Crop Talk
A Newsletter For The Clients Of Agri-Technologies, Inc.
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DOES FEAR PROMOTE INNOVATION?

W. Scott Weathington

The upcoming growing season seems to promote lots of conversations and references to "Crystal Balls." I cannot remember when I have heard so many agriculturists with questions. Some of the more prevalent questions are:

Will grain prices go up?
What will fuel do?
Will fertilizer prices go down?
What about seeds and chemicals?
What about land rent, shouldn't it go down?

Well, I don't know of anyone who can accurately answer all of these questions but there are answers to many other questions where we do have accurrate answers and very accurate estimates on the returns growers will get as a result of these decisions. It all goes back to that old saying: "Let's focus on the things we can control" Here is a short list of some sure-thing winners:

1. Soil test and apply only what you need and where you need it.

2. Consider splitting applications of nitrogen, potassium, sulfur, and magnesium where possible. It may be prudent to simply leave out some ground that just doesn't seem to produce. We all have been guilty of trying to fertilize our way out of a low yielding field that just may never make it. In fact, it may surprise that many of the higher yielding fields are the ones that need the least amount of fertilizer.

3. Keep your pH at an optimum level: we all know that our fertilzer efficiency is maximized when the ph is optimum and lime is much, much cheaper than fertilizer.

4. Realize that nematodes are robbing yield in almost every field you farm: It is a well known fact that nematodes take their share of yield and most nematologists agree that nematodes average reducing yields in soybeans by 10 bushels per acre and a recent study of nematodes in Virginia concluded that 45% of corn fields sampled had a problem as well. These are critters that we have very reliable solutions available. One of our biggest challenges is the fact that resistant varieties are not readily available to counteract the species we have. therefore, it may be practical to use Temik at fairly low rates to insure the yield boost.

5. Innoculate soybean seeds and remember the importance of foliar manganese especially on Roundup Ready varieties; these two factors can easily contribute 6-7 bushels per acre yield increase.

These are just a few of the many important decisions that will be needed this season. I am looking forward to being a part of that strategy and continuing to help our customers work through this era of fear and uncertainty and come out of it and look back on it as a period of great innovations.

Gummy Stem Blight Management in Cucurbits

Ralph Johnson

Gummy stem blight is caused by the fungus Didymella bryoniae and is a common disease of all major cucurbits and is present wherever they are grown. The disease is known to occur annually and has become one of the most destructive diseases in watermelon producing areas of the U.S. Here in the southeast, gummy stem blight is known as one of the major diseases that cucurbit growers must endure each growing season. Several important management practices must be implemented throughout the production season in order to combat gummy stem blight. Crop rotation, deep plowing to bury diseased tissue, proper seed/transplant selection, crop monitoring, and preventative fungicides and their subsequent application timings are key management options to be considered for this disease.

Gummy stem blight was first reported in 1891 in France, Italy, and the United States. The disease is known to affect the leaves, stems, and fruits of all cucurbits. The disease when occurring on fruit is called black rot. Cucurbit plants may be infected at any growth stage from seedlings all the way up to mature vines with fruit. Infection and symptoms can occur on all plant parts except roots and under certain weather conditions all symptoms may occur in a naturally infected field at the same time.

Keep all your cucurbits healthy and disease-free.

A wide range of foliar symptoms occur on cucurbits, which can make diagnosing the disease more difficult. Symptoms appear as circular, tan to dark brown spots on leaves or as a tan to dark brown to blackcolored, possibly gummy, lesions on the stems. In cucurbits, infected stems first show water soaked lesions which enlarge that girdle the main stem causing a red-brown-black canker that cracks which often causes a gummy, reddish-brown or black gummy ooze to exude on the surface. The disease typically spreads from the center of the crown outward to the growing tips. The exudation of a gummy substance from the crown stems should not be relied upon to diagnose gummy stem blight since anthracnose and inadequate liming can also produce stem lesions and gummy ooze.

