Yetter FARM EQUIPMENT

Leading Edge

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Weather a Dry Year With Conservation Tillage

Strip-till and no-till help conserve water in tough conditions

Strip-till conserves moisture by keeping over 60% of the ground covered with residue.

As the summer dry spell drags on in many parts of the country, producers who have chosen strip-till or no-till systems for their farms will begin to see the advantages of the moisture-conserving residue left on their soil's surface. Once other benefits are factored in, such as healthy soils and decreased input costs, conservation tillage begins to look like a good choice—especially in years with little rain.

Benefits of residue in dry weather

Conservation tillage leaves more erosion-preventing and moisture-conserving residue on the soil surface. True no-till systems aim to leave 100% coverage, and many strip-till systems leave 50% coverage or more. More traditional tillage methods leave less coverage.

University of Nebraska-Lincoln Extension Educator Steve Melvin notes that no-till crops may need three to five fewer inches of rain or irrigation water than conventional tillage crops.[1] This is due to the increased infiltration and reduced evaporation of water thanks to the residue cover. In strip-till operations, the tilled strips do dry earlier in the spring, but the residue on the un-tilled portions does hold water later in the growing season. In Texas, where drought conditions are a perennial problem, trials have shown the benefits of strip-till. At Stiles Farm in Central Texas, trials comparing no-till, strip-till, and conventional-till were conducted on cotton, corn, and grain sorghum. The results showed that strip-till "either maintained or improved crops and/or … increased net income from the crops—after factoring in tillage trips, planting, spraying, and harvesting costs at standard rates for the region."[2]

> With conservation tillage, erosion can be reduced as much as 90% compared to intensive conventional tillage.[3]
> *- High Plains/Midwest Ag Journal*

Erosion prevention is another benefit of conservation tillage systems. Soils left exposed to the elements with less than 30% coverage—the amount of residue required to qualify as conservation tillage—could experience up to 50% more erosion. Erosion-susceptible soil is a concern because this soil is more likely to release carbon dioxide into the air, which has two major drawbacks. One is obviously environmental; the other has to do with the health of the soil. Carbon retained in soils leads to soil with a high organic matter content, which is closely associated with healthy soils.

In addition to the benefits no-till and strip-till systems provide for the soil, these systems also require fewer passes through the field, saving fuel, labor, and equipment. Because higher fuel prices are likely here to stay, fewer passes have an obvious benefit over the economic hardships that accompany a conventional tillage system that requires several passes worth of fuel, labor, and equipment.

Overcoming reduced tillage challenges

Over the past 20 years, strip-till and no-till agriculture equipment manufacturers have designed equipment for these farming practices. Equipment such as vertical tillage attachments, floating residue managers, fertilizer equipment for planters and side-dress, and more can help farmers overcome the challenges that come with conservation tillage practices, such as the difficulties of consistent seed and/or fertilizer placement in residue.

Strip-till finds the right balance

By removing residue from only the soil that will become the seedbed, producers are able to retain the benefits of

The perfect seed zone: clean, residue-free strips warm up quicker in the spring and allow for earlier seed emergence.

residue coverage and add the advantages of a warmer seedbed.

The soil temperature advantage with strip-till compared with no-till allows faster plant emergence and development. Earlier plant establishment normally increases crop yield and quality by extending the growth timeframe. Earlier emergence and stand establishment also promote quicker crop canopy reducing mid- and late-season weed seed germination and providing a better chance for young plants to establish and withstand disease and insect pressure with minimal damage.

While strip-till will require an investment in new equipment, the ability to adapt slowly by starting with 6-, 8- or 12-row toolbars, retrofitted from existing conventional tillage equipment, helps offset those costs. Typical strip-till setups include coulter blades, row cleaners, tillage shanks, berm-building disks, and packing wheels or conditioning baskets. Some strip-till equipment designs include paired coulters or a large disk without a tillage shank.

Because precision placement of seed and fertilizer is very important in strip-till systems, producers should consider GPS equipment that guides steering and placement. It will likely soon result in a return on investment.

No-till, strip-till have the potential to produce high yields

Adjustability in a strip-till bar, such as the Yetter Maverick HR Plus, is key to being able to perform in varying conditions.

Conservation tillage systems differ from conventional tillage systems in one other significant arena: they require more management and contingency plans in the event of crunched fall labor schedules or uncooperative weather. However, this management can generally be done at a lower cost than the labor and equipment required for conventional tillage systems. And with proper management, these conservation tillage systems can achieve high yields.

With benefits like erosion prevention, moisture conservation, and lower input costs, conservation tillage will continue to grow in popularity. Especially in dry years like this, producers using no-till or strip-till methods will be pleased with their decision.

Endnotes

1 "No-till can save water, pumping cost," High Plains/Midwest Ag Journal, http://www.hpj.com/archives/2009/aug09/aug3/0708UNLnotillsaveswaterko.cfm, accessed July 10, 2012.

2 "Better tilling for those willing," High Plains/Midwest Ag Journal, http://www.hpj.com/archives/2009/may09/may11/Bettertillingforthosewillin.cfm, accessed July 10, 2012.

3 Ibid.

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Yetter Manufacturing Co., Inc. | 109 S. McDonough | Colchester, Illinois 62326
Phone: 800-447-5777 | FAX: 309-776-3222 | www.yetterco.com | E-mail:info@yetterco.com