The original definition of vertical tillage when it was first introduced in the mid 1990s involved tillage ahead of the planting equipment that did not create stratification — or a horizontal density layer — under the planter opener that would interfere with root growth. A stratification layer can be described as a “scoured” layer of soil underneath the planter that has high density soil particles that interfere with early root growth. Soil density layers are created when a tillage tool is pulled through the ground. The soil density layer created is equal to the contact area at the bottom of the tool. To farm in a vertical format in which water and nutrients move up and down in the soil profile, it is essential to first remove all horizontal stratification layers from the past and not create new changes in soil density. The McFarlane SPR1000 Seedbed Conditioner was the first tool used to accomplish this job and was arguably deemed the first vertical tillage tool.

What Vertical Tillage isn’t is a disc with 2 gangs of concave blades set at 18 degree angles that will contact 100% of the soil. While these machines may be effective for residue management, they are not vertical tillage.

VT discrepancies: These discrepancies come from the fact that many manufacturers never understood the concept of vertical tillage before designing their machine. Early vertical tillage machines had straight coulters or no blades at all, which created little or no soil density layers, but also did not move enough soil or bury the desired amount of residue. As designs progressed, many machines used a rippled coulter or a slightly concave blade, which improved residue handling while maintaining a limited soil contact area.

For many growers it becomes a trade-off between residue management and vertical tillage. Many of the articles written about vertical tillage have actually been about residue management. Many new products have entered the market in recent years, and some are conventional tillage machines that were converted to better manage residue. Unfortunately, these products have been labeled as vertical tillage tools rather than residue management machines. The term “vertical tillage” became vastly overused. A standard angle disc is not a vertical tillage machine no matter how one tries to disguise it. The old adage holds true, “If it looks like a duck, walks like a duck and quacks like a duck, it’s a duck.” In this case “If it looks like a disc, it’s a disc.”

The McFarlane SPR 1000 vertical tillage seedbed conditioner was arguably the first vertical tillage tool. It was designed to do light tillage without creating a stratification layer. However, some customers required a machine capable of moving more soil and creating a looser seedbed. This resulted in the invention of the Reel Disk in 2007 (shown here). This machine added a single gang of low concavity blades with low disc angle to provide the option of attaining vertical tillage at the lower 5 and 7.5 degree disc angles while still offering angle adjustment up to 13 degrees for circumstances where more leveling is needed (i.e. deep combine tracks, shallow ruts, etc.).