

Citrus Notes

Polk County Extension Service

PO Box 9005, Drawer HS03 • Bartow, FL 33831-9005
(863) 519-1052, email: wcoswalt@ufl.edu

Hillsