Volume 15 • Issue 3 • May 2005

Crop Quest Agronomic Services

PERSPECTIVES

OFFICIAL PUBLICATION OF CROP QUEST AGRONOMIC SERVICES, INC.

GRID SAMPLING SAVES/MAKES MONEY FOR TEXAS GROWER

Rader Gilleland first tried grid sampling on a 100-acre block of irrigated land back in 2000. Once he saw the results, he signed on with Crop Quest to grid his entire 8,500 acres at Panther City Cattle Company in Batesville, TX.

In the past four years of grid sampling, the Texas grower says he has saved approximately $1.4 million on fertilizer costs and has seen a 10% to 12% increase in crop yields in corn, cotton, milo and sesame.

"On this farm, we are a cattle operation first and a row crop operation second, but both enterprises have to make money," Gilleland says. "When we bought this farm, it was made up of 10 to 12 farms, with most of the acreage in vegetable crops. We put it all under pivot, and it was obvious from the start that fertility variability was off the chart," he recalls.

"We knew we had to get a handle on fertility because our crops were just up and down across the whole farm," he says.

More by chance than planning, Gilleland was introduced to a Crop Quest agronomist who told him about some new technology called grid sampling. Not expecting too much, Gilliland agreed to risk the money for a grid on a 100-acre field.

"We first got interested in grid sampling in the late 1990s," says Crop Quest agronomist Devin Kerstetter, who works with Rader Gilleland and other growers in Southern Texas. "The development of SST software allowed us to formulate boundaries of a field and lay it out in a grid. Samples are taken every 2.5 acres to measure fertility, even small amounts of trace minerals," Kerstetter explains.

Rader Gilleland, Manager of Panther City Cattle Company, checks grid sampling maps.

"Once all the data is collected, the software allows us to generate maps of each field," the Crop Quest agronomist says. "For example, on a 100-acre field, we would have 40 sample points. You can lay the nutrient map over the field and see where the high and low points are for each source of nutrients for the crop."

Grid sampling costs $9 per acre and should be done every three to four years. "If you amortize the cost of grid sampling over three years, it is usually cost effective after the first year – just on nitrogen carryover alone," says Kerstetter.

"In our operation, grid sampling saves us money and makes us money," Gilleland contends. He explains that over their whole cropping system, savings range from $25 to $35 per acre, plus fuel savings. Then, the uniformity of the crop brings lower yielding areas on par with higher yielding areas, resulting in increased crop yields.

> **"In the past four years of grid sampling, we've saved approximately $1.4 million on fertilizer costs."**

On irrigated land, using grid sampling data, Panther City Cattle Company produces 2.5 to 3.5 bales of cotton per year. Gilleland says they see equally impressive yields in corn, milo and sesame.

"Obviously, grid sampling has been a great tool for us. We spend some time upfront with our Crop Quest consultant; then he interprets the data and generates the field maps. We can walk to a specific spot on the field and visually see how it compares to the Crop Quest map," he adds.

The Crop Quest maps then play a key role in farm planning. For example, Gilleland says, he may look at the maps and see that one side of a 100-acre pivot is high in salt, so he plants cotton on half the pivot and on the other half, where salt levels are lower, he plants corn. They can make similar evaluations on pH and other soil-related factors that affect the crop, he explains.

Panther City Cattle Company is now in its second generation of grid sampling, with about half the acreage on a second grid. "We are in our first full year with a John Deere RTK guidance system, which fits in well with our grid sampling information," Gilleland says.

Gilleland and Kerstetter agree that the whole area of precision agriculture is going to be more prominent in the future of farming. The combination of fuel savings and more-uniform crop production will likely become more important to lending institutions when they go over a grower's farm plan.

"I don't know why more growers haven't gone to grid sampling," says Gilleland. "The fertilizer savings and crop uniformity have both been outstanding for our operation," he concludes.

The Consultant's Role Against Asian Soybean Rust

By: Jim Gleason, Regional Vice President
St. John, Kan.

Asian Soybean Rust survived through the winter in southern Florida on Kudzu, a known host plant. Surveys are continuing throughout the Gulf Coast states to identify other locations where it may also have survived.

The locations in Florida put it about as far away from the High Plains as possible, but we should not be lulled into thinking that we will completely escape this problem. The winds can move rust spores great distances in a short amount of time. The soybean rust situation will need to be closely watched throughout the season in order to stay on top of it.

A big part of this monitoring process will be done by crop consultants. We will be out in the fields looking for signs of the disease. We have been through a lot of training this winter to learn about soybean rust, and we know how to correctly identify rust and tell it apart from other foliar diseases that may be present.

