October 1, 2007

Commercial Horticulture:
Future Cooperative Extension Programs, Business Planning
and Crop Production Issues & Alternative Crops

This newsletter is intended for people interested in commercial fruit and vegetable production, business planning and North Carolina Cooperative Extension Service meetings throughout North Carolina. For back issues of this newsletter please go to the Jones County Extension website and click on the Commercial Horticulture, Nursery & Turf menu option on the left side of the website. The website address is: http://jones.ces.ncsu.edu

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Agriculture – Commercial Horticulture

Upcoming Workshops, Tours & Meetings


October 16, 2007. Regional Farmers Market Managers & Board Members Training. Lenoir County Cooperative Extension Center, 1791 Hwy 11/55, Kinston, NC. This program will provide networking opportunities and help farmers market managers learn ways to promote their markets, improve food safety and educate consumers about the value of locally grown produce. Contact Mark Seitz at (252) 448-9621 to register or for more information.

October 17, 2007. Blackberry Production & Marketing Informational Twilight Meeting. 6 PM – 8 PM, White’s Farm, Vanceboro, NC. This program will discuss varieties for eastern NC, trellising and marketing strategies for blackberry production. Contact Mark Seitz at (252) 448-9621 to register or for more information.

October 23, 2007. Community Supported Agriculture (CSA) Information Meeting. Lenoir County Cooperative Extension office, 1791Hwy 11/55, Kinston, NC. This program will highlight the value of CSA contracts to consumers and farmers alike. Contact Mark Seitz at (252) 448-9621 for more information.

October 29, 2007. Community Supported Agriculture Information Meeting. Lenoir County Extension Center, 7 PM. Contact Mark Seitz at (252) 448-9621 for more information.

November 7, 2007. The North Carolina Irrigation Society 43rd Conference and Business Meeting. NCSU McKimmon Center, Raleigh, NC. Three sessions will cover:
- fruit and vegetables (including frost-freeze protection)
- wastewater irrigation
- field crop irrigation (including the economics of irrigation given higher commodity crop prices)


December 4-6, 2007. Certified Crop Advisor Training. Onslow County Extension Office. Contact Curtis Fountain at the Duplin County Extension office (910) 296-2143 for more information.


I would like to take a group of people to this conference. This would be a 5-7 day trip depending on how much driving the group is willing to do in a given day. If you are interested in going please contact me by November 1, 2007.

Registration information for this conference is not yet available online. I will keep you posted as to when it is available.

Business Planning & Management

Leadership

Leaders are made, they are not born. They are made by hard effort, which is the price all of us must pay to achieve any goal that is worthwhile.

Vince Lombardi
Green Bay Packers
Football Coach

The Quotable Coach
by Thom Loverro

Leadership and Daily Battles

Do the leadership strategies that are used by big business and in large corporations apply to agriculture and farming? YES!

While the product or the industry referred to might be different, many of the principles used by all businesses are the same. An example of this is the philosophy put forth by the Chairman and CEO of Southwest Airlines, Mr. Herb Kelleher. After researching business philosophies, Southwest’s business philosophy certainly fits agriculture and the horticulture industry very well:

“Reality is chaotic: planning is ordered and logical. The meticulous nit-picking that goes on in most strategic planning processes creates a mental straitjacket that becomes disabling in an industry where things change radically from one day to the next.”

Does this sound like agriculture/horticulture? Mr. Kelleher’s philosophy is all about not getting bogged down in the strategic planning process and not handcuffing yourself or your business to the same old methods each season. Abandoning what has worked for you or your farm in the past is not the objective but adding new things, trying new approaches or targeting a new audience with your product is!

Agriculture, particularly horticulture, is a fast paced, constantly changing industry. Hail, lightning, tornadoes, drought, downpours and other weather events create management nightmares. We live in a hurricane prone region and know how quickly a good season can go bad. Hurricane Floyd in 1999 and Tropical Storm Ernesto in August 2006 are good examples of rapid change. Unlike the airline industry, where the majority of the management problems revolve around people, dealing with the mess Mother Nature throws at you is the most difficult aspect of farming.

