USDA-CSREES 2007 National Water Quality Conference

Steep Slopes and Narrow Valleys - Should We Be Farming Here?

UW-Discovery Farms and the USGS have collected water samples continuously for five years on two headwater streams in Western Wisconsin. One station monitors a 430-acre watershed with 150 acres of cropland, 250 acres woodland, and 30 acres of pasture. The second watershed has 215-acres with 39 acres cropland and pasture, 107 acres woodland, and 69 acres in CRP and CREP. Annual sediment losses in the larger/ag basin have averaged approximately 400 pounds per acre. Sediment losses during 2002 and 2004 averaged 635 lbs, while 2003 and 2005 sediment losses averaged 165 lbs. In 2002 and 2004 the sediment loads were high because of one large rain event (>3") which produced the majority of the load. These events occurred in early June when soils were moist and there was little vegetative cover. Each event generated only 6% of the annual runoff volume but was responsible for 80% of the annual sediment losses. Measured soil losses were compared to those predicted using the Wisconsin SNAP-Plus model. Predicted average soil losses were greater than 1.5 tons per acre (for cropped fields over the rotation) in the north watershed. The fields have an established tolerable soil loss limit ("T") that ranges between three and five tons per acre. It is evident that this farm looses much less sediment than what is considered tolerable, as well as what the model predicts. These data indicate that the practices implemented by the producer minimize soil loss. These practices include several small dams at the base of steep-wooded land which slows and reduces the water flow. He has grassed waterways in areas of concentrated flow and has adopted a no-till planting system which improves infiltration and reduces soil erosion. These practices, as well as many others, help this farmer maintain his profitability while reducing potential negative environmental impacts.

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