

## Reaction of Twenty One Alfalfa Cultivars to the Lesion Nematode *Pratylenchus penetrans*

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In two separate green house experiments, 21 alfalfa cultivars were evaluated for their tolerance to lesion nematode *Pratylenchus penetrans*. Experiment was in a completely randomized block design with four replications of seven cones each. Cones of 150 cc capacity were filled with sterilised soil and seeds of each of alfalfa cultivar were planted in each cone. After germination, seedlings were thinned to three per cone and inoculated with *P. penetrans*, obtained from callus culture, at the rate of 100 nematodes per container. Seven weeks after planting fertilizer (20-20-20) was applied and other cultural practices were carried out regularly. Hundred days after planting plants were uprooted and data on fresh and dry weight of root and shoot and

Table 1. Mean nematode population in the alfalfa cultivars inoculated with *Pratylenchus penetrans* and harvested 100 days after planting.

| Alfalfa cultivar     | Shoot weight (g) |            | Root weight (g) |           | <i>P. penetrans</i> population in soil/root |              |            |                   |
|----------------------|------------------|------------|-----------------|-----------|---|--------------|------------|-------------------|
|                      | Fresh            | Dry        | Fresh           | Dry       | Soil  | Root (Total) | Per g root | Total (soil+root) |
| <b>I Experiment</b>  |                  |            |                 |           |   |              |            |                   |
| Nev Syntex           | 13.9 a           | 3.9 a      | 22.9 a          | 3.5 b     | 224 c                                       | 156 b        | 46 b       | 380 b             |
| Lahontan             | 5.8 b            | 1.5 b      | 8.8 b           | 1.5 c     | 490 ab                                      | 416 a        | 398 a      | 906 a             |
| ZX 9353              | 16.6 a           | 4.4 a      | 27.4 a          | 5.0 a     | 400 b                                       | 416 a        | 86 b       | 816 a             |
| Amerigraze 401+Z     | 16.4 a           | 4.3 a      | 28.6 a          | 5.2 a     | 548 a                                       | 462 a        | 88 b       | 1010 a            |
| Ameristand 403T      | 17.0 a           | 4.5 a      | 25.8 a          | 4.5 ab    | 588 a                                       | 460 a        | 111 b      | 1048 a            |
| <b>II Experiment</b> |                  |            |                 |           |   |              |            |                   |
| ZH 9841H             | 16.84 de         | 4.488 cd   | 22.76 bc        | 3.680 c   | 88.00 f                                     | 88.00 bcd    | 25.00 ab   | 176.0 g           |
| ZX9569A              | 23.20 a          | 5.898 ab   | 29.72 a         | 4.800 abc | 240.0 bc                                    | 160.0 a      | 33.40 a    | 400.0 a           |
| ZC 9842A             | 21.80 ab         | 5.524 abc  | 24.40 abc       | 3.960 bc  | 134.0 ef                                    | 108.0 bc     | 27.60 a    | 224.0 fg          |
| ZG 9840              | 22.92 ab         | 5.922 a    | 25.00 abc       | 4.340 bc  | 112.00 ef                                   | 42.00 ef     | 10.40 cd   | 154.0 g           |
| ZH 9930H             | 22.42 ab         | 6.034 a    | 25.36 abc       | 4.140 bc  | 264.0 ab                                    | 56.00 de     | 13.80 bc   | 320.0 bcde        |
| ZC9950A              | 21.32 abc        | 5.752 ab   | 26.34 ab        | 4.700 abc | 302.0 a                                     | 106.0 bc     | 22.40 ab   | 408.0 a           |
| ZC 9941A             | 19.28 bcde       | 5.386 abc  | 24.32 abc       | 4.520 abc | 278.0 ab                                    | 96.00 bcd    | 22.40 ab   | 374.0 abc         |
| ZC 9940A             | 20.16 abcd       | 5.492 abc  | 25.18 abc       | 4.700 abc | 290.0 ab                                    | 110.0 b      | 24.40 ab   | 400.0 a           |
| ZX 9344              | 17.56 cde        | 4.820 bcd  | 21.18 bc        | 3.940 bc  | 298.0 ab                                    | 108.0 bc     | 27.80 a    | 406.0 a           |
| Archer II            | 19.16 bcde       | 5.066 abcd | 21.04 bc        | 3.940 bc  | 190.0 cd                                    | 94.00 bcd    | 24.00 ab   | 284.0 def         |
| ZX 9959A             | 19.64 abcd       | 5.186 abc  | 21.60 bc        | 4.160 bc  | 282.0 ab                                    | 62.00 cde    | 15.20 bc   | 344.0 abcd        |
| Baker                | 19.94 abcd       | 5.588 ab   | 20.40 c         | 3.800 bc  | 282.0 ab                                    | 114.0 b      | 31.60 a    | 396.0 ab          |
| ZX 9940A             | 19.84 abcd       | 5.534 abc  | 24.24 abc       | 4.400 abc | 152.0 de                                    | 8.000 f      | 2.000 d    | 160.0 g           |
| ZG 9941A             | 20.66 abc        | 5.450 abc  | 25.78 abc       | 5.200 ab  | 314.0 a                                     | 40.00 ef     | 7.800 cd   | 354.0 abcd        |
| ZC 9640A             | 22.18 ab         | 5.872 ab   | 29.62 a         | 5.820 a   | 272.0 ab                                    | 34.00 ef     | 6.400 cd   | 306.0 cde         |
| MNGRN – 16           | 15.88 e          | 4.162 d    | 24.48 abc       | 4.560 abc | 194.0 cd                                    | 62.00 cde    | 14.60 bc   | 256.0 ef          |

nematode population in the soil and root were recorded. In the first experiment (5 cultivars) there is a significant difference in the parameters as compared to the susceptible cultivar Lahontan. Fresh and dry weight of shoot as well as roots were significantly higher, while the nematode population per gram of root was lower than the cultivar Lahontan (table 1). Second experiment was conducted with 16 cultivars including the susceptible cultivar Baker. Data indicated that the variety ZX 9940A showed minimum nematode population in the root, per gram root and also the total nematode population in the root and soil. Maximum fresh root weight and shoot weight was observed in two varieties ZX 9569A and ZC 9640A.