So how does leadership play a role in managing shocks such as this to your business strategy? Planning takes time and a lot of thought. Good managers should:

- Carry note pads [or a good supply of envelopes on the dash of their pickup trucks] to keep track of spray applications, unusual weed problems, yield changes or nutrient problems.
- Keep notes to record information during your busiest time of day or week to help you review and correct in the off season, problems that occurred the previous summer, which you might otherwise forget.
- Keep a list of phone numbers for brokers, buyers, farmers market managers or top customers, on hand or on speed dial. Communicating to these people not only tells them what your crop looks but it gives the people that buy your crops advanced notice about extra volume or shortfalls so they can look for additional outlets or additional sources if needed.
- Write down ideas picked up on farm tours, at conferences, or in personal conversations that you can implement to increase sales or production.
- Communicate often. Direct communication with your employees, every day can be the best management strategy you employ. It gives your employees input, makes them feel more involved and can yield some of the best ideas you have ever heard.

All of this takes time and requires a level of commitment to pay attention to the details. There are numerous ways above and beyond this to improve your management plan and style. As Coach Lombardi says, “Leaders are made by hard effort.”

**Crop Production**

**Strawberries**

Here is a Virginia strawberry grower’s sentiment about the weather this fall. I had to share them with you because I think they reflect what a lot of us think about the weather this year.

*Comment from VA Beach area (9/6/07)*

We watered (so far) 2 of our 2.5 acres of bone dry dust so we could fumigate and lay plastic. We got our moisture "right" and started with plastic today. Now they say that tropical-storm-wannabe Gabrielle might bring us a lot of rain and maybe wind on Saturday-Sunday. We don't need a bunch of rain to wash our ryegrass seed away or wind to mess up the plastic! Why can't Mother Nature get it right??? We need to invite her to speak at [Strawberry] Expo and give us some "understanding." The room would be packed if you could get her on the schedule!

Tom Baker, Brookdale Farm
Virginia Beach, VA

*Taken from Strawberry Drought Advisory No.4. Barclay Foling, NCSU.*

**Steps to Successful Collard Production**

1. Use crop rotation
2. Test soil
3. Lime to pH 6.0 to 6.5
4. Plant to meet market expectations and desires. Collards should be planted in early September for Thanksgiving – Christmas production. Warm winter weather can generate good crops well into January and February.
5. Have transplants inspected for black rot. Black rot is a serious soil disease for plants of the Brassica species. Black rot is a disease that infects all brassica species. Clean seed and field sanitation are critical control practices.
6. Space plants for the desired harvest and marketing method.
7. Use precision seeding, when available.
8. Control weeds – weed control, especially in direct seeded fields, is critical for good stand establishment and overall yield.
9. Manage pests – whitefly, aphids, flea beetles and cabbage loopers are serious pests of collards.
10. Pack with ice. Transportation losses can be significant if cropped leaves are not properly chilled. Keep collar leaves on ice or in coolers at temperatures of 34°F to 38°F.

Pest control in collards is always a challenge. Greenhouse whitefly (*Trialeurodes vaporariorum*) is a common insect pest that is difficult to manage both commercially and in home gardens. This is the most common species of whitefly found on collards. Other species that might be found include Silverleaf whitefly (*Bemisia argentifolia*) – also known as sweetpotato whitefly – is a newly introduced whitefly species that is common in the southeast US.

Whiteflies feed on the phloem tissue of the plant and generally reduce the plant’s overall vigor. Whiteflies are a serious pest of many vegetable crops, mainly because of its ability to carry and transmit plant viruses.

Whiteflies lay eggs on the plant surface, usually the newest leaves, in a semicircular pattern. The eggs are a creamy yellow color before darkening after 24 hours and typically hatch within 5 to 7 days. Under ideal conditions, a generation of whitefly can take as little as 3 to 4 weeks to complete. This rapid life cycle makes complete control difficult to achieve.

The key to managing whitefly populations is to break the reproductive cycle of this insect. There are three nymph stages and a pupae stage. Whiteflies in the pupae stage do not feed on plants, which can impact the efficacy of any insecticides used. Because there are usually multiple generations and multiple growth stages present, whitefly populations can escalate rapidly.

Commercial producers can control whitefly using the following products:

- Acetamiprid (Assail) 30 SG – 2.5 to 4.0 oz / acre – 7 day PHI. Apply against adults, before nymphs are present. Use a spreader sticker to improve control.
- Endosulfan (Thionex) 3 EC or 50 WP – 1 qt to 1.5 lb / acre – 21 day PHI. Thionex can only be used 1 time per season!
- Spiromesifen (Oberon) 2 SC – 7.0 – 8.5 fl oz / acre – 7 day PHI. Do not make more than 3 applications or apply more than 25.5 fl oz. per season.
Cropping and removing leaves with noticeable whitefly populations can also reduce the level of feeding injury and overall population in the field.

