NDVI: WHAT IS IT - HYPE OR TOOL?

By: R. L. Frazier

The new buzz word of late in the precision agriculture field is NDVI (Normalized Difference Vegetative Index). With the increased use of UAVs (unmanned aerial vehicles) aka drones, NDVI has become more popular and in some cases a way to sell services. Three questions to ask when considering using NDVI in your production program: 1st - what is it; 2nd - what I can do with it; 3rd - will it pay.

1st) What is it? NDVI is a numeric value used to describe the health and or vigor of a plant. It is a measure of the ratio of reflected light and absorbed light by a plant. Values range from -1 to 1 and have a strong correlation to crop growth stage. Early NDVI measurements were using Red band of light and the Near Infrared band. NDVI values are calculated or measured using the formula: NDVI= (NIR –Red)/(NIR + Red). More recently, work has been done using Blue or Green NDVI, when using one of these values the Red band is replaced by either the Blue or Green band to generate the desired NDVI. Blue NDVI is equally as good as the Red NDVI when used in a good closed canopy. Using Blue NDVI with bare ground can lead to higher NDVI values than are actually present. Green NDVI seems to work better in late season because it is more accurate with mature plants. All three NDVI ratios are good but you must understand the pros and cons of each. Also, understand NDVI values are only good for the field they were taken in and they cannot be compared across fields. In other words, a value of .6 in field A does not mean the same as a .6 in field B. There are many variables that contribute to the plant makeup that do not allow cross field comparison to be meaningful.
Irrigation Well Flow Testing

LSU AgCenter has 3 flowmeters that can be used by producers to test their wells. Sizes are 10" and 12". Contact your local county agent if interested in borrowing a flow meter.

2nd) What can I do with it? First, understand question 1 and second, realize it is not a silver bullet or fix all. NDVI is a good tool, but only a tool to be used in conjunction with good ground truthing to make informed management decisions. Before you fly a field to collect NDVI have a specific purpose in mind. You cannot look at a NDVI map and determine that you need water in section 1, insect control in section 2, and disease control in sections 2 & 3. Having a specific purpose and knowing that the crop is at a growth stage where insects could be causing stress to the plant NDVI could be beneficial. Fertility problems can be identified using NDVI at certain growth stages. Water issues can sometimes be addressed using NDVI where a low area is holding water after a rain causing plants to be stressed or an area where adequate water is not being received. Weeds usually are a different shade of green than the crop thus producing a different NDVI value. I have been able to identify weeds before they broke through the crop canopy. NDVI can identify problem areas within a field about 2 weeks before it can be seen with the naked eye. Again it will only help you to distinguish the stress levels within a field. You will still have to ground truth these areas to see what the problem is.

3rd) Will it pay? Yes, if it is used properly. To do this, again you must understand questions 1 & 2: what is it and what I can do with it. First, NDVI must be georeferenced, so you can then navigate to the correct area within the field to check for a problem. Second, if your NDVI is georeferenced then a prescription map can be generated to use the 4R procedure (right product, right rate, right place, right time) to correct the problem.

For NDVI to be economically beneficial you will need to scout on a regular basis to identify problems before they get out of hand. It will not replace boots on the ground, but if used
properly at the correct growth stages it could save you time and money. Then it becomes an economical benefit to your operation.

If you need help with NDVI or would like to discuss this topic feel free to contact me at: 318-574-2465 or 318-267-6714 or email rfrrazier@agcenter.lsu.edu.

**Herbicide Resistance….What is it?**

By: Donna R. Lee

The terms herbicide resistance and herbicide tolerant are tossed about frequently. What do they mean? The classical definition of herbicide resistance comes from Drs. Ron Vargas and Steve Wright of the University of California and reads as “The inherited ability of a plant to survive and reproduce following exposure to a dose of herbicide normally lethal to the wild type.” Meaning decreased herbicide control of a susceptible weed population caused mainly by previous use of that herbicide. Herbicides take out the susceptible population and leave a population that is non-susceptible.

Again from Drs. Vargas and Wright herbicide tolerance on the other hand is “The inherent ability of a plant to survive and reproduce with an herbicide treatment at a normal rate”. Meaning the weed population was never susceptible to the applied herbicide.

