

TURFGRASS NEMATICIDE RESEARCH REPORT

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Kentucky Bluegrass Nematicide Study - 1978

The Kentucky bluegrass nematode trials were conducted on a highly-maintained Merion Kentucky bluegrass turf area in Farmington, MI. The plot area was showing symptoms of high nematode populations prior to treatment.

The plots were laid out in four replications of a random block design. The granular treatments were applied with a Scotts drop-type spreader while the liquid treatments were applied with a CO<sub>2</sub> small plot sprayer at a volume of 40 gal/acre. All treatments were irrigated into the root zone immediately after application.

Soil samples were taken before the treatments were applied on July 13 in order to determine nematode population levels. This process was repeated post-treatment on August 11.

Kentucky Bluegrass Nematicide Study - 1978  
 % reduction - Criconemoides (ring) nematode  
 7/13-8/11

| Treatment   | Rate/1000 ft <sup>2</sup> | % Reduction |     |     |      | AVE   | (DMR) |
|-------------|---------------------------|-------------|-----|-----|------|-------|-------|
|             |                           | I           | II  | III | IV   |       |       |
| Dasinat     | 3 lbs.                    | 1           | 53  | 66  | 36   | 39    | A     |
| Vydate-EC   | 6 fl oz.                  | 24          | 70  | 9   | 45   | 37    | A     |
| Vydate-EC   | 12 fl oz.                 | 26          | 14  | 25  | -8   | 14.3  | A     |
| Check       | ---                       | 46          | -49 | 69  | -136 | -17.5 | A     |
| Tersan 1991 | 4 oz. +                   | -404        | -2  | 0   | 33   | -93.3 | A     |
| Vydate-EC   | 6 fl oz.                  |             |     |     |      |       |       |

Note: Treatments followed by the same letter are not significantly different at the 5% level.

Kentucky Bluegrass Nematicide Study - 1978  
 % reduction *Tylenchorhynchus* (stunt) nematode

7/13 - 8/11

| <u>Treatment</u>           | <u>Rate/1000 ft<sup>2</sup></u> | <u>% reduction</u> |     |     |      | AVE    | (DMR) |
|----------------------------|---------------------------------|--------------------|-----|-----|------|--------|-------|
|                            |                                 | I                  | II  | III | IV   |        |       |
| Check                      | --                              | 79                 | 62  | 87  | 73   | 72.3   | A     |
| Dasinat                    | 3 lbs.                          | 36                 | 0   | 89  | 29   | 38.5   | A     |
| Vydate-EC                  | 12 fl oz.                       | -200               | 0   | 25  | 100  | -18.8  | A     |
| Tersan 1991 +<br>Vydate-EC | 4 oz + 6 fl oz                  | -200               | 58  | 37  | -75  | -45    | A     |
| Vydate-EC                  | 6 fl oz.                        | 79                 | -40 | -50 | -500 | -127.8 | A     |

Note: Treatments followed by the same letter are not significantly different at the 5% level

## Creeping Bentgrass Nematicide Study - 1978

The nematicide studies were conducted on a heavily infested Toronto bentgrass practice green on the Maple Lanes Golf Course in Warren, MI.

The study was laid out in three repetitions of a randomized block design. Nematode counts were determined for each plot prior to the application of nematicides and subsequent nematode counts were made one month and two months after application to determine the degree of control being obtained with each material. The two species of turf-pathogenic nematodes which were present in problematic numbers were the ring nematode (*Criconemoides* spp.) and the stunt nematode (*Tylenchorhynchus* spp.).

The plot area was sampled and treated on June 30, the granular nematicides being applied with a 3' Scotts drop-type spreader and the wettable powders and emulsifiable concentrates being applied with a CO<sub>2</sub> small-plot sprayer. All treatments were irrigated into the root zone immediately after application. The plots were then sampled and nematode counts determined for the ring and stunt nematodes one month later, on July 27 and two months later, on August 28.