**Biofuels and Cellulosic Ethanol: Impact on Eastern NC**

Did you know biofuels and cellulosic ethanol production are coming to a community near you? After reading the title and first sentence, I suspect you have a few questions. What are biofuels? What is cellulosic ethanol? What does it have to do with commercial horticulture? What does it have to do with agriculture in North Carolina and why should I care?

The answer to all of the above questions is… biofuels and cellulosic ethanol will matter! If they do not now, experts predict they soon will.

Before I go much further, I want give you some background on this article. I am, by no means, an expert in the production of ethanol or at this point the alternative crops that might be used in the production of ethanol or other biofuels. The comments I am making in this article are based on information I gathered at two conferences I attended this summer. One was the National Association of County Agriculture Agents in Grand Rapids, Michigan, where Dr. Bruce Dale, Chemical and Materials Science Department spoke. The other conference was a training session I attended in Onslow County where Dr. George Nichols, NC State University Solar Center Director spoke.

These professors, like many others around the US, are working very hard to develop the technology and economic data needed to move the US economy to a biofuel based economy. They have very different perspectives on the issue of biofuels, but Dr. Dale and Dr. George both support the development of and use of biofuels as an alternative to oil; both explained some of the key points about the role biofuels can and will play in our future and both talked about the need for the United States to move to an ethanol based economy, rather than continuing to be dependant on foreign oil.

So what are biofuels and cellulosic ethanol and what is the all the hoopla that we hear in the media today? First, let’s define biofuels. Biofuels are fuels that provide energy from solar, wind, and plant matter.

They are fuel sources that generate less greenhouse gas than coal, oil or natural gas.

Biodiesel is a form of diesel that can be made on the farm and burned in current diesel engines without any modification. It is a clean source of diesel, and provides comparable horsepower for farm equipment that diesel from crude oil provides.

Cellulosic ethanol is a form of ethanol that is derived from plants, not just corn. Cellulosic ethanol is derived from the cellulose sugars that are extracted after the lignin and cellulose are separated in plants. Lignin is the ‘glue’ of the plant’s cell tissue, and cellulose is a fundamental component of the cell wall in plants and is therefore the most abundant natural product in the world!

Any crop in any country can be used in a cellulosic ethanol facility to create ethanol. Ethanol is a natural waste product created by bacteria as they digest cellulose. The key making ethanol from cellulose is to find the right species of bacteria to add to a tank full of cellulose and let the digestion process begin.

Preliminary research in this area shows some plant species such as Switchgrass (Figure 1) and Miscanthus (Figure 2) are being tested as crop options for the production of cellulosic ethanol. These grasses produce cellulose quantities forty times greater than an acre of field corn. Forty times! That is a lot of plant matter and a lot of cellulose from an acre of land.

Figure 1. Switchgrass
First, the climate is changing! Whether you believe the global warming theories or not, our summers are getting hotter, our weather extremes seem to be worse and greenhouse gasses in the atmosphere are increasing. The drought we are experiencing in 2007 may or may not be due to global warming, but it is certainly not a ‘normal’ weather pattern we are in. As a nation, we have an obligation to ourselves and the rest of the world to find ways to reduce the emissions we put into the air. Biofuels, such as biodiesel and ethanol, can be the liquid fuel source we need.

Second, the availability of crude oil world wide is at its peak (Figure 3). Some argue the peak is 20 years away, others say 40 years, some say 100 years. No matter who is right, everyone – including oil industry officials, agrees that the supply of oil will begin to decline in the very near future.

For a nation so heavily dependant on oil – we imported over 60 percent of our oil needs in 2006! - that is a scary proposition to be face when you have no viable source of liquid fuel available to replace it.

Third, energy security. As oil supplies dwindle, the control over our sources dwindles. Biofuels can be produced at home, by farmers and landowners all over the country. The amount of land needed to produce these fuels is predicted to be less than 10 percent of the land already in production for feed crops. Investing in and developing a domestic biofuel industry helps keep US dollars at home and may take away the dependency the US and much of the rest of the world has on sources of oil in places like Iran, Iraq and Venezuela – countries that are currently not friendly to the USA.

Why are biofuels the answer to our energy problems and not sources of energy like coal, nuclear, hydrogen, or hydroelectric power? Mobility! For the most part coal, nuclear and hydroelectric energy require large, massive, fixed facilities. While they produce large amounts of energy, these sources are not mobile, which is the kind of energy our economy needs to power our planes, trains and automobiles.

Why not hydrogen or other high tech fuel sources? We currently have the infrastructure (gasoline pipelines) in place to support a conversion to ethanol. Using hydrogen would require an entirely new delivery infrastructure that in the short run is not feasible.