With a vast network of consultants out looking for the progression of soybean rust, we will know when it starts moving in our direction. We will be watching the stage of development of the soybean crop and the weather conditions. Rust can become established on soybeans at any stage, but the infection is most commonly found after the soybean crop has entered the reproductive stage. If the weather is not warm and humid at the time of the infection, rust will not be able to become established in our fields. It will need temperatures in the 46°F to 82°F range, and the bean leaves need to stay wet for six to eight hours after infection for the disease to get started.

Once we decide that rust infection has occurred, we will recommend a fungicide treatment be made. There are at least a dozen products on the market that are registered for use on soybean rust. These products fall into three basic classes of chemistry: triazoles, strobilurins and chloronitriles. Triazoles have curative properties and have the ability to stop the disease from continuing to produce spores. The other two classes of chemicals, strobilurins and chloronitriles, have preventative characteristics and will need to be applied prior to the rust infection to be the most effective. All three classes of chemistry have from 14 to 21 days of residual activity. These chemicals are also labeled for other crops such as wheat and corn for other diseases. We will recommend the best product or combination of products that is available.

The rust pustules will become visible on the plant nine to 10 days after infection has occurred. The disease will be well underway before it can easily be found by scouting the field. It will be very critical to get the fungicide treatments applied in a timely manner. The infection will start on the lower part of the plant canopy. To get the fungicide applied correctly, the application will need to be made with 15 to 20 gallons per acre, by ground, with high pressure. If using an airplane, five gallons of carrier per acre will give best results.

Timeliness of the fungicide treatments is more critical in managing soybean rust than deciding on the product to use. If rust is moving into our area, you will be better off to have sprayed a little early rather than be too late. The fungicides also will work to control other leaf diseases that may be present in the field.

More Improvement to the REAL AG DATA Web Site

We continue to work on improving our REAL AG DATA Web site (refer to the March 2005 Crop Quest *Perspectives* newsletter). For our customers that have slower dial-up Internet connections, speed is an issue when it comes to viewing the information on the RAD Web site. We have recently incorporated some features that allow you to view the data more quickly. You now have the option of viewing a traditional PDF version of the information, or viewing a much quicker-loading HTML version.

We encourage you to visit the www.realagdata.com Web site to see for yourself. The subscription is offered at no charge to our customers.

When you visit the site, click on the 'Subscribe' tab/ link at the top of the page, and follow the instructions.

High Costs / Low Prices

By: Ron O'Hanlon, President

Member, National Alliance of Independent Crop Consultants, CPCC-I Certified

Farmers will need to watch their inputs this season due to high fuel costs and high fertilizer expenses. Not only does this make for a bad situation, but the current low grain prices will make it very difficult to show a profit.

Currently, nitrogen costs are running 5 to 10 cents (per unit of nitrogen) higher than last year at this time, which adds an additional $10 to $20 per acre to the expenses of growing corn. If a farmer uses any other source of nitrogen fertilizer besides anhydrous ammonia, they will have an additional $15 to $20 per acre in nutrient cost. Nitrogen is an essential nutrient for the crop and the lack of nitrogen will have a direct effect on yield. Therefore, it is imperative that the proper nitrogen rate be applied for maximum economic yield, but over-application should be avoided, as it will only lower the net return for that crop. A proper soil test by your Crop Quest agronomist will help determine what the recommended nitrogen rate should be while deducting any nitrate/nitrogen carryover and manure and legume credits as a cost-savings technique.

Because of the variables associated with the use of fuel, it is tough to write a general use figure for our entire trade area. Irrigation costs are determined by the source of fuel, pumping depth, the amount of water pumped, and the length of the pumping season. For many farmers, their pumping costs have doubled because of the increase in fuel costs. Based on current conditions, irrigation costs may be as much as one-third to one-half of their total input costs in growing a crop. This is definitely the year to follow the advice of their agronomist and shut down the wells during those times when water is not needed.

Equipment fuel costs are another large input and this is dependent on the number of tillage trips across a field. If a farmer is not already into no-till or minimum-till farming, they need to visit with their Crop Quest agronomist to see what it takes to get started. Even though reduced tillage may require increased usage of chemicals for weed control, the costs of herbicides have not increased as much as fuel costs.

In order for farmers to survive in these times of high input costs and low commodity prices, they will need to take a very serious look at all the expenses they put into growing their crops. Visit with your agronomist to see how you can trim even more off your crop inputs without being detrimental to the economic crop yield.

Q&A Asian Soybean Rust

High Plains soybean growers are justifiably concerned with the potential for damage to their crop and livelihood from Asian Soybean Rust (SBR). While Crop Quest agronomists are developing a comprehensive set of management guidelines for the Grain Belt, some common questions can be partially answered.

