

Effect of nitrogen fertilization on life table parameters and population growth of *Brevicoryne brassicae*

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Abstract

To investigate the effect of nitrogen fertilization on fitness of cabbage aphid, *Brevicoryne brassicae* L. (Hemiptera Aphididae), oilseed rape (RGS003 cultivar) was treated with different nitrogen rates. Nitrogen fertilization treatments were 0, 50, 100, and 150% of recommended rates. The results showed that increase in nitrogen fertilization resulted in an increase in the soluble nitrogen concentration in plants. The aphid feeding on plants receiving higher nitrogen fertilizer (150%) had shorter total pre-reproduction period, longer reproductive period, as well as greater fecundity, but nitrogen fertilization had no effect on adult longevity. Life table parameters of aphid on various treatments were calculated, jackknife method was also used to determine the uncertainty of parameters. The intrinsic rate of increase in treatments of 0, 50, 100, 150% were determined as 0.28, 0.27, 0.31, and 0.35 (female/female/day), respectively. The results revealed that developed aphid on treated plants that received 150% nitrogen had higher reproduction ability compared with those developed on other treatments. The greenhouse study on aphid population growth on various treatments indicated that 21 day after infestation, highest number of aphid and lowest number of winged were found on treated cabbage with 150% of recommended nitrogen fertilization. This means that higher nitrogen fertilization improves the suitability of oilseed rape for cabbage aphid whose performances are then increased.

Key words: *Brevicoryne brassicae*, nitrogen fertilization, population abundance, intrinsic rate.

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