



# UNIVERSITY OF KENTUCKY WHEAT SCIENCE NEWS

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## WHEAT SEED QUALITY CONCERNS

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A regional *Fusarium* head blight (i.e., head scab) epidemic in the spring of 1991 resulted in widespread wheat seed quality problems and limited supplies of high germination seed available for planting that fall. Seeds infected by *Fusarium* sp. were dead (called tombstones) or shriveled to plump in appearance. This situation resulted seed with a range of germination and vigor. The wheat seed industry overcame the situation in 1991 by severely conditioning seed lots, including seed treatment with various seed treatment fungicides effective against seed-borne *Fusarium* sp. There was also an industry-wide educational program alerting wheat producers about the risks of planting bin run seed. Fast-forward to 2002.

The situation faced by wheat producers this fall is not nearly as extensive, nor severe, as the one that existed in 1991. Nonetheless, based on results from the University of Kentucky Seed Testing Laboratory, low germination is occurring in some wheat seed lots produced in Kentucky during the spring of 2002. For example, results of 314 germination tests indicate that 28% of the untreated seed lots tested had a standard germination of 80% or lower. Seventeen percent of the seed lots had germinations of 70% or lower, and slightly under 7% had germinations of 60% or lower. As a reference point, certified seed is required to have a germination greater than 85%. This gives you some idea of the overall situation. Those farmers who routinely save wheat seed for replanting are at greatest risk this fall because bin-run seed is often planted without being properly conditioned or treated with a fungicide.

*Fusarium* head blight symptoms were moderate, statewide, in the spring of 2002; however, it appears that late season moisture resulted in significant levels of *Fusarium* sp. infection during the latter stages of seed development in some fields. In fact, much of the seed tested for *Fusarium* sp. in Dr. Dennis Tekrony's laboratory this summer had fairly high test weights (i.e., 57-60 lbs/bu) and looked good, but *Fusarium* sp. infections were still in the 40-70% range.

Some wheat seed producers have either submitted split samples of fungicide-treated (50/50 Raxil/Thiram) and non-treated seed or have asked the seed laboratory to

hand-treat seed prior to testing. The results are encouraging. The results of treating 10 seed lots with Raxil/Thiram are presented in Table 1 to give you some idea of how individual seed lots have been responding to fungicide seed treatment. For all split samples tested, average germination of non-treated seed was 77.4%. Treatment increased the average germination to 92.2%. The germination of seed lot 2 was bumped from 62% to 94%! Overall germination results following seed treatment suggest that dead seed is not a serious issue, as dead seed would not respond to any amount or type of seed treatment fungicide. Seed lot 5 is an example where dead seed may be a problem since there was little increase in germination due to treatment.

Seed Lot	Non-treated % germination	Fungicide* treated % germination	
1	62	88	88
2	62	94	
3	63	91	91
4	65	85	85
5	71	79	79
6	75	93	93
7	76	96	96
8	78	97	97
9	81	94	94
10	84	96	

\*Treated with Raxil/Thiram

The seed testing data this year, and in past years, clearly indicate that most seed lots with a low germination due to *Fusarium* sp. infection should respond favorably to conditioning, followed by treatment with one of the new generation seed treatment fungicides. Dividend and Raxil-Thiram are two such commonly-used fungicides. Both products should be applied by an approved, certified seed conditioner with the appropriate equipment to thoroughly treat wheat seed at low fungicide rates.

We do not expect wheat seed germination and stands to be a major issue this fall, provided producers seek out and plant seed that has been properly conditioned, tested for germination by a reputable seed testing laboratory, and treated with a fungicide, where necessary.

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