

冬季作物对水稻生育期土壤微生物量碳、氮的影响

王丽宏^{1,2}, 曾昭海², 杨光立³, 肖小平³, 张帆³, 胡跃高^{2*}

1 河北农业大学农学院, 河北保定 071001; 2 中国农业大学农学与生物技术学院, 北京 100094; 3 湖南省农业科学院土壤与肥料研究所, 湖南长沙 410125

Effects of winter crops on microbial biomass C and N during rice growth

WANG Li-hong^{1,2}, ZENG Zhao-hai², YANG Guang-li³, XIAO Xiao-ping³, ZHANG Fan³, HU Yue-gao^{2* *}

1 Agronomy College, Hebei Agricultural University, Baoding 071001, China;

2 College of Agronomy and Biotechnology, China Agricultural University, Beijing 100094, China;

3 Soil and Fertilizer Institute, Hunan Academy of Agricultural Sciences, Changsha 410125, China

[摘要](#)[参考文献](#)[相关文章](#)Download: [PDF \(404KB\)](#) [HTML 0KB](#) Export: [BibTeX](#) or [EndNote \(RIS\)](#) [Supporting Info](#)

摘要 选取我国南方4种冬季作物黑麦草、紫云英、油菜、马铃薯, 以冬闲田作对照, 对水稻生育期土壤微生物量碳(SMBC)和土壤微生物量氮(SMBN)的短期内动态变化进行了研究。结果表明, 早稻翻耕前, 冬季作物处理土壤SMBC和SMBN与冬闲田存在显著差异($P<0.05$), 黑麦草处理SMBC为398.5 mg/kg, 显著高于其他作物; 紫云英处理SMBN最高, 为97.8 mg/kg。在早稻整个生育期, 黑麦草处理SMBC显著高于其他处理, 晚稻生长过程中各处理无显著差异。冬季作物对稻田土壤微生物商(MQ)的影响, 随着水稻生长发育进程有不同程度的变化, 黑麦草处理在早稻整个生育期高于冬闲田。

关键词: 冬季作物 稻田土壤 土壤微生物量碳 土壤微生物量氮 冬季作物 稻田土壤 土壤微生物量碳 土壤微生物量氮

Abstract: Winter crops were essential for improving soil productivity and soil microbial biomass on paddy soils. The purposes of this study were to investigate the effects of winter crops on soil microbial biomass carbon (SMBC) and soil microbial biomass nitrogen (SMBN) on a paddy soil in the south of China. Five treatments, namely annual ryegrass, Chinese milk vetch, rape, spring potato and winter fallow, were set up. The result showed that, winter crops significantly increased SMBC, SMBN and soil microbial quotients (MQ) compared to winter fallow ($P<0.05$). Before the harvest of winter crops, the SMBC in soil with annual ryegrass treatment (398.5 mg/kg) was significantly higher than the other treatments. The highest SMBN (97.8 mg/kg) was found in the treatment of Chinese milk vetch. During early stages of rice growth, winter ryegrass treatment significantly increased SMBC, but not the late stages. In conclusion, winter crops could improve soil ecology environment and soil microbial diversity.

Keywords:

Received 2008-03-11;

引用本文:

王丽宏^{1,2}, 曾昭海², 杨光立³, 肖小平³, 张帆³, 胡跃高^{2*}. 冬季作物对水稻生育期土壤微生物量碳、氮的影响[J] 植物营养与肥料学报, 2009, V15(2): 381-385

WANG Li-hong^{1,2}, ZENG Zhao-hai², YANG Guang-li³, XIAO Xiao-ping³, ZHANG Fan³, HU Yue-gao^{2* *}. Effects of winter crops on microbial biomass C and N during rice growth[J] Acta Metallurgica Sinica, 2009, V15(2): 381-385

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](#)