

23. SPOT REPORT

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Accurate, simple and rapid techniques, suitable for selecting disease resistant individuals in plant populations are needed. Ideally, such techniques could be adopted by commercial firms. A host specific toxin suggested by the research of Javia and Bain (1) would be extremely valuable, because toxin could be distributed without fear of dissemination of the pathogen. The absence or lack of such technique now require that all development of downy mildew resistant maize populations be done in areas with downy mildew diseases. This problem is confounded by different pathogen species or geographically isolated races of downy mildew pathogens. Consequently we have two concerns, one that sufficient development of downy mildew resistant cultivars could be impeded and second that pathogen isolates races or species will continue to spread.

Currently, the most valuable program in the development of downy mildew resistant cultivars, utilizes the population improvement approach. In this light, we at Texas are jointly cooperating in Federally coordinated, State and private population improvement programs, followed and coordinated with limited, line and hybrid testing. We realize that our naturally inoculated nurseries will be utilized until suitable substitutes are available.

It is critical that we continue to monitor both the distribution and variability of the pathogens. Currently, Drs. L. M. Josephson, University of Tennessee and L. K. Edmunds USDA at Manhattan, Kansas are conducting a national sorghum downy mildew monitoring program with about 150 reporting sites, throughout the corn and sorghum growing regions.

In addition, during the 1973 downy mildew workshop, committee (Drs. A. Bruce Maunder, DeKalb AgResearch and Richard A. Frederiksen, Texas A&M University) to monitor for genetic changes in the pathogen and distribution of sorghum downy mildew was established. Based on the findings of this committee during the fall and winter of 1973-4 sorghum downy mildew was reported to occur in Brazil and Honduras, and we know now that sorghum downy mildew has appeared in Venezuela. No clear cut differences among naturally occurring isolates of *S. sorghi* are known in the western hemisphere. All apparent differences can be accounted for by variation due to host genotype—environment interactions.

Literature Cited

1. Javia, R. B. and D. C. Bain. 1970. Recation of sorghum to injection of juice from sorghum infected with *Sclerospora sorghi* Proc. Assoc. Southern Agri. Workers 67: 175-6.

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