Unique Erosion Study Leads to Appraisal of Cropland Erosion in Maine

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Soil conservationists have long known that Aroostook County, Maine has one of the worst erosion problems in New England. A short growing season, farms with small cropland acreage, long distance to markets, and a single cash-crop economy have contributed to the problem.

Highly erodible soils on rolling ridges add significantly to the county's erosion potential. Intense summer rainstorms account for about 70% of the yearly sheet and rill erosion.

A Soil Conservation Service (SCS) soil scientist, working through the Intergovernmental Personnel Act with the Northern Maine Regional Planning Commission, conducted an erosion inventory on all cropland within a nine-town, potato-farming area of the county. The area had been designated, under section 208 of the Federal Water Pollution Control Act, as having substantial water quality problems.

An Abney level was used in determining average slope gradients, and slope length was measured on aerial photographs. Cropping and management systems of farmers were estimated and any conservation practices that would reduce soil erosion were noted. Rainfall and soil erodibility information also was determined. Values for these factors were entered into the Universal Soil Loss Equation and long-term average soil loss was computed. The soil loss, expressed in tons per acre per year, was placed in one of five categories and delineated on aerial photographs. The five categories delineated were, 0 to 3, 3 to 10, 10 to 25, 25 to 50, and 50 to 100 tons per acre per year. Soil loss was computed on fields or portions of fields as small as 10 acres.

The soil loss inventory estimated the average soil loss on 103,000 acres of cropland surveyed to be 7.6 tons per acre per year. Tolerable soil loss for most northern Maine soils is determined by SCS to be 3 tons per acre per year. Thus, soil loss in the nine-town area is approximately 2.5 times the suggested maximum.

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