### Creeping Bentgrass Nematicide Study - 1978 % Reduction - *Tylenchorhynchus* (stunt) nematode 6/30 - 7/27

| Treatment       | Rate/1000 ft <sup>2</sup> | % Reduction |     |      | AVE   | (DMR) |
|-----------------|---------------------------|-------------|-----|------|-------|-------|
|                 |                           | I           | II  | III  |       |       |
| Check           | ----                      | 40          | 56  | 49   | 48.3  | A     |
| U.C. 21865 (GR) | 10 lbs. ai/A              | 33          | 42  | 60   | 45    | A     |
| U.C. 21865 (WP) | 6 lbs. ai/A               | 44          | 42  | 42   | 42.7  | A     |
| U.C. 21865 (GR) | 6 lbs. ai/A               | -16         | 60  | 47   | 30.3  | A     |
| U.C. 21865 (WP) | 8 lbs. ai/A               | 28          | 60  | -3   | 28.3  | A     |
| Vydate-EC       | 6 fl. oz.                 | 47          | -5  | 39   | 27    | A     |
| Dasinat         | 3 lbs.                    | 52          | -30 | 54   | 25.3  | A     |
| U.C. 21865 (GR) | 8 lbs. ai/A               | 1           | 29  | 37   | 22.3  | A     |
| U.C. 21865 (WP) | 10 lbs. ai/A              | -15         | 30  | 15   | 10    | A     |
| LLSE            | 1:10 dilution             | 31          | 38  | -62  | 2.3   | A     |
| Nemacur         | 3 lbs.                    | 45          | 67  | -150 | -12.7 | A     |

Note: Treatments followed by the same letter are not significantly different at the 5% level.

Creeping Bentgrass Nematicide Study - 1978  
 % Reduction - *Tylenchorhynchus* (stunt) nematode  
 6/30 - 8/28

| Treatment       | Rate/1000 ft <sup>2</sup> | % Reduction |      |     |        | (DMR) |
|-----------------|---------------------------|-------------|------|-----|--------|-------|
|                 |                           | I           | II   | III | AVE    |       |
| U.C. 21865 (WP) | 6 lbs. ai/A               | -2          | 16   | 78  | 30.7   | A     |
| U.C. 21865 (WP) | 8 lbs. ai/A               | 13          | 17   | 32  | 20.7   | A     |
| U.C. 21865 (GR) | 6 lbs. ai/A               | -36         | 47   | 44  | 18.3   | AB    |
| Nemacur         | 3 lbs.                    | 49          | 47   | -79 | 5.7    | AB    |
| Dasinat         | 3 lbs.                    | 41          | -77  | 45  | 3      | AB    |
| Check           | ---                       | 1           | -67  | 34  | -10.7  | AB    |
| Vydate-EC       | 6 fl oz.                  | 0           | -100 | 33  | -22.3  | AB    |
| U.C. 21865 (GR) | 8 lbs. ai/A               | -20         | -5   | -89 | -38    | AB    |
| U.C. 21865 (WP) | 10 lbs. ai/A              | -59         | -53  | -42 | -51.3  | AB    |
| LLSE            | 1:10 dilution             | -21         | -71  | -68 | -53.3  | AB    |
| U.C. 21865 (GR) | 10 lbs. ai/A              | -95         | -259 | 40  | -104.7 | B     |

NOTE: Treatments followed by the same letter are not significantly different at the 5% level.

Creeping Bentgrass Nematicide Study - 1978  
 % Reduction - *Criconemoides* (ring) nematode  
 6/30 - 7/27

