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[1]李灿东,刘秀芝,郭泰,等.利用15N标记研究大豆叶面氮素的吸收与分配[J].大豆科学,2015,34(02):277-280.[doi:10.11861/j.issn.1000-9841.2015.02.0277]
LI Can-dong,LIU Xiu-zhi,GUO Tai,et al.Fertilizer-N Uptake and Distribution in Soybean Using15N Tracer Technique[J].Soybean Science,2015,34(02):277-280.[doi:10.11861/j.issn.1000-9841.2015.02.0277]
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利用^{15}N标记研究大豆叶面氮素的吸收与分配

《大豆科学》 [ISSN:1000-9841 /CN:23-1227/S] 卷： 第34卷 期数： 2015年02期 页码： 277-280 栏目：
出版日期： 2015-04-25

Title: Fertilizer-N Uptake and Distribution in Soybean Using^{15}N Tracer Technique

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关键词: 大豆 (KeySearch.aspx?type=KeyWord&Sel=大豆)； 叶面 (KeySearch.aspx?type=KeyWord&Sel=叶面)； ^{15}N示踪 (KeySearch.aspx?type=KeyWord&Sel=¹⁵N示踪)； 氮素利用率 (KeySearch.aspx?type=KeyWord&Sel=氮素利用率)

Keywords: Soybean (KeySearch.aspx?type=KeyWord&Sel=Soybean)； Leaf (KeySearch.aspx?type=KeyWord&Sel=Leaf)； ^{15}N tracer (KeySearch.aspx?type=KeyWord&Sel=¹⁵N tracer)； N utilization rate (KeySearch.aspx?type=KeyWord&Sel=N utilization rate)

DOI: 10.11861/j.issn.1000-9841.2015.02.0277 (http://dx.doi.org/10.11861/j.issn.1000-9841.2015.02.0277)

文献标志码: A

摘要: 为研究大豆叶面氮素吸收与分配规律，以黑龙江省三江平原大豆主栽品种合丰48为试验材料，采用^{15}N示踪法在大豆R5期进行叶面施氮，研究大豆不同器官对氮素吸收与分配情况。结果表明：不同施氮处理条件下，以4.5 kg?hm^{-2}（N3）处理大豆各器官干物质量及氮素积累量显著高于其它处理，其中籽粒干物重23.2 g，总干物重73 9 g，分别较不施氮处理（N0）高7.91%和14.93%；籽粒氮素单株积累量为137.2 g，较不施氮处理（N0）高13.11%。同一施氮水平下，大豆不同器官^{15}N积累量为籽粒>茎>叶>荚皮>叶柄>根，差异达到显著水平。不同施氮处理下，各器官^{15}N积累量随着施氮量的增加而增加，在4.5 kg?hm^{-2}（N3）条件下最高，籽粒单株积累量为8.32 mg。^{15}N在各器官的分配比例与积累量总体趋势一致，不同施氮量间无明显相关性。

Abstract: In order to research the effects of nitrogen uptake and distribution in soybean, by using soybean cultivar Hefeng 48 as test material and taking^{15}N tracer method for leaves nitrogen application in R5 to study the nitrogen uptake and distribution of different soybean organs. The results showed that there were no signification increments in dry weight and nitrogen accumulation if the nitrgen application rates were more than 4.5 kg?ha^{-1}(N3). The seeds dry weight was 23.2 g and the total dry weight was 73.9 g and higher than the no nitrogen application by 7.91% and 14.93%. The seeds nitrogen accumulation was 137.2 g per plant and higher than the no nitrogen application by 13.11%. Different organs ^{15}N accumulation were seeds>leaf>pod>petiole>root under the same nitrgen application rate and had significance level. The ^{15}N accumulation increased with the increasing of different nitrogen application and had the hihgest seeds with 8.32 mg per plant in 4.5 kg?ha^{-1}?(N3). The overall trend of ^{15}N accumulation and distribution ratio were accordance and on significant correlation with different nitrogen application.

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备注/Memo 基金项目：黑龙江省青年科学基金（QC2012C121）。
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更新日期/Last Update: 2015-06-08