

Distribution and Symptomology from CLRDV: An Alabama Perspective



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Cotton Leafroll Dwarf Disease

- *Cotton leafroll dwarf virus* (CLRDV)
- Transmitted by the cotton aphid (possibly other aphids)
- **World Wide Distribution**
 - First described in Africa in 1949
 - **Brazil (typical and atypical strains)**
 - **Argentina (typical and atypical strains)**
 - India
 - Thailand
 - Timor-Leste outside of Australia
- **Cotton Bunchy Top – Australia**



CLRDD Diagnostic Timeline

- 2009 to 2015 Consultants on rare occasions noted diagnostic symptoms (terminal whips).
- 2016 - Crop advisors reported unusual symptoms.
- 2017 – Symptoms in Barbour and Tallapoosa Co, Virus tentatively identified as CLRDV.
- 2018 – Symptoms noted in September.
- 2019 – 2 whole genome sequences from AL isolates confirmed to be a new CLRDV strain.
- 2019 – late June in FL, GA, and TN (PCR confirmed positive).
- 2019 – early July (PCR confirmed positive) at multiple AL locations.

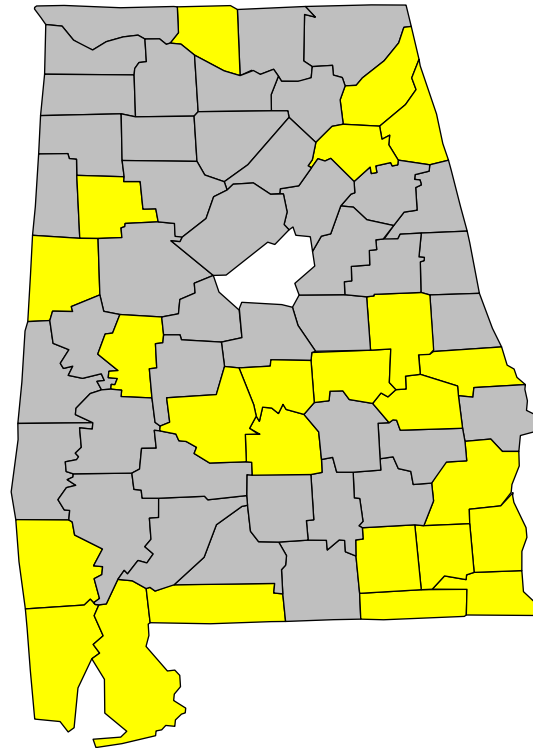


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Cotton Leafroll Dwarf Disease 2018 Distribution

Cotton leafroll dwarf virus (CLRDV)

