PLANT NUTRITION AND FERT

ISSN 1008-505X
CN 11-3996/S

植物营养与肥料学报 » 2011, Vol. 17 » Issue (4) :985-988 DOI:

利用15N标记研究氮素水平对大豆根瘤生长的影响

董守坤, 刘丽君, 孙聪姝, 张 冰, 马秀峰, 焦光纯, 马春梅, 龚振平*

东北农业大学农学院，黑龙江哈尔滨 150030

Effects of nitrogen levels on nodule growth of soybean using 15N tracing method

DONG Shou-kun，LIU Li-jun，SUN Cong-shu，ZHANG Bing，MA Xiu-feng，JIAO Guang-chun，MA Chun-mei，GONG Zhen-ping**

Agronomy College, Northeast Agricultural University, Harbin, Heilongjiang 150030, China

摘要 | 参考文献 | 相关文章

Download: PDF (509KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 为了明确氮肥对大豆根瘤生长的影响，以东农47为试验材料，采用15N 标记和砂培的方法，进行了氮素营养水平对大豆根瘤生长及与根瘤固氮相关性的研究。结果表明，随外源氮水平增加，根瘤干重呈先增加后降低的变化趋势，当营养液氮浓度为50 mg/L时，有利于根瘤的生长；根瘤生长需要一定量“启动氮”，“启动氮”的作用维持到第3片复叶完全展开时（V3）对大豆根瘤的生长最有利；在盛荚期 （R4）和鼓粒始期（R5）补充外源氮的供给抑制根瘤的生长。根瘤干重与植株中根瘤氮积累量、根瘤氮比例呈极显著正相关，根瘤干重与植株中氮积累量呈显著正相关。

关键词： 大豆 氮素 根瘤干重 根瘤固氮

Abstract： In order to definite the effects of soybean nodules growth, 15N tracing and sand culture were used to study the effects of nitrogen nutrition levels on nodule growth and nodule nitrogen fixation of soybean cultivar, DN 47. The results show that the dry weights of nodules are increased earlier and decreased later when the exogenous-N levels are gradually increased, and the dry weight of nodules is maximum when the nitrogen concentration is 50 mg/L. Nodules growth needs “startup-N”, and the best effect of the “startup-N” on nodule growth is before the V3 period. Growth of nodules is inhibited while applying exogenous-N during the R4-R5. There are significant correlations between dry weight of nodules, N-accumulation of nodules, N ratio in nodules and N-accumulation in plants.

Keywords： soybean nitrogen dry weight of nodule nodule nitrogen fixation

Received 2010-09-25; published 2011-06-24

Fund:

省部级项目

Corresponding Authors: 董守坤 Email: dongshoukun@yahoo.com.cn

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
董守坤
刘丽君
孙聪姝
张冰
马秀峰
焦光纯
马春梅
龚振平

引用本文:

董守坤 刘丽君 孙聪姝 张冰 马秀峰 焦光纯 马春梅 龚振平.利用15N标记研究氮素水平对大豆根瘤生长的影响[J] 植物营养与肥料学报, 2011,V17(4): 985-988

DONG Shou-kun LIU Li-jun SUN Cong-shu ZHANG Bing MA Xiu-feng JIAO Guang-chun MA Chun-mei GONG Zhen-ping.Effects of nitrogen levels on nodule growth of soybean using 15N tracing method[J] Acta Metallurgica Sinica, 2011,V17(4): 985-988