# AGChoice Newsletter

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# Six Secrets to Soybean Success

Brian Creager, CCA is the Manager of the Emporia Agronomy Center

Brian Creager

I'm sure many of you have heard about the predictions being made that the world's population will be over 9 billion people by the year 2050 or sooner. To meet the food demands for this population explosion, there is a call to double the yield of corn and soybeans currently being produced in the United States.

This winter, I have had a couple of opportunities to hear firsthand about some research being done by Fred Below and Laura Gentry with the Crop Physiology Lab in the Department of Crop Sciences at the University of Illinois at Urbana-Champaign. The work they are doing will be instrumental in helping producers maximize crop yields on their farms. I wanted to spend some time reviewing the results of the work they have been doing, focusing predominately on the six secrets of soybean success.

I mentioned earlier that there is a quest in the United States to double the current corn and soybean yields on U.S. farms. The current U.S. average corn yield is about 150 bushels/acre while the average soybean yield is 42 bushels/acre. This means that we are striving to produce 300 bushel corn and 85 bushel soybeans. This may sound unreachable. But, 300 bushel corn is currently produced each year in the U.S. National Corn Growers Yield Contest and 85 bushel soybeans are produced each year in state soybean yield contests.

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In fact, the top entry in the 2012 Kansas Soybean Association yield contest was 88.95 bushels/acre on a dryland entry from northeast Kansas.

In order to maximize crop yields, there are some crucial prerequisites that are required. First, crop fields must have proper drainage. Remember, this research is from Illinois where they typically are wetter than we are. However, there are numerous crop fields in Kansas that could benefit from some drainage work. Second, pests and weeds must be controlled in a timely fashion. Finally, proper soil pH and adequate levels of P & K must be present as determined by a soil test.

From the research being done at the University of Illinois, they have ranked the six factors that have the biggest impact on soybean yields. Not surprising, weather had the biggest impact on soybean yields. The remaining five factors listed in order of providing the biggest yield advantage to soybeans were fertility, genetics/variety selection, foliar protection, seed treatment, and row arrangement.

| | MANAGEMENT FACTORS | | | | |
|---|---|---|---|---|---|
| | Treatment | Fertility | Variety | Foliar | Seed treatment |
| | HIGH TECH | Placed | Full maturity | Fungicide + Insecticide | Full |
| Decrease Technology | -Fertility | None | Full maturity | Fungicide + Insecticide | Full |
| | -Variety | Placed | Normal maturity | Fungicide + Insecticide | Full |
| | -Insecticide | Placed | Full maturity | Fungicide only | Full |
| | -Fungicide | Placed | Full maturity | Insecticide only | Full |
| | -Foliar protection | Placed | Full maturity | None | Full |
| | -Seed treatment | Placed | Full maturity | Fungicide + Insecticide | Basic |
| | STANDARD | None | Normal maturity | None | Basic |
| Add Technology | +Fertility | Placed | Normal maturity | None | Basic |
| | +Variety | None | Full maturity | None | Basic |
| | +Fungicide | None | Normal maturity | Fungicide only | Basic |
| | +Insecticide | None | Normal maturity | Insecticide only | Basic |
| | +Foliar protection | None | Normal maturity | Fungicide + Insecticide | Basic |
| | +Seed treatment | None | Normal maturity | None | Full |

Table 1. (Crop Physiology Lab, Department of Crop Sciences, University of Illinois at Urbana-Champaign)

So how did they determine this ranking? The five management factors identified (fertility, variety, foliar insecticide/fungicide, seed treatment, and row spacing) for high yield soybean production was evaluated in an effort to identify those with the greatest potential to increase soybean yields in an additive or synergistic manner. Although weather cannot be controlled, they are planning multi-location trials conducted across multiple years to gain a better understanding of soybean yield variability associated with environmental conditions to determine how management inputs interact with weather. The management factors were evaluated in an omission plot design (Table 1).