The gummy stem blight fungus is both seed and soil borne. The fungus may be carried in or on infested seed or it can survive in weeds and other volunteer cucurbit plants or in the absence of host plants, the fungus can overwinter on infected crop debris from previous infected cucurbits for a year and a half or more. The gummy stem blight fungus produces two spore stages, a sexually produced spore (ascospore) and an asexually produced spore (pycnidiospore). The ascospore is windborne and can be dispersed from field to field and serves as the primary inoculum. The pycnidiospores serve to secondarily spread the disease when they are released in a gummy substance which can be readily spread by splashing water. Secondary spread allows the disease to spread rapidly across the crop and is more difficult to control than primary spread due to increased spore numbers with increased disease tissue.

Moisture and temperature are critical and influence the infection process, spore production, and subsequent symptom development, but moisture (relative humidity over 85 percent, rainfall, and duration of leaf wetness) has the greatest importance. Peak ascospore dispersal occurs after rain and during nighttime dew periods. In wet years, gummy stem blight is more severe since moisture from dew, rain, or irrigation is necessary for spore germination. After a spore germinates on the host plant, the fungus invades the plant tissue and symptomology can appear in 7-12 days. Free moisture on leaves for at least 1 hour is necessary for infection and continued leaf wetness provides for lesion expansion. The optimium temperature for infection to occur in cucurbits is 61 to 75 F. This can be significant in determining when disease scouting should be started for future control. Plants are also predisposed to infection by wounding, feeding by aphids and striped cucumber beetles, and powdery mildew infection.

Gummy stem blight can be successfully controlled if the grower utilizes a sequence of control strategies. Initially, control of primary sources of inoculum in seed and in the field are very important. Growers should only use disease free seed and avoid transplants that have gummy stem blight or other diseases. The second source of primary inoculum and the most important is organic residue left from previous cucurbit crops. Crop debris should be disced and plowed under as soon as possible after harvest to promote decay and inoculum reduction. A 2 year crop rotation cycle out of all cucurbits and the destruction of weed host plants are also vital for controlling gummy stem blight.

The final means of effective control of gummy stem blight is through multiple applications of fungicides. It is important to begin a preventative fungicide program prior to the first sign of gummy stem blight. Most cucurbit growers implement a fungicide rotation program and start the spray schedule as soon as plants emerge and spray at 7-10 day intervals, covering all plant surfaces. Combination sprays are recommended because of the need to control gummy stem blight in addition to other foliar and fruit diseases (powdery mildew, anthracnose, downy mildew, alternaria leaf blight, and septoria leaf and fruit spot). The combination sprays to be used should be determined by scouting for these diseases. Fungicides labeled for control of gummy stem blight are the ethylenebisdithiocarbamates (EBDCs like Dithane, Maneb, Manzate, and Penncozeb), chlorothalonil (Bravo, Echo, and Equus), thiophanate-methyl (Topsin M), and azoxystrobin (Quadris and Amistar). EDBCs products used alone are marginally effective while chlorothalonil products show good efficacy but have been implicated in causing rind burn when applied within 2 weeks of harvest. Azoxystrobin products have provided excellent control of gummy stem blight but due to widespread and routine use in Ga., resistant isolates have been identified which are a product of overuse both in the greenhouse and in the field. It can not be stressed enough that when applying preventative fungicides for control of gummy stem blight that there needs to be a strict rotation of alternating fungicides with different modes of actions in order that resistance issues should not arise. Currently, recent fungicide product releases such as boscalid (Endura), pyraclostrobin (Cabrio), and the pre-package mixture of boscalid + pyraclostrobin (Pristine) show promise and offer very good efficacy in controlling gummy stem blight.

Starter Fertilizer and Fertilizer Additives

Kim Tart

The high price of fertilizers and lower commodity prices has farmers looking for ways to cut production cost. Several growers have recently asked about fertilizer enhancers, additives and alternatives to help reduce cost. Chemical and fertilizer companies are promoting products that claim you can use reduced rates of starter fertilizers such as 10-34-0 or 11-37-0 and some products even claim you can eliminate starter fertilizers completely.

So, why use a starter fertilizer any way? There are many reasons growers use starter fertilizers. The most obvious is to increase yields. Here are a few more reasons which may or may not result in a yield increase:

- Low soil phosphorus as determined by a soil sample.
- Cool soil temperatures at planting.
- Increase plant vigor.
- Promote stronger roots.
- Low soil microbial activity.

