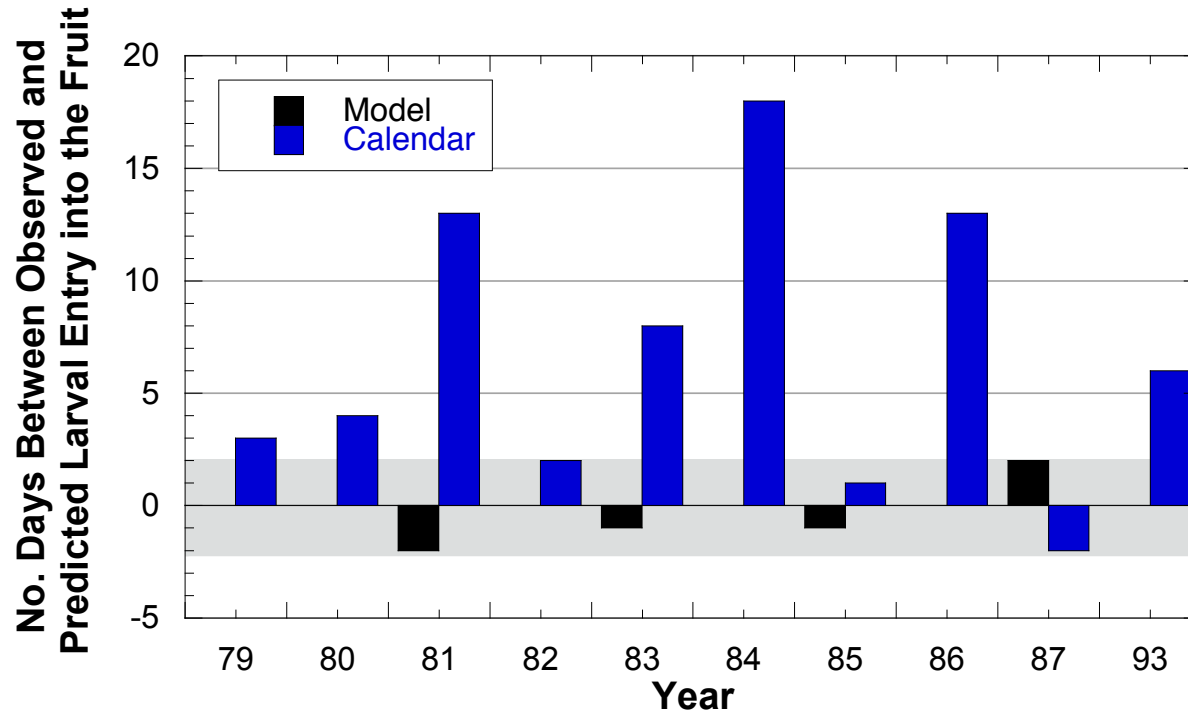


Predicting key life stage events for codling moth

Zero '0' line represents date of observed egg hatch

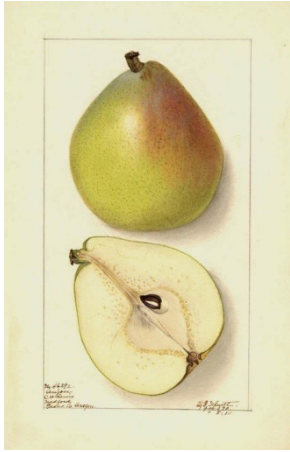
Deviations for calendar (blue) versus model (black) approach are shown on the figure below

CM Model Accuracy



- How does the model compare to spraying 21 days after full bloom of reds?

Minor Crop Farmer Alliance/Northwest Horticultural Council



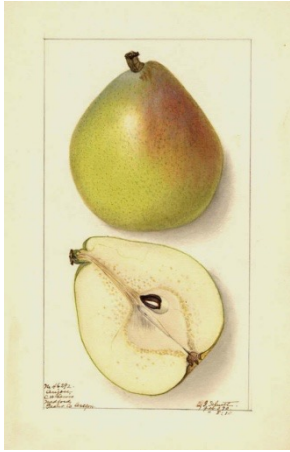
Hood River Valley looking south up the Hood River toward Neal Creek drainage



Neal Creek (estimates¹)

- Channel 1.9 m²
- Flow 30 cfs at mouth
- Highly sampled
- Highest detected value in sampling for chlorpyrifos

¹estimates made from data provided by FID and Confederated Tribes of Warm Springs