This omission plot design contrasts a 'standard' farmer practice in which a soybean variety of appropriate maturity for the area is grown with no additional inputs to a 'high tech' management approach. The high tech approach included improved N, P, S, and Zn fertility using MESZ fertilizer, a fuller season or 'offensive' soybean variety, protection from insect pests and fungal pathogens with foliar insecticides and fungicides, and an advanced seed treatment including fungicide, insecticide and nematicide. One at a time, each factor is added at its high tech level to the standard management system, and at the same time, each factor is removed from the high tech system and replaced with its standard counterpart.

The 2012 results are included in Table 2. I think it's important to remember that 2012 was the first year of a multi-year study. However, the results from this year show that there appears to be a yield advantage to the 'high tech' management approach.

| | Standard | | High Tech | |
|---|---|---|---|---|
| Factor | Yield | Δ | Yield | Δ |
| | bu acre$^{-1}$ | | | |
| None or All | 50.1 | | 60.0 | |
| Fertility | 55.0 | +4.9 | 56.3 | -3.7 |
| Variety | 53.8 | +3.7 | 57.1 | -2.9 |
| Fungicide | 52.2 | +2.1 | 57.2 | -2.8 |
| Insecticide | 53.8 | +3.7 | 57.7 | -2.3 |
| Fung. + Insect. | 53.9 | +3.8 | 56.7 | -3.3 |
| Seed treatment | 52.9 | +2.8 | 57.6 | -2.4 |

Table 2. (Crop Physiology Lab, Department of Crop Sciences, University of Illinois at Urbana-Champaign)

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In conclusion, I think it is important to remember that not every piece of farmland has the potential to produce 300 bushel corn or 85 bushel soybeans. But, it appears that to maximize yield on all farm ground, a systems approach is needed that combines individual practices known to impact productivity. These management factors appear to increase yield independently of each other but can be partially additive in a 'high tech' system. High yields must be planned for from the beginning of the season because factors like fertility, variety and seed treatment are impossible to change after planting. I like to remind my producers that we are farming for a good year and that we have to have all the pieces in place to maximize the rainfall we receive.

For more information, be sure to visit your local AGChoice retail location to learn more about the products and services we provide to help you maximize your crop yields. If you would like more information on the research included in this article, be sure to visit the website for the Crop Physiology Lab at the University of Illinois http://cropphysiology.cropsci.illinois.edu.

Brian Creager
bcreager@mfa-inc.com
(620) 344-0458

# Altosid IGR for Horn Fly Control

Rowdy Layton, Oklahoma Livestock Consultant

With everything involved in taking care of our livestock this time of year, fly control is probably not on anyone's mind right now. We are all just hoping to get through the winter with enough hay and water. However, fly season is right around the corner, and horn flies are one type of pest that will have to be dealt with.

In the US the horn flies are one of the most costly pests of range cattle, costing the beef industry approximately $1 billion every year. Horn flies can reduce weaning weights by 25 lbs per calf, reduce growth rates in replacements heifers by 13 to 14%, reduce stocker calf daily gains by .20 lbs, and decrease milk production by 10 to 20%.

**Horn Flies**

Altosid IGR is a convenient way to control horn fly populations in pastured beef cattle. Altosid passes through the animal in the manure, where horn flies lay their eggs. It breaks the life cycle by preventing the pupae from maturing into adult horn flies. Ideally Altosid should be started 3 weeks before the flies emerge.

Altosid does not kill the adult flies, but it breaks the life cycle, preventing them from multiplying. The adult horn fly only lives about 3 weeks. The adult female can lay 500 eggs in her life time so populations can build very fast. Horn flies are small flies commonly seen on the backs of cattle and on cooler wet days they will be seen on the underside of the animal. Horn flies can take up to 40 blood meals/day from cattle. Horn flies can also spread mastitis and some new information shows they may play a role in transmitting Anaplsasmosis.

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If your neighbor doesn't feed Altosid, there is very little need for concern, since horn flies rarely leave the host animal. The exception is when they leave the host to lay eggs in fresh manure. They don't have well developed wings and are limited in their ability to travel any distance.