Starter fertilizers are designed to supply readily available plant nutrients to newly emerging plants or recently planted transplants. Most starter fertilizers contain Nitrogen and Phosphorus which are primary nutrients. These nutrients promote early root growth and provide an energy boost to increase earliness and plant vigor. Micronutrients are sometimes added to starter fertilizers to compensate for deficiencies in the soil or lack of availability due to soil ph levels. Manganese, Zinc, and Iron are the most common micronutrients added to starter fertilizers.

So what about the fertilizer additives and enhancers? There are too many different products to discuss each one, however we will look at a three different types and discuss how they work.

1. Polymers act as a buffer to reduce nutrient tie up. Phosphorus bonds with cations such as Iron or Aluminum and once this bond is created phosphorous availability for plant uptake is greatly reduced. Polymers work to slow this process and increase phosphorous availability.
2. Nitrogen Stabilizers work to reduce nitrogen loss due to leaching and volatilization. These products work by inhibiting the consumption rate of ammonium by nitrification bacteria or by inhibiting the activity of urease, which converts ammonium to ammonia.
3. Biostimulants contain organic materials such as humic acids, fulvic acids, cytokines and amino acids Biostimulants work to increase soil microbial activity, increase soil tilth or chelate nutrients in the soil to increase nutrient availability.

Fertilizer additives and enhancers cover a broad spectrum of products and materials. The recent increase in fertilizer prices has created more demand for products which could help reduce fertilizer rates and reduce fertilizer cost per acre. Chemical and Fertilizer companies are trying to develop such products to meet this new demand.

Before you purchase these types of products, make sure of a few things:

- Evaluate Soil Sample information. If your soil samples show low phosphorus, then apply the phosphorus. Make sure to fertilize where soil samples call for it.
- Research- Make sure the company provides you with at least 2-3 years of university data or third party data.
- References from growers within your area who have used the products.
- Try the product on a small scale first. Make sure the product is successful on your farm before making a blanket application. Ask if companies will provide trial materials.
- Check product claims carefully. Be careful with product claims like you can reduce your fertilizer rate by 50% or you can increase yields by 30%-50%. While these claims may be true in certain circumstances, they may not work for you farm.

Agri-Technologies continually researches and evaluates products to determine if they work and what is the best way to use the products. If you have any questions regarding fertilizer additives and enhancers or would like to see trial work done, contact us at your convenience.

Phytophthora Blight

Blythe Evans

Phytophthora blight, caused by the fungal-like organism Phytophthora capsici, is a destructive disease in commercial pepper and cucurbit production. Since it has such a large host range—tomato, eggplant, pepper, cucumbers, squash, pumpkins, and watermelons are hosts—the organism is probably present somewhere in almost every vegetable production field of the Southeast. There are only a few rotation options available, vegetable-wise. For the most part, the disease is found in wet areas of the field—low, poorly-drained spots—especially after a lot of rain. The pathogen can be dispersed in soil with surface water and splash dispersal from soil to foliage.

The pathogen can live dormant in the soil for years as oospores. These germinate in spring to form sporangia that release zoospores. These are single-celled spores that can swim in soil water and lodge on host roots. Once a plant is infected, more sporangia are formed and the cycle continues to build. With this in mind, it is easy to see why the amount of water in the field, either from rain or irrigation, plays such a large part in its spread.

In pepper, infection starts around the soil line. It looks like brown water-soaked lesions usually extending at least an inch up the stem, which girdles the stem and the top part becomes wilted because water and nutrients are unable to uptake. Diseased plants enable the pathogen to reproduce more and disperse through rain and wind. Stems, leaves and fruit can all be affected.

In yellow squash and zucchini, the disease appears as a crown rot. It can progress from the crown down to the root and wilt may also occur; it usually looks like the plant is melting. In other cucurbits, the white fruit rot phase is the most common sign. Watermelon does not exhibit crown rot at all and it is uncommon in cucumbers and winter squash.
There is no silver bullet for controlling Phytophthora capsici as the inoculum is almost always present in the field and can be set off by a heavy rainfall. But risk can be reduced by following a program that stresses water management.

