

氮肥运筹对四川丘陵区机播套作小麦群体质量及产量的影响

吴中伟, 樊高琼*, 王秀芳, 郑亭, 邱康健, 杨文钰*

四川农业大学; 农业部西南作物生理生态与耕作重点实验室, 成都 611130

Effects of nitrogen strategies on population quality and grain yield of mechanical sowing wheat under intercropping condition in Sichuan Hilly Areas

WU Zhong wei, FAN Gao qiong*, WANG Xiu fang, ZHENG Ting, QIU Kang jian, YANG Wen yu*

Sichuan Agricultural University/Key Laboratory of Crop Physiology, Ecology, and Cultivation in Southwest, Ministry of Agriculture, Chengdu, Sichuan 611130, China

摘要

参考文献

相关文章

Download: [PDF \(1138KB\)](#) [HTML 1KB](#) Export: [BibTeX](#) or [EndNote \(RIS\)](#) [Supporting Info](#)

摘要 以四川大面积推广应用中筋小麦品种川麦42为材料, 采用两因素裂区试验设计, 研究了不同施氮量和施氮方式对带式机播套作小麦(播幅为净作的50%)群体质量和产量的影响。结果表明, 套作小麦拔节后的叶面积指数(LAI)、干物质积累量均随施氮量的增加而提高, 粒叶比则在中等偏高施氮量(N 180 kg/hm²)时最大; 底肥:拔节肥=7:3的施氮方式有效地提高了花后LAI、干物质日积累速率及粒叶比。对产量影响方面, 有效穗和穗粒数随施氮量的增加而提高, 成穗率和千粒重则在N 180 kg/hm²时最高, 底肥:拔节肥=7:3的施氮方式提高了成穗率。相关分析表明, 孕穗后的LAI、孕穗期的干物质积累以及拔节至孕穗期的干物质日积累速率与产量呈显著或极显著正相关。本试验条件下, 在施氮量为N 180 kg/hm²、施氮方式为底肥:拔节肥=7:3时, 套作小麦产量构成因素协调好, 产量最高, 达4800.4 kg/hm², 与生产上大面积净作小麦产量相当。其群体质量指标为: 基本苗184.5万株/hm², 成穗数225.3万穗/hm², 成穗率72.8%, 孕穗期LAI 4.68, 灌浆期LAI 2.11, 花后干物质积累量1600.6 kg/hm², 结实粒数9652.5万粒/hm², 粒叶比11.501mg/cm²。

关键词: 套作小麦 氮肥运筹 产量 群体质量

Abstract: A medium-gluten wheat cultivar, Chuanmai 42, was taken as an experiment material, the effects of nitrogen levels and application patterns on population quality and grain yield of strip-relay-intercropping wheat (half planted compared with sole-cropping wheat) were studied using the split block experiment design. The results show that leaf area index (LAI) of wheat after jointing, and the dry matter accumulation are increased with increase of nitrogen levels, while grain-leaf ratio is increased at first and then decreased, and the ratio reaches its largest value at the nitrogen rate of 180 kg/ha. Simultaneously, the LAI after flowering, the dry matter accumulation per day and grain-leaf ratio are all improved effectively at the dressing ratio of 7:3 (base fertilizer: jointing fertilizer). In aspect of yield, spike number and seeds per panicle are increased with increase of nitrogen levels, while the earbearing tiller percentage and 1000-grain weight are increased at first and then percentage is improved effectively at the dressing ratio of 7:3 (base fertilizer: jointing fertilizer). The results of correlation analysis show that the LAI after booting, the dry matter accumulation at booting and the dry matter accumulation per day are significantly correlated with grain yield. In the present study, the spike number, number of seeds per panicle and 1000-grain weight are optimal under the nitrogen amount of 180 kg/ha combined with dressing ratio of 7:3 (base fertilizer: jointing fertilizer), and the highest grain yield is 4800.4 kg/ha. The corresponding population indexes under this nitrogen strategy are 184.5×10⁴ /ha of the seedling number, 225.3×10⁴ /ha of the spike number, 72.8% of the spike rate, 4.68 of the highest LAI at booting, 2.11 of LAI at filling, 1600.6 kg/ha of post-anthesis dry matter accumulation, 9652.5×10⁴ /ha of seeds number and 11.501 mg/cm² of grain-leaf ratio, respectively.

Keywords: Relay-strip-intercropping wheat Nitrogen strategy Grain yield Population quality

Received 2011-07-18; published 2011-12-26

Fund:

四川省教育厅青年基金项目;四川主要粮食作物丰产高效技术集成研究与示范;突破性作物新品种高产高效栽培技术研究

Corresponding Authors: 吴中伟 Email: 369873887@163.com

引用本文:

吴中伟 樊高琼 王秀芳 郑亭 邱康健 杨文钰.氮肥运筹对四川丘陵区机播套作小麦群体质量及产量的影响[J] 植物营养与肥料学报, 2012,V18(1): 18-26

WU Zhong-wei FAN Gao-qiong WANG Xiu-fang ZHENG Ting QIU Kang-jian YANG Wen-yu. Effects of nitrogen strategies on population quality and grain yield of mechanical sowing wheat under intercropping condition in Sichuan Hilly Areas[J] Acta Metallurgica Sinica, 2012, V18(1): 18-26

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

- ▶ 吴中伟
- ▶ 樊高琼
- ▶ 王秀芳
- ▶ 郑亭
- ▶ 邱康健
- ▶ 杨文钰

