

土壤肥料科学

生物质炭对土壤性状和作物产量的影响

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摘要:

摘要: 秸秆还田产生了很好的经济效益, 但仍存在问题。因此, 提出秸秆炭化还田或利用, 以提高秸秆综合利用率。为此, 本文综述了秸秆炭化形成的生物量炭 (biomass charcoal) 对土壤性状和作物产量的影响。生物量炭化后与木炭相似, 耐降解, 可提高土壤碳库容量, 减少温室气体排放。同时炭具有很大的表面积, 持水性、吸附性均较强。在一定量下, 施炭可增加土壤阴、阳离子交换量、吸附氮、磷及矿物离子, 减少养分损失, 在一定范围内, 普遍能增加作物生物量和产量, 因此认为秸秆炭化还田或利用是秸秆综合利用的优势途径。

关键词: 生物量炭; 黑色碳; 秸秆; 土壤; 产量

Effect of biomass charcoal on soil character and crop yield

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Abstract:

Abstract : Total crop residue in China is about 600 million tons every year. Crop residue incorporation has increased crop yield and soil quality. However, there are two main problems, one is residue is difficult to rot under field conditions, which effect next cultivation. The other is field capacity for residue is limit. Therefore, biomass charcoal can be a good choice. Biomass charcoal has a high surface area, high nutrient retention capacity and high water retention capacity due to its porous structure. Transformation of crop residue into stable C pools (black carbon) can reduce the release of the greenhouse gas CO2 into the atmosphere and can increase C sequestration in the soil. Black carbon is also a soil conditioner which increases the CEC, nutrient availability, decreases nutrient leaching and provides more space for microbe. Adding black carbon to soil can significantly increase seed germination, plant growth, and crop yields.

Keywords: biomass charcoal black carbon crop residue soil yield

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