FALL TILLAGE AFTER A LATE; WET HARVEST

Excessive amounts of rain in N W Minnesota from planting until after normal harvest have caused most farmers difficult times. Now that most farmers have finished harvest and are now finishing up with fall tillage; they are asking what will spring planting and crop conditions be like next year? Hopefully this information by Jodi DeJong and Jeff Coulter of the U M Extension will be of help!

Soil compaction and smearing is a distinct concern when pulling implements through or driving on wet soil. Residue management is another concern. Fields should dry out quickly next spring for quick planting. To limit soil damage and to help with soil warm-up in the spring, keep these strategies in mind.

* Fill in ruts

* Keep tillage shallow

* Properly prepare equipment

* Plan ahead for spring

FILL IN RUTS

If there are ruts in the field from fall harvest, the first instinct is to aggressively fill them in. Soil structure is your soil's number one defense against soil compaction, and tillage destroys structure. To maintain the structure your soil has, just fill in the ruts with light tillage by running equipment at an angle. You may need to 2 to 3 passes to accomplish this . These areas will not yield as well as the non rutted area, but there is not much you can do to change this.

KEEP TILLAGE SHALLOW

A light tillage pass like disking is useful for incorporating residue and introducing air into the soil. If the soil is wet, try to operate this shallow tillage equipment no deeper than 3 inches. Another option for wet soils is vertical tillage. Vertical tillage runs 1 to 3 inches deep and uses straight or wavy coutlers, a harrow, and rolling basket. Vertical tillage fluffs up the remaining residue with shallow penetration and minimal inversion of the soil. Lifting wet soils can create clods. If using a chisel plow or disk ripper, shallow up the shanks, and use narrow points. The wings have a higher potential for smearing the soil. Twisted or parabolic shanks will create the most soil movement and can create soil clods. Clods in themselves are not bad going into winter. Next spring they will leave more surface for water infiltration. However, fields with clods will likely need an extra tillage pass in the spring to create an adequate seed bed for goo seed to soil contact.

Another considerations is "frost tillage" This phrase was coined by van Esand Schindelbeck in 1993. He conducted research in New York to look at tillage on a slightly frozen soil. The premise was that as the surface of the soil freezes, it pulls or wicks moisture from the lower layers of soil, making them drier. When compared to no frost, they found that when the frost layer was .5 to 1 inches, the soil better supported the weight of the equipment when chisel plowing to a depth of 8 inches, that the soil below the frost layer was drier and tilled easily, and that corn yields were not affected. Due to the frozen plates of soil created with frost tillage, they observed that rain infiltrated quicker in the tilled soil versus a soil without tillage. These plates quickly diminished as they thawed.

While Minnesota usually does not have shallow frost cycles throughout the winter, there are generally one to two freeze-thaw cycles each fall. In the fall of 2007, the U M ran a strip tiller through 1.5 inches of frost and the machine worked very well. However, due to horsepower limitations, tillage may not be practical when the frost depth is much deeper. This provided an opportunity for extending the fall tillage window.

PROPERLY PREPARE EQUIPMENT

Wet soils have a high potential for soil compaction. To limit soil compaction, keep axle loads under 10 tons and properly maintain air pressure in the tire. Not only does this help the soil, but it will help your tractor run more efficiently and with less slippage. On wet soils, use the lightest tractor that can still get the job done. Check over equipment and replace worn parts, sharpen blades and adjust down pressure for each field's soil conditions. These small details are more important in extreme moisture conditions.

PLAN AHEAD FOR SPRING

Planting soybeans may be the best option in fields with heavy residue. They are very adaptive to higher residue level, are not as soil temperature sensitive as corn, and grow well in no till situations. Corn on corn has more residue to manage and needs additional nitrogen fertilizer than corn following soybeans. Row cleaners are a must for corn following corn in order to obtain uniform seeding depth and facilitate warming of the soil over the seed. For corn following corn where high quantities of surface residue are present, consider a starter fertilizer. Wheat is another option for heavy residue fields. However, if you are planting corn, make sure to choose a variety that minimizes the potential for diseases. For more information, or to have questions answered, contact Jodi DeJong by e mail at dejon003@umn.edu.

Source: Jodi DeJong-Hughes, U M Extension Crops Educator.