If we are looking at a field of Palmer Amaranth that was treated with glyphosate over ten days ago and see some plants dead and some living, which term applies? Herbicide Resistance is the correct answer. Why? More than likely the field was sprayed with glyphosate in the past killing the majority of Palmer Amaranth. Most likely one or two plants survived, produced seed and germinated the following year.

Does knowing the correct term really matter? Knowing and understanding the difference between the two definitions means understanding whether you have herbicide failure or used the wrong herbicide.
How do we prevent Herbicide Tolerance?
- Always use the recommended label rate of a herbicide.
- Never cut the rate.
- Use with 15 gallons of water per acre or more.
- Use a pre plant with residual control in your weed program.
- Use herbicides with different modes of action.
- Use tank-mixes of herbicides with different modes of action.
- Spray when weed is small, 2-6”.
- As added insurance, if you find an escaped plant, pull up by roots and dispose of away from the field. May or may not be resistant but insurance of this type never hurts.

If you have more questions please contact a county agent in your parish.

New AgCenter Publication Released

Submitted by: Bruce Garner

The AgCenter Irrigation group has produced a new publication that looks at the net profits from surge irrigation in row crops in Louisiana. Publication 3566, Evaluation of Net Profits from Surge Irrigation in Row Crops in Louisiana is available online at http://www.lsuagcenter.com/profiles/aiverson/articles/page1483977837174

Surge valves in furrow irrigation are used to run water down the field with on-and-off cycles of water delivered at the head of the furrow (Izuno and Podmore, 1986; Schaible and Aillery, 2012). Surge valves have proven to improve irrigation water use efficiency in gravity systems (Horst et al., 2007; Shock et al., 1997), to increase infiltration uniformity (Podmore and Duke, 1982), reduce nutrient loss to runoff from agricultural fields (Evans et al., 1995), and improve long-term farm profitability (Adusumilli et al., 2016).
LSU AgCenter Launches Crop Specific Text Message Information Systems

By: Dr. Dustin Harrell & Dr. Ronnie Levy
AgCenter Specialists

In an effort to better reach crop specific clientele, the LSU AgCenter has formed several crop specific text message groups. The intent of the text message groups is to provide timely information to growers, crop consultants, land owners, extension, research, and other related industry personnel. Text messages will be sent out as reminders for meetings, updates about product registrations, notifications of new publications and newsletters, updates of disease and pest outbreaks (somewhat as an early warning system), as well as other important information as it arises during the growing season. Dr. Dustin Harrell launched the group text messages to rice producers and has been very well received by all in the rice industry. Due to the success of the rice text message group the AgCenter has decided to form additional text message groups. Separate text message groups were set up for rice, corn, cotton, soybeans, grain sorghum, wheat, sweet potatoes, sugarcane, and crop consultants.

It was pointed out that it would be important that text messages go out from the AgCenter and that recipient would not have the capability to text back to the whole group because this could cause endless text messages going back and forth. Another key was that all personal information should be kept private.

The program that we have decided to manage the text message groups with is called Remind. This program is often used by school teachers to text-message students and parents and does not allow texts to be sent back to the group. All phone numbers from the different members of the group are kept confidential and are not shared with others within the group. A Remind computer and smart phone application is also available if you would like to download it. The app allows you to receive the texts in the app in addition to the regular text message feature. This is convenient, especially if you do not have text message capabilities.
In addition, if you opt in for the feature, you can instant message/chat with others in the group within the app. Again, all phone numbers and other information are kept confidential. Only your name is visible.

If you would like to join one of the commodity text groups, simply send a text message to 81010 with the name of one of the groups in the body of the message (@larice, @lasoybean, @lacorn, @lacotton, @lasorghum, @lawheat, @lacropcon @laspotato, @lasugar). To unsubscribe to any group, simply text back “unsubscribe@larice” (or other group name) to the group. If you would like to get the text messages by email, send an email to larice@mail.remind.com (or other group name). If you would like to unsubscribe to the email messages, simply email back with “unsubscribe” in the subject line.

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Ag Points provides updates for the agricultural industry in East Carroll, West Carroll and Madison Parishes.