

施肥对日光温室黄瓜和土壤硝酸盐含量的影响

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Effect of fertilization on distribution of nitrate in cucumber and soil in sunlight greenhouse

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摘要 通过田间试验研究了不同施肥对日光温室黄瓜 NO_2^- -N和 NO_3^- -N含量和土壤 NO_3^- -N以及黄瓜产量的影响。结果表明,在黄土高原黄绵土上,施 $\text{N}400\text{kg}\cdot\text{hm}^{-2}$ 和 $\text{P}_2\text{O}_5250\text{kg}\cdot\text{hm}^{-2}$,黄瓜生长期间, NO_3^- -N含量变化与黄瓜的生长发育阶段关系密切,黄瓜结瓜前0—20和20—40cm土层 NO_3^- -N含量较高,随黄瓜生长速度加快和结瓜盛期的到来,土壤 NO_3^- -N含量降低;黄瓜收获后, NO_3^- -N含量又有增加。不同施肥种类比较,施用化肥40—160cm土层 NO_3^- -N的累积和淋洗量最大,施用沼肥其累积和淋洗量小于施用化肥,而施用有机肥(牛粪) NO_3^- -N的累积和淋洗量小于施用沼肥。采用叶面喷施尿素和有机钾肥,可以减少化肥和有机肥用量,从而降低土壤剖面0—200cm NO_3^- -N的累积。使用沼肥、叶面肥的黄瓜产量都明显高于不施肥和NP化肥处理。

关键词: 日光温室 黄瓜 施肥 NO_3^- -N 日光温室 黄瓜 施肥 NO_3^- -N

Abstract: A field experiment was conducted in sunlight greenhouse to study the effect of fertilization on NO_2^- -N and NO_3^- -N contents of cucumber, NO_3^- -N content in soil, and cucumber yield. The result shown that, application of N $400\text{kg}/\text{hm}^2$ and P_2O_5 $250\text{ kg}/\text{hm}^2$, the NO_3^- -N content in 0-20 and 20-40 cm soil layers related with the growth and developing stage of cucumber during the cucumber growth period under condition of Huangmian soil on Loess Plateau. The NO_3^- -N content was relatively higher before fruiting stage, however, the NO_3^- -N content became lower with the cucumber growing developing and increased after harvest in 0-20 and 20-40cm soil layers. After harvest the cucumber, the NO_3^- -N accumulation and leaching in 40-160cm soil profile was highest by using chemical fertilizer, lower by using methane and lowest by using manure. Foliage dressing by urea and organic K during cucumber growth period could reduce the rates of fertilizer and manure and decreased the NO_3^- -N content in 0-200cm soil layer. The cucumber yield was higher by using methane and foliage spray of urea and organic K than that application of NP fertilizers and without fertilizers.

Keywords:

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