عنوان مقاله:

Nitrogen, season and cultivar affect radish growth, yield, sponginess and hollowness

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نویسندگان:

K.A. Akoumianakis - *Agricultural University of Athens, Laboratory of Vegetable Production, ۷۵, Iera Odos, ۱۱۸۵۵ Athens, Greece.*

I.C. Karapanos - *Agricultural University of Athens, Laboratory of Vegetable Production, ۷۵, Iera Odos, ۱۱۸۵۵ Athens, Greece.*

M. Giakoumaki - *Agricultural University of Athens, Laboratory of Vegetable Production, ۷۵, Iera Odos, ۱۱۸۵۵ Athens, Greece.*

A.A. Alexopoulos - *Agricultural University of Athens, Laboratory of Vegetable Production, ۷۵, Iera Odos, ۱۱۸۵۵ Athens, Greece.*

خلاصه مقاله:

The optimization of nitrogen application for root crops such as radish is important not only for yield and product quality (sponginess and hollowness) but also for the environment. Therefore, we evaluated the effect of four levels of N application (0, 150, 300 and 450 mg l-1 N) on three radish cultivars (Saxa, Red Fuoko and White Ghiaccio) grown in pots in autumn/winter (from mid-October to mid-January) and spring (from mid-February to early May). The number of leaves per plant and mean leaf area increased with N rates of up to 300 mg l-1 in the autumn/winter and 150 mg l-1 in the spring. Mean root fresh weight increased with N application up to 300 mg l-1 (cv. Red Fuoko and White Ghiaccio) or 450 mg l-1 (cv. Saxa) in the autumn/winter crop, but only up to 150 mg N l-1 in the spring crop, irrespective of cultivar, and high N (450 mg l-1) reduced the root weight of cv. White Ghiaccio in both seasons. Increasing N, however, caused a reduction in percent root dry matter and root firmness, even from as low as 150 mg l-1 N. The occurrence of hollowness within the roots was particularly high in White Ghiaccio, followed by Red Fuoko, whereas cv. Saxa was resistant to this defect. Red Fuoko showed a higher percentage of roots with hollow centres with increasing N levels during the winter. We conclude that although N application (up to 300 mg l-1 in the autumn/winter and 150 mg l-1 in the spring) increases yield, it may adversely affect root quality by reducing firmness.

کلمات کلیدی:

Raphanus sativus, Radish root firmness, Root hollowness, Root sponginess, Nitrogen fertilizer rate