



Spring Product Highlights

Forage Plus Oats – Excellent alfalfa companion crop

- Seed at 100 pounds per acre alone or 32 pounds per acre with alfalfa
- Will yield 1 ton more forage per acre compared to grain oats

Late Heading grasses – Add to any alfalfa mix to increase yields and feed value

- Helps suppress weeds in your alfalfa crop
- Reduces hay drying time
- Helps reduce metabolic problems in dairy cows

King Fisher BioBoost - Add to any type of seed as an initial food source

- Includes high levels of nitrogen fixing bacteria
- Increases early root development and yields

Any questions regarding the information in this newsletter or want to please an order please call me at 419-852-3477 or 419-375-1047.

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Since, I have starting sending out newsletters, I have typically focused on forage production or cow health. This time an idea came to me, and I am going to focus this newsletter on soil health. When you think about it, in order to get healthy high producing livestock we need high quality healthy forages. So, looking at things in that prospective, in order to get healthy high producing forages, we obviously would need healthy soils.

Now, the big question, “What constitutes a healthy soil?” Most people feel that if their macro and micro nutrients are at the sufficient levels that the universities have set their soils are healthy. This is correct but I feel there could be one more thing we could look at; organic matter.

So what is organic matter? Organic material is anything found in the soil that contains carbon compounds. The organic matter in the soils more than likely has come from the native forest that used to cover this area, plant residues, and any type of manure that was applied to the soils. These carbon compounds will increase the growth of beneficial bacteria in the soil, which provide food for the forages grown in our fields.

The next question to ask is “What does organic matter do for the soils?” Organic matter has four main functions in the soil, 1.) improves the soil’s structure (less spring crusting after planting) 2.) increases water infiltration and water-holding capacity 3.) increases cation exchange capacity 4.) more efficiently hold nutrients for the long term.

Sure, the soil test show there is organic matter in our soils, but in the past it was more than likely a lot higher. Well, what happened to it? After reading several sources certain practices have the tendencies to lower the organic matter in your soils. The first thing that happened to the organic matter is we started tilling the soil. When the tillage is performed oxygen is added to the soil and increases the soils microbial activity. Microbial activity in the soil feeds on and breaks down the organic matter, thus lowering the levels in the soils. The second thing that lowers the organic matter is taking too much carbon material away from the soil Practices such as growing corn silage will lower the organic matter because removing the entire above ground residue does not allow for the replacement of carbon material that was used to grow that plant.

Well now that our organic matter levels have been decreased from their original levels, what can we do to build the levels back up? This process will take many years to achieve and building organic matter starts by increasing the amount of residue and active organic matter in the soil. The majority of you reading this are saying right now that is going to be tough, since we harvest a lot of corn silage and do some back to back corn.

One of the easiest ways to build organic matter is to grow cover crops in our rotations. By growing cover crops we can achieve higher organic matter, lower fertilizer cost, lower soil erosion, protect water quality, and help suppress weeds.

Below you will find a list of crops that I feel can be added to your rotation, that will give you the benefits of the additional organic matter for healthier soils and more importantly give you high energy forages for your livestock operation.



Option #1 - Fall Triticale – Seeding rate: 100 – 120 pounds/acre

Fall Triticale is one of the best cover crops to choose when looking for a crop to plant after corn silage, but can also be planted after wheat or sorghum sudan. Will act as an excellent soil conditioner, high quality forage producers, and nutrient utilization crop.

1. Excellent soil conditioner
 - Small grains produce large amounts of fine roots in the top layer of the soil. The roots will help loosen the top soil and build the organic matter levels in the soil.
2. High quality forage producer
 - When the proper amounts of nutrients are applied and harvesting at the correct stage fall triticale produces high quality forage for livestock. Proteins have been reported as high as 19% and NEL levels over .70.
3. High nutrient utilization potential
 - Has the potential to utilize up to 150 pounds of nitrogen
 - Has the potential to utilize 40 – 50 pounds of P₂O₅.
 - Has the ability to handle manure application in the early spring.
4. Insect and weed pressure reduction
 - Has the ability to smother any competitor weeds.
 - Has the allelopathy effect (ability to produce a natural herbicide)
 - Will help break the insect cycle in continuous corn cycles, but may not eliminate the need for insecticides or technology genes.

Option #2 – Sorghum Sudan Grass – Seeding rate: 40 – 60 pounds/acre

Sorghum Sudan is an excellent choice for a cover crop after harvesting wheat. Sorghum Sudan has four very strong advantages when it is used as a cover crop.