Q When will SBR get to our area?

A This disease should not be able to overwinter in the upper Midwest. Rather, SBR spores will have to move north every spring with wind currents. This occurs with many insect species and is typical of wheat stem and wheat leaf rust. If SBR successfully makes it through the winter in the south, it is likely to make it to Kansas (and surrounding states) sometime during the 2005 growing season. This does not mean that spores will arrive in large numbers, early enough and with favorable weather to cause yield loss or even be detected. SBR infection is favored by moderate temperatures, high relative humidity and prolonged periods (six hours or more) of leaf wetness. Frequent rainfall can increase the chances of infection.

Q How does Asian Soybean Rust rob yield?

A The rust fungus starts as a spore germinating in water on a leaf. The resulting fungal germ tube can enter through stomates or directly penetrate a leaf cell where it continues to grow through leaf tissue. Initially, infection appears as a light area on the leaf (usually the underside). Eventually leaf tissue is killed resulting in lesions. In as little as a week, the fungus produces a tremendous number of windborne spores which can infect soybean tissue in the same, neighboring or distant fields. The lesions reduce yield by destroying photosynthetic area. The fungus also diverts water and nutrients from the soybean plant compounding photosynthetic losses.

Q How much yield will I lose from soybean rust?

A Like any other soybean management problem, yield losses from SBR are quite variable. Yield losses up to 80% have been reported in other parts of the world. This level of yield loss is rare, but 50% loss is not uncommon during severe outbreaks. It is also possible that, under less severe disease outbreaks, little or no detectable yield loss may occur. Assuming that no control efforts (foliar fungicide applications) are made, yield loss will depend on the following factors:

1) The virulence of the SBR strain.
2) The amount of spores available to infect the field. This will depend on the number of spores produced in the south that move into the upper Midwest.

Continued on Page 4

Soybean Rust Q&A *Continued from Page 3*

3) Favorable environmental conditions for infestation and continued disease epidemiology. Adverse conditions for the disease (high temperatures, low humidity and rainfall) can slow or stop SBR infections.
4) The stage of soybean growth at the time of infection, as the potential for yield loss decreases as soybeans mature.

Q Can I cure soybean rust infections by applying fungicide?

A The strobilurin fungicides prevent new infections and are most effective as a preventative application before infection has occurred. The triazole fungicides can cure early stage rust infections and are preferred as a first application when rust symptoms are visible. None of these fungicides can cure advanced lesions in a leaf. Both strobilurin and triazole fungicides can be viewed as preventative. However, these products have a limited period of control and more than one application of fungicide may be required if SBR occurs early in the growing season.

Q Will tillage or crop rotation help prevent Asian Soybean Rust?

A No. Rust spores are not long lived and this fungus needs live host tissue to survive. Historically, the green hosts for soybean rust are very scarce in the upper Midwest from November to March. Since the fungus cannot overwinter and each season's initial infection results from windborne spores, crop rotation within a field and tillage are irrelevant in the control of this disease.

Q How do I know if my field needs to be treated?

A Unfortunately, SBR management requires applying control before symptoms are easily observed. Additionally, in the critical early stages, soybean rust resembles other diseases. This is why your Crop Quest consultant is so important in identifying exactly when (or if) fungicides need to be applied. Stage of soybeans and weather forecasts may reduce the need to apply fungicides.

Stanley Kliesen, who farms about 300 acres of soybeans in Ford County, Kan., says he will not do anything different in his farming operation to prepare for soybean rust. "Whether we get it here or not will depend on prevailing winds. Besides, we will rely on our Crop Quest consultant (Randy Waldren) to keep track of it and advise us on what to do about it if it is identified near us."

User-Friendly Information

McKinley Communications, Inc., our advertising and public relations agency that has been working with us over the past two years, has been assisting us in implementing a number of changes to improve the readability and appeal of our newsletter.

You've noticed the longer version of four pages vs. two, and now, new for Crop Quest *Perspectives* in 2005, is the use of four-color printing. Since four-color printing is now more affordable, it will allow us to use more informative photos, charts and maps, in addition to improving the readability.

Be sure to also check out our updated Web site at www.cropquest.com. Not only is the site more attractive, but the design is more user friendly.

Let us know what you think by writing us at Crop Quest, Attn: Newsletter, P.O. Box 1715, Dodge City, KS 67801, or by e-mail to rohanlon@cropquest.com.

Mission Statement

Crop Quest is an employee-owned company dedicated to providing the highest quality agricultural services for each customer. The quest of our network of professionals is to practice integrity and innovation to ensure our services are economically and environmentally sound.

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