Maximum concentration (1999-2009): 0.482 ppb

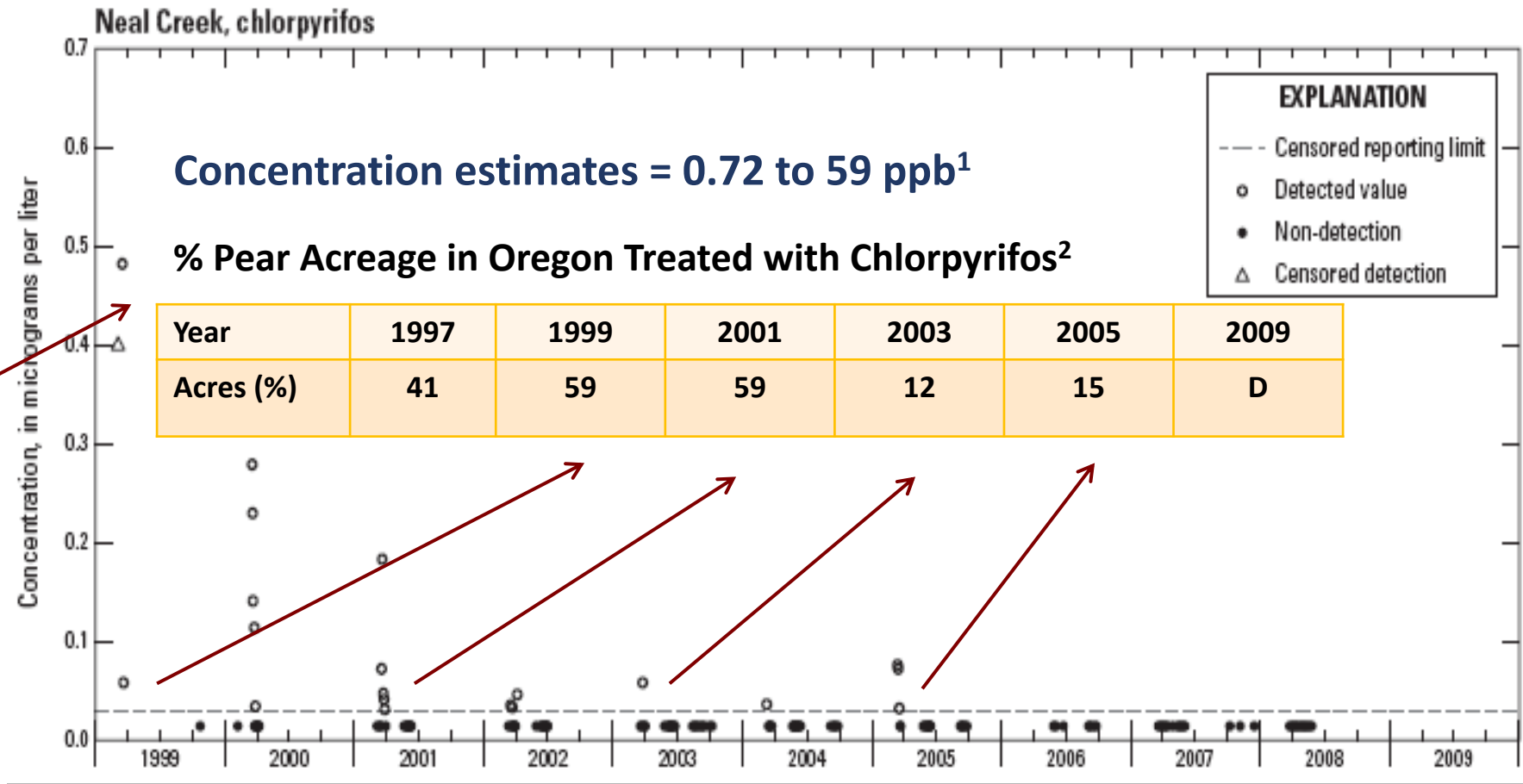
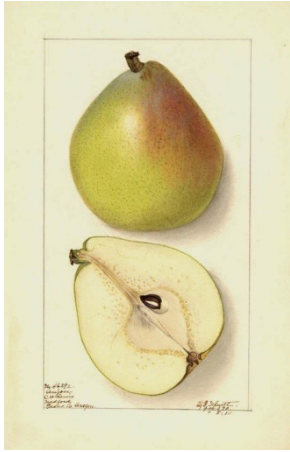


Chart: Temple, W.B. and Johnson, H.M. 2011. Occurrence and distribution of pesticides in surface waters of the Hood River basin, Oregon, 1999-2009. U.S. Geological Survey Scientific Investigations Report 2011-5082. 84 pages

¹Rossmisel, C.M. and R. Bohaty. 2020. Chlorpyrifos: Draft Ecological Risk Assessment for Registration Review. <https://www.regulations.gov/document/EPA-HQ-OPP-2008-0850-0940>. (accessed January 2024)

²USDA NASS Agricultural Chemical Usage 1997-2009 Fruit Summary



Improving the precision of drift modeling for airblast sprayers

- Only Tier 1 (screening level) models are available for estimating drift from air blast sprayers.
- When drift predictions using the Tier 3 (more refined) version of the AGDrift model for aerial application compared to real-time measurements in adjacent water bodies, the predictions improved from a 43.6- to 45.7-factor overprediction with the Tier 1 screening-level parameterization to a 1.0- to 1.8-factor overprediction at the most refined Tier 3 parameterization (Winchell et al. 2018)





Bulletins Live! Two (BLT)

- Include mobile device access
- Add the ability to search multiple pesticide products for a single application event
- Offer a nine-to-twelve-month time interval before mandatory adoption of new restrictions
- New initiative to better refine ES maps will help.

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Thank you!

Questions?

New Paper



RNA INTERFERENCE IN AGRICULTURE: METHODS, APPLICATIONS, AND GOVERNANCE

Download Now!



cast-science.org/publications

Upcoming Webinars

March 12

State Regulatory Agencies as Conduit for Informing Local Conditions in Federal Pesticide Processes

February 27

(webinar release with NAISMA)

Preventing the Next Plant Invasion: Opportunities and Challenges

Upcoming Papers

March 20

(in-person rollout in St. Louis, MO)

Applications, Benefits, and Barriers of Genome Edited Crops



Borlaug CAST[®] Communication Award

The annual award celebrates professionals in the agricultural, environmental, or food sectors who have significantly contributed to advancing science in the public policy domain.

2024
NOMINATIONS ARE
OPEN



Who Can Be Nominated?

Individuals who excel in promoting agriculture through various channels such as research, teaching, extension, or mass communication.

How to nominate?

To nominate an individual, visit the CAST website (cast-science.org/bcca) to download the 2024 nomination packet and for more information.

Deadline

The deadline for nominations is ~~midnight on February 12, 2024~~, has been extended to March 11.

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Your membership dues help us to continue providing trusted scientific information to legislators, educators, and the general public.

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- Young Professionals Memberships are **\$35/year**.
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Website

www.cast-science.org

Phone Number

515-292-2125

Email Address

cast@cast-science.org

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