Here are some suggestions:

1) Avoid putting low-lying or poorly draining soils into production
2) Create drainage ditches at row ends to divert standing water from between rows
3) Subsoil to break up hardpans and increase drainage
4) Plant on high ridges or beds so that water cannot collect near plant base
5) Avoid excessive irrigation
6) Use small-grain mulches between rows to prevent splash dispersal and surface water spread
7) Using resistant varieties
8) Use soil fumigation and apply fungicides
9) Get irrigation water tested to make sure it is not contaminated
10) Rotate away from susceptible crops for 2 to 4 years. Some options include small grains (like corn, soybeans, wheat), crucifers (like cabbage and broccoli), and potatoes.

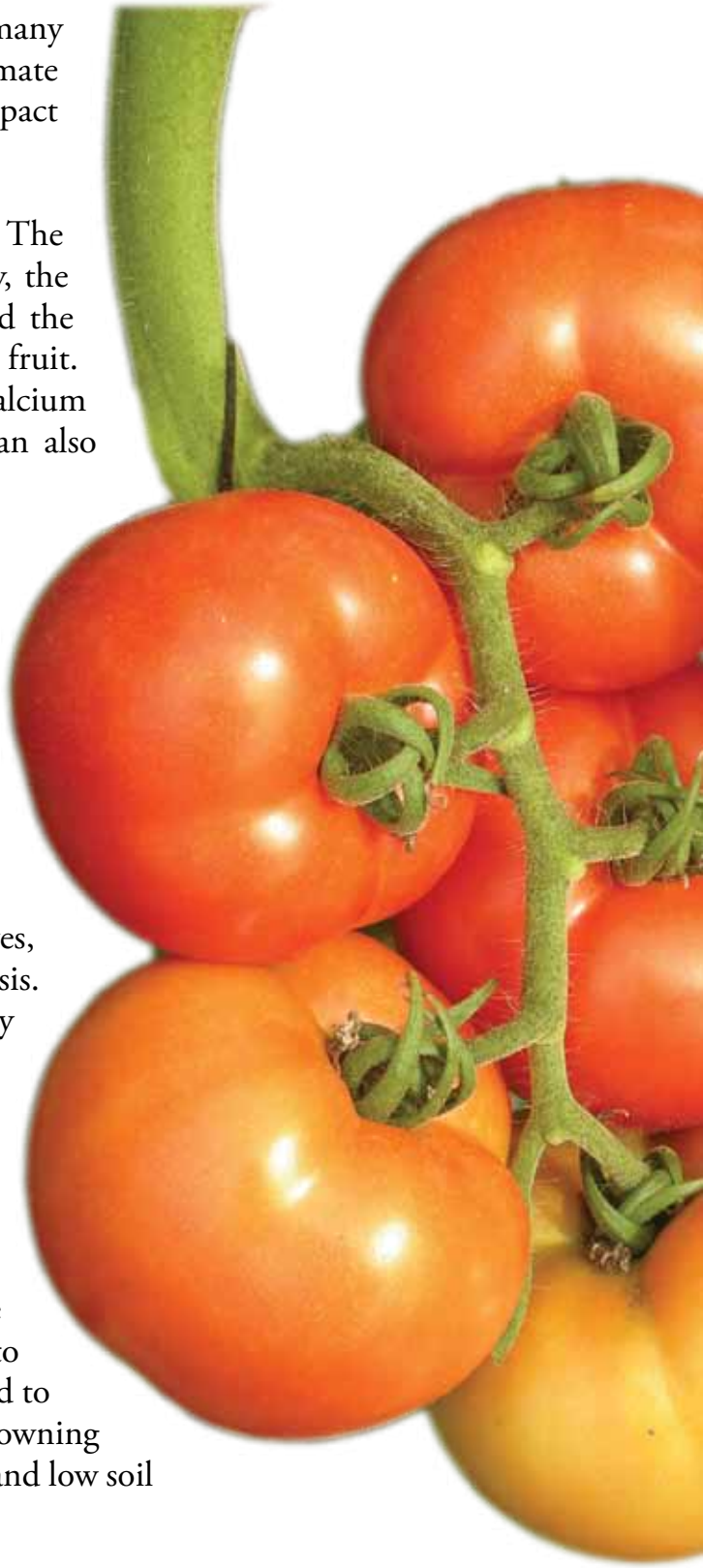
There are many fungicide choices to fight Phytophthora in pepper. For the root and crown stage, Ridomil Gold EC (mefenoxam) at 1 pint per acre applied through the drip is advised, although ideally this is done before infection. It must be moved into the root zone by irrigation. For the foliar stage, Presidio (fluopicolide)and Revus (mandipropamid) have shown to be the best choices for suppressing activity. Spraying Ridomil Gold/Copper also does a good job but there have been reports of resistance with that.