Figuring the value of weaning weight loss due to horn flies.
Average weaning weight / calf.....500lbs,
Potential weight loss / head / season 4.3% x 500 lbs.....21.5 lbs / head
Number of cows in your herd.....50 head
Potential calf weight loss per season 50 hd x 21.5 lbs.....1075 lbs
Sale price of weaned calves.....$1.60 / lb
Value of calf weight loss = 1075 lbs x $ 1.60..... $ 1720.00

It will cost about $.03/day/cow to feed Altosid in your mineral. If you keep it in from mid-March to October 1st, its 198 days. That's a cost of $5.94/head for the season or $297.00 for your 50 cows. Weaning weights of calves on cows on an Altosid program on average are higher by 4.3% than calves on non-treated cows.

Altosid will aid in your horn fly control program but will only help in horn fly control. It will not aid in the control of other fly species. Remember to begin feeding Altosid before flies appear and continue until after the first frost. Check feed consumption and make sure they are consuming the proper amounts and adjust accordingly.

Altosid has been used for over 25 years and has had no known resistance issues like some of the chemical horn fly control options. Altosid is non-toxic to beneficial insects, fish and mammals. Altosid is available in many products including lick tubs, mineral, creep feeds, and liquid feeds. If you have any questions about Altosid or any other livestock products stop by any of our AGChoice/MFA locations, and we will be glad to assist you any way we can.

Rowdy Layton
(918) 694-3177
rlayton@mfa-inc.com

The AGChoice newsletter is coordinated by Linda Heady, Tammy Peak, and MacKenzie Oswald. It is printed through MFA in Columbia, MO. If you have any agronomy, feed, seed, animal health, or rain topics you would like us to address, please call Linda at 620-421-5110 or Tammy at 620-396-8554 or send an e-mail to lheady@mfa-inc.com or tpeak@mfa-inc.com.

# Mineral Feeders?

**Les Green, AgChoice Livestock Consultant**

There are so many things that affect your cattle operation anymore and demand your time and decisions, so why bother you with another item on your list? Well, there's a lot of emphasis and articles lately of the importance of a good mineral and vitamin program and how it affects an operation. That also includes a way to get it to the animals. That's where a mineral feeder comes in to play. After all, I don't think anybody would want to just throw $15-20 on the ground in a pasture of cattle, which is about what a bag of mineral costs.

**Weather Vane Feeder**

There seems to be four types of mineral feeders. One is the weather vane type. It is built on a pedestal base and turns with the direction of the wind to keep the mineral from getting wet during a rain and keeps the wind from blowing the product out of the tub. The "bullet" type or "Face Flyp" are made so that insecticide applicators can be hung on them to help with fly control.

There is also the wooden bunk type on skids with a roof over it to protect the mineral from the elements. The longer cattle rubs or dusters can be hung on this type for insect control.

**Low Profile Feeder**

Then there's the bull mineral feeder or low profile feeder. These are pretty handy because it's tough for them to be turned over. (From personal experience they aren't bush hog proof, though). AGChoice has the "Fly Killer Cover" that replaces the original lid. It's a felt lined cover with a reservoir on top that applies insecticide to the animal to help control flies and pink-eye when they lift the lid to get mineral or salt.

**AmeriAg Feeder**

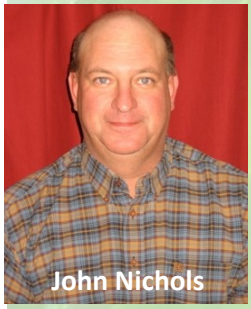
A newer style that has come out in the last couple of years is the AmeriAg feeder. It is a polyethelene barrel type that fits in a 24.5" truck tire. They are designed so that rain water can't run or blow inside of them. Face "Flyps" or "bullets" can also be hung on these.

I know that most minerals are designed to protect them from the weather, but going back to the comparison of throwing $15-20 on the ground, I'd rather have that money protected or being used. After all, it will rain one of these days, and there are those days where the wind is blowing so hard that you can spit in Kansas and land in Canada.

