Conservation Tillage Encyclopedia Article

Conservation Tillage

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Conservation Tillage

Conservation tillage is any **tilth** sequence that reduces loss of **soil** or water in farmland. It is often a form of non-inversion tillage that retains significant amounts of plant residues on the surface. Thirty percent of the soil surface must be covered with plant residues at crop planting time to qualify as conservation tillage under the Conservation Technology Information Center definition. Other forms of conservation tillage include ridge tillage, rough plowing, and tillage that incorporates plant residues in the top few inches of soil.

A number of implements for primary tillage are used to retain all or a part of the residues from the previous crop on the soil surface. These include machines that fracture the soil, such as chisel plows, combination chisel plows, disk harrows, field cultivators, undercutters, and strip tillage machines. In a no-till system, the soil is not disturbed before planting. Most tillage systems that employ the moldboard plow are not considered conservation tillage because the moldboard plow leaves only a small amount of residue on the soil surface (0–10%).

When compared with conventional tillage (moldboard plow with no residue on the surface), various benefits from conservation tillage have been reported. Chief among the benefits are reduced wind and water **erosion** and improved **water conservation**. Erosion reductions from 50–90% as compared with conventional tillage are common. Conservation tillage often relies on herbicides to help control weeds and may require little or no post-planting cultivation for control of weeds in row crops. Depending on the management system used, **herbicide** amounts may or may not be greater than the amounts used on conventionally tilled land. Yields from conservation tillage, particularly corn, may be greater or smaller than from conventional tilled soil. Crop yield problems are most frequent on wet soils in the northern United States. Costs of tillage may be lower, but not always, from conservation tillage as compared with conventional.

Resources

Books

Little, C. E. *Green Fields Forever: The Conservation Tillage Revolution in America*. Covelo, CA: Island Press, 1987.