EFFECT OF BIO-ORGANIC AND SLOW-RELEASE FERTILIZERS ON NECROTIC RING SPOT OF KENTUCKY BLUEGRASS, 1990

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Management of necrotic ring spot (*Leptosphaeria korrae*) of Kentucky bluegrass (*Poa pratensis*) using bio-organic and slow-release fertilizers was investigated in field experiments at two locations in southern Michigan. Field trials were conducted at Country Place Condominiums, Novi, and Yankee Springs Country Club, Yankee Springs, Mi. Disease pressure was heavy and uniform at both test sites prior to treatment application.

The Novi site consisted of Kentucky bluegrass much sod irrigated for 15 minutes 4 nights per week and moved to 2.5" once per week. The Yankee Springs site was seeded in August 1985 with 25% each Baron, Benson, and Merit Kentucky bluegrass and Pennlawn fine fescue over a sandy loam soil. The turf was maintained at 1.125" and irrigated on as needed basis.

Results

Yankee Springs: The commercial organic fertilizers Lawn Restore, **Sustane**, and **Bio Grounds Keeper**, and the slow-release fertilizer IBDU provided excellent disease management. The experimental treatments *Bacillus pumilus & Pseudomonas aureofaciens* in TSB culture broth applied with urea (1#N/M), and *B. pumilus & P. Aureofaciens* in H-150 culture broth applied with H-50 (1#N/M) also effectively managed necrotic ring spot.

Novi: Disease expression at this site was diffuse and unevenly distributed due to varying soil conditions, i.e. water saturated areas. Because of variation within replicated blocks LSD data analysis was performed rather than Duncan's Multiple Range test to separate differences among treatment effects. Analysis using LSD is somewhat more liberal in detecting treatment differences than the range test. Areas treated with **Sustane + IBDU, Sustane,** Lawn Restore, Regenerate, and with fertilizer make-up NPK (9-4-4) had significantly less disease than the untreated control and provided an acceptable level of disease management. The experimental treatments H-50, and *B. pumilus & P. aurefaciens* applied with urea, or with molasses, or with 30-06 (12 hr prior to application) also performed well.

Discussion

When applied on a regular basis several bio-organic and slow-release fertilizers demonstrated effective necrotic ring spot management. The experimental biocontrol agents *B. pumilus* and *P. aureofaciens* also demonstrated disease management potential, and like other treatments performance was enhanced with regular applications of nitrogen. Nitrogen may play an important role in disease recovery.

Findings obtained from these tests show bio-organic and slow-release fertilizers are effective in necrotic ring spot management and may provide turf managers alternatives for disease control.