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THE VALUE OF SNIRT

The question is asked, “What is the value of organic matter as nutrient source?” To determine the economic value of nutrient loss with organic matter, a market value of a similar composition of a fertilizer source close to the soil organic matter can be used. The best reference source of nutrient value is organic fertilizer from animal manure (i.e., liquid or dry manure). To calculate the nutrient loss per one ton of soil lost to erosion, the following assumptions and calculations can be used: Let’s assume there are two soils types with organic matter contents of 3% and 5%. Also assume the organic matter nutrient value is \$0.10/lb (based on the nutrient value of a manure source, which can be higher depending on the hauling distance, application cost, etc.). We chose manure as a reference rather than commercial fertilizer, because liquid or dry manure contains the primary nutrients and other macro as well as micro nutrients. In addition, manure possesses properties that enhance the building of soil quality and improves soil organic matter.

The value for 3% OM = 60lb x \$0.10 = \$6 per ton of soil loss and for 5% OM = 100lb x \$0.10 = \$10 per ton of soil loss. These calculations are an estimate of the nutrient loss. The problem is, this is far short of the long-term of soil productivity. My grandfather has a saying on his wall that hangs in my office. “Man despite his artistic pretensions, his sophistication, and his many accomplishments – owes his existence to a six inch layer of topsoil and the fact that it rains.”

A quart of topsoil has more living being in it than all the human population of the earth today and all those who have perished in mankind’s history, some 12 billion bacteria, fungi, protozoa, etc. All these living beings process soil nutrients and live on the energy of organic carbon and provide plants with the nutrients they need. This organic matter has far greater ability to store water than the mineral components of the soil.

A recent study done in Southern Minnesota and Northern Iowa collected and evaluated the value of Snirt. The snirt in the roadside ditches amounted to a low of 1.6 tons per acre to a high of 32.6 tons per acre. The average of six ditches evaluated contained over \$50 per acre of nitrogen, phosphorus and potassium. This \$50 per acre is a 4 to 5 fold under estimation of the true loss because of the accompanying loss of organic matter. Snirt (snow and dirt) in the ditches is not a sustainable soil loss for our children and grandchildren.

The loss of organic matter will lead to an increase in input cost of nutrients applied as chemical fertilizer to mitigate or manage the loss of soil productivity.

The economic value of nutrients lost due to soil erosion is only a small indicator of the problem with far reaching effects on soil productivity. Thus, there is continued need and an on-going effort for comprehensive soil conservation measures to improve and sustain soil health and productivity. In addition to the immediate cost of fertility loss from soil erosion, the long-term cost to society in terms water quality and other environmental risks can be significant.

Paul C Hay, Extension Educator

University of Nebraska-Lincoln Extension in Gage County • 1115 West Scott Street, Beatrice NE 68310

(402) 223-1384 • FAX: (402) 223-1370 • email: phay1@unl.edu

