Carbon and Nutrient Accumulation in Transitional Organic Farming Systems. (S06-mcdonald154004-Oral)

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Abstract:

One requirement for growers transitioning to organic certification is to demonstrate an increase in soil fertility, including soil organic matter (SOM) content, during the transition phase. Two common practices to increase SOM contents are compost application and cover cropping. Our objective was to determine the effects of compost application and cover cropping on within and between season changes in SOM and phosphorus availability. Five compost application rates (0-90 Mg/ha) and two summer annual cover crops (buckwheat, millet) were used. Soils were sampled every 7-10 days throughout the growing season. Maximum phosphorus availability occurred approximately 6-8 weeks after compost application and increased with increasing compost application rate. When compost was applied, buckwheat dry matter (DM) yields were larger than for millet. Millet yields increased linearly with compost application rate. Buckwheat yields were higher where compost was applied, compared to the control but there were no differences between compost application rates. Treatment effects on SOM content, soil pH and electrical conductivity will be described.

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Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 2:45 pm

Keywords:

organic farming, soil organic matter, compost, cover crops