



首页

期刊介绍

编委会

期刊订阅

下载中心

留言板

联系我们

English

云南农业大学学报(自然科学) » 2011, Vol. 26 » Issue (5) :694-700 DOI:

土壤肥料·农业生态

最新目录 | 下期目录 | 过刊浏览 | 高级检索

<< Previous Articles Next Articles >>

不同量有机肥与化肥配施对水稻氮素吸收利用的影响

- 1 云南农业大学 资源与环境学院, 云南 昆明 650201; 2 中国农业科学院 农业资源与农业区划研究所, 北京 100081;
3 云南省农业科学院 农业环境资源研究所, 云南 昆明 650205; 4 云南榕正生物能源有限公司, 云南 昆明 650106;
5 云南农业大学 烟草学院, 云南 昆明 650201

Effects of the Application of Different Levels Manure and Fertilizers on Nitrogen Uptake and Utilization of Rice

- 1College of Resources and Environment, Yunnan Agricultural University, Kunming 650201, China;
2 Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, Beijing 100081, China;
3Institute of Agricultural Environment and Resource, Yunnan Academy of Agricultural Sciences, Kunming 650205, China;
4Yunnan Rongzheng BioEnergy CoLtd, Kunming 650106, China;
5College of Tobacco Science, Yunnan Agricultural University, Kunming 650201, China

摘要

参考文献

相关文章

Download: [PDF](#) (821KB) [HTML](#) 1KB Export: [BibTeX](#) or [EndNote \(RIS\)](#) [Supporting Info](#)

摘要 氮肥利用率关系着农业生产的成本和环境问题, 为了解洱海上游地区不同量有机无机肥配施对水稻的氮素吸收利用情况, 并为以后的施肥提供依据, 本文通过田间试验, 研究了90, 72, 54, 36 t/hm²有机肥(牛粪)分别与化肥配施对水稻氮素吸收利用率(NRE)、氮素农学效率(NAE)、氮肥偏生产率(PFP)和氮素收获指数(NHI)的影响。结果表明: NRE随施氮量的增加而提高, 分别为4.8%, 16.0%, 25.4%, 34.7%, 与施氮量呈极显著($r=0.999, P=0.001$)正相关; PFP随施氮量的增加而明显降低, 分别为50.9, 42.1, 35.7, 32.4 kg/kg, 二者间呈显著负相关($r=-0.981, P=0.019$); NAE随施氮量增加而提高, 分别为4.3, 7.9, 8.7, 10.1 kg/kg N, 但超过165 kg/hm²后处理间差异不显著; NHI以施氮量为225 kg/hm²和285 kg/hm²最高, 均为42。为提高氮肥利用率, 应该在降低土壤背景氮的基础上, 增加穗粒肥比例, 具体以23 t/hm²牛粪作为基肥, 8 t/hm²牛粪作为基肥, 辅以20kg/hm²化肥氮, 穗肥氮112 kg/hm²于孕穗期和灌浆期以2:3的比例分两次施用。

关键词: 有机肥 水稻 氮素 吸收 利用

Abstract: Nitrogen use efficiency is a key factor that is closely related to the agricultural costs and environmental problems. This paper studied the effects of the application of 4 different levels manure(90, 72, 54, 36 t/hm²) and chemical fertilizers on nitrogen recovery use efficiency (NRE), nitrogen agronomic use efficiency (NAE), partial factor productivity for applied N (PFP) and nitrogen harvest index (NHI) of rice in upstream region of Erhai Lake by a field experiment, to identify the status of nitrogen uptake and utilization of rice, and to provide the basis for rice fertilization. Result showed: NRE improved when nitrogen input increased, the number of NRE were 4.8%, 16.0%, 25.4%, 34.7%, respectively, NRE showed extremely positive significant ($r=0.999, P=0.001$) relation to nitrogen input; PFP decreased when nitrogen input was increase, the number of PFP were 50.9, 42.1, 35.7, 32.4 kg/kg, respectively, PFP showed negative significant ($r=-0.981, P=0.019$) relation to nitrogen input; NAE improved when nitrogen input was increase, the number of NAE were 4.3, 7.9, 8.7, 10.1 kg/kg N, respectively, but the difference was not significant in different treatments when nitrogen input exceeded 165kg/hm². NHI of nitrogen input at 225 and 285 kg/hm² was the highest in all treatments, and their number was 42It is necessary to reduce background nitrogen of soil and increase panicle nitrogen for improving nitrogen use efficiency. Specific fertilizer assignment is as follows: basal nitrogen: cow dung 23t/hm², tillering nitrogen: cow dung 8t/hm² and fertilizer nitrogen 20kg/hm², panicle nitrogen: fertilizer nitrogen 112 kg/hm², and make it applied proportion by 2:3 at booting and filling stage

Keywords: organic manure rice nitrogen uptake utilization

Fund:

国家十一五重大水专项(2008ZX07105-002); 云南省自然科学基金(2010ZC083); 中科院土壤与农业可持续发展国家重点实验室开放基金(0812000051); 国家自然科学基金(31101605)

引用本文:

张发明¹, 毛昆明¹, 刘宏斌², 雷宝坤³, 李海坤⁴, 王蓉¹, 续勇波^{5*}. 不同量有机肥与化肥配施对水稻氮素吸收利用的影响[J]. 云南农业大学学报(自然科学), 2011, V26(5): 694-700

Service

- [把本文推荐给朋友](#)
- [加入我的书架](#)
- [加入引用管理器](#)
- [Email Alert](#)
- [RSS](#)

[作者相关文章](#)

