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Project ID: FY12-IM-001

ARS Agreement #: 59-0206-9-053

Research Category: MGMT

Duration of Award: 1 Year

Project Title: Integrated Management of Fusarium Head Blight in Maryland.

PROJECT 1 ABSTRACT

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Fusarium head blight continues to have the potential to make a soft red winter wheat crop in Maryland completely unmarketable. Although advances have been made in development of more resistant cultivars and more effective fungicides, neither tactic alone has proved to be sufficient to reduce yield losses and vomitoxin (DON) levels to acceptable levels when the weather is highly conducive for disease development. Initial advances in breeding for resistance concentrated on transferring resistance genes that limit spread of the pathogen in a wheat head. This type of resistance could be overcome by multiple infections that can occur on a single head in a severe epidemic. The best fungicide technology to date has only resulted in disease suppression and toxin reduction averaging 45% of untreated. In integrated management trials conducted in Maryland only a combination of rotation, resistance and fungicides produced a crop that had DON levels below the FDA action limit for human consumption of 1 ppm in a severe epidemic year. As cultivars with improved agronomic performance and different combinations of resistance genes become available the contributions of the fungicide and rotation components to successful and acceptable disease management levels needs to be assessed. This project is part of the uniform management trial examining disease management through integration of available cultivar resistance, crop rotation and currently registered fungicides.