April 9, 2019



AL counties

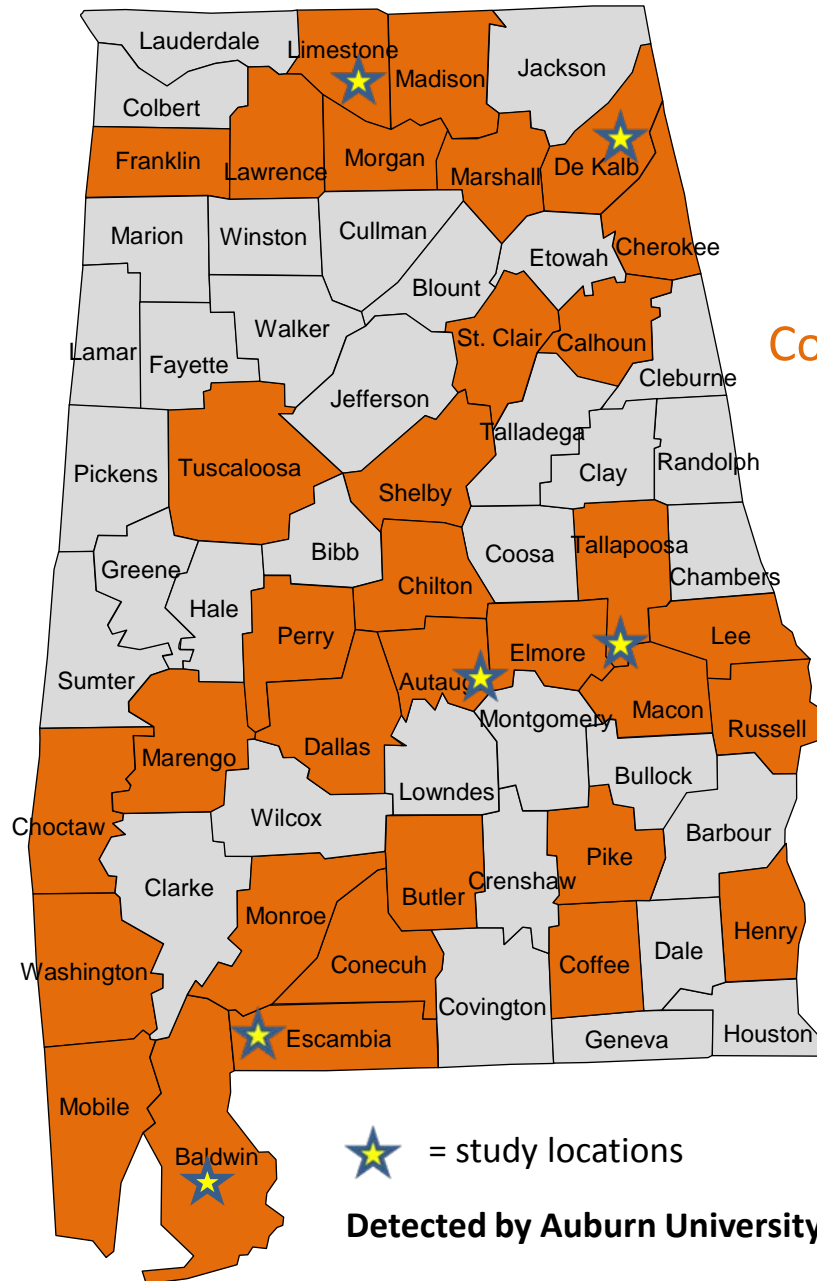
1. Autauga
2. Baldwin
3. Barbour
4. Cherokee
5. Coffee
6. Dale
7. Dallas
8. DeKalb
9. Elmore
10. Escambia
11. Etowah
12. Fayette
13. Geneva
14. Hale
15. Henry
16. Houston
17. Lee
18. Limestone
19. Lowndes
20. Macon
21. Mobile
22. Pickens
23. Tallapoosa
24. Washington


Detected by:
Plant Diagnostic Lab – Auburn University

Cotton Leafroll Dwarf Disease

Cotton leafroll dwarf virus
CLRDV

2019 Cropping Season
Distribution
September 19, 2019



 = study locations

Detected by Auburn University Plant Diagnostic Lab

Overall Sentinel CLRDV Incidence

Location	Region	% Positive
Belle Mina	N	20.8%
Prattville	C	71.6%
Brewton	SW	80.6%
Fairhope	SW	31.3%



CLRDV Incidence in AL Sentinel Plots

Planting Date	% CLRDV Positive Plots		
	Brewton	Prattville	Belle Mina
Early May	67 a	71 a	13 a
Mid-May	54 a	79 a	---
Late-May	75 a	71 a	17 a
Cotton Cultivar			
PhytoGen 480	92 a	92 a	13 a
Deltapine 1646	67 ab	75 ab	38 a
Stoneville 5818	75 a	92 a	13 a
NexGen 5711	83 a	100 a	0 a
BRS 286	25 c	33 c	0 a
BRS 293	50 bc	50 bc	25 a

CLRDD Incidence

92% CLRDV Positive



Impact of CLRDV on Cotton Productivity in NE AL

Location	Symptom	Total Bolls #	Yield Loss lb lint/A	Income Loss/A
Sand Mountain	Stunted terminal	Fewer	- 170	\$102

