



The Chem Gro Crop Watch, Issue #7, 7/23/18

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Cover Crops: What can they do for you?

Among all of the new high tech agricultural practices that have become the norm lately there is one practice that has come back in style and might be here to stay. Cover crops by definition are plants that are grown for their environmental benefits. Unlike any other crop we grow, cover crops allow us to reap the benefits of their growth without ever having to physically harvest them. To understand where cover crops can fit into a farming operation you must first understand the benefits cover crops bring to the table, once you are familiar with the benefits, it is time to identify which cover crop will work for you.

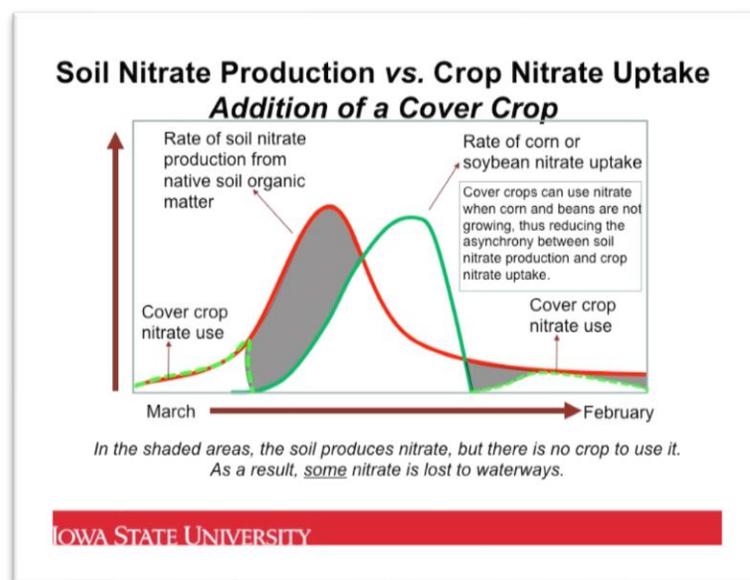


Benefits

There are numerous benefits that cover crops can bring to the table. To simplify things, I will just list a few of the more common reasons people use cover crops on their farms.

- **Reducing Soil Erosion:** This is a big reason to grow cover crops because typically after harvest, our fields will sit barren for months at a time. This leaves them exposed to erosion by both wind and water. This top portion of soil also happens to be the most nutrient-rich portion of the soil, so protection of this portion means protecting your fertilizer investment in the long run.

- **Reducing Soil Compaction:** Everybody has soil compaction in one field or another which can hold back yields. Cover crops like tillage radishes work their way into dense soil regions and break apart compacted areas. Once the crop is terminated, this allows other plant roots to take their place and allows for water and air to move into the soil.
- **Nutrient Interception:** We have all seen news reports talking about water quality issues in the US and the biggest culprit is always agriculture. In this area, our biggest contribution to this issue occurs when Nitrogen in the Ammonium (NH^+_4) form converts to the Nitrate (NO^-_3) for where it can easily leach and make its way in our waterways through our tile lines. Cover crops work to prevent this by actively intercepting Nitrogen and other nutrients and bringing it up to the surface. As the graph produced by Iowa State University below demonstrates, cover crops act to fill in the gap between our cropping seasons and utilizing nutrients that we might have lost to our waterways.



- **Weed Control:** Every season, we are in a battle to prevent weeds in our fields from taking over. In the summer we rely on our crops to shade out weeds after we have given them an adequate head start. Cover crops work in a similar fashion as they will attempt to out-compete all winter annuals in the field at the time they are planted. Once terminated, cover crops act like a mulch to shade out any small seedling weed much like wood chips act to shade out weeds in your flower beds. Now it is true that cover crops will never replace an effective herbicide program but when you are fighting herbicide resistant weeds, such as marestalk and waterhemp, every percent of control counts.
- **Livestock Feed:** Our pastures and hay ground begin to draw down on their productivity every year in preparation for winter. This leaves cattle farmers searching for a readily available source of high quality feed for their animals. Unlike cool season perennial grasses, cover crops are just getting started with their life cycle and can produce tons of quality material for grazing purposes. If you choose a winter hardy cover crop such as Rye, Winter Wheat, or Triticale you can further utilize this benefit by allowing it to get more vertical growth in the spring and chopping the cover crop for later use. What this amounts to is savings on feed cost for livestock and an increase in quality feed when it is

needed. Be careful when allowing cattle to forage on cover crop because their day to day walking habits can lead to compaction issues in your fields, especially on a wet year.