In conclusion, the most important way to reduce incidence of Phytophthora infection is to reduce the incidence of standing water in the field.

Identifying Nutritional Deficiencies in Tomato

Andy Malik

Nutritional diseases of tomatoes are influenced by many factors. Application of inadequate fertilizer, as well as, climate and soil can all contribute. Each nutrient has its own impact on how the plant and fruit look during the season.



Calcium deficiency generally first appear at the terminal. The leaves will develop with chlorosis in the veins. Eventually, the point of growth will die. Calcium tends to move toward the more developed leaves, rather than the younger leaves and fruit. The fruit can develop blossom end rot due to the lack of calcium it is getting. Low temperatures, dry soil, and salinity can also factor in calcium deficiency in a plant.

Nitrogen deficiency first appears as a yellowing chlorosis of the oldest leaves of the plant. If not controlled, the chlorosis will move up the plant. These leaves may eventually drop, starting from the bottom. Nitrogen can affect the plant if in excess as well. This will cause the plant to put out more vegetation, which can lower the fruit production, and cause poor fruit quality. Soils with low organic matter can contribute to nitrogen deficiency.

Potassium is identified by the necrosis of the older leaves, starting out as small spots of discoloration and chlorosis. Potassium deficiency can cause yield loss and fruit quality issues if they happen early and severe. Quality issues include softness and irregular shape. The aspects of the soil that contribute to potassium deficiency include sandy soils, acid soil, and organic soils.

Boron deficiency can display many symptoms on a tomato plant. The leaves on the plant may become brittle and the tip of the foliage may turn yellow. These lead to necrosis of the terminal growth. Lack of boron can also lead to uneven ripening of the fruit. There may also be internal browning of the fruit. The soil being sandy with low organic matter and low soil moisture can favor boron deficiency.

Iron and manganese deficiency closely resemble each other with a chlorosis of the veins starting in the younger leaves. However, the leaves will remain green if it is manganese deficient, and will yellow or turn white if it is iron deficient. Alkaline soils favor these deficiencies.

Soybean Production In The Southeast

DeLeon Pope

Farmers across the Southeast have struggled to combat the spread of glyphosate-resistant weeds in soybeans, corn, etc. Many strategies have been employed with varying levels of success. The problem with resistance is the weeds are usually too large for alternate treatments by the time you realize your current management choice has been rendered ineffective. The most promising alternative in regards to soybeans is the introduction of LibertyLink soybeans from Bayer CropScience. This technology features a nonselective herbicide that controls more than 120 broadleaf weeds and grasses including ALS and glyphosate-resistant weeds. These varieties have a built-in tolerance to Ignite. This chemistry has proven to be extremely effective in controlling weeds and grasses in other crops and will surely provide a much-needed alternative to glyphosate in soybeans in the coming years.

