

Diverse rotations and poultry litter improves soybean yield

May 15 2017



An aerial photo of agronomic systems study in Milan, Tenn. Credit: Jason Wight

Continuous cropping systems without rotations or cover crops are perceived as unsustainable for long-term yield and soil health.

Continuous systems, defined as continually producing a crop on the same parcel of land for more than three years, is thought to reduce yields. Given that [crop rotations](#) and soil amendments (cover [crops](#) and poultry litter) may alleviate issues associated with continuous cropping, research into their combined effects is necessary to make recommendations that improve soil quality and yield.

In an article recently published in *Agronomy Journal*, researchers studied combinations of cropping sequence (corn, soybean, and cotton) and soil amendment/cover crops (hairy vetch, Austrian winter pea, wheat, poultry litter and a fallow control) at two sites in Tennessee over a 12-yr study period. Based on 12-yr yields, a moderate-to-no yield penalty existed for continuous soybean, whereas yield benefits (11%) arose from poultry litter compared to wheat cover crop.

This study determined that across all study years, incorporating corn once within a 4-yr cycle resulted in 8% greater yields than continuous soybean, whereas cotton (once or twice within a rotation) did not. Consequently, including corn once within a 4-yr cropping rotation with [poultry litter](#) improved [soybean yields](#), concurrent with increases in soil N, P, K, and soil organic carbon.

More information: Amanda J. Ashworth et al, Impact of Crop Rotations and Soil Amendments on Long-Term No-Tilled Soybean Yield, *Agronomy Journal* (2017). [DOI: 10.2134/agronj2016.04.0224](https://doi.org/10.2134/agronj2016.04.0224)

Provided by American Society of Agronomy

Citation: Diverse rotations and poultry litter improves soybean yield (2017, May 15) retrieved 29 April 2024 from <https://phys.org/news/2017-05-diverse-rotations-poultry-litter-soybean.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.