

## 优化施肥条件下华北冬小麦/夏玉米轮作体系的土壤氮挥发

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Effect of optimized nitrogen application on ammonia volatilization from soil in winter wheat-summer corn rotation system in Northern China

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**摘要** 采用密闭室间歇通气法研究优化施肥条件下华北冬小麦/夏玉米体系的土壤氮挥发损失。结果表明, 肥料氮素氮挥发损失主要发生在施肥后的14 d内, 冬小麦和夏玉米两个生长季氮挥发损失总量及其损失率均表现出随施氮量的降低而降低, 玉米季氮挥发损失高于小麦季。习惯施肥小麦季和玉米季氮挥发总量是氮肥减量后移的2.28和2.03倍, 而氮肥减量后移处理的小麦和玉米产量显著高于习惯施肥。氮肥后移可节省氮肥30%, 是降低氮挥发损失的理想施肥方式。

**关键词:** 冬小麦 夏玉米 优化施肥 土壤氮挥发 冬小麦 夏玉米 优化施肥 土壤氮挥发

Abstract:

An enclosed intermittent vent method was adopted to determine ammonia volatilization (AV) from soil of winter wheat-summer corn rotation system in North China. Results showed that AV from soil in both winter wheat and summer corn growing season occurred mainly within 14 days after fertilization, and the cumulative AV amount from fertilizer N in winter wheat growing season was found to be less than that in summer corn growing season. Cumulative AV amounts from soil of winter wheat-summer corn rotation system were observed to be reduced with decreasing of N application rate. Total AV amounts under conventional fertilization were 2.28 and 2.03 times as high as that under optimized N fertilization, where N application rate was decreased by 30%. Compared with conventional fertilization (N 300 kg/ha), the N rate was decreased by postponing N application, but the grain yield was significantly increased. Therefore, 30% of nitrogen fertilizer could be expected to be saved by optimized fertilization, and postponing N application is a rational and practicable N fertilization method for reducing AV in winter wheat-summer corn rotation system.

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