With falling commodity prices and the high cost of inputs, many producers will certainly shift a certain amount of acreage into soybean production. Fertilizer prices seem to be the most significant input cost at the present time. The next question is going to deal with fertility. Should I fertilize my soybeans? Many opinions and schools of thought have been offered on this subject throughout the years. Many people believe that soybeans planted behind high input crops such as tobacco or corn lend itself to limited applications of fertilizer. Certainly this mindset is not totally far-fetched or illogical since most corn and tobacco crops have more than enough residual levels of P and K to support the growth of an average bean crop. The draw back to this philosophy is that an above average crop of soybeans has the potential to remove large quantities of phosphorus and potassium. It has been theorized that .9 lbs. of P and 1.5 lbs. of K can be removed from the soil for every bushel of soybeans produced. If your soil fertility levels were adequate but not optimal, imagine how depleting a fifty-bushel crop could be on a given farm. I think it comes down to economics. Eventually you will have to pay the piper. You can forego that early and run the risk that fertilizer will be even higher, thus costing more per acre to replenish the soil nutrient levels or you can spread the cost over several crops by applying maintaince levels of nutrients in order to lower input costs but prevent soil mining.

If a farm has been in the CRP program, been out of production, or simply not been planted in soybeans for several years, the seed needs to be inoculated. Soybeans are a legume and therefore produce their own nitrogen through rhizobium bacteria. However, fallow fields may or may not have adequate levels of the bacteria needed to jumpstart this nitrogen-fixing process. Inoculants are the cheapest and best insurance you can purchase to ensure that this process moves forward as nature intended. Nodule formation and development is also dependant on proper ph. Target your soil ph at a range of 6.0 – 6.5 for optimal results. Remember that a higher ph can lead to minor elements such as Mn becoming intertwined with the soil particles and therefore be unavailable for uptake although levels in the soil may be sufficient. If a ph problem occurs, a simple foliar spray can be used to correct the deficiencies in the micronutrient levels within the plants themselves.

What about planting? Is there an optimal row width for production of soybeans? Many cultural practices including no-till, strip till, and conventional tillage programs have all seen varying populations, as well as different row spacing incorporated into the production of the said crop only to find mixed results. The primary objective is to establish a uniform stand without skips or gaps. As a producer, if you control the weed populations, provide adequate fertility, and maintain a viable stand you have done everything necessary to ensure success. Depending on location, weather patterns, planting date, and variety choices the benefits of certain row widths, especially narrow rows may become more pronounced and noticeable. Seeding rates are another hot topic when talking to producers, consultants, and university level personnel. My suggestion on this is based on past experience and the relative cost of the seed themselves. I would suggest a planting depth of one to two inches in normal conditions and a shallower depth for early season planting when cool, wet conditions are present. Tread with caution when planting deeper to avoid crusting, and hopefully preventing sporadic, inconsistent stands due to poor emergence. Remember that soybeans seem to be very sensitive to the conditions at planting and have less vigor than some crops such as cotton and corn. A seed that has been planted but is having a difficult time growing will ultimately be more apt to be disease prone.
Weeds have become first and foremost the most troublesome aspect of soybean production in the past several years. The Southeast has seen a rise in the amount of glyphosate resistant weeds and this has led to many rescue treatments and reduced yields. Although input prices for herbicides have dramatically increased, bear in mind that the most expensive weed control program is the one that does not work. An ounce of prevention is worth a pound of cure. Newly developed transgenic crops such as LibertyLinked soybeans should offer an excellent alternative and much needed ally in the war against resistance. The key to maintaining any herbicide and insecticide alike is to follow label instructions and rotate chemistries as often as possible. We already have issues with glphosate and ALS inhibitors, so we need to be mindful of that as the popularity of the LibertyLink system grows and becomes more readily available.

