TURFGRASS RESEARCH
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K-STATE TURFGRASS RESEARCH

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Effects of Irrigation, Cutting Height, and Primo on Mowing Requirements of Tall Fescue[1]

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Summary. Irrigation based on soil moisture sensors (SMS) saved water compared with frequency-based irrigation while providing acceptable turfgrass quality but did not affect mowing requirements of tall fescue. Increasing tall fescue mowing height, or applying Primo, resulted in mowing reductions.

Rationale. Mowing requirements can be affected by irrigation strategy, mowing height, and plant growth regulators, but information is limited on how they may interact.

Objectives. Evaluate irrigation strategy, mowing height, and Primo (trinexapac-ethyl) for their influence on irrigation and mowing requirements.

Study Description. Field studies were conducted in 2012–13 on a Chase silt loam soil at the Rocky Ford Turfgrass Research Center in Manhattan, KS, in tall fescue (*Festuca arundinacea*). Study periods were April 9 through November 30, 2012, and May 13 through October 22, 2013. Irrigation treatments included: (1) frequency-based irrigation, set to run automatically three times weekly to mimic the irrigation scheduling of a typical homeowner; and (2) SMS-based irrigation that was triggered when soils dried to a predetermined threshold. Mowing was done with a walk-behind rotary mower set at 2 or 3.5 in. based upon the one-third rule; one set of plots at these heights received a monthly

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Primo application, whereas the other set did not. The total number of mowings were counted, data were subjected to analysis of variance, and Fisher's protected LSD ($P \leq 0.05$) was used to detect treatment differences.

Results. Irrigation did not affect mowing requirements. In 2012, tall fescue mowed at 2 in. and treated with Primo required three fewer mowings than untreated turf mowed at 2 in.; at a 3.5-in. cutting height, only one fewer mowing resulted after Primo application (Table 1; Figure 1). In 2013, mowing at 3.5 vs. 2 in., or using Primo vs. not, resulted in a 9% reduction in total mowings required.

Table 1. Interaction between mowing height and Primo on total mowings for tall fescue from April 9 through November 30, 2012, in Manhattan, KS

Mowing height (inches)	Primo[1]	Total mowings[2]
2.0	No	9.0 a[3]
2.0	Yes	6.0 c
3.5	No	7.5 b
3.5	Yes	6.5 c

[1] Primo was applied at 0.3 lb a.i./a on April 16, May 19, June 18, July 12, August 10, September 5, and October 3, 2012.
[2] Mowing was done following the one-third rule: turf at 2 in. was mowed when it reached 3 in., and turf at 3.5 in. was mowed when it reached 5 in.
[3] Means followed by different letters within a column are significantly different ($P = 0.05$).

Figure 1. Raising mowing height or applying Primo resulted in a reduction in total number of mowing over the season, but irrigation application strategy had no effect on mowing (photo credit: torogov.com).

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