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PROJECT 2 ABSTRACT
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In the past five years, fungicide use in durum wheat has increased significantly in the north central region of North Dakota, an area where durum acres have increased because of serious FHB infections in the more traditional northeast areas of durum production in North Dakota. Historically, most fungicide applications were applied by air, but a shift to ground application has occurred in recent years, with many farmers and agricultural dealerships buying ground sprayers. Wheat producers often ask if there is a difference between air application and custom ground application of fungicides. Limited information exists to compare the two methods of application. Studies are needed to compare aerial application vs custom ground application of Folicur fungicide for reducing FHB severity and DON levels and increasing yield. Both application procedures have some advantages and disadvantages: aerial application allows quick response to critical situations, covers a large area in a short time, and allows application when soils are too wet for ground rigs; ground sprayers allow additional water volume to be applied; the cost of application/acre may be less; slower speed may allow better coverage. This study will look at typical aerial and custom ground application to determine differences in efficacy and allow determination of steps to improve control with both methods.

Most testing of fungicide efficacy for control of FHB has been done by plot sized ground application or with small ground rigs, delivering from 10 to 20 gpa, and using forward/backward nozzles or twin jet nozzles orienting the spray both forward and backward towards the grain heads. A few studies of aerial versus ground have been done in North Dakota (Halley et al. 2000; McMullen unpublished 1998). In the 2000 aerial study on wheat, the aerial application was made with 5 gpa and nozzles pointed straight back. Comparison of this aerial application to ground application using forward/backward nozzles delivering 18 gpa indicated that field severity of FHB was slightly less with the ground application and yields were 4.7 bu/acre greater. A field experiment to compare ground vs aerial application of Folicur fungicide to control FHB in durum wheat will be established in the growing season of 2003 in the north central district of North Dakota, an area home to approximately 1.2 million acres of durum wheat. The treatments will be: untreated check; application by air at 5 gpa; application by custom ground rig using twin jet nozzles and 18 gpa. Folicur fungicide will be applied at 4 fl oz/acre with 0.12% NIS added. Each treatment will be applied to a 150 ft wide area and a minimum of 1000 ft long, which is approximately 3.5 acres per plot. Three treatments x 4 replicates x 3.5 acres = 42 acres needed. Fungicides will be applied at approximately 25% flowering (Feekes 10.51).