

Stop 16. Runoff Research

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A runoff research area was constructed at the Hancock Turfgrass Research Center on the campus of Michigan State University in the summer of 2013. The turfgrass is Kentucky bluegrass maintained to home lawn standards. Individual plot size is 8 x 8 ft. with each plot draining to a collection gutter and then a collection vessel where runoff water can be quantified and tested for nutrients. The objective of this research is to collect data to determine whether or not the use of slow release fertilizers with single application rates as high as 4 lb. N/1000 ft.² increase the risk of nitrogen in runoff water.

Fertilizer Treatments:

1. Non-fertilized control
2. Standard program, 4 lbs N / 1000 sq. ft. annually:
April: 60% urea/40% PCSCU applied at 1 lb N/1000 sq ft, plus 0-0-60 at 0.57 lb K₂O/1000 sq ft
June: 60% urea/40% PCSCU applied at 1 lb N/1000 sq ft
August or Sept: 60% urea/40% PCSCU applied at 1 lb N/1000 sq ft, plus 0-0-60 at 0.57 lb K₂O/1000 sq ft
Oct or Nov (depending on timing of previous application): 75% urea/25% PCSCU applied at 1 lb N/1000 sq ft
3. Duration SIFI 35-0-10, single application in April, 4.0 lb N / 1000 sq. ft.
4. Duration SIFI 35-0-10, single application in April, 2.5 lb N / 1000 sq. ft., plus 0-0-60 at 0.43 lb K₂O/1000 sq ft
5. Duration SIFI 35-0-10, 2.5 lb N / 1000 sq. ft. applied in mid-October - November, followed by 1.5 lb N / 1000 sq. ft. applied in May or June 2013, based on observed longevity of fall application (4.0 lb N / 1000 sq. ft. total). From April through Sep 2013, make low rate applications (0.5 lb N / 1000 sq.ft.) of urea as needed to maintain acceptable turf quality. Limit these applications to the minimum necessary to maintain acceptable turf.

Data Collection:

1. Turfgrass color and quality, visual ratings, collected monthly. Quantitative color readings with Spectrum Technologies TCM 500 NDVI Turf Color Meter.
2. Inorganic N in runoff, collected continuously (report individual sample date results, as well as cumulative results for mass N loss).
3. Runoff volumes