

Yield Impact of Geese Feeding on Spring Wheat Seedlings

Purpose:

To assess the yield impact of geese feeding on spring wheat seedling in May.

Methods:

The trial was located at the Winchester Research Farm of the Kemptville Campus, University of Guelph.

Geese feeding damage was simulated by mowing wheat seedlings at 3 intervals (see below), starting at growth stage Z20 (4 leaves unfolded) on May 7th when plants were approximately 3 ½ inches tall. At each mowing, the plants were mowed to a height of approximately ¾ of an inch. Treatments were as follows:

1. Untreated check
2. Mowed once (Day 0) on May 7th
3. Mowed twice (Day 0 on May 7th and Day 5 on May 12th)
4. Mowed 3 times (Day 0 on May 7th, Day 5 on May 12th, Day 10 on May 17th)

The following assumptions were made: 1 mowing approximates geese feeding over a 5 day period, 2 mowings approximates geese feeding over a 10 day period and 3 mowings approximates geese feeding over a 15 day period.

Mowing at Z20 (4 leaves unfolded)



Mowing Height



Results:

Statistically significant yield differences were found between the check (not mowed) and the mowed treatments. No statistical yield difference was observed between plots mowed once and plots mowed twice. Statistically significant yield differences were observed between plots mowed once or twice versus plots mowed 3 times. See Table 1.

Table 1 – Heading Date, Plant Height and Yield Results

Treatments	Heading Date	Plant Height	Yield (Bu/acre)
1. Untreated check	June 18, 2010	33.25"	61.8 A
2. Mowed once (Day 0)	June 19, 2010	33.25"	58.4 B
3. Mowed twice (Day 0 and Day 5)	June 20, 2010	32.90"	57.7 B
4. Mowed 3 times (Day 0, Day 5, Day 10)	June 21, 2010	32.40"	51.9 C

In the yield column, yield means followed by the same letter are not significantly different at $p=0.0005$, cv 4.02

Summary:

The simulated geese feeding damage (mowing) resulted in a yield loss of 3.4 bu/acre for 1 mowing, 4.1 bu/acre for 2 mowings and a loss of 9.9 bu/acre for 3 mowings when compared to the check.

The simulated geese feeding delayed wheat heading date by 1 day for each mowing. While not measured in this trial, geese feeding can be expected to result in uneven heading, which will reduce the efficacy of fungicide treatments for the control of fusarium.

Mowing to simulated geese feeding does not reflect damage resulting from plant loss in cases where geese “pluck” entire seedlings from the ground. On the other hand, since entire blocks were mowed, the resulting damage from mowing was slightly greater than would be expected by actual geese feeding. As such the impact of mowing would approximate geese feeding in most instances.

Next Steps:

The above results are based on only one year’s data. Further studies will be designed to assess the impact of geese feeding on yield and on the efficacy of fungicides for the control fusarium.

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