

The Evolution of Vertical Tillage

Traditional practice can benefit your modern operation

Vertical tillage has grown in popularity in recent years, but this tillage practice has evolved to provide the benefits needed for your operation since it was first introduced.

In vertical tillage, soil is lightly tilled and residue is sized, with a portion of the residue being mixed into the upper few inches of soil while still leaving a considerable percentage. This provides the dual benefits of retaining residue to prevent erosion, while helping warm up the planting zone and dry out the soil, allowing you to get into the field faster in the spring. Mixing residue into the soil also facilitates residue breakdown and decomposition, an especially important consideration when dealing with today's tough corn stalks.



Vertical tillage can offer a variety of benefits, from residue management, to seedbed uniformity.

Other benefits include:

- Creating a more uniform seedbed by leveling the field and filling in tracks left by combine and sprayer traffic.
- Incorporating fertilizer and herbicide.
- Low cost of equipment and fuel savings.
- High operating speeds to cover acres quickly.

Start with the right equipment

To obtain the full benefits of vertical tillage, you'll need the right tools and equipment. Vertical tillage loosens up the soil gently in comparison to other tillage methods and will generally only break up the top 2 to 4 inches. Kevan Kling-

berg with the University of Wisconsin Extension and Discover Farms Project said, "conservative and shallow are key phrases when considering the use of these [vertical tillage] implements on cropland with high soil-loss potential."

Brett Roberts, Illinois state agronomist, stated it simply: "Vertical tillage isn't a completely new concept—it's simply a new generation of secondary tillage implements."¹ These implements are made for shallow vertical tillage and have progressed away from the use of straight shanks. The two most common types of vertical tillage tools are made with either wavy blades or concave blades. *No Till Farmer* pointed out that "The degree of curvature and amount of fluting on the coulters varies by manufacturer, as does the angle of the gangs."²

Iowa Farmer Today summed up what to look for when purchasing a vertical tillage attachment: "The curvature of the blades differ among implements but vertical-tillage coulters should create low soil disturbance, have no horizontal tillage that creates root restricting layers and have cutting edges that eventually become dull."³

Modern technology with a low cost

Thankfully, vertical tillage is a practice that can be implemented into your operation with little cost. Unused toolbars, cultivators, or chisel plows can be retrofitted using vertical tillage attachments, making them useful once again.



Mount Yetter vertical tillage attachments onto existing chisel plows or field cultivators for a low-cost way to get started with vertical tillage.

Another factor that keeps costs down is that because vertical tillage is typically less aggressive than other forms of tillage, the tools require low horse power and operate at high speeds of about 6-10 mph. This means work can be accomplished quickly while using relatively little fuel.

Don't forget the big picture

It is important to remember that vertical tillage is just one part of an overall system. Though it can have amazing benefits when properly implemented, there are many other factors that can affect your fields and yields.

If you are unsure about whether or not to use vertical tillage as a part of your operation, it may be beneficial to do some further research. There are many resources right at your fingertips. Attend field days to see the equipment running, and take the time to talk to farmers who use vertical tillage for their operations. What have they had success with? Where have they had difficulties? This should help start you on the right path.



Vertical tillage may be used ahead of the planter to aid in soil warm-up.

Endnotes

- 1 <http://harvestingthepotential.org/wp-content/uploads/July2011-IllinoisPrairieFarmer.pdf>
- 2 <http://www.no-tillfarmer.com/pages/News---Vertical-Tillage-Should-Move-Little-Soil.php>
- 3 http://www.iowafarmertoday.com/news/new_products/vertical-tillage---farmers-say-practice-helps-manage-stalks/article_49ca9c36-9d60-11e2-870f-0019bb2963f4.html

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