

长期施用EM生物有机肥对冬小麦生产的影响

Effects of long-term application of EM biological-organic fertilizer on winter wheat production

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中文摘要:

施用不同肥料处理十年后, 通过小区对比试验, 分析EM生物有机肥、普通堆肥、化肥、不施肥对小麦生产的效果差异。结果表明, EM生物有机肥比普通堆肥增产8.4%~8.9%, 比化肥增产17.2%~32.4%。分析产量差异的原因, 得到: EM生物有机肥土壤的有效氮、磷、钾含量显著提高, 充足的肥料供给使植株的N、P、K含量增加, 机体的功能得到改善, 小麦功能叶片的叶绿素含量和光合速率提高。光合作用的增强促使植株干物质积累量增加, 孕穗期小麦植株干物质积累量比其他处理高1.5%~19.2%。前期良好的干物质积累和灌浆期的光合能力强, 为灌浆打下坚实的基础, 与其他处理相比小麦籽粒平均灌浆速率提高6.6%~16.4%。此外, 在品质方面, 小麦籽粒粗蛋白含量提高4.9%~19.9%。综合来看, 长期施用EM生物有机肥不但可以提高冬小麦的产量, 还能有效地改善品质。

英文摘要:

The comparative trials of the effects of applying EM biological-organic fertilizer, common compost, chemical fertilizer and non-applied fertilizer(CK) in ten years on winter wheat production were conducted. The results showed that the yields of EM biological-organic fertilizer treatments were 8.4%~8.9% higher than those of common compost treatments, and 17.2%~32.4% higher than the yields of chemical fertilizer treatments. The main causes resulted in the yield differences are as follows: the rapid availability of Nitrogen, Phosphorus and Potassium in soil applied EM biological-organic fertilizer was raised significantly, which increased the Nitrogen, Phosphorus and Potassium nutrient content in stem, leaf blade and ear, and then improved the organism function. The chlorophyll content and rate of photosynthesis of functional leaf blade were raised. The strengthened photosynthesis increased the plant dry matter content, and therefore, it was higher than other treatments by 1.5%~19.2% at booting stage. All of which help to raise the mean grain-filling rate by 6.6%~16.4%. In addition, on quality respect, the crude protein content of winter wheat was raised by 4.9%~19.9%. To sum up, the yield could be raised, and the quality could also be improved effectively applying EM biological-organic fertilizer for a long-term.

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