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Project Title: Aerial Application Methodology for Improved Spray Deposition on Wheat Heads.

PROJECT 1 ABSTRACT

(1 Page Limit)

Development and evaluation of aerial application technologies to enhance the efficacy of fungicides and biological control agents with standard aerial spray rates have been highlighted as a priority in the Chemical and Biological Control research area of the U.S. Wheat and Barley Scab Initiative for fiscal year 2003. The mission of the ARS Aerial Application Technology research team at College Station, Texas, is to develop and implement new and improved aerial application technologies for safe, efficient, and sustainable crop production and protection. The team has not previously worked on Fusarium head blight, but they offer considerable expertise in application technology to address the Initiative priorities. The goals of this proposed project are to: 1) Identify the capability of conventional aerial application practice to deposit sprays on wheat heads and determine the properties of those spray deposits; 2) Determine if the amount of spray deposits on wheat heads can be enhanced through the use of very fine sprays produced by rotary atomizers, and characterize those spray deposits; and 3) Determine if electrostatic charged aerial sprays and aerial sprays applied from two directions will increase deposits on wheat heads, and characterize those spray deposits. At least three large acreage aerial spray studies will be conducted to achieve these project goals. Treatments will be applied in randomized blocks with three or four replications, depending on acreage available from commercial wheat producers in central Texas. Multiple sub-samples of wheat heads and artificial collectors will be collected and analyzed to characterize spray deposits from the specified treatments. Fluorometry and image analyses will be employed to quantitate and characterize spray deposits on wheat heads and artificial collectors. Methods and technologies from this proposed project that show promise for increasing spray deposits on small grain heads could be readily implemented by aerial applicators and incorporated into producer programs to manage Fusarium head blight.