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论文

种植密度对烤烟不同部位叶片光合特性及其同化积累的影响

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摘要：

选用云烟87，研究4种种植密度(16 665、15 150、13 875和12 825株 hm^{-2})对烤烟下、中、上3部位叶片光合及其同化物的影响。结果表明，叶片净光合速率(P_n)、比叶重以及碳水化合物总量在成熟期(移栽60 d以后)明显表现出密度效应。随着群体生育进程的推进，密度对3个指标的影响程度有增大趋势。降低种植密度可以减小叶片P_n下降率，延缓光合功能的衰退，延长同化产物的积累时间。下部叶除12 825株 hm^{-2}外，其他3处理均未出现光合“午休”现象; 而上部叶片均出现“午休”现象; 较高种植密度能够减轻中部叶片“午休”的程度。在15 150株 hm^{-2}的种植密度下，中部叶片日光合总量较高，光合产物也达到较高水平，叶片光合作用和蒸腾作用也达到最为协调的状态，有着较高的水分利用率。

关键词： 种植密度 烤烟 光合特性 日变化 同化物

Effects of Planting Density on Photosynthetic Characteristics and Assimilate Accumulation of Leaves in Different Positions in Flue-Cured Tobacco

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Abstract:

The leaves in threepositions(leaf 5, 11, 17 from bottom to top) of flue-cured tobacco Yunyan 87 with four planting densities (16 665, 15 150, 13 875, and 12 825 plants ha^{-1})were tested in the field experiment in Liangfeng Village, Xuanen County, Chinain 2008. The results indicated thatthe net photosynthetic rate (P_n), specific leaf weight and carbohydrate content exhibited significant difference under various planting densities in mature period (60 days after transplanting), and the impact of plant density increased in the process of leaf development. With the decrease of planting density, the decline rate of P_n was reduced, photosynthetic function decline was delayed, and the accumulating time of assimilate was prolonged. The lower leaf did not appear photosynthetic midday depression under three planting densities except under the lowest density (12 825 plants ha^{-1}). The upper leaf appeared photosynthetic midday depression under all the planting densities. Degree of photosynthetic midday depression for the middle leaf was lightened under lower densities. Under planting density of 15 150 plants ha^{-1}, the middle leaf had higherdaily photosynthesis and assimilate, and the photosynthesis and transpiration achieved the most coordinate state, exhibiting higher single-leaf WUE.

Keywords: Planting density Flue-cured tobacco Photosynthetic character Diurnal change Assimilation

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参考文献：

本刊中的类似文章

1．何启平;董树亭;高荣岐.不同类型玉米品种果穗维管束的比较研究[J]. 作物学报, 2007,33(07): 1187-1196

2．韩惠芳; 杨文钰;李增嘉;关华.烯效唑对不同种植密度小麦后期氮素分配及籽粒蛋白质的影响[J]. 作物学报, 2006,32(03): 466-468

3．勾玲;赵明;黄建军;张宾;李涛;孙锐.玉米茎秆弯曲性能与抗倒能力的研究[J]. 作物学报, 2008,34(04): 653-661

4．梁淑敏，杨锦忠，李娜娜，郝建平，杜天庆，崔福柱，程丽娟.基于图像处理的玉米分形维数及其种植密度效应评价[J]. 作物学报, 2009,35(4): 745-748

5．陈四龙,李玉荣,程增书,刘吉生.用GGE双标图分析种植密度对高油花生生长和产量的影响[J]. 作物学报, 2009,35(7): 1328-1335

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