

氮肥运筹模式对双季稻北缘水稻氮素吸收利用及产量的影响

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Nitrogen uptake,utilization and rice yield in the north rimland of double-cropping rice region as affected by different nitrogen management strategies

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摘要 在双季稻北缘地区,以常规品种早籼65和杂交组合香两优68为试验材料,在施氮量150.kg/hm²的条件下,研究了不同氮肥运筹模式对早稻产量及氮素吸收利用特性的影响。结果表明:减少基、蘖肥,提高穗肥比例可增加抽穗—成熟期的叶片含氮量,使SPAD值维持较高水平,提高齐穗后的绿叶面积和有效叶面积率,提高群体光合势,有利于促进干物质积累而提高产量和氮素吸收,常规稻和杂交稻均以基: 蘖: 穗=50: 25: 25运筹模式产量最高;前氮后移增施穗肥因能为水稻整个生育期提供比较平衡的氮素供应,可促进氮素的吸收;氮肥当季利用效率随穗肥比例提高而增加,但氮肥的农学利用率与产量有更好的对应关系。基: 蘖: 穗=50: 25: 25的运筹模式是双季稻北缘地区早稻合理的施肥技术。

关键词: 早稻 氮肥运筹 产量 吸氮特性 早稻 氮肥运筹 产量 吸氮特性

Abstract: Two early indica rice cultivars of Xiangliangyou 68 and Zaoxian 65 were used to study nitrogen uptake,utilization,yield and yield components as affected by different split N application strategies when the total nitrogen application amount was 150 kg/ha in the north rimland of double-cropping rice.Results showed that reducing N application before transplanting and at tillering stage but increasing N application at booting stage could increase rice yield and nitrogen uptake and utilization,by increasing leaf nitrogen content and SPAD in top 3 leaves during heading stage to mature stage,and increasing LAI and effective leaf area percentage.When nitrogen fertilizer was applied before transplanting(50%),tillering(25%),booting (25%),both hybrid and conventional rice cultivars had highest yield.The main benefit of postponing N fertilizer application time on yield formation was related to its improved splitting and timing of fertilizer N applications leading to a more balanced supply of N nutrition for rice growth than the common fertilizer practice,and to increase total amount of N-absorption(ANA).Nitrogen fertilizer use efficiency(NUE) increased with the percentage of panicle fertilizer,but the agronomic use efficiency of N fertilizer had better relationship with yield. It is concluded that the split application of N before transplanting(50%),at tillering stage(25%) and at booting stage(25%) is a rational N application strategy in the north rimland of double-cropping rice.

Keywords:

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