



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

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Agriculture at a Crossroads

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I was probably in the fifth or sixth grade when I first became aware of agriculture as an industry. One of my first memories of reading and understanding the scope of agriculture was an article in a farm magazine titled "Agriculture at a Crossroads". Just a few days ago I saw that same title again and I realized that agriculture must be at a crossroads all the time.

When I was a kid, our Future Farmers of America chapter talked to our school assembly about the challenges of feeding the exploding world population and how in the world could 4% of the population feed the other 94%. Now I realize that 1.4% is overfeeding the other 98.6 %. Just today, the world's largest meat producer said profits were down 47% due to overproduction.

We are all certainly faced with many challenges in agriculture. The challenge of making a profit when most other segments of the industry (suppliers, manufacturers, processors) are in financial trouble is sobering.

As producers, we need to take steps to ensure profitability. One of the first steps is to evaluate our operation and the things under our control. We need to recognize the things that are unique about our farm operation and its location, along with market opportunities and implement strategies that give us an advantage. Unlike some may think, the answer is not in alternative crops, niche markets, local farm markets, organics, etc. that I have seen tried and failed.

There are some trends in our industry that will impact farms and profitability. By recognizing and taking advantage of these opportunities, we can minimize risks and improve our bottom line.

- ❑ Fewer dealers, distributors, and retailers with less inventory and product diversity requiring farmers to do a better job of planning and ordering supplies ahead of time.
- ❑ A greater diversity of pest control options and new chemistry are available with the opportunity to be more specific in our control strategy. To take advantage of this opportunity, we must do a better job of evaluation, identification, and application.
- ❑ More customized production for a particular end use for a wide variety of crops from wheat to tomatoes. We need to match production capability and location with market opportunities.
- ❑ Fewer crop protection chemical companies with a new “Large Customer Strategy”. These companies must effectively develop a business model that will address the needs of large customers. This will require the development and coordination of a user-friendly information system (“Decision-making Support System”) between farmers, their consultants, and crop protection companies.
- ❑ Precision agriculture will continue to struggle as demand for current services has dropped 63% in the last five years. Selling information analysis is tough in today’s economy. Precision agriculture must soon evolve into a tool that all farmers can benefit.
- ❑ Preventative and predictive pest management coupled with reliable genetics will replace integrated pest management and uncertain genetics.
- ❑ Farmers will collect and track performance characteristics that prove valuable to their respective operations. The concept of whole farm reporting will allow farmers to pinpoint profit centers and produce products at a premium rather than a discount.

New Cotton Varieties

The cotton industry is abuzz about Deltapine’s DP555BG/RR. Part of this excitement is due to the fact that it has been so long since cotton growers had anything to get excited about and part is due to the fact that 555 really has a lot of potential.

For the last five years growers have been offered mediocre varieties with few improvements in yield or quality. It seems cotton breeders struggled to develop varieties with the desired yield and quality in combination with special genes including round-up and insect resistance. DP555BG/RR is a mid to full season variety that will require a higher level of management than most of our current varieties. Field selection: fertility; and pix will require special attention. This variety is not as easy to grow as DP5415 or DP451.

In North Carolina evaluations, DP555BG/RR was the number 1 yielder across all trials. In the medium maturing test it averaged 44.2 % lint, 1.06 length, 27.9 strength and a 4.7 mike. This variety will require a more aggressive Pix program than most other varieties. DP555BG/RR has a small seed in comparison to other varieties.

Stoneville also has a very good new variety, ST5599BG/RR, which comes from LA887. This variety has root knot tolerance and would work very well on infested land. ST5599 should be a little taller than ST4892BG/RR, which would provide a better canopy on light textured land. ST5599 was the 2nd leading medium maturing BG/RR variety behind DP555. It averaged 41.8 % lint, 1.07 length, 28.8 strength and 4.5 micronaire. The quality was better than ST4892 in the 2002 test. In 72 official University trials over two years, ST5599BG/RR averaged a 1.12 length, 30 strength, and 4.4 micronaire.

Both DP555BG/RR and ST5599BG/RR are worthy of evaluation in 2003.

