

徐演鹏, 卢萍, 谭飞, 邹振峰, 吴建平, 林英华. 外源C、N干扰下吉林黑土区农田土壤动物组成与结构[J]. 土壤学报, 2013, 50(4): 800-809. Xu Yanpeng, Lu Ping, Tan Fei, Zou Zhenfeng, Wu Jianping and Lin Yinghua. Composition and structure of cropland soil fauna in black soil area of Jilin as affected by exogenous carbon and nitrogen[J]. Acta Pedologica Sinica, 2013, 50(4): 800-809



二维码(扫一下试试看!)

## 外源C、N干扰下吉林黑土区农田土壤动物组成与结构

Composition and structure of cropland soil fauna in black soil area of Jilin as affected by exogenous carbon and nitrogen

投稿时间: 2012-08-30 最后修改时间: 2013-02-01

DOI: 10.11766/trxb201208300337

中文关键词: [群落复杂性](#) [分布格局](#) [功能群](#) [吉林](#)

Key Words: [Community complexity](#) [Distribution pattern](#) [Guild](#) [Jilin](#)

基金项目: 国家自然科学基金项目(31071904)资助

作者	单位	E-mail
<a href="#">徐演鹏</a>	<a href="#">中国林业科学研究院湿地研究所, 东北林业大学</a>	x317335529@qq.com
<a href="#">卢萍</a>	<a href="#">中国林业科学研究院湿地研究所</a>	
<a href="#">谭飞</a>	<a href="#">中国林业科学研究院湿地研究所, 东北林业大学</a>	
<a href="#">邹振峰</a>	<a href="#">四平市林业科学研究院</a>	
<a href="#">吴建平</a>	<a href="#">东北林业大学野生动物资源学院</a>	
<a href="#">林英华</a>	<a href="#">中国林业科学研究院湿地研究所</a>	linyinhua@263.net

摘要点击次数: 279

全文下载次数: 130

中文摘要:

2011年5月至9月作物生长期, 采用手拣法、改良干漏斗与湿漏斗三种方法, 对吉林黑土区7种外源C、N干扰处理, 即对照组(不施肥, CK)、0.5倍、1.0倍和2.0倍的外源C和N处理(C0.5、C1.0、C2.0、N0.5、N1.0、N2.0)农田土壤动物组成与结构进行研究。在作物生长季节, 5次采样共获得土壤动物56 886只(未鉴定标本80只), 隶属3门11纲23目3亚目79科(总科)。数据分析显示, 农田土壤动物主要集中在0~5 cm, 基本上是随着土壤剖面加深而呈现下降趋势; 与对照(CK)相比, 农田土壤动物个体数与类群数随外源C浓度升高而呈递增趋势; 农田大型土壤动物个体数随外源N浓度升高呈递减趋势; 农田中小型土壤动物个体数随外源N浓度升高呈递增趋势。在研究时段内, 土壤动物个体数与类群数于5—8月份呈现出上升趋势, 9月份出现下降。方差分析显示, 外源C、N干扰对农田中小型土壤动物个体数与类群数以及大型土壤动物类群数影响显著( $p < 0.01$ ), 农田土壤动物个体数与类群数在作物生长季节内变化显著( $p < 0.01$ )。外源C、外源N分解释放出的养分与中小型土壤动物个体数、类群数以及大型土壤动物类群数密切相关。外源C有益于农田土壤动物功能群、大型与中小型农田土壤动物群落组成多样化。

Abstract:

Composition and structure of cropland soil fauna as affected by exogenous carbon and nitrogen was studied in the black soil area of Jilin in 2011, using Hand-sorting, modified Tullgren and Baermann's methods. The field under study was designed to have seven treatments of exogenous carbon and nitrogen, separately, i.e. control (CK), exogenous carbon (C0.5, C1.0, C2.0) and exogenous nitrogen (N0.5, N1.0, N2.0). A total of 56 886 soil fauna individuals were obtained after 5 times of gathering during the crop growing season from May to September, and sorted into 79 families, 3 suborders, 23 orders, and 11 classes under 3 phyla, including 80 unidentified individuals. The data obtained show that the cropland soil fauna lived mainly in the 0~5 cm soil layer and decreased with soil depth in population; as compared with the control (CK), the treatments with exogenous carbon increased the number of individuals and groups of soil fauna in the field with a trend increasing with the concentration of exogenous carbon; and the treatments with exogenous nitrogen decreased the number of individuals of soil macro fauna, but increased the numbers of individuals of soil meso- and micro-fauna, showing a trend of the more the less and the more the more, respectively. During the crop growing season, cropland soil fauna rose in number of individuals and groups from May to August and then declined in September. Variance analysis of the data shows that the impacts of exogenous carbon and nitrogen on soil macro-, meso- and micro-fauna in number of individuals and groups were significant ( $p < 0.01$ ); and the cropland soil fauna varied significantly in number of individuals and groups ( $p < 0.01$ ) during the crop growing season. The numbers of individuals and groups of soil meso- and micro-fauna and the number of groups of soil macro-fauna were closely related with the concentration of nutrients released from exogenous carbon and nitrogen sources. Exogenous carbon favors guilds of soil fauna

and diversification of the composition of the cropland soil fauna community.

[查看全文](#) [查看/发表评论](#) [下载PDF阅读器](#)

您是本站第282618位访问者

Copyright©2008 土壤学报版权所有

地址：南京市北京东路71号 邮编：210008 Email: actapedo@issas.ac.cn

技术支持：北京勤云科技发展有限公司京ICP备09084417号