Impacts of Compost on Soil Quality and Corn Yield for a Clay Loam Soil. (S06-reynolds141240-Poster)

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Abstract:

Near-surface (0-10 cm depth) soil physical quality and corn yield on a Brookston clay loam soil were measured during the summers of 1999, 2000 and 2001 after a one-time autumn application in 1998 of food waste compost (FWC). The treatments were FWC incorporated to a 10 cm depth at rates of 75, 150 and 300 dry t/ha, and with /without annual fertilization based on soil test results from the control (no compost application). For all three years, bulk density was decreased below the control (1.4 g/cc) by an average of 6 % at the two lower compost rates, and by an average of 23 % at the highest rate. At the two lower compost rates, air capacity (AC) and plant available water capacity (PAWC) were similar to the control in all three years, while at the highest rate, AC and PAWC were greater than the control by 70 % or more. Based on yield, the compost provided a fertilizer credit (CR) in 1999 of 20 % , 38 % and 85 % with increasing compost application rate. The CR stabilized at about 10 % in 2000 and 2001 for the two lower compost rates, while at the greatest rate the CR declined to 56 % in 2000 and 23 % in 2001. A one-time application of FWC to Brookston clay loam at 300 dry t/ha thus provided substantial improvements in soil physical quality and corn yield over a 3-year period.

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