Virginia Tech
VIRGINIA POLYTEHNIC INSTITUTE AND STATE UNIVERSITY

The influence of biostimulant applications on root mass to 1995 fall-sown Ram II Kentucky bluegrass

OBJECTIVE:

To ascertain the impact of fall applications of various biostimulants applied alone and in combination to fall-sown Kentucky bluegrass.

METHODS:

Ram II Kentucky bluegrass was seeded on a silt loam soil (pH 6.5 P 20 µg/g and K 36 µg/g) on September 5, 1995, along with a 29-3-10 fertilizer to supply one pound of nitrogen per 1000 sq. ft. The turf was mowed weekly at a 2-inch height. Chemical weed control and irrigation was applied as needed.

Selected biostimulants were applied to separate plots at various rates on October 12, 1995. On February 27, 1996, a 4-inch diameter by 2-1/2-inch diameter plug was taken from each plot, placed in a 4-inch PVC ring with hardware cloth bottom and transplanted to a gallon container filled with 50-50 sand and silt loam soil.

Grass was trimmed periodically to maintain a 2-inch clipping height. The plug was irrigated to support growth.

Root mass was determined via the vertical root method on April 3, 1996. Treatments were arranged in an experimental block design and replicated four times. Statistical analyses were performed on all data.

RESULTS:

When measured on April 3, 1996, root mass was increased by 70% with a Bolster® application of 1 gallon/acre of Bolster® (88cc or 3 oz./1000 sq. ft.) treatment. This was six months after treatments were made the previous fall. When two gallons of Bolster® (Bolster® 176) was applied per acre, an increased of only 33%was obtained. When one gallon from the Bolster® dry formulation was applied, a 29% root mass was obtained. When only 1/3 gallon of Bolster® (Bolster®-30) per acre was applied, no increase in root mass was obtained. The two-gallon rate evidently was optimum. The ½ gallon rate was suboptimum.

See table for mean treatment affect.

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MEAN	TREATMENTS
10.250	Bolster® 88 – 1 gallon/acre
9.750	Bolster® 44 BAN 7
9.750	BIOFEATURE 176
9.250	Bolster® 44/URE/ACA
8.750	MACROSORB 47
8.750	Bolster® 88 MAC 47
8.750	Agrand 88cc
8.500	PRI 11 BAN 15
8.500	BANNER 29
8.500	UREA 1009GMS
8.250	BIOFEATURE 88
8.000	UREA1009/AC14
8.000	Bolster® 176 – 2 gallon/acre
7.750	Bolster® DRY 88 – 1 gallon/acre (dry formula)
7.750	NAT SELCT 264
7.500	Agrand 176
7.500	4D 44 URE1009
7.500	MACRO 18.6

Analysis of Variance Procedure

MEAN	TREATMENTS
7.250	NAT SECT 176
7.250	BIOPLEX 88
7.250	PRI 11 Bolster® 44
7.000	BIOPLEX 176
6.500	Bolster® DRY 176
6.250	FEATURE 88
6.000	FEATURE 176
6.000	control
6.000	Bolster® 30 – 1/3 gallon/acre
5.750	PRIMO 1E 22
5.750	Bolster® 30 MAC18.6