If we can help you with any of the needs you have for your operation, just give us a call or come by one of our locations. Here's wishing your ponds get filled and your calving goes great.

Les Green
(620) 344-0863
lagreen@mfa-inc.com

# Chelated Trace Minerals In Livestock Production


John Nichols

John Nichols, Feed Consultant

Trace minerals- zinc, copper, manganese, selenium, cobalt, iron, iodine, etc. are essential nutrients for all livestock today. They have a wide range of activities and functions in the body, being involved individually or collectively in general metabolism, reproduction, and the repair of various tissues, as well as growth and development.

The primary chelated minerals used in livestock feeds are the trace elements iron, manganese, cobalt, copper, and zinc. These traditional elements on the productive table have chemical characteristics intermediated between metal and non-metal elements. Traditional elements prefer to form coordinate covalent bonds, a high bred form of linkage that gives them their unique abilities to form stable complex coordination complexes, or chelates.

**Specific Uses**

Chelates and other complexes are useful in livestock nutrition to protect trace minerals during digestion. The goal of forming chelates is to increase the bioavailability of minerals to the livestock to support metabolic functions. Chelates and other complex minerals are administered especially during times of high nutritional demands, such as pregnancy, weaning, or other reproductive stresses, rapid growth, environmental stress (such as moisture, heat, or humidity), or health stress. Chelates have been studied with regards to their effect on improving immunity (less disease or sickness), reproductive performance and herd health.

The **Benefits of Feeding Chlelated Trace Minerals** include:

- Improved fertilization and reproductive performance
- Reduced somatic cell counts
- Increase hoof strength
- Improved immune status
- Improved performance in growing livestock
- Reduced mortality and ill health

**How To Feed Chelated Trace Minerals?**

**Chelated Trace Minerals** are suitable for use in all livestock. They can replace 25-40% of the supplementary inorganic minerals as a means of providing highly available trace minerals. They are available through Gold Star Loose Minerals and feed supplements. **For more information, contact your local AGChoice Location.**

John Nichols
(620) 429-0331

# Handling Cattle

Jon Roberts, Area Sales Manager Livestock Products

Cattle operations are diverse in terms of how intensely managed they are. One of the most challenging aspects to any cattle operation is when it comes time to handle the cattle in close quarters. At the very least, they will need to be transported from your location at some point. To make a profit in the cattle business, good stockmanship is a must. Good facilities and an understanding of cattle behavior will serve you well. Here are some basic concepts about cattle behavior:

- Cattle seek each other's company and want to be together, especially when feeling threatened.
- Cattle will only move for you when they clearly have a place to go.
- Cattle see you best from the front and side.

Knowing these simple characteristics will help you design and implement sorting, processing and loading facilities that work best for the cattle and the handler. When designing a sorting or processing area, if the cattle are moved to the opposite end in a smaller group, the natural tendency to return to the main herd will facilitate the flow, sorting, and moving to the processing area. AGChoice has access to seven major brands of processing equipment. Starting from the back and working forward, you can choose from a ¼ to ½ sweep using open panels or fully sheeted. Other options include a gated system, or a "Bud Box" design. Moving to the alley section, you can have a drop gate or slider. You can have "no back" devices that suspend from overhead, or are spring loaded along the side. The alley can be rigid or adjustable, half or full sheeted. It can be straight sided or V-shaped. Moving on to the chute, the rear entry can have a drop gate, slider, scissor style or bi-fold end gate. It can have one side squeeze, two side squeeze, parallel, or V-design. Moving to the headgate, variations include self catch or manual, V or straight. Other modifications include neck extenders, breast bars, rubber floor, head plate, side exit, top access, bottom access, palpation cage, free standing load cells, hydraulic, and the list goes on.

With all the different traits to select for when making genetic decisions for your cattle, one that can get overlooked in cattle selection is docility. With an aging population of beef producers, more emphasis might want to be placed on this trait. There are reams of data that document the fact that wild cattle perform poorly and negatively impact the performance of their penmates.

