

## EFFECT OF ORGANIC AMENDMENTS TO THE SUBSOIL ON CROP YIELD AND SOIL PROPERTIES

by

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**Abstract.** Horse bedding (HB), sewage sludge (SS), and poultry manure (PM) were incorporated into the subsoil prior to the replacement of the topsoil in the reclamation of prime farmland following surface mining. The rates were 112, 35, and 25 Mg/ha, respectively, along with a control (C).

Yield of mixed grass/legume hay was significantly affected by each organic amendment with values of 10.1, 9.5, 8.2, and 7.4 Mg/ha for SS, PM, C, and HB, respectively. Corn yields were low in 1991 due to a late season drought, but they were excellent in 1992. Corn yields were in the same order as the hay, i.e. SS, PM, C, and HB and were 10.15, 9.59, 8.45, and 6.52 Mg/ha, respectively. The difference of each treatment from the control plot represents an N response. In the case of horse bedding, the high C/N ration apparently immobilized nitrogen, hence a lower yield. These yields corresponded to ear leaf N with values of 2.57, 2.38, 2.28, and 1.59 g/ha, respectively.

**Key Words:** prime farmland; reclamation; sewage sludge; poultry manure; horse bedding.

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