| Treatment       | Rate/1000 ft <sup>2</sup> | % Reduction |      |     |       | (DMR) |
|-----------------|---------------------------|-------------|------|-----|-------|-------|
|                 |                           | I           | II   | III | AVE   |       |
| U.C. 21865 (GR) | 10 lbs. ai/A              | 48          | 42   | 47  | 45.7  | A     |
| Nemacur         | 3 lbs.                    | 34          | 0    | 34  | 22.7  | A     |
| Check           | ---                       | -3          | 69   | -5  | 20.3  | A     |
| U.C. 21865 (WP) | 8 lbs. ai/A               | -5          | 49   | -2  | 14    | A     |
| LLSE            | 1:10 dilution             | 3           | 36   | -49 | -3.3  | A     |
| U.C. 21865 (WP) | 10 lbs. ai/A              | -87         | 11   | 36  | -13.3 | A     |
| U.C. 21865 (GR) | 6 lbs. ai/A               | -48         | -35  | 7   | -25.3 | A     |
| U.C. 21865 (WP) | 6 lbs. ai/A               | 28          | -67  | -44 | -27.7 | A     |
| Vydate-EC       | 6 fl oz.                  | -165        | 6    | 44  | -38.3 | A     |
| Dasinat         | 3 lbs.                    | 11          | -123 | -26 | -46   | A     |
| U.C. 21865 (GR) | 8 lbs. ai/A               | -119        | -167 | 67  | -73   | A     |

NOTE: Treatments followed by the same letter are not significantly different at the 5% level.

Creeping Bentgrass Nematicide Study - 1978  
 % Reduction - Criconemoides (ring) nematode  
 6/30 - 8/28

| Treatment       | Rate/1000 ft <sup>2</sup> | % Reduction |      |      |        | AVE | (DMR) |
|-----------------|---------------------------|-------------|------|------|--------|-----|-------|
|                 |                           | I           | II   | III  |        |     |       |
| Nemacur         | 3 lbs.                    | 1           | 11   | 11   | 7.7    | A   |       |
| Dasinat         | 3 lbs.                    | -23         | -69  | -48  | -46.7  | AB  |       |
| Vydate-EC       | 6 fl oz.                  | -85         | -95  | -6   | -62    | AB  |       |
| Check           | ---                       | -205        | -1   | 8    | -66    | AB  |       |
| U.C. 21865 (GR) | 10 lbs. ai/A              | -42         | -194 | -6   | -80.7  | AB  |       |
| U.C. 21865 (WP) | 6 lbs. ai/A               | -209        | -69  | -14  | -97.3  | AB  |       |
| U.C. 21865 (WP) | 8 lbs. ai/A               | -233        | -62  | -5   | -100   | AB  |       |
| U.C. 21865 (GR) | 6 lbs. ai/A               | -178        | -185 | 42   | -107   | AB  |       |
| U.C. 21865 (WP) | 10 lbs. ai/A              | -248        | -89  | -143 | -160   | AB  |       |
| LLSE            | 1:10 dilution             | 12          | -378 | -172 | -179.3 | AB  |       |
| U.C. 21865 (GR) | 8 lbs. ai/A               | -386        | -206 | -23  | -205   | B   |       |

NOTE: Treatments followed by the same letter are not significantly different at the 5% level.

Results: Nematicide Studies

The results of the nematicide studies were erratic. There was inconsistency among replicates of the same treatment which made it impossible to have significant differences. The other problem was the reduction in nematode populations in the untreated checks.

## Results: Nitrogen Fertility-Timing Study with Fungicide

After 4 fertility treatments, the turfgrass quality was best in those plots receiving 1 lb. N/1000 ft<sup>2</sup> of fine IBDU, 1 lb. N/1000 ft<sup>2</sup> of coarse IBDU, and 1 lb. N/1000 ft<sup>2</sup> of urea. Tersan 1991 was applied on July 6 to aid in the control of anthracnose and Sclerotinia dollar spot.

This is one of the first studies of nitrogen fertility timing on annual bluegrass turf.

## Nitrogen Fertility-Timing Study without Fungicide

The fine and coarse IBDU at the 1 lb. N/1000 ft<sup>2</sup> rate applied 4 times (6/2, 7/6, 8/8 and 9/8) had significantly improved the turfgrass quality over all other treatments when the readings were taken in October. This is only the first year of the study and there was little disease pressure, but it does demonstrate that improved turf quality is possible following multiple applications of IBDU at 1 lb. N/1000 ft<sup>2</sup>.

This nitrogen fertility test of nitrogen carriers is one of the first ever to be conducted on annual bluegrass turf.