Unless you relish the notion of having your cattle working escapades becoming fodder for Baxter Black, stop by your local AGChoice location or give me a call anytime. We can match up your needs and budget to the system that will make the most dollars and cents. Adios Amigos!

Jon Roberts
(660) 641-1333

# Creekstone Farms

Paul Acton, Manager Moran/Blue Mound

A tour of Creekstone Farms packing Plant in Ark City, Kansas was recently hosted by the Moran AGChoice employees for their producers interested in meeting the needs of their beef customers and learning about adding value to the cattle they produce. Twenty producers were hosted by Jon Roberts and Les Green of the MFA feed division to a luncheon reception following the tour where the attendees learned about products and services that MFA can provide them to assist them in building a stronger link in the value chain. All who attended commented on the excellent hygiene of the plant and the care of the cattle.

Paul Acton
(620) 237-4668
pacton@mfa-inc.com

# GreenSeeker Handheld

Eric Preston

By: Eric Preston, SW MO/SE KS Regional Precision Sales Manager

**Nitrogen How Much is Left?**

It is mid-February, and it is time to start top dressing wheat if it is not already done. The lodged wheat from last season is making everyone nervous about over fertilizing with Nitrogen fertilizer. While corn yields of 2012 were higher than in 2011, they were still lower than expected. With this we have the same big question that we had last season. How much nitrogen is left in the field, and how much Nitrogen should be applied? One tool that can help answer this question is the GreenSeeker handheld sold by Trimble.


**GreenSeeker Handheld**

**What is the GreenSeeker Handheld?**

The GreenSeeker handheld crop sensor is an easy-to-use measurement device that can be used to assess the health—or vigor—of a crop. Readings taken by the GreenSeeker handheld can be used to make non-subjective decisions regarding the amount of fertilizer to be applied to a crop. The GreenSeeker uses Normalized Difference Vegetative Index (NDVI) and Red to Near Infrared Ratios. These data points can be used in conjunction with other agronomic references to index basic nutrient response, crop condition, yield potential, stress, pest and disease impact in a quantitative objective manner.

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**How does the GreenSeeker work?**

Upon pulling the trigger, the sensor turns on and emits brief bursts of red and infrared light, and then measures the amount of each that is reflected back. While the trigger remains engaged, the sensor continues to sample the scanned area by generating continuous bursts of light pulses and updating the display. Green plants absorb most of the red light and reflect most of the infrared light. The relative strength of the detected light is a direct indicator of the density of the foliage in the sensor's view. The denser and more vigorous the plant, the greater the difference is between the reflected light signals. The sensor displays the measured value on its LCD. NDVI can range from 0.00 to 0.99. By using this number you use 2 separate reference sheets to find your optimum fertilizer requirements.

**How large and where do I need N-Rich Strips?**

The ideal strip would be an applicator boom width down the middle of the entire field. The GreenSeeker needs a reference strip called an N rich strip, this is a Nitrogen rich pass through the field to supply enough Nitrogen to maximize plant health and color. The N rich strip should be 300 to 500 feet long in a representative area of the field (not in a bottom, or an upland), or the N rich strip should run across several field "identifiable" management areas, such as different soil type. To achieve optimal success, each field needs an N rich strip, just as conventional N management requires a soil sample from each field. The N rich strip integrates the effects of past field management, current field management (e.g. planting date, variety, etc.) and soil differences in the field on crop response to N. These factors often differ greatly from one field to another.

**When to use GreenSeeker on Fields?**

Recommendations of N application at the 5 to 6 leaf stage (Feekes 5, GS 30) for wheat; this is just before the first node is visible. Corn should be V-8 to V-12. The GreenSeeker readings should be taken to as close to these growth stages as possible to get accurate readings, preferably the day of application.

**Will the GreenSeeker work?**

The GreenSeeker is a useful tool and the technology has been around for more than 20 years. Numerous Universities have done research on and with the GreenSeeker technology, and have shown positive results. My biggest piece of advice to use with the GreenSeeker Handheld is using it how it is intended to be used. Having large enough N-rich Strips, testing and application timing is very critical to the success of the crop. The GreenSeeker is still just a tool to gain information. If that information is not an accurate representation of the field, it will decrease the tool's effectiveness.

