辽西半干旱区春小麦氮磷水耦合产量效应研究

Effect of nitrogen, phosphorus and water coupling on spring wheat yield in semi-arid areas of western Liaoning Province

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中文摘要：

为了探讨春小麦水肥耦合作用，采用312-D最优饱和设计，于2000～2003年在辽西半干旱区开展了水肥耦合对春小麦产量效应的田间试验研究。结果表明：在该试验条件下水分对产量的作用最大，磷肥次之，氮肥最小；水肥耦合的产量效应是：中水中肥效应最高，高水高肥次之，低水低肥最低；水肥交互耦合效应大小顺序是：氮水耦合>氮磷耦合>磷水耦合。产量超过4000 kg/hm^{2}的水肥管理方案为：施氮量240.1～361.2 kg/hm^2，施磷量103.1～152.6 kg/hm

英文摘要：

To seek for effect of water and fertilizer coupling on spring wheat, with 312-D optimized saturation design, field experiments were conducted in the western Liaoning Province during 2000～2003 to study effect of water and fertilizer coupling on spring wheat yield. Results showed that irrigation quantity was the chiefly factor to affect spring wheat yield, phosphorus quantity was the secondly factor, nitrogen quantity was the thirdly factor. Yield effect was the highest in the condition of middle level water and fertilizer, but which was the lowest in low level water and low fertilizer, and which was between the two in high level water and high fertilizer. The effect order of interaction is: nitrogen and water coupling>nitrogen and phosphorus coupling>nitrogen and water coupling. When spring wheat yield accessed 4000 kg/hm^2, amounts of water and fertilizer were nitrogen 240.1～361.2 kg/hm^2, phosphorus 103.1～152.6 kg/hm^2, water 337.5～450.0 mm. Amounts for highest yield 4610 kg/hm^2 were nitrogen 315.1 kg/hm^2, phosphorus 111.1 kg/hm^2 and water 354.6 mm.

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