

Strip Till

Area motorist may be seeing a different type of tillage being performed on farm fields in the county. Albert Maag, Putnam County SWCD technician recently acquired a USDA-NRCS Conservation Innovation Grant (CIG) to investigate using a strip-tiller to incorporate fall fertilizer. Five demonstration sites consisting of 40 acres each were completed last week. The demonstrations are located around Ottawa (2), Glandorf, Kalida, and Pandora. Blanchard Valley Coop is assisting with the equipment for the demonstrations. The goal of the demonstration plots are to see if strip tillage with fall fertilizer application is a feasible method of producing no-till corn while reducing nutrient runoff, especially phosphorus movement to surface water.

The plots used an Orthman® 1 trip strip tiller to place banded fertilizer 7 inches deep in a 10-inch tilled strip. In the spring, farmers would plant on the tilled strips in what is considered a stale seed bed. The advantage of this system is that the fertilizer is incorporated into the root zone and temporarily tied up until next spring when corn is planted in the row, preventing nutrient losses. The Orthman® 1 trip machine is 20 feet wide with 8 shanks and used a 365 hp tractor to perform the tillage.

A major objective of the CIG grant was to get five farmers with 40 acres each or 200 acres total to try strip tillage in 2012. In 2013, the acreage will be increased to 80 acres each or 400 acres. Dry fertilizer was applied this fall based on each field's estimated crop yields (180-240 bushel). Each farm had two comparisons: one plot with strip tillage and one plot without. Individual farmers compared the strip till equipment to their existing tillage system which included either Turbo-till®, disking, or straight no-till. The fertilizer was applied to all the plots and was either strip tilled 7 inches deep or broadcast on the other plots. These fields will be harvested in 2013 to see if yield differences occurred.

For conservation purposes, strip tillage is considered a minimum tillage system that leaves residue on the soil surface. Only a small portion of the soil is tilled or disturbed (8-10 inches) which helps to aerate, warm up, and dry out and prepare a good seedbed. Strip tillage improves seed to soil contact compared to no-till (Mike Petersen, 2011). The remaining undisturbed soil improves water infiltration and reduces soil erosion by slowing down water runoff. This system is a compromise between strict no-till and conventional tillage.

Two issues with strip till are the high horsepower requirements and timely field applications. Pulling a 6 or 8 row shank through the soil requires a minimum of 25 to 30 horsepower per shank to as much as 40 horsepower depending upon soil conditions (Mike Petersen, 2011). Most farmers prefer to do strip tilling in the fall when soil conditions tend to be drier, but in wet years or during a late harvest, strip tilling may have to be delayed until winter or early spring. Trying to strip till under wet soil conditions promotes soil compaction. Strip tilling on frozen soils may be difficult and spring strip tillage may interfere with planting. With any tillage system, there are always challenges to making the system work every single year.