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净套作条件下钼肥拌种对大豆光合特性及产量的影响

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摘要: 在净作和“玉/豆”套作条件下,研究钼肥拌种对大豆光合特性及产量的影响。结果表明:净作条件下大豆叶片的叶绿素Chl(a+b)含量、单株有效荚数、荚粒数、百粒重及产量均显著低于套作,而Chl a/b值、净光合速率和蒸腾速率则高于套作;钼肥拌种提高了大豆叶片Chl(a+b)含量、Chl a/b值、净光合速率、气孔导度、胞间CO₂浓度、蒸腾速率、有效荚数和产量。在净作条件下,上述指标均以2.0 g kg⁻¹处理最高,其次为1.0 g kg⁻¹,其中2.0 g kg⁻¹处理植株叶片的净光合速率、单株有效荚数及产量分别较对照高36.14%、27.32%和37.25%。套作条件下,上述光合指标均以1.0 g kg⁻¹处理最高,其次为2.0 g kg⁻¹,其中1.0 g kg⁻¹处理植株叶片的净光合速率、单株有效荚数及产量分别较对照高34.46%、68.00%和84.85%。可见,钼肥拌种可提高大豆的光合特性及产量,套作模式中钼肥对大豆产量的贡献大于净作,且套作模式中钼肥的最适拌种浓度低于净作。

Abstract: The effect of seed treatment with molybdenum on soybean photosynthesis was studied under mono-cropping and relay strip intercropping system. The results showed that the Chl(a+b) content, pods per plant, seeds per pod, 100-seed weight, and seeds yield of mono-cropping soybean was lower than those of relay strip intercropping soybean. However, the value of Chl a/b, net photosynthetic rate (net photosynthetic rate, Pn) and transpiration rate (transpiration rate, Tr) of mono-cropping soybean was higher than that of relay strip intercropping soybean. The Chl(a+b) content, the value of Chl a/b, Pn, stomatal conductance (stomatal conductance, Gs), intercellular CO₂ concentration (intercellular CO₂ concentration, Ci), Tr pods per plant and yield were increased by molybdenum treatment. The above indexes were the highest with 2.0 g kg⁻¹ molybdenum treatment, and Pn, pods per plant and yield were higher by 36.14%, 27.32% and 37.25% respectively as compared with the control under the mono-cropping system, followed by 1.0 g kg⁻¹ treatment. Whereas, in the relay strip intercropping system, the above indexes were the highest with 1.0 g kg⁻¹ molybdenum treated the seeds, and Pn

pods per plant and yield were higher by 34.46%, 68.00% and 84.85% respectively as compared with the control, followed by 2.0 g/kg¹ treatment. In a word, seed treatment with molybdenum improved the photosynthetic characteristics and yield of soybean, the molybdenum contribution to soybean yield in the relay strip intercropping system was higher than that in the mono-cropping system, and the optimum concentration of molybdenum in the relay strip intercropping system was lower than that in the mono-cropping system

参考文献/References:

- [1] 董钻. 大豆产量生理 [M]. 北京: 中国农业出版社, 2000: 56. (Dong Z. Soybean yield physiology [M]. Beijing: China Agriculture Press, 2000: 56.)
- [2] 王竹, 杨文钰, 吴其林. 玉/豆套作荫蔽对大豆光合特性与产量的影响 [J]. 作物学报, 2007, 33(9): 1502-1507. (Wang Z, Yang W Y, Wu Q L. Effect of shading in maize/soybean relay-cropping system on the photosynthetic characteristics and yield of soybean [J]. Acta Agronomica Sinica, 2007, 33(9):1502-1507.)
- [3] 闫艳红, 杨文钰, 张新全, 等. 施氮量对套作大豆花后光合特性、干物质积累及产量的影响 [J]. 草业学报, 2011, 20(3): 233-238. (Yan Y H, Yang W Y, Zhang X Q, et al. Effects of different nitrogen levels on photosynthetic characteristics, dry matter accumulation and yield of relay strip intercropping Glycine max- after blooming [J]. Acta Prataculture Sinica, 2011, 20(3): 233-238.)
- [4] 吴明才, 肖昌珍. 大豆钼素研究 [J]. 大豆科学, 1994, 13(3): 245-251. (Wu M C, Xiao M Z. The study of soybean molybdenum [J]. Soybean Science, 1994, 13(3): 245-251.)
- [5] 陆景陵. 植物营养学(上册) [M]. 北京: 中国农业大学出版社, 1994: 13-76. (Lu J L. Plant nutrition(I) [M]. Beijing: China Agricultural University Press, 1994: 13-76.)
- [6] 岳桂华. 钼磷酸钾拌种对大豆苗期生长的影响 [J]. 沈阳农业大学学报, 2000, 31(2): 179-180. (Yue G H. Effects of seed dressing with potassium phosphomolybdate on soybean growth at seedling stage [J]. Journal of Agricultural University, 2000, 31(2): 179-180.)
- [7] Dwivedi S K, Meer S, Nigam P K, et al. Effect of phosphorus and molybdenum application on leaf chlorophyll content in soybean [J]. Advances in Plant Sciences, 1997, 10(1): 145-149.
- [8] 刘鹏, 杨玉爱. 钼、硼对大豆光合效率的影响 [J]. 植物营养与肥料学报, 2003, 9(4): 456-461. (Liu P, Yang Y A. Effect of molybdenum and boron on photosynthetic efficiency of soybean [J]. Plant Nutrition and Fertilizer Science, 2003, 9 (4): 456-461.)
- [9] 陈忠群. 钼肥对净套作大豆固氮特性、光合生理及产量品质的影响 [D]. 雅安: 四川农业大学, 2011. (Chen Z Q. Influence of seed treatment with molybdenum on soybean nitrogen fixation characteristics, photosynthetic physiology, yield and quality under mono-cropping and relay strip intercropping system [D]. Ya'an: Sichuan Agriculture University, 2011.)
- [10] 熊庆娥. 植物生理学实验教程 [M]. 成都: 四川科学技术出版社, 2003:36-94. (Xiong Q E. Plant Physiological Experiment [M]. Chengdu: Sichuan Science and Technology Press 2003:36-94.)
- [11] Tekalign T, Hammes P S. Response of potato grown under non-inductive condition to paclobutrazol: Shoot growth, chlorophyll content, net photosynthesis, assimilate partitioning, tuber yield, quality, and dormancy [J]. Plant Growth Regulation, 2004, 43(3): 227-236
- [12] Rosati A, Badeck F W, Dejong T M. Estimating canopy light interception and absorption using leaf mass per unit leaf area in Solanum melongena [J]. Annals of Botany, 2001, 88(1): 101-109.
- [13] 刘景辉, 曾昭海, 焦立新, 等. 不同青贮玉米品种与紫花苜蓿的间作效应 [J]. 作物学报, 2006, 32(1): 125-130. (Liu J H, Zeng Z H, Jiao L X, et al. Intercropping of different silage maize cultivars and alfalfa [J]. Acta Agronomica Sinica, 2006, 32(1): 125-130.)
- [14] Percy R W, Seemann J R. Photosynthetic induction state of leaves in a soybean canopy in relation to light regulation of ribulose-1-5 biphosphate carboxylase and stomatal conductance [J]. Plant Physiology, 1990, 94(2): 628-633
- [15] 曾根焯, 刘鹏, 任玲玲. 钼在植物体内生理功能的研究综述 [J]. 浙江师范大学学报(自然科学版), 2001, 24(3): 292-297. (Xu G D, Liu P, Ren L L. A summing up of the biological action of molybdenum in plants [J]. Journal of Zhejiang Normal University (Natural Sciences), 2001, 24(3): 292-297.)
- [16] 曾希柏, 侯光炯, 青长乐, 等. 土壤-植物系统中光照与氮素的相互关系研究 [J]. 生态学报, 2000, 1(20): 103-108. (Zeng X B, Hou G J, Qing C L, et al. Interrelation of light and nitrogen in soil-plant system [J]. Acta Ecologica Sinica, 2000, 1(20): 103-108.)

相似文献/References:

- [1] 刘章雄, 李卫东, 孙石, 等. 1983~2010年北京大豆育成品种的亲本地理来源及其遗传贡献 [J]. (article.aspx?type=view&id=201301001) 大豆科学, 2013, 32(01):1. [doi:10.3969/j.issn.1000-9841.2013.01.002]
- LIU Zhang-xiong, LI Wei-dong, SUN Shi, et al. Geographical Sources of Germplasm and Their Nuclear Contribution to Soybean Cultivars Released during 1983 to 2010 in Beijing [J]. Soybean Science, 2013, 32(06):1. [doi:10.3969/j.issn.1000-9841.2013.01.002]
- [2] 李彩云, 余永亮, 杨红旗, 等. 大豆脂质转运蛋白基因Gm.LTP3的特征分析 [J]. (article.aspx?type=view&id=201301002) 大豆科学, 2013, 32(01):8. [doi:10.3969/j.issn.1000-9841.2013.01.003]
- LI Cai-yun, YU Yong-liang, YANG Hong-qi, et al. Characteristics of a Lipid-transfer Protein Gene Gm.LTP3 in Glycine max [J]. Soybean Science, 2013, 32(06):8. [doi:10.3969/j.issn.1000-9841.2013.01.003]
- [3] 王明霞, 崔晓霞, 薛晨晨, 等. 大豆耐盐基因Gm.L3a的克隆及RNAi载体的构建 [J]. (article.aspx?type=view&id=201301003) 大豆科学, 2013, 32(01):12. [doi:10.3969/j.issn.1000-9841.2013.01.004]
- WANG Ming-xia, CUI Xiao-xia, XUE Chen-chen, et al. Cloning of Halotolerance 3 Gene and Construction of Its RNAi Vector in Soybean (Glycine max) [J]. Soybean Science, 2013, 32(06):12. [doi:10.3969/j.issn.1000-9841.2013.01.004]
- [4] 张春宝, 李玉秋, 彭宝, 等. 线粒体ISSR与SCAR标记鉴定大豆细胞质雄性不育系与保持系 [J]. (article.aspx?type=view&id=201301005) 大豆科学, 2013, 32(01):19. [doi:10.3969/j.issn.1000-9841.2013.01.005]
- ZHANG Chun-bao, LI Yu-qiu, PENG Bao, et al. Identification of Soybean Cytoplasmic Male Sterile Line and Maintainer Line with Mitochondrial ISSR and SCAR Markers [J]. Soybean Science, 2013, 32(06):19. [doi:10.3969/j.issn.1000-9841.2013.01.005]
- [5] 卢清瑞, 赵琳, 李冬梅, 等. RAV基因对拟南芥和大豆不定芽再生的影响 [J]. (article.aspx?type=view&id=201301006) 大豆科学, 2013, 32(01):23. [doi:10.3969/j.issn.1000-9841.2013.01.006]
- LU Qing-yao, ZHAO Lin, LI Dong-mei, et al. Effects of RAV gene on Shoot Regeneration of Arabidopsis and Soybean [J]. Soybean Science, 2013, 32(06):23. [doi:10.3969/j.issn.1000-9841.2013.01.006]
- [6] 杜景红, 刘丽君. 大豆fad3c基因沉默载体的构建 [J]. (article.aspx?type=view&id=201301007) 大豆科学, 2013, 32(01):28. [doi:10.3969/j.issn.1000-9841.2013.01.007]
- DU Jing-hong, LIU Li-jun. Construction of fad3c Gene Silencing Vector in Soybean [J]. Soybean Science, 2013, 32(06):28. [doi:10.3969/j.issn.1000-9841.2013.01.007]
- [7] 张力伟, 樊颖伦, 牛腾飞, 等. 大豆“黄黄13”突变体筛选及突变体库的建立 [J]. (article.aspx?type=view&id=201301008) 大豆科学, 2013, 32(01):33. [doi:10.3969/j.issn.1000-9841.2013.01.008]
- ZHANG Li-wei, FAN Ying-lun, NIU Teng-fei, et al. Screening of Mutants and Construction of Mutant Population for Soybean Cultivar "Jihuang13" [J]. Soybean Science, 2013, 32(06):33. [doi:10.3969/j.issn.1000-9841.2013.01.008]
- [8] 盖江南, 张彬彬, 吴琛, 等. 大豆不定胚悬浮培养基因型筛选及基因枪遗传转化的研究 [J]. (article.aspx?type=view&id=201301009) 大豆科学, 2013, 32(01):38. [doi:10.3969/j.issn.1000-9841.2013.01.009]
- GAI Jiang-nan, ZHANG Bin-bin, WU Yao, et al. Screening of Soybean Genotypes Suitable for Suspension Culture with

Adventitious Embryos and Genetic Transformation by Particle Bombardment[J]. Soybean Science, 2013, 32(06):38.

[doi:10.3969/j.issn.1000-9841.2013.01.009]

[9] 王鹏飞, 刘丽君, 唐晓飞, 等. 适于体细胞胚发生的大豆基因型筛选[J]. (darticle.aspx?type=view&id=201301010)大豆科学, 2013, 32(01):43. [doi:10.3969/j.issn.1000-9841.2013.01.010]

WANG Peng-fei, LIU Li-jun, TANG Xiao-fei, et al. Screening of Soybean Genotypes Suitable for Somatic Embryogenesis [J]. Soybean Science, 2013, 32(06):43. [doi:10.3969/j.issn.1000-9841.2013.01.010]

[10] 刘德兴, 午海, 杨存义, 等. 耐酸铝大豆品种资源的筛选与鉴定[J]. (darticle.aspx?type=view&id=201301011)大豆科学, 2013, 32(01):46. [doi:10.3969/j.issn.1000-9841.2013.01.011]

LIU De-xing, WU Hai, YANG Cun-yi, et al. Screening and Identifying Soybean Germplasm Tolerant to Acid Aluminum [J]. Soybean Science, 2013, 32(06):46. [doi:10.3969/j.issn.1000-9841.2013.01.011]

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