Insects can be a yield robbing threat, as we all know. The most common culprits are various forms of caterpillars such as the CEW, Saltmarsh Caterpiller, Loopers, Armyworms, and Velvetbean Caterpillars. Do not forget about secondary pests such as stinkbugs and aphids. Did you say aphids? Yes, aphids. What is a soybean aphid? The soybean aphid is a relatively small, pale yellow to green insect that is native to eastern Asia. This tiny insect usually less than 1/16" long can become colonized in certain fields and drastically affect yields if conditions are favorable. There are many types of aphids that closely resemble the soybean aphid so identification of this pest can sometimes be difficult. This particular aphid seems to be predominantly attracted to two primary hosts, the buckthorn (which is a woody shrub or understory tree) in the fall, winter, and spring while moving to soybean foliage to round out the calendar year. This pest has progressively moved throughout the world and has been resilient and relentless in the dispersal of the species throughout the United States. The Southeast could see an influx of migration and/or colonization of the Soybean Aphid as seasonal weather patterns continue to change and the species evolves and adapts over time. Nematodes are another issue that sometimes gets overlooked or overshadowed. Soybean Cyst Nematodes can explode in numbers if continuous soybean production exists without proper rotation. Another way to combat the buildup of eggs and nematodes is to use varieties that have resistance to certain races of nematodes. Samples should be taken to identify the number and types of nematodes present in your fields. The easiest way to control populations is a rotation with nonhost crops. Over time the use of resistant varieties and poor rotation will lead to increased nematode populations as well as reduced yields. Nematodes attack the root system and interfere with nutrient and water uptake. Plants become weak, less vigorous, stunted and often looked discolored. These plants usually produce little or no viable seed and in some cases eventually die.

What is liberty?

The quality or state of being free, the power to do as one pleases, freedom from physical restraint, the power of choice.

What about fungicides? Over the course of several years we have shifted our focus from aggressively applying fungicides to enhance yields to applying fungicides in response to the Asian Rust epidemic. Many growers have employed consultants as a means to help decide when and where to apply fungicides. Others have simply added the fungicide to their spray program as a means of insurance against a possible outbreak. With the cost of fungicide applications being what they are, a grower can pay a consultant to monitor the crop throughout the growing season and gain valuable insight into other areas such as insect populations, etc. for little or no added expense. For instance, a producer may or may not see a yield response to the fungicide application if conditions are not favorable for disease development or spread. Therefore, the monies used for the fungicide could have in theory been used more wisely if the grower had paid a consultant to monitor the crop during the season because he or she may have benefited from knowledge offered by the consultant regarding insect thresholds and the possible elimination and/or addition of other sprays.

Back to the original question, "what is liberty?" Liberty is simply the ability of an individual to do as he or she desires. In relative terms, you as the decision maker for your farm have the ability to make decisions on a daily basis that ultimately lead to the success of your farm or inhibit your ability to succeed. These decisions include, but are not limited to, cultural practices, seed selection, fertility requirements, and chemical selection. The future looks brighter in regards to soybean production with the arrival of LibertyLink soybean varieties. Although this chemistry is not new, it may very well be the savior and lifeblood of soybean production in the future.

Herbicide Decisions for 2009 Crops

In the last three years I have seen resistant pigweed increase a lot. The last two years were the first years that more growers decided to put out some type of preplant residuals to try to keep the pigweed from ever coming up. The main thing to keep in mind when starting this year's crop is that it is a lot easier to try to keep the pigweed from coming up with residual herbicides than it is to try to kill them after they are up. The field day NCSU put on last year in Mt. Olive N.C. showed that in the cotton & soybeans the cleanest plots had a good preemergence herbicide program. They did not have corn plots but the same normally would be true for corn also. Try to pick a program that has at least two modes of action when deciding what to use behind the planter. For cotton Reflex + Prowl or Reflex + Direx works well for pigweed. Either of these programs can be put behind the planter. If you plan on coming over the top with Dual after the cotton is up then Reflex + Direx should work better since Dual will also give you the grass control. A cheaper option behind the planter would be Direx + Prowl but it would not be as good if you had a heavy pigweed problem. All of these can be used in no till or conventional tilled land. If you have

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any pigweed already up when you are planting you will need to add in Gramoxone with the residuals to kill what is up. Adding roundup in will not kill resistant pigweed that is already up. If you are going to no till cotton then you have another good option in adding Valor in with burndown three weeks or so ahead of planting. Valor works very well but you have to get a rain after it is applied and before planting or you could have some crop injury. Valor is also hard to get out of the sprayer so you could hurt crops sprayed later with residue that is left in sprayer. Please read and follow all labels before using residuals on your crop.

In soybeans Prefix (which is Reflex + Dual) looked good in the NCSU plot at Mt. Olive. This would work best behind the planter if possible. Valor also looked good and would be my 2nd pick. Where you have to wait four weeks or so on cotton before you plant after Valor, soybeans can be planted anytime. You have a chance of some Valor splashing up on soybean leaves and getting some burn if beans are up before you get your 1st rain after Valor is applied. If you have weeds already up when planting the beans you would need to add Gramoxone in with herbicide to kill what is already up.