SCN Varieties: Looking Beyond Yield

Soybean cyst nematode is a widespread pest in the Southeast and Midwest. The pest is a serious threat to soybean production throughout the United States because of its ability to reproduce very quickly and survive in the soil for many years even in the absence of a soybean crop. SCN can result in substantial yield reductions causing a very bad situation to get worse as the breakeven point seems to move further and further out of sight. There are many new varieties on the market that offer SCN resistance. The problem is that some varieties yield very well but do a very poor job controlling the reproduction of SCN.

Growers need to evaluate a varieties' ability to control the reproductive properties of SCN as well as yield potential in order to prevent future losses due increased SCN populations. The key is planning. Maintaining viable land for soybean production should be a concern for farmers that plan to grow small grain now and in the future. The deciding factor in keeping land viable for future production is management of nematode populations.

Remember that some soybean varieties with SCN resistance may offer high yields but little or no protection against a population explosion. Evaluating varieties on yield alone is short-sited and could lead to disaster in later years. University Extension publications are available which contain information in SCN control. Growers should review these materials annually to make informed decisions.

Intrepid: Beet Armyworm Control in Cotton

This past cotton growing season provided excellent conditions for many pests of cotton, most notably the frequency of beet armyworm proliferation. In years where the potential of increased infestations exist, growers need effective control options to help combat and minimize worm pest impact on their cotton crop. One viable control option in cotton production could be the use of Intrepid insecticide.

Intrepid, marketed by Dow AgroSciences, is labeled for use on cotton and shows promise for the effective control of beet armyworm and other *Lepidoptera* pests. Intrepid is an insect growth regulator, which contains the active ingredient Methoxyfenozide, and belongs to the diacylhydrazine class of insecticides. Intrepid is selective since it has no activity on bees and other insects making it safe while maintaining control of targeted pests including the destructive *Lepidoptera* species consisting of armyworms, bollworms, budworms, and loopers. The insecticide is selective due to its mode of action, which disrupts the molting process of the target pest. Upon ingestion by larvae, the insecticide acts to trigger a premature and incomplete molting stage leading to death.

The labeled use rates of Intrepid on cotton are 4 to 10 oz. per acre for controlling beet armyworm, fall armyworm, southern armyworm, and soybean looper. According to insecticide performance ratings, Intrepid performs to give very good control of beet armyworm, southern armyworm and soybean looper while also providing good control of fall armyworm depending upon larvae size. Intrepid is the best economic choice for beet armyworm control since it provides very good control at the low rate of 4 oz. per acre (around \$7 per acre) while offering beneficial insect preservation. Intrepid also offers effective control of budworms and bollworms, but requires a higher rate of 16-24 oz. per acre.

Identifying Target Spot

Over the last several years, target spot has been reported on several vegetable crops. The fungus *Corynespora cassiicola* causes this disease, and its appearance is that of a bull's eye or concentric rings. These symptoms usually appear as lesions but identification is necessary to separate from other diseases. Target spot can remain viable in crop debris for up to 2 years. A temperature of 82 degrees Fahrenheit (28 degrees Celsius) is ideal for spread of the disease.

Target spot is often seen as a problem on tomatoes and cucumbers in Florida. With tomatoes, the first signs of target spot are lesions on leaves. They are usually light brown with darker edges. Some may also have a yellow halo around the spots. After these appear, circular lesions develop and can lead to blight. The stems and stalks of the plant can also be affected by these symptoms. The signs on the tomato fruit are similar to those of the leaves. These lesions are usually sunken and gradually become darker. In the later stages of disease development, the lesions are large, sunken, with a growth of gray fungus in the center. These symptoms often get confused with bacterial spot and early blight, so it is necessary to examine the lesions for the *Corynespora* fungus to properly identify target spot.

The symptoms of target spot on cucumbers are similar to those of tomatoes. It starts as yellow flecks on the leaf that gradually get larger. As it progresses, the lesions become tan with a brown outline. These areas of lesions can dry out and tear the dead tissue. In the early stages of target spot on cucumber, it is often confused with downy mildew and later with anthracnose. Again, it is important to examine the affected tissue for accurate diagnosis.

