

0203-TE-052 Fusarium graminearum and DON levels in single seeds following greenhouse point inoculation.

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PROJECT ABSTRACT

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The single floret inoculation system is commonly used to screen wheat cultivars and germ plasm for FHB Type II resistance in the greenhouse by a visual rating of the spread of fungal hyphae in the spike and spikelets. Evaluation of this system in our laboratory across a wide range of germ plasm have shown that these visual ratings of spikelet infection are poorly associated with the *Fusarium graminearum* (Swabe) infection occurring in the seed, rachis and other floral components the same spikelets. Our data has also shown that fungal movement in the spike occurs primarily in two ways; localization around the point of inoculation (PI) and movement down the spike from the PI. The objective of this research is to use the single floret inoculation system to relate ratings of visual spikelet infection in the greenhouse to *F. graminearum* infection and deoxynivalenol levels in seeds of adjoining florets in all individual spikelets on each infected spike. The movement of fungal hyphae and DON into the various components of the spike will be evaluated following point inoculation at the top and middle of the spike and spray inoculation of the entire spike. These experiments will allow us to closely evaluate the movement of fungal hyphae and DON to the rachis and single seeds of infected wheat spikes across resistant and susceptible cultivars. It should also allow us to evaluate the method of single floret inoculation and possibly improve the accuracy of the visual rating system for spikelet infection. This research is relevant to the goals of the Scab Initiative because it proposes to develop more accurate methods of assessing FHB infection, thus improving the efficiency of screening for FHB resistance.