

Threat of Root Rotting *Fusarium oxysporum f. sp.* *vasinfectum(s)* (FOVs) to U. S. Cotton Production

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Cotton
Incorporated

Classification of FOVs

- Skovgaard, K., H. I. Nirenberg, K. O'Donnell, and S. Rosendahl. 2001. Evolution of *Fusarium oxysporum* f. sp. *vasinfectum* races inferred from multigene genealogies. *Phytopathology* 91:1231-1237
- Davis, R.M., P. D. Colyer, C. S. Rothrock, and J. K. Kochman. 2006. Fusarium Wilt of Cotton: Population Diversity and Implications for Management. *Plant Disease* 90(6):692-703.
- Bell A. A., Kemeraite R. C., Ortiz C. S., Prom S., Quintana J., Nichols R. L., and Liu J. 2017. Genetic diversity, virulence, and *Meloidogyne incognita* interactions of *Fusarium oxysporum* isolates causing cotton wilt in Georgia. *Plant Disease* 101:948-956

Some Difficulties with Current FOV Classification System

- **Two highly virulent Australian biotypes are outside the race classification system**
- **FOV4 = FOV7 = VCG 0114**
- **At least three highly virulent Southeastern FOVs are outside the race classification system.**

Bottom line:

- **Need classification system based on disease mechanism**
- **The disease mechanism is unknown**

***Fusarium oxysporum f. sp. vasinfectum* Race 4 (FOV4) in the San Joaquin Valley**

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**Phytogen 72
San Joaquin
Valley**



Symptoms of FOV4



Early Disease On-set



Photos from Dr. Hutmacher

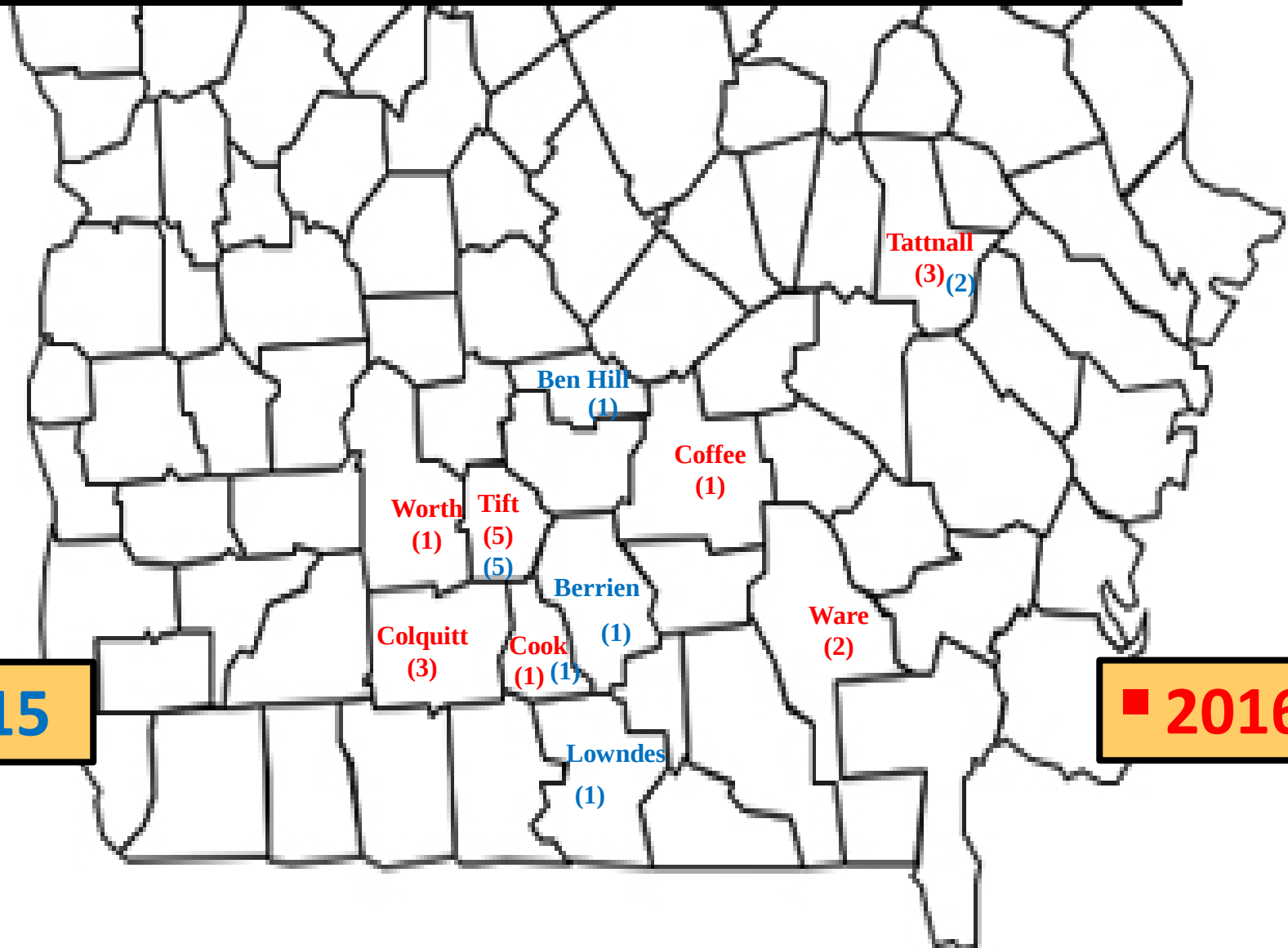
Root Rotting FOVs - Georgia

Field Root-Rotting FOV Phenotype



South Georgia

Counties & Number of Fields Collected



■ 2015

■ 2016

Symptoms of FOV4 in Texas



FOV4 in El Paso County, TX



FOV4 in El Paso County, TX



Threat of Root Rotting FOVs

- FOV1 managed by suppressing root knot nematode (*Meloidogyne incognita*).
- FOV4 does not need nematodes to infect.
- SE FOVs infect without root-knot nematode
- FOV1 and FOV4 are definitively seed-borne.
- FOV is persistent. (20 years?)
- True host resistance has not yet been found.