Single Cotton Cultivar

15% Symptomatic Plants

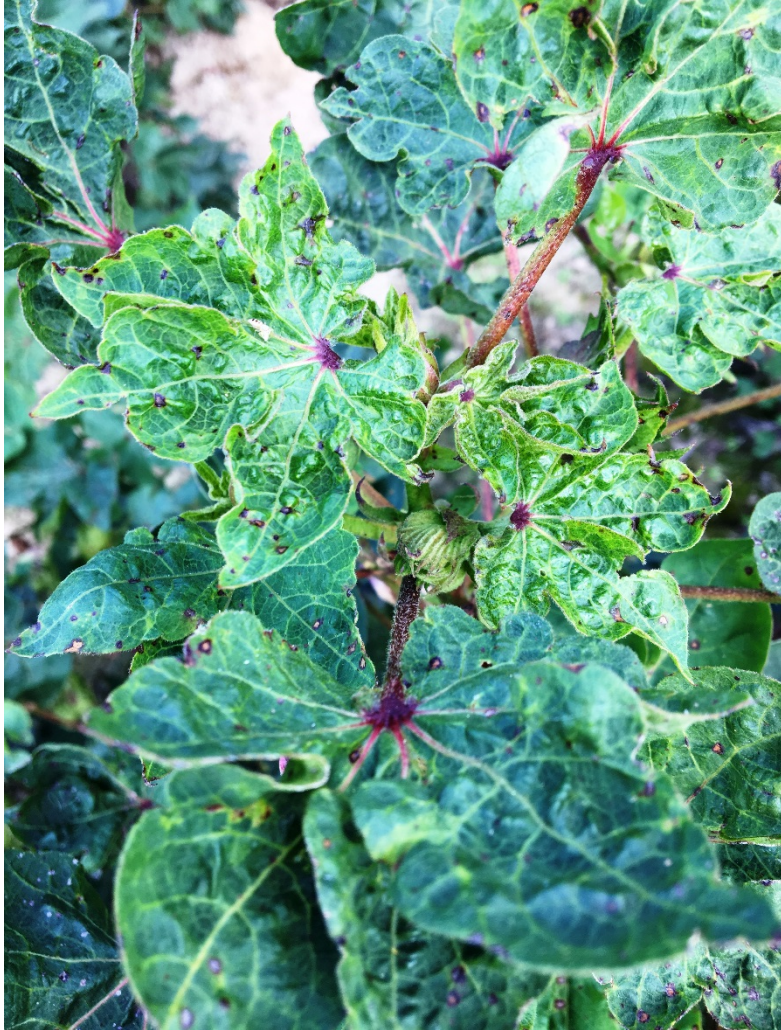
Hand harvested plants tested for CLRDV.

Symptom Expression

- Cultivar
- Growth Stage
- Fertility
- Weather
- Regional



Leaf Symptoms - 2017



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Leaf Rugosity in Seedling Cotton

BRS 286 PARU



PHY 480 PARU



PHY 480 PARU



BRS 293 PARU



Leaf Reddening/Drooping/Wilt



DPL 1646 PARU



BRS 293 BARU



BRS 286 PARU

Late Summer Reddening/Bronzing

NexGen AMX1828 GC



ST 6182 BARU



ST 6182 BARU



Leaf Crinkle/Red Veins/Stacked Terminals

PHY 480 TV



PHY 480 BARU



Breeding Line PBU



DP 1840 GCREC



Red Stems/Node Stacking/Stunting

ST 4550 GCREC



Breeding Line GCREC



DP 1646 PBU



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Accentuated Verticality – 2019