Some believe our future energy needs can be derived from solar sails or nuclear fusion, rather than nuclear fission, but most scientists agree that these forms of energy are too theoretical and cannot be put to use before the end of the oil age.

So why is any of this pertinent to a commercial horticulture and marketing agent? Part of my job is to help find crop production alternatives – outside the field crop norm of corn, soybeans, cotton and tobacco, are part of my job. Biofuel experts like Dr. Dale and Dr. George expect that a market split should occur in the grain markets in the very near future. Farmers will need to make decisions to produce and sell crops for one of two markets: the fuel market or the feed market.

Can farmers grow crops for both markets? Yes. It already happening. Farmers in the Midwest are producing corn for feed and ethanol production while farmers in North Carolina and other parts of the country continue to produce corn for feeding poultry and swine and cattle.

In the short run, there is not enough ethanol production capacity to meet consumer (& political?) demand. In the long run, cellulosic ethanol production facilities – facilities that can turn any kind of plant matter into ethanol instead of just corn (or sugarcane in tropical climates) - will dominate
the ethanol industry and corn prices are expected to stabilize.

Cellulosic ethanol production facilities will need farmers to grow crops such as canola, Switchgrass, Miscanthus and other crops and plants in order to run their production facilities. This is due in part because corn sugars are some of the purest available for the production of high-fructose syrup and according to Dr. Dale, are too valuable to waste on a relatively simple digestion process. For this reason, alternative sources of cellulose can and will be developed.

Livestock producers argue that the demand for corn for ethanol production is now or will eventually drive them out of business because feed prices are getting too high. There is no question corn prices are at historically high levels. It is a hardship for livestock producers to endure and if corn-based ethanol production continues to grow, rising feed grain prices may go on for a number of years.

That said, grain farmers and livestock producers, researchers and Extension agents and economists continue to debate the impact that corn ethanol will have on the livestock and grain industries. Corn-based ethanol demand may lead to higher food prices for consumers as livestock producers are forced to adjust their sale prices to offset the high price of corn. In the short run, higher prices at both the producer and consumer level will likely lead to adjustments at the grocery store that all of us have to make.

Final thought. What is in it for me as a farmer or citizen in Jones, Craven, Lenoir, Onslow or any other eastern NC county? How can I benefit from this industry as a farmer or an investor in the cellulosic ethanol or biofuel industry?

The construction of ethanol production facilities is an extremely expensive proposition. While these facilities need to be close to sources of raw material and might offer rural counties opportunities to invest, they could require investments of $400 million or more. Very few rural counties have the financial resources or access to venture capital to make such an investment possible.

Dr. Dale’s perspective on this dilemma is for farmers and investors in rural counties to watch for the development of cellulosic ethanol facilities in the next 10-15 years. These facilities will require large amounts of cellulose, which in raw form is very bulky and very expensive to transport. Rural communities and farmers can take advantage of this fact by investing in what Dr. Dale calls ‘pre-digestion’ facilities.

Rural communities can invest in pre-digestion facilities at a much lower cost ($1 million versus $400 million?) and use these facilities as staging stations for the extraction and delivery of cellulose to larger regional ethanol production plants and for the pickup and distribution of lignin for compost.

This approach would be similar to that of a local cotton gin or cotton cooperative buying cotton that is cleaned and baled and then sold to textile mills around the world. Instead of selling cotton right out of the field, farmers use a cotton gin to combine their volume for sale to larger markets, hopefully at better prices.

The same model can be used for farmers wanting a part of the cellulosic ethanol industry. Farmers and investors from rural communities can add value to the cellulose needed for ethanol by separating it from the lignin. Once extracted, large quantities of cellulose purchased from groups of farmers can be sold on the ethanol market to the highest bidder. In addition, the lignin is then left in the rural community and can then be put back on fields as organic matter for improved crop production.

If you have waded through this entire article I think you will agree there is still going to be a lot of debate, a lot of economic wrangling and a lot of social and political issues that must be resolved before the US moves to a biofuel based economy. NC Cooperative Extension will continue to work with experts at NCSU and other universities to find the answers to the questions that you have about biofuel production and consumption. As the debate continues keep an eye out for opportunities that may arise because rural communities in North Carolina, the US and in many other countries will have an opportunity to participate in this transition.

If you have questions about any of the information, upcoming meetings, business strategies, or crop production management issues, please call me at the Jones County Extension Center at (252) 448-9621. I can also be reached by email at: Mark_Seitz@ncsu.edu.