

University Trial Validates Field Successes

Floratine Biostimulant Application Bests N-P-K

A Floratine foliar biostimulant and fertilizer spray produced consistently better quality turf than a control spray containing nitrogen, phosphorous, and potassium according to results from Michigan State University's 2007 [Early Season Phosphorous Study](#) directed by Dr. J. M. Vargas, Jr.

The trial protocol was an attempt to validate numerous golf course and athletic field successes over the past several years in stimulating growth, color, and quality with moderate nitrogen during early spring when soil temperatures are still below 50° F (10° C).



The same green before and after a Floratine Early Start foliar spray following the hardest winter in Austria in ten years. The 2007 Michigan State trial was an attempt to replicate this and similar field successes despite cold soil temperatures over the past several seasons.

Products used in the Floratine biostimulant spray were Per[®]4[™]Max, Renaissance, ProteSyn, Carbon N, Carbon K, and P-48. The so called "Floratine Control" spray* contained N-P-K in amounts equal to the biostimulant spray but did not contain any Floratine products. Ms. Nancy Dykema, Research Assistant at MSU, rated the biostimulant plots of statistically better quality than the "Floratine Control," as well as all other nutrient sprays and the unfertilized control, on all three evaluation dates. A fungicide was also applied and achieved acceptable quality ratings.

*The "Floratine Control" was formulated specifically to replicate the same *primary nutrient* content as the Floratine materials so that the effects of the Floratine biostimulants could be fairly evaluated.



Early-Season Phosphorus Study, 2007
Michigan State University
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A study was conducted on a creeping bentgrass green at the Hancock Turfgrass Research Center on the MSU campus in East Lansing, MI. The study included 4 replicate 2' x 6' plots that were arranged in a randomized complete block design. Treatments were applied using a CO₂-powered backpack sprayer with a single-nozzle boom (8002E TeeJet flat fan nozzle) at 40 PSI and a spray volume of 2 gallons/1000 sq ft. Treatments were applied beginning on 4/14/07, and were reapplied on 4/28, 5/11, and 5/25. Plots were rated for turfgrass quality on a 1-10 scale where 1=poor, 7=acceptable, and 10=excellent on 4/20, 4/28, 5/11, and 5/23 (Table 1.)

No quality differences were noted between plots prior to initial treatment application, with all plots having turf quality below the acceptable standards ("6" rating.) However, by the 4/20 rating date, about 1 week after initial treatment applications were made, the Floratine program treatment (Carbon K, Carbon N, etc.) and Signature treatments both exhibited acceptable turfgrass quality whereas the rest of the treatments tested had not yet attained that level. As shown by the 5/11 and 5/23 rating dates in Table 1, the Floratine program and Signature treatments maintained good turfgrass quality, averaging 7.3-7.8, while the other treatments attained significantly lower quality ratings. The exception to this is the urea alone and Grigg's PK Plus treatments, which both received acceptable quality ratings (7.0) on 5/11, but were still rated significantly lower than the Floratine program and Signature treatments in terms of quality. No phytotoxicity was observed.

Table 1. Quality Rating on Phosphorus Study, 2007.
Location: Hancock Turfgrass Research Center, MSU, E. Lansing, MI.
Rating Scale: 1-10, where 1=poor, 7=acceptable, and 10=excellent.

Treatment and Rate/1000 sq ft	Interval (Days)	4/20/07		5/11/07		5/23/07	
		Mean ^a	LSD ^b	Mean	LSD	Mean	LSD
Carbon K 4 fl oz + Carbon N 5 fl oz + Per"4"Max 2.5 fl oz + Renaissance 2 fl oz + P-48 0.15 lbs + ProteSyn 3 fl oz	14	7.3	a	7.8	a	7.4	a
Signature 8 oz	14	7.0	a	7.8	a	7.3	a
Floratine Control (Urea 0.12 lb + K ₂ HPO ₄ 0.33 lb (equivalent to 0.15 lb K + 0.06 lb P))	14	6.3	b	6.8	b	6.7	b
Unfertilized Control	---	6.3	b	6.8	b	6.6	b
Urea 0.02 #N	14	6.0	bc	7.0	b	6.5	b
Floratine P-48 10 kg/ha (or 0.2 lb/1000 ft ²)	14	5.5	c	6.8	b	6.3	b
Commercial 3-21(H ₂ PO ₃ & H ₂ PO ₄)-18 + micros 6 fl oz	14	5.8	bc	7.0	b	6.3	b

^a Mean of 4 replications.

^b Treatment means followed by the same letter are not significantly different (LSD, p=0.5.)