CORE 4 4 MORE

Conservation Tillage – Water and Air Quality Benefits

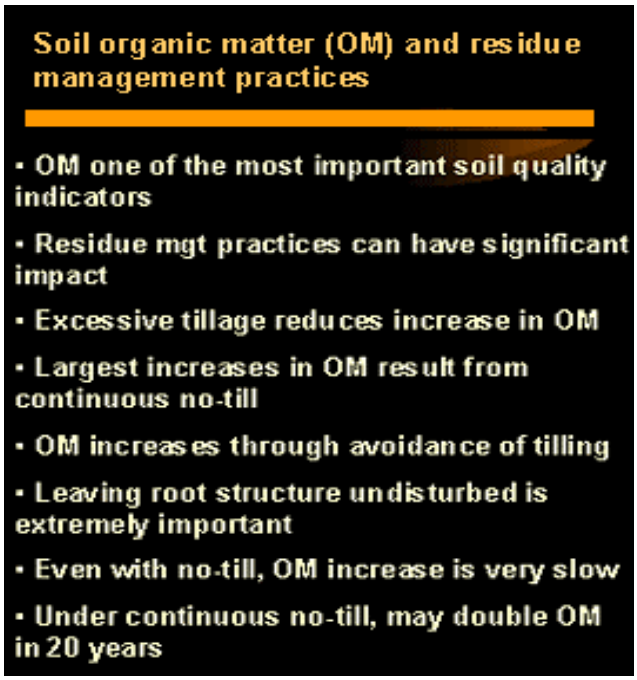

Figure 13

Sediment is the number one non-point source pollutant in the United States (Figure 14). Traditional tillage practices completely expose the soil surface, potentially leading to increased rates of erosion and runoff containing significant amounts of sediment. Nutrients, such as phosphorus and nitrogen, and pesticides and herbicides can also be transported off a farmer's field by dissolving in runoff or attaching to soil particles that are eroded and carried away with runoff. But even clean sediment that builds up excessively in streams can cause physical problems such as degraded stream habitats and fewer fish, loss of pool depth, increased expense of water filtration, and suffocation of eggs and young in spawning beds.

Because tillage and residue management practices significantly reduce soil erosion and increase infiltration, the amount of sediment leaving the field and reaching surface waters is greatly reduced. Conservation tillage practices therefore limit water quality problems and the potential threats to fish, benthic organisms, and aquatic plants.

Traditional tillage practices also expose the soil surface to wind erosion. Small particulate matter, or dust from these tillage operations can be blown off the field. These very fine particles have been identified as a potential health hazard. No-till/strip-till, ridge-till, and mulch-till practices may provide sufficient residue cover to reduce wind erosion and dust production during these operations. Under low residue producing crops, erosion by wind can occur and could present serious problems in all three residue management practices. Cover crops, where practical, can be utilized to increase surface residue cover. Other supporting practices such as Cross Wind Trap Strips, Herbaceous Wind Barriers, and Field Windbreaks can be used to further reduce the wind erosion hazard.

Figure 14