

## Section 10 of 22 (10a - Benefits of Conservation Tillage)

### Environmental:

- Reduces soil erosion from both water and wind (90% erosion reduction can be expected when using a no-till instead of intensive tillage system).
- Increases organic matter (each tillage trip oxidizes some organic matter; research shows continuous no-till can increase organic matter in the top 2 inches of soil about 0.1% each year).
- Improves water quality (when combined with irrigation water management, crop nutrient management, integrated pest management, conservation crop rotation, in integrated system, conservation tillage plays an important role in improving both runoff to streams, rivers, and lakes as well as water that finds its way into aquifers).
- Improves wildlife habitat (the crop's residue provides food and shelter. In addition, if combined with other needed habitat, such as grassy cover and woody areas, wildlife may increase significantly).
- Other benefits include reduced soil compaction, utilization of marginal land, some harvesting advantages, and conservation compliance.

Linda Scheffe, 2008

### Economic:

- Yields are good, if not better, than reduced or intensive tillage system when managed properly.
- Optimizes soil moisture (improved infiltration and increased organic matter are especially important on droughty soils and may help the crop through a persistent dry period. Tillage reduces available moisture by about 1/2" per trip).
- Saves time (On a 1000 acre farm, an additional 100 hours are needed for every pass (example based on 18' disk, 160 hp FWD). Many growers take advantage of the time savings by exploring other "opportunities").
- Reduces fuel consumption (no-till can reduce fuel use by 3.5 gallons/acre compared to intensive tillage).
- Reduces overall production costs (NMSU reports that irrigated wheat yields in Clovis are comparable between conventional and conservation tillage, but production costs for conservation tillage are lower by as much as \$50 per acre).
- Reduces machinery wear (less machinery means fewer pieces need to be replaced. Economists report this amounts to a \$5/acre reduction in costs).

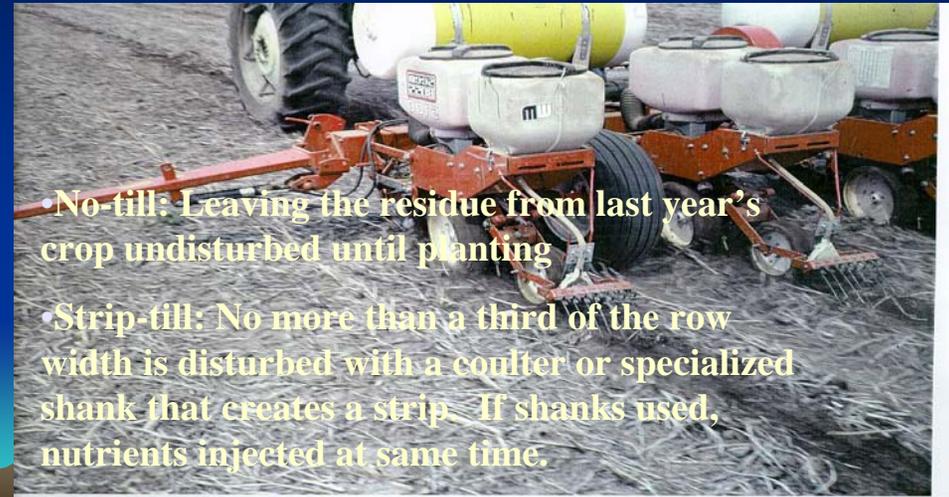
## Residue Management, Mulch-Till



This full-width tillage system usually only includes one or two tillage passes.

Yet after planting, at least a third of the surface remains covered with residue.

## Residue Management, No-Till & Strip-Till



• No-till: Leaving the residue from last year's crop undisturbed until planting

• Strip-till: No more than a third of the row width is disturbed with a coulters or specialized shank that creates a strip. If shanks used, nutrients injected at same time.

Agronomy Tech Note 76 (<http://www.nm.nrcs.usda.gov/technical/handbooks/iwm/nmiwm.html>)