Cover Crop Species

In order to utilize cover crops to achieve your individual goals it is important to narrow it down to which species of cover crop will work best for you. One helpful tool in making this decision is the Midwest Cover Crop Councils *Cover Crop Decision Tool* which takes into account what you want to achieve and what kind of ground you want to achieve it on. In general, there are a few cover crop species that I look at when making my cover cropping decisions.

- **Cereal Rye** (Picture A): Not to be mistaken with annual ryegrass, cereal rye is the most winter hardy cover crop and by far the most popular species of cover crop. This plant produces a large amount of biomass that can be useful for weed suppression and livestock feed. Its large, fibrous root helps to anchor soil to the ground to prevent erosion and intercepts nutrients that we might otherwise lose in the soil. Seeding cereal rye is easy and can be done through the air, with a drill, or even broadcasted and incorporated with fertilizer. Terminating cereal rye before your regular row crops is best done when the rye is 6 inches or less in height. If the rye is to be chopped for feed, wait until it goes to head and the grain is turning milky.
- **Oats** (Picture B): If you are just starting out with cover crops or you are looking for a hassle-free option, then oats might be a good fit. For livestock owners, oats provide a fast-growing cover crop that can provide much needed forage in the fall. Like Cereal rye, oats will work to intercept nutrients and smother weeds. What makes oats a hassle-free cover crop is that they winter-kill. This eliminates the need to burn them down in the spring. This also limits their ability to protect our soil and intercept nutrients so an early planting date is key. For establishment, aerial seeding is preferred but oats they can be seeded after harvest on some years.
- **Tillage Radishes** (Picture C): Taproots are the perfect tool for breaking up dense compacted zones in the soil and tillage radishes are known for their large taproot which can reach all the way down into the subsoil. Besides producing a large compaction breaking root, tillage radishes also intercept great amounts of nutrients in the soil and store them in their large taproot. Tillage radishes make a great companion crop with oats as they both winterkill and have great value as livestock forage. Like Oats, aerial seeding is preferred but they can be seeded after harvest on some years.
- **Purple Top Turnips** (Picture D): Gardener throughout the Midwest would be very familiar with the looks of typical purple top turnips. Like tillage radishes, a large taproot is the key feature of purple top turnips. The difference being that outward root growth is much greater than downward growth in this case. This makes them ideally suited for forage and can be mixed in with both tillage radishes and oats for the perfect balance of forage quality and soil health promotion. As with tillage radishes, aerial seeding is preferred but they can be seeded after harvest on some years.
- **Rapeseed** (Picture E): If you were to travel anywhere in the world and have a conversation about canola, the most common name you would come across for it would be rape or rapeseed. Although it is very similar, rapeseed used for cover crops are

different from those used in canola production in that their breeding is less focused on seed and oil production and more for leaf and root development. Rapeseed can be utilized for its taproot for the purpose of alleviating compaction. Like cereal rye, rapeseed is winter hardy enough to make it to spring. One unique property of rapeseed is its ability to be used as a biofungicide. This is made possible by chemicals stored within the leaves of the plant and are best utilized when worked into the soil. Even though it is winter hardy, rapeseed will need time to establish so aerial seeding is better but if done early enough it is possible to broadcast or drill the seed.

- **Crimson Clover** (Picture F): Looking for a little bit of Nitrogen? This isn't one of the benefits of cover crop I mentioned earlier, but it can't be overlooked because clover, like crimson clover, can provide you corn crop with valuable pounds of Nitrogen. Besides Nitrogen, it can also provide a good source of feed for livestock when manage right. Early seeding for maximum growth is key, so aerial broadcasting is preferred but seeding after an early harvest can be accomplished.



Summary

As a final unrelated note, it is getting close to being that time of the year where we have to think about making lime piles out in our fields so if you did soil testing last year and have yet to spread lime it might be a good idea to get that process started now while lime is starting to become available. Now that I am off from that tangent, it is time to wrap this thing up. Like most agricultural practices, cover crops are something you have to toy around with and see how well it can work in your fields. It is in fact a crop after all and like any other crop it takes some trial and error to make it work. With that in mind, I encourage everybody to try cover crops as the benefits are numerous and go beyond even what I have written about in this article. Like always, my job is to give you the best advice possible, what you do with it is up to you.