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An Innovative Way of Seeding The Tiger / Rapid Way

There is a lot of discussion within the farming community about different seeding approaches and strategies and the options are from no-till to minimum-till or mulch-till via strip till to conventional tillage with the plow. The discussion involves the tillage aspect itself, dealing with higher and different kinds of crop residue. It also involves application and placement of nutrients and the seeding of cover or intercrops. The placement and availability of the main macro nutrients like N,P,K and S have been playing a more significant role in successful crop development over the past few years because of nutrient depletion, less intake out of the air and higher yields.

Cover crops or intercrops planted with the main crop are a significant point of the discussion as well, especially in minimum till systems with the focus on soil health and soil sustainability.

We have investigated and researched these aspects of innovative plant production and want to present our approach to the discussion.

Our approach for planting drilled crops like wheat, canola, soybeans and alfalfa involves the following 2 steps:

1. one tillage pass with the **Horsch Tiger** after the previous crop has been harvested either in fall or in spring
2. plant crop with a **Vaderstad Rapid** drill, band needed fertilizer and possibly plant small seeded cover crops like alfalfa, red clover, Tillage Radish and others at the same time



In high residue conditions or in situations where the first tillage pass was done under wet conditions a second tillage pass with a cultivator, a disc, Rubin, Catros or a similar vertical tillage tool before planting could improve seedbed conditions to increase rate and time of crop emergence.

We believe that any kind of tillage ahead of planting any crop does significantly improve crop development and stand establishment. This is more critical in less ideal planting and growing conditions. We have learned, that straight notill under ideal conditions at and past planting does work perfectly. Once we are out of this perfect window some kind of tillage becomes the tool to use. We wanted to achieve the following by using the Tiger and the Rapid:

- band all required fertilizer other than nitrogen at planting
- use conservation till practices with 30% residue cover
- use and integrate cover crops into the crop rotation
- keep the system simple and straight forward and minimize work passes

The Horsch Tiger MT



The Tiger MT is a primary tillage tool for use in spring and fall with the ability to do secondary or finishing tillage. The machine's principal is based on 4 work zones:

1. 2 rows of discs at the front to size residue and blend residue with soil
2. 2 rows of shanks that work deeper than the discs – this is to eliminate hard pan and do some soil fracturing below the hard pan zone
3. 1 row of leveling discs to level the seedbed to leave it without ridges
4. tire packer with cast wheels to do further surface leveling and soil consolidation in strips, to leave area for water infiltration



The Tiger can incorporate and blend high amounts of residue in one tillage pass and leaves the ground ready for planting with the Rapid drill. Working depth can be set between 3 and 8”.

The 2 rows of tines are very important. Plain disc tillage tools have become very popular over the past few years but we have to remember what our fathers already told us: the disc can create a hard pan similar to the plow hard pan but in a shallower depth which makes it a serious yield limiting factor. It is very important to break this hard pan after a few years of disc usage in mintill or mulch till situations. Cultivators with wide sweeps can create the same situation if soil conditions are not right.

Do the hard pan test: Take your spade, dig a hole 8” deep and take your pocket knife, jam it into the sidewall and slice through the profile from bottom up. At 3 -5 “ depth you will notice a higher resistance: you found your disc or eventually your cultivator hard pan! This hard pan restricts root development and nutrient and water flow and needs to be eliminated.

The Vaderstad Rapid RDA C

The Rapid drill is made in Sweden and is the most sold conservation drill in Europe with about 20000 drills sold. The drill is basically a multi purpose tool with the following work zones and functions from front to back:

1. two rows of discs for soil tillage, seed bed leveling, residue sizing and soil blending
2. a leveling cross board that does further seed bed leveling and residue spreading
3. 1 row of discs for fertilizer placement in-between the seed rows spaced on 10”
4. 2 rows of seed disc for seed placement in 5” row spacing
5. Biodrill small seed broadcast tool bar in front of the packer wheels
6. Rubber packer wheels for opener depth control, seed row closing and soil consolidation
7. coil tine harrow for finishing the seed bed and leaving a layer of loose and crumbly soil on the surface

The Vaderstad Rapid drill can do the following tasks in one single trip:

1. seed bed tillage and leveling – produce fine tilled soil
2. precise 3 product placement: fertilizer, main seed, small seed
3. seed bed finishing with consolidation and harrowing



This Rapid drill concept opens a lot of opportunities and options we did not have before and is creating new innovative ways to plant crops and place fertilizer:

1. plant crops in 5 “ narrow rows for best plant distribution and optimal plant space distribution
2. Plant crops in 10, 15, 20 “ and twin rows
3. band N,K and S based fertilizers in a safe way without seed burn, because the fertilizer is placed in between the seed rows 2.5” away from the seed
4. place S and K in fall with the wheat or in spring with beans without having to come back to broadcast those nutrients ahead of planting or in spring

5. seed cover crops or intercrops at the same time with the main crop: plant grass or alfalfa and grains, plant tillage radish or Red clover in fall with the wheat
6. consider planting alfalfa with the wheat in fall
7. plant corn in twin rows or 10” rows or 15 “ rows
8. plant corn and drop a cover crop at the same time – Europe is experimenting with corn underseeded to annual Ryegrass or Clover as a synergy crop to supply nutrients and organic matter to the soil
9. Can be used in straight notill, conservation till or conventional tillage systems

The options and innovative ideas of seed and fertilizer placement are quite interesting and worthwhile further investigation but we think the safe S and K fertilizer placement will have the biggest impact on productivity, efficiency and yields.



The Rapid drill is operated at speeds between 6 and 10 miles per hour, like the name says: Rapid. At that speed the best tillage and leveling results are accomplished while maintaining precise seed placement at the same time. We have tested and run the smaller 4 m Rapid 400 version and the big Rapid RDA 800 C for the past 2 years over 6000 ac and are very confident in its concept. The RDA 800 requires about 350 engine hp to pull properly so that we use standard tractor like a Fendt 933 or 4WD tractor like a Claas Xerion 3800. IVT transmissions are running most efficient. The Rapid 800’s drill capacity is comparable to a 40 ft air seeder.

The Tiger/ Rapid planting concept makes a lot of sense and is a very promising approach in innovating the placement of drilled crops. We encourage talking to us for further details or to check the following websites: www.horsch.com and www.vaderstad.com

