BREEDING FOR FUSARIUM WILT RACE 4 RESISTANCE IN COTTON

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Abstract

Fusarium oxysporum f. sp. *vasinfectum* race-4 (FOV-R4) is a highly virulent pathogen causing seedling death and wilt in cotton plants. FOV-R4, was initially detected in US cotton at California in 2001 and has since spread to major cotton-producing counties (Fresno, Tulare, Kern, and Kings) in the San Joaquin Valley. FOV-R4 does not require nematode infection. Through PhytoGen's advanced strain testing (2001-04) in SJ valley, PHY800 Pima was discovered and was made available to Pima growers commercially in 2004. PHY800 Pima was known for its exceptional fiber quality and was the first commercial variety with high FOV-R4 resistance available to cotton growers. Though this pathogen was initially identified in California, recently, it had also been detected in other cotton growing regions in US and has been a growing concern. Through QTL mapping approaches, we discovered a major QTL in chromosome 17 regulating FOV-R4 resistance in PHY800 Pima. These molecular breeding tools would aid in development of FOV-R4 resistance in Upland and Pima cotton.