Cotton Stalks and Regrowth

Austin Hagan, ACES



CLRDV Reservoir Hosts



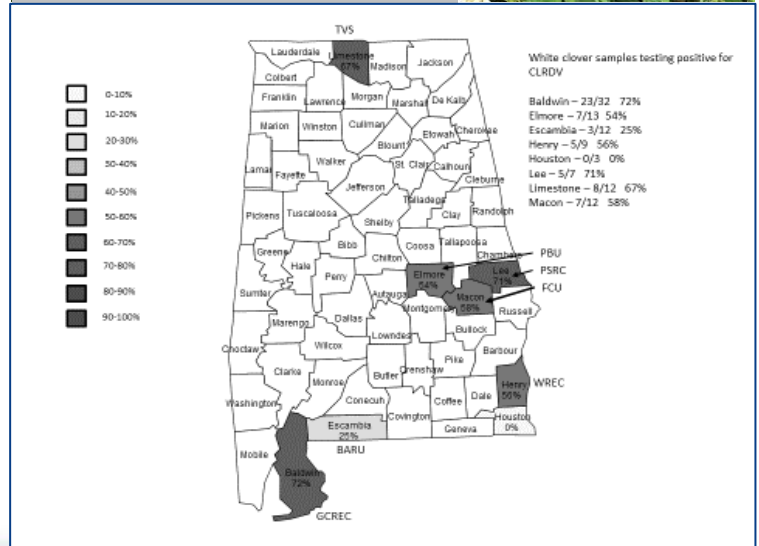
Henbit



White Clover

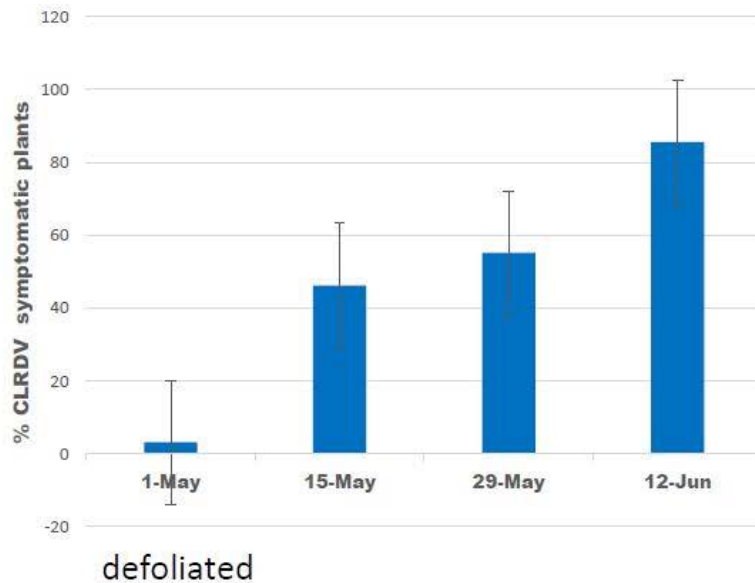


Evening Primrose

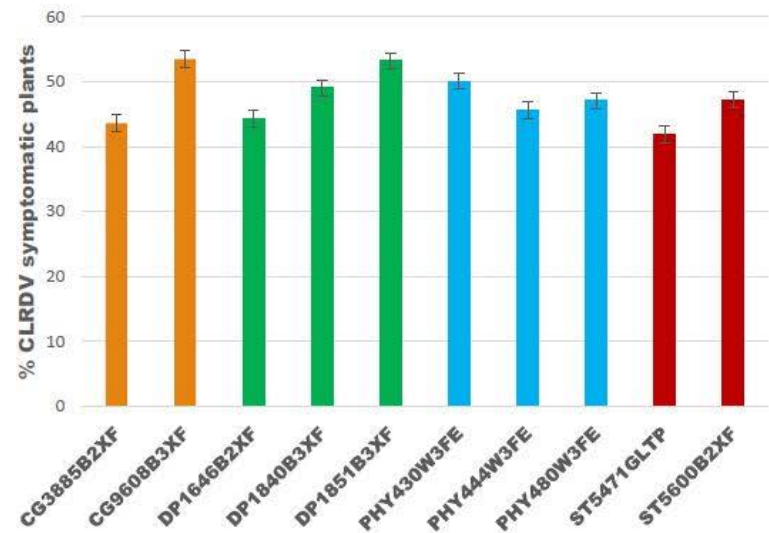


Cotton variety response to CLRDV by planting date, 2019

% CLRDV incidence across varieties by planting date, 2019



% CLRDV incidence by cotton variety, 2019



CLRDD Management

- Stalk destruction
- Winter weed burn down
- Deep tillage/winter cover
- Early planting
- Cultivars



CLRVD in Cotton

- New Disease
- Everyone unfamiliar with symptoms.
- Distribution in SE uncertain.
- Impact on yield and lint quality not established.
- Untested management procedures.