



Crop residue incorporation combined with potassium fertilizer increased cotton canopy apparent photosynthesis and seed cotton yield in barley-cotton rotation system

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Abstract: Potassium (K) is indispensable for cotton (*Gossypium hirsutum* L.) cultivation. The objective of this study was to evaluate the effects of crop residue incorporation and K fertilizer on seed cotton yield, K uptake and canopy apparent photosynthesis. Thus, we conducted a three-year experiment, using a split-plot design. The main plots were assigned to two treatments (CK: barley crop residue was removed; S: barley residue was crushed and returned to soil before cotton was sowed), while three subplot treatments were 0, 150 and 225 kg K₂O ha⁻¹. In 2017 and 2018, when K fertilizer was not applied, crop residue incorporation increased seed cotton yield, total biomass, K uptake, leaf K concentration, leaf area index and canopy apparent photosynthesis. And when 150 kg K₂O ha⁻¹ was applied, crop residue incorporation increased K uptake and leaf K concentration in 2017 and 2018. Thus, when adequate nitrogen and phosphorus fertilizer were applied, effects of crop residue incorporation on cotton growth depended on K fertilizer rate. In summary, these results suggest that crop residue incorporation could improve K status and canopy photosynthetic capacity. Eventually, total biomass and seed cotton yield were increased.



Biography: Xiaobing Lv is studying for a PhD, whose leading area is agronomy.

Publications:

1. Evaluating the Mechanical Properties of Admixed Blended Cement Pastes and Estimating its Kinetics of Hydration by Different Techniques
2. Genetic Diversity Using Random Amplified Polymorphic DNA (RAPD) Analysis for *Aspergillus niger* isolates
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