1. Creates large amounts of biomass to build soil organic matter.
 - The best way to create this biomass is to mow the sorghum sudan grass when it is 3 feet tall. Mowing at this height will stimulate the plant to grow additional tillers along side the main stalk. When the additional tillers sprout after cutting the root mass will penetrate deeper and the mass of the roots will increase 5 to 8 times the original amount. This feature makes sorghum sudan an excellent subsoiler.
2. Produces large volumes of high quality forage.
 - Planting BMR 6 variety sorghum sudan grass produces a forage with twice the protein of corn silage at the same energy levels. The effective fiber in the BMR 6 varieties will slow the rate of passage in a cow's rumen and helps the cow more efficiently absorb nutrients.
3. Utilizes readily available nutrients in the soil.
 - Sorghum Sudan grass is a luxury feeder on soil nutrients. Planting sorghum sudan grass after manure application will utilize the available nitrogen from the manure. If sorghum sudan has a 70 day growing window it will need at least 90 units of nitrogen. If more nitrogen is available it will absorb the nitrogen and store it in the stalk.
4. Suppresses weed growth.
 - Sorghum Sudan grass grows so quickly that it smothers out any competing weeds when adequate moisture is available to germinate to sorghum sudan grass.

Option #3 – Red clover/Sweet Clover – Seeding rate: 10-15 pounds/acre

Clovers are an excellent choice for a cover crop when you desire an additional forage to make as dry hay and to help the health of the soil. Clovers will provide the following advantages when incorporated into your cropping system.

1. Fixes nitrogen in the soil for upcoming crops.
 - Clovers can fixate up to 150 pounds of nitrogen in the soil depending on how you manage the clover. The lowest amount of nitrogen credits received from the clover is when the clover stand is terminated the fall prior to the spring crop. If the clover is left in the field until spring and incorporated prior to planting the next crop the most nitrogen credits can be taken.
2. Suppresses weeds.
 - Clovers provide an excellent weed suppression based on the fact that clover seed germinates at 41 degrees Fahrenheit. By frost seeding clover into winter wheat fields in early March, the



- clover gets a good start before the weeds can begin to germinate, thus helping the wheat suppress weed growth.
3. Soil biomass builder and compaction reliever.
 - Clovers will grow an excellent root system that permeates the top soil and produces a tap root that extends several feet into the ground.
4. Ease of seeding
 - Surface broadcast clover over wheat fields in late February to March. The soil contractions from the freeze and thaws at this time of the year will pull the seed into the soil

Option #4 – Tillage Radishes – Seeding rate: 10 pounds/acre

Tillage radishes are an excellent cover crop when you only desire to hold soil nutrients and build organic matter. Below are the advantages of tillage radishes.

1. Tillage radishes are an excellent nutrient storage device.
 - Requires 60 pounds of nitrogen at planting in order to establish the radishes to get their full benefit. This nitrogen source can be applied as commercial fertilizer or livestock manure. The nitrogen used by the tillage radishes will be available in the spring of the following year. They have the ability to hold over 100 pounds of nitrogen per acre.
2. Compaction reliever and soil aerators.
 - When tillage radishes grow they have a strong penetrating tap root that has been reported to reach depths close to 3 feet. With the ability to reach this depth there will not be a need for deep tillage, thus saving time and diesel fuel.
 - Tillage radishes will grow to at least 2 inches in diameter by the time the winter freeze kills them (3 days at less than 20 degrees Fahrenheit). When the tillage radishes break down the holes remain in the soil from the radish plant. In the spring these holes will allow the spring rains to better infiltrate the soils and the soils will warm quicker with having holes extending into the ground where the radish had grown.

Option #5 – Hairy Vetch – Seeding rate: 15 - 20 pounds/acre

Hairy vetch fits into a cropping system when you desire a nitrogen source and soil builder. Below are the advantages of hairy vetch.

1. Hairy vetch builds nutrients.
 - Hairy vetch is a crop that produces large amounts of mineralized nitrogen that is readily available for a growing crop.
 - In order to get the maximum nitrogen of hairy vetch it is recommended to allow it to go into full bloom. This will occur about the second week of May. Allowing it to get to this point will produce approximately 150 pounds of nitrogen per acre.
 - The actual nitrogen production can be figured by the following equations:
 - Weigh the above ground biomass from a 4 feet by 4 feet area and multiply it by 12 to figure available nitrogen
 - Weigh the above ground biomass from a 4 feet by 4 feet area and multiply it by 24 to figure total nitrogen.
2. Hairy Vetch conditions soil
 - Creates a large deep fibrous root growth. This root growth will allow better water infiltration and help loosen the top layer of soil.
 - The biomass will completely break down and will not build soil organic matter for the long term, but adding small grains/grasses with hairy vetch will assist in the build up of organic matter.

Option #6 – Ryegrass – Seeding Rate: 25 – 35 pounds/acre

Ryegrass is another choice for a crop to plant after corn silage to provide extra forage, scavenge any left over nutrients, and build organic matter.

1. Ryegrass conditions the soil.
 - Ryegrasses have the ability to produce large amounts of underground biomass. The underground biomass consists of a large mass of fine roots that can extend 4 feet below the surface of the ground.
 - The large amounts of biomass also loosen the top layer of the soil.
2. Ryegrass holds excess nutrients.
 - Ryegrass has the ability to store up to 50 pounds of excess nitrogen from the previous crop.
3. Ryegrass creates extra forage in a short period of time.
 - This forage needs to be ensiled or made into balage.