Eric Preston
(620) 674-1775
epreston@mfa-inc.com

# Scholarships for High School Seniors

It's that time of year again, time for area high school seniors to decide what they want to do with the rest of their lives. If they decide to attend college, scholarships are extremely helpful in providing the financial means in order to achieve their aspirations of a higher education. MFA offers scholarships to graduating seniors of local high schools. Each MFA and MFA affiliated location gives at least one local high school senior a one-time $2,000 scholarship.

Have your high school seniors ask their counselor about the MFA scholarship and other Agriculture related scholarships. If the counselor does not have information on these scholarships please contact your local MFA store for more information.

# Weir Improvements

Bill Garner, Weir Manager

Bill Garner

Greetings from Weir AGChoice, I hope that all is going well in your operations and that everyone is getting all the moisture they need for spring planting. I would like to take this time to let everyone know of the new improvements that we have been making here in Weir.

**Weighing station at the East location**

The first improvement is a new truck scale at the East location. The new scale is longer and wider so we can weigh full length semi-tractors and trailers. Also, the new scale will make weighing tractors with duals more accurate.

The next addition is a new tractor and applicator to apply anhydrous. The tractor is a Challenger front wheel assist that is set up with auto steer and variable rate controller. We will be able to apply variable rate anhydrous for those customers that are in our precision program. The variable rate can be adjusted to the variable rate dry fertilizer program that our customers are using. The applicator is a 40 foot Great Plains no-till applicator that we can also use to side dress corn if the extra nitrogen is needed.

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The side dress issue has been asked for by several customers over the last few years. We have also added two new anhydrous wagons with double tanks to supply the new tractor and applicator. These new wagons should help with some of the shortage of wagons for customers we have each year.

**Challenger tractor and applicator**

The last addition that will be completed in March is a new liquid fertilizer plant at the East location. The new plant will add 270 ton of liquid 28% storage to our existing storage that we have in town. The new plant should also relieve some of the issues we have had with supply and transportation. There will be two 25,000 gallon tanks, with the potential to add a third tank in the future. The containment is already in place and should be up and running by mid March, just in time for corn planting.

**Containment for liquid fertilizer**

We have also expanded our precision equipment offerings to include hand-held Green Seeker units to measure the amount of nitrogen that is in the plant tissue of wheat and corn plants, along with our guidance systems. We are also adding another employee to run our precision program and crop scouting program. This person should be on staff by the first of June.

As you can see we have been busy this last winter making our offerings broader and adjusting to the demands of the farming industry. We are planning more improvements in the next few years to keep up with the changing times. Stop by and see what we have done.

Bill Garner
bgarner@mfa-inc.com
(620) 396-8554

# Short Plan to Spray

**A side effect of the 2011 drought was the bumper crop of weeds we saw in hay and pasture ground last year. Well, that probably means that the drought of 2012 will result in record breaking weed yields!**

**We need to plan now to spray our hay and pasture ground this spring or summer. As soon as you see the spring flush, be prepared to make it happen – you can rent our sprayer and spray it yourself or we can spray it for you.**

**Visit you AGChoice store soon to discuss the weed issue and make plans to win this battle!**

**David Moore 417-942-9541**

# Upcoming Events...

## 4 States Farm Show

## July 19 & 20

## 730 a.m. - 3 p.m.

## July 21

## 8 a.m. - 3 p.m.

### AGChoice Locations

**Blue Mound: (913) 756-2210**
**Emporia: (620) 342-4775**
**Emporia Grain & Feed: (620) 343-7562**
**Hepler: (620) 368-4347**
**Madison: (620) 437-2138**
**Moran: (620) 237-4668**
**Olpe: (620) 475-3801**
**Osage City: (785) 528-4632**
**Parsons: (620) 421-5110**
**Weir (east): (620) 396-8559**
**Weir (town): (620) 396-8554**
**Chelsea, OK: (918) 789-2559**

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