## SYMPTOMS AND VARIETY RESPONSE TO PHOMOPSIS BOLL DANGLE IN LOUISIANA Boyd Padgett LSU Agricultural Center Winnsboro, LA Patrick Colyer and P. R. Vernon LSU Agricultural Center Bossier City, LA

## <u>Abstract</u>

Phomopsis boll dangle (PBD), also know as phomopsis boll rot, atypical boll shed, cotton blossom-boll rot, and vascular cavitation, is a condition in which small bolls (thumbnail size) mummify and remain attached to the plant. Affected bolls are light brown to reddish-brown and a sunken lesion extends from the base of the boll along the peduncle. The epidemiology and full impact of this condition is not fully understood; therefore, research has been initiated to provide additional information about PBD.

Tests were conducted from 1997 to 1999 to document the severity of PBD in 115 cotton varieties. Seventy-one early and fifty-four medium maturing varieties were evaluated in LSU variety trials conducted at the Dean Lee, Macon Ridge, Northeast, and Red River Research Stations. To evaluate variety response to PBD, disease severity (number of affected bolls / plant) was assessed late season on thirty plants of each variety (10 plants / replicate).

Mean disease severity for all varieties was greatest during 1997 (0.33 affected bolls / plant) and lowest in 1998 (0.12 affected bolls / plant), and was most prevalent at the Macon Ridge and Northeast locations. When comparing maturity groups, severity was highest in the medium maturing varieties. Most varieties were susceptible to PBD. Suregrow 501 was most severely affected (1.16 bolls per plant). Other varieties heavily affected by PBD included Phytogen PS355, Suregrow 248, ACSI EXP0805, HCR9310, Deltapine 90RR, Deltapine 90B, Deltapine 9775, Deltapine 5415, Deltapine 5690RR, and Deltapine 675.

Other tests were conducted on the Macon Ridge Research Station and in a producer=s field to evaluate the impact of PBD on cotton boll development and yield. Phomopsis boll dangle epidemics were monitored in Deltapine NuCotn 33B and Deltapine 90RR. On July 26, 50 plant pairs were tagged in each field. A pair consisted of a plant exhibiting symptoms of PBD and a symptom-less plant. Plant pairs were compared for boll load, PBD severity, and yield. Initial disease severity (number and position of affected bolls) and number of harvestable bolls were recorded at time of tagging. Disease progress was assessed every seven to fourteen days until late August. At harvest each plant was handpicked and seedcotton was segregated into the amount picked from  $1^{st}$  and  $2^{nd}$  position bolls,  $3^{rd}$  or higher position bolls, or vegetative bolls.

Affected plants had more harvestable bolls than non-affected plants in both tests. Initial disease severity was similar in both fields; however, by the end of the season severity was greatest in Deltapine 90RR (4.64 affected bolls / plant). Phomopsis boll dangle severity ranged from 2.08 to 2.62 affected bolls per plant in Deltapine NuCotn 33B and from 2.24 to 4.64 bolls per plant in Deltapine 90RR. Sixty-nine percent of affected bolls were at 1<sup>st</sup> position sites in NuCotn 33B and fifty-six percent of affected bolls were at 1<sup>st</sup> position sites in Deltapine 90RR. At both locations, the majority of seedcotton was produced from 1<sup>st</sup> and 2<sup>nd</sup> position bolls, followed by vegetative bolls. Seedcotton yields were higher for affected plants. Preliminary results indicate that PBD does not have a significant impact on yield, but may delay maturity.

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