Control of target spot is primarily done with applications of fungicides. In the case of cucumber, plant resistance is the main control being used. With tomatoes, the fungus does not occur often so resistant varieties have not been developed. Since it can be confused with other problems, it is very important to confirm target spot infection before taking control action.

Wheat Seeding Rates

Even though it is too late to change for 2003, many growers want to know what is the best seeding rate for wheat? This time of year, it is obvious if stands were not adequate to produce high yields. By mid-march, most of the yield potential for the current crop is set. Observations of the current crop can help us plan improvements for next year.

The ideal planting time for wheat changes with region. Assuming that we know the ideal planting date for our area, we can then determine changes in seeding rate needed to compensate for being late. With 90% germination, a rate of 30-35 seed per foot will provide 22-25 seedlings. For every week past the ideal planting date for a given area the seeding rate should be increased by 5%. The table below indicates the number of seed required per foot of row at different drill spacing when planting date varies from on-time to four weeks late.

<u>Drill Spacing</u>	<u>Seeding Date</u>		
	<u>On Time</u>	<u>Two Weeks Late</u>	<u>Four Weeks Late</u>
number seed per foot of row			
4"	12	13	14
6"	18	20	22
7"	20	22	24
8"	22	24	26

Seeding rates for no-till wheat should be increased 10 % over those for conventional wheat.

Importance of Predictive Sampling

When profit margins are small, extra effort to fine tune production practices can pay big dividends. These savings can mean the difference between profit and loss. Soil testing for both nutritional status and nematode populations are essential predictive services. Instead of cutting back on inputs across the board, growers can be selective and cut back where it does not affect yield or quality.

It is critical to do a good job of soil sampling. All nutrient application decisions are based on the results of this effort. Money spent on fertilizer is wasted if soil pH has not been properly adjusted. Soils in the southeast are prone to low pH. Normal rainfall patterns and other conditions including sandy soils and use of acid-forming fertilizers all contribute to declines in pH. Even under the best of conditions, soil pH will decline over a two to three year period.

Crops cannot respond to nutrient applications as efficiently if soil pH is low. Nutrients like phosphorus are tied up and unavailable to plants when pH is low. Aluminum and manganese both become toxic to roots when pH is low. Since root growth is limited under conditions of low pH, crops become vulnerable to less than ideal soil moisture.

A properly limed soil generally contains adequate calcium and magnesium. These nutrients are critical to normal plant growth. Calcium and magnesium are not routinely included in fertilizers. Additionally, lime provides the most inexpensive means of supplying these nutrients.

In total, there are 16 elements required for plant growth. Oxygen, hydrogen, and carbon are supplied by the atmosphere and water. The remainder, (nitrogen, phosphorus, potassium, sulfur, iron, manganese, zinc, copper, boron, molybdenum, and chlorine), must be supplied by the soil and/or fertilizers. A properly taken soil sample gives a good assessment of the status of most of these nutrients.

Sampling procedures, as simple as they may seem, are critical to reliable results. If one individual samples deeper than another from year to year, results can be very confusing. Soil pH can drop as much as one point as soils are sampled more deeply. It is important to sample the same fields or areas separately from year-to-year so that trends in nutrient levels and production can be tracked over time.

Nematode samples are best collected in the fall when populations are generally highest but a spring sample beats no sample at all. It is important to track sample results and rotations over years to best manage nematode populations in the most economical way.

In contrast to soil samples, which predict nutrient requirements before planting, plant samples predict nutritional status of growing plants. Plant analysis is a valuable tool for vegetable farmers as they seek to optimize quality. Plant analysis takes the guesswork out of in-season fertilization. This tool becomes essential when farmers seek to cut fertilizer costs by using farm manures. Plant samples indicate when additional fertilizer is needed and provides assurance that the crop is adequately fed.

Agri-Technologies consultants are trained in techniques required for reliable soil, nematode, and plant samples. Consistent sampling from year-to-year ensures that resources can be allocated over years to not only maintain the most economical fertility and nematode control but to distribute expenditures over years. Money saved on fertilizer and nematode control is as good as guaranteed profit before the crop is even planted. Likewise, fields needing special treatments can receive them before crop yields are jeopardized. If you are not already on a soil, nematode, and plant sampling program, call your Ari-Technologies consultant concerning this profit-making service.