云南农业大学学报(自然科学)
JOURNAL OF YUNNAN AGRICULTURAL UNIVERSITY (NATURAL SCIENCE)
ISSN 1004-390X
CODEN YNDXAX
CN 53-1044/S
主办：云南农业大学

不同生育期小麦根系固土力的原位测定

(1.云南农业大学 资源与环境学院，云南 昆明 650201;2.西南林业大学，云南 昆明 650224)

In SituMeasurement of Fixing Capability of Soil by Wheat Roots in Different Growth Stage

1.College of Resources and Environment, Yunnan Agricultural University, Kunming 650201, China； 2.Southwest Forestry University,Kunming 650224,China

摘要 | 参考文献 | 相关文章

Download: PDF (1022KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 农作物在生长过程中其根系对土壤的固持作用可以减轻坡地土壤的水土流失，测定农作物根系对土壤的固持力可以从一个方面评价不同作物的水土保持作用。本研究以云南主要农作物小麦为例，应用锚杆拉力计和自行设计的原位测定剪切箱对不同生育期的小麦根系固土力进行了原位测定。结果表明：处于分蘖期，抽穗期和成熟期的小麦，在施加载荷初期，被测样方都会发生弹性形变，荷载与位移都按比例增加，呈现一定的线性关系。当载荷超过根系抗拉极限后，随着推力的继续增加，样方发生塑性形变和蠕变，载荷与位移关系逐渐偏离直线，反映出非线性弹性特征，测定的土壤样方与土体分离。不同生育期小麦根系固土力大小顺序为：成熟期>抽穗期>分蘖期

关键词： 小麦根系 固土力 原位测定

Abstract： The roots of crops during their growth process can fix the soil and reduce soil and water loss of upland arable soils, thus the in situmeasurement of fixing capability of soil by roots can be an index for evaluating the effects of different crops on soil and water conservation. In this study, wheat, a main cultivated crop in Yunnan province, was used as the material to investigate the fixing capability of soil by the roots during different growth stages with anchorshank tensiometer and selfdesigned shearing box. The results showed that in the beginning of load applied on sampled squares, the sample squares would deform elastically during tillering, heading and ripening stages of wheat. There was a liner relationship between load and displacement. With the increase of load applied on sample squares, the sample squares would deform plastically and creep, finally departed from the in situsoil. There was no liner relationship between load and displacement. The rank for fixing capabilities of soil by wheat roots during different growth stage was: ripening stage> heading stage > tillering stage.

Keywords： wheat roots fixing capability of soil; in situ measurement

Fund:

欧盟第六框架协议国际科技合作研究项目(INCO-CT-2005-510745)

引用本文:

高鹏1，范茂攀1，郑毅1,. 不同生育期小麦根系固土力的原位测定[J] 云南农业大学学报(自然科学), 2011,V26(4): 529-535

GAO Peng1, FAN Mao-pan1, ZEHNG Yi1,2.In Situ Measurement of Fixing Capability of Soil by Wheat Roots in Different Growth Stage[J] Journal of Yunnan Agricultural University, 2011,V26(4): 529-535

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