Effects of Sunn Hemp Residue on N-Fertilizer Requirements of a Subsequent Sweet-Corn Crop. (S04-scholberg182812-Poster)

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Abstract:

Although use of green manure (GM) in cropping systems can enhance agricultural sustainability, precise information on their use is lacking. To gain more information on management of GM-based systems, a greenhouse study was conducted to mimic effects also being investigated in a separate field experiment. Soil and stemmy residue from Sunn Hemp was collected from the field. Residue was incorporated in the top 6 inches of the soil at a rate corresponding to 4 t dw/ha; each pot was then planted with sweet corn and fertilized at 5 inorganic N rates equivalent to 0, 67, 133, 200, and 267 kg/ha. Five conventional treatments with identical N rates but no residue were used as controls. Corn growth showed a quadratic response to N fertilization. Prior to tasseling, sunn hemp residue provided some benefits at high N-rates but reduced growth at the low N-rates. At final harvest, most differences between conventional and GM treatments had become non-significant. Final plant and ear production derived little or no benefit from residue. Because these results vary markedly from those obtained in the field, we conclude that some of the growth benefits from this GM may come from non-recalcitrant materials.

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