

**Public Abstract**

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**Master of Science**

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**Impact of Aphid Species and Barley Yellow Dwarf Virus on Soft Red Winter Wheat**

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*Advisor's signature*

The impact of barley yellow dwarf virus (BYDV) was measured over a two-year period in central Missouri. In our experiment, bird-cherry oat aphid accounted for > 90% of the total aphids present. Aphid numbers peaked at jointing in 2003 with 235 bird-cherry oat aphids ft<sup>-1</sup> row. In the 2003-2004 growing season aphid numbers averaged 2 aphids ft<sup>-1</sup> row in the fall and peaked at 5 aphids ft<sup>-1</sup> row at jointing. Wheat grain yield was reduced 17 and 13% in 2003 and 2004 respectively. Thousand kernel weights were reduced 10 and 5% in the untreated plots when compared to the treated control in 2003, 2004 respectively. PAV, a strain of BYDV, accounted for 84 and 81% of the symptomatic plots that tested positive for BYDV in 2003 and 2004, respectively. Our results indicate that economic thresholds for bird-cherry oat aphid are 5 aphids ft<sup>-1</sup> row in the fall and 50 aphids ft<sup>-1</sup> row at jointing.