



On-Farm Field Demonstration of the Impact of Irrigation Management, Timing of Fungicide Sprays and Cropping System on Fusarium Head Blight Control in Irrigated Wheat Production in Southern Alberta

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Introduction

- Fusarium head blight (FHB) is an emerging disease in southern Alberta that reduces both the yield and quality of infected grain
- Since control methods have largely been chemical, a reduced risk strategy is being developed by the Pest Risk Reduction Program of AAFC
- This project includes on-farm trials with nine producer co-operators examining irrigation management and fungicide use for control of the disease, and an annual survey of 25 dryland and irrigated fields to determine how cropping system impacts the disease

Materials and Methods

- Nine co-operator fields from across southern Alberta are involved, as well as 25 random fields surveyed annually
- Co-operator fields have areas where irrigation is avoided during flowering to compare to areas where irrigation occurs during flowering
- The producer sprays their own fungicide, leaving check strips
- Disease ratings, yield, grade, and testing for FHB levels are done in each treatment of the field (sprayed vs. not sprayed, irrigated during flowering vs. not)

Discussion

- Both reduced irrigation at flowering and fungicide application reduced incidence and severity of FHB, fusarium damaged kernels (FDK) and levels of the mycotoxin deoxynivalenol (DON) which is produced by the fusarium pathogen. Results varied among fields and over years due to differences in disease pressure and environmental conditions.
- Irrigated fields where water application was avoided during flowering had reductions in fusarium damaged kernels (FDK) of up to 2.4% in 2010 and up to 0.5% in 2011.
- Fungicide treatments in several fields showed a reduction in FDK of up to 2.4% resulting in up to a two grade improvement, a difference of \$3.24/bu .
- Net benefit from fungicide application was up to \$1.97/bu, and net benefit from reduced irrigation at flowering was up to \$1.80/bu in the fields studied.
- When reduced irrigation and fungicide application were combined, %FDK reductions were greater than when either practice was used on its own.
- In the survey of 25 commercial fields per year, few clear trends have been identified from the survey data, which underscores the complexity of the disease and factors that influence incidence and severity.



Figure 1. Wheat head with FHB



Figure 2. Co-operator spraying fungicide

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