Even on farms you do not think you have a problem if you start a good program now it would help you from getting a problem later. We have noticed pigweed showing up in places that before we didn't have problems. Around where you build cotton modules have gotten worse for some growers. Tobacco fields that the pigweed grows up in the middles and ends later in the season are also places to be worried about pigweed the following crop.

In conclusion residuals are more expensive than just spraying roundup but if you factor in possible yield loss from weed competition or labor bills to pull or chop pigweed the expense could be well worth it. Since roundup has gotten more expensive it makes it even more beneficial to use residuals.

David Langston

PRECISION AGRICULTURE

Precision Agriculture has captured the attention of many farmers over the past few years, although, many haven't implemented these new technologies and practices on their farm. Now, the economy is slipping and high/volatile input prices has got everybody scratching their heads on what to do. Seed, fertilizer and chemicals have all increased. Fuel costs have been all over the board. One thing is for sure, being precise with your decision making will help save you time and money.

What is precision agriculture? Precision agriculture is an agricultural concept relying on the existence of in-field variability. It requires the use of new technologies, such as global positioning (GPS), sensors, satellite or aerial images and information management tools (GIS) to assess and understand variations. What does all of this mean? With this collected information, farmers can manage variations within fields that can affect crop yield. For example, treating a large field as a uniform area is essentially wasteful and uses an excess of costly resources such as fertilizers, seed, herbicides and even pesticides. A large or even a small field can obtain many variations of soil types and nutrient availability. Not taking these variations into account can result in yield loss.

Starting off on the right foot is half the battle. Soil samples will need to be collected to determine what nutrients the soil has and what nutrients it needs. Grid sampling a field guided by GPS will give you site specific points to pull a sample. This will help determine the variability of the soil. This practice will allow you to vary the rate of fertilizer across the field according to the GPS guided sampling. Fertilizer that would have been spread in areas that don't need it can now be placed in areas that do. This helps maximize your profits by spending money in areas that only need it.

I want to discuss another integral part of precision agriculture; Variable Rate Technology (VRT) and Variable Rate Application (VRA). These two technologies combined refer to the development of automated variable rate sprayers which are very important to precision agriculture. Whole field chemical applications will be replaced by site-specific applications. These machines are programmed to deliver precise amounts of chemical necessary across the field. This is possible because of the data retrieved from analyzing the variability of field conditions and data retrieved from crop scouting. This is one great part of precision agriculture that will help lower input cost by decreasing the amount of chemicals used plus it will have less impact on the environment.

The main thing to remember is there are many elements, possibilities and benefits of precision agriculture. I've only discussed a few intrigal parts. Precision Agriculture, when applied correctly, has the potential to alter decision making in farming and to achieve multiple objectives of input efficiency, reduce environmental pollution, increase farm profits and product quality.

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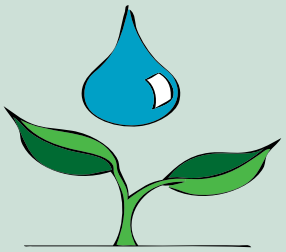
Contact us for more information about our services!

Agri-Technologies is a mission-driven organization with a clearly defined set of values. We encourage our employees to have a strong sense of purpose: a high level of self-esteem, and the capacity to think clearly and logically.
We believe we have a distinct competitive advantage and that competitive advantage is largely in the minds of our management and our employees as represented by their capacity to turn ideas into profits which enhances the accomplishment of our mission.

Agri-Technologies currently is providing production planning, in-season monitoring, contract research, and third-party certification on the following crops:

Tomato - Corn - Canola - Wheat - Soybeans - Cotton - Cucumber - Eggplant
Peanuts - Pepper - Squash - Tobacco - Cole crops - Potatoes - Citrus Fruit
Onions - Sweet Potatoes - Fruits and Nuts - Strawberries - Grapes



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Crop Talk A Newsletter For The Clients Of Agri-Technologies, Inc.

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