

SO WHAT IS VERTICAL TILLAGE ANYWAY?

With the late harvest season we dealt with this fall, there was a real crunch for some people to get their trash management and other fall work completed. Many producers who like to heavy harrow everything, possibly apply granular herbicides, or do post-harvest spraying, found themselves running out of time to get all these jobs done at the end of a very busy and prolonged harvest season. With many fall jobs left undone, some producers will turn to vertical tillage machines to get their residue management done in the spring, as they have a reputation for handling tough straw better than heavy harrows. But if you are in the market for a vertical tillage machine right now, you are very likely confused, because there are as many definitions of what constitutes vertical tillage as there are manufacturers making them. As DeAnn Presley (Kansas State University soil specialist) said “the lines are blurry when it comes to what constitutes vertical tillage, whether it be with products available in the market today or the degree of soil movement deemed acceptable.”

Some manufacturers insist that there should be no horizontal movement of dirt. The original “vertical tillage” machine was designed to break up the layers of compaction created by traditional tillage while avoiding creating a “stratification layer” in the seedbed. However, these machines had straight coulters or no blades at all, which did not move enough soil or bury the desired amount of residue that some farmers required in their operations. This led to a new generation of machines that incorporated rippled coulters or slightly concave blades.

Today, we seem to be at the point where the definition of “vertical tillage” covers any piece of equipment that uses blades as the primary soil engaging tool, has the ability to be operated at high speeds and employs leveling tools such as harrows and baskets. Some of these machines (which would be more appropriately called high speed discs) move a lot of dirt horizontally and are very far removed from the original concept of vertical tillage. But that doesn’t mean they are not an effective tool for your farm. It’s a matter of knowing what works best for the job you are trying to do.



(On the left is a “seedbed conditioner” from McFarlane Manufacturing – arguably the builder of the first vertical tillage machine – on the right is a Salford 1100, featuring the contoured coulters, harrows and baskets that are commonly associated with vertical tillage units today)

The key to acquiring a vertical tillage unit that you are happy with is having a firm understanding of what you are trying to accomplish. Are you trying to condition your soil or manage your residue? In these days of concerns with herbicide resistance are you looking for a machine that can be used to apply and incorporate granular herbicides? You may even be looking for an option that will allow you to combine fall trash management with the ability to do a shallow working that will impact winter annual weed populations while leaving the seedbed relatively intact. There are options out there that cover all of these scenarios as well as many others I haven’t mentioned.

Given the preponderance of operations on the prairies that practice some form of minimum tillage today, the priority should be to concentrate on residue management. The ideal machine could size straw under a variety of conditions – wet or dry. It would also have the flexibility to be able to change the angle of the discs to suite the job being done. The same machine needs to be able to size straw, bury enough residue that it can’t build up to be a problem at seeding time and also be able to move enough dirt horizontally that granular herbicides have sufficient soil contact that they are protected from the environment and not lost to gassing off or UV degradation from sunlight.

In summary, I would say the key to “understanding “ vertical tillage is to ignore the noise created by competing manufacturers about what constitutes vertical tillage and concentrate on what machine fits best with your present management practices and has the flexibility to do more than one job as your needs evolve.