2002 BELTWIDE COTTON CONFERENCES, ATLANTA, GA – JANUARY 8-12

OCCURRENCE AND SIGNIFICANCE OF *FUSARIUM* SPECIES IN ACID-DELINTED COTTON SEED FROM AUSTRALIA AND POSSIBLE SOURCES OF SEED INFECTION

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Abstract

Approximately 250,000 tons of fuzzy cotton seed is shipped annually to California for cattle feed in the dairy industry. The seed is fumigated before shipment with methyl bromide to kill any infestations by insects and possible fungal infections. However, isolations from the seed after acid-delinting in California have shown that the seed is commonly infected by various fungi including several *Fusarium* spp. Moreover, fumigation of the dry seed with methyl bromide had little or no effect on percentage germination of the seed. Among the *Fusarium* spp. isolated from seed lots from 17 shiploads of cotton seed in 2001 and 3400 seed, were the following: *F. semitectum* (42 isolates from 10 seed lots); *F. equiseti* (33 isolates from 8 seed lots); *F. sporotrichioides* (16 isolates from 7 seed lots); *F. oxysporum* (10 isolates from 3 seed lots); *F. moniliforme* (7 isolates from 3 seed lots); and *F. scirpi* (2 isolates from 2 seed lots). None of the isolates of *F. oxysporum* were pathogenic on Acala SJ-2 or Pima S cotton seed. However, the risk of importing new race (s) of *F. oxysporum* f. sp. *vasinfectum* into California is high since the one or two races of this pathogen in Australia can be seedborne and are not limited to sandy soils, nor are they necessarily associated with the root knot nematode during pathogenesis; moreover, they are pathogenic on a wider range of cotton culitvars and are distinctly different in random amplified polymorphic DNA from the Race 1 isolates from California. From previous studies it is apparent that the range of DNA profiles among the California isolates *of F. oxysporum* f. sp. *vasinfectum* is wider than the profiles for Australian isolates. The two strains from Australia which were used, represent the races in Australia and were obtained through authorized permit channels.