

**Project/Technology Name:** Conservation tillage

**What it is:** Conservation tillage is an alternative approach to traditional plowing that reduces the amount of tilling, lowering costs and slowing land degradation without sacrificing yield. It includes several crop production systems, like no-till, ridge-till, strip-till, mulch-till, among many others.

**How it works:**

**No-Till:** The soil and crop residue is left undisturbed prior to planting, which is done in a narrow seedbed or slot created by the planter or drill. Weeds are controlled mainly with pesticides.

**Mulch-Till:** This full-width tillage system usually includes only one or two tillage passes. After planting, at least a third of the surface should remain covered in residue.

**Ridge-Till:** 4-6" high ridges are formed at cultivation. Planters using specialized attachments scrape off the top two inches of the ridge before placing the seed in the ground.

**Strip-Till:** No more than a third of the row width is disturbed with a coulter, residue manager or specialized shank that creates a strip. If shanks are used, nutrients may be injected at the same time.

**What it does:** All these methods use little or no tillage and leave crop mulch covering the ground between growing seasons to provide a protective cover. This cover holds the soil in place and minimizes runoff, dramatically decreasing erosion and increasing the water-holding capacity of the soil. By leaving crop residue undisturbed for as long as possible, biological activity in the soil can feed on the crop residue, increasing organic matter, which leads to improved soil quality and productivity. The use of conservation tillage also allows earthworms and other living organisms in the soil to thrive, contributing to soil structure and quality.

**Results/Effectiveness:** Soil erosion can be reduced by 90% compared to intensive tillage. Farmers can use less fuel and save on other costs, but the applicability of conservation farming is different for each situation, depending on the type of crop, soil, and weather, among many different factors.

More information can be found at:

[http://www.conservationinformation.org/?action=learningcenter\\_core4\\_whatscore4](http://www.conservationinformation.org/?action=learningcenter_core4_whatscore4)

<http://www.cals.ncsu.edu/sustainable/peet/tillage/tillage.html>

<http://www.icarda.org/HomePageStory/NewTechnologies4CAsia.htm>



No-tillage direct drill equipment (left: planting legumes on wheat stubble, leaving most of the straw on the soil surface; right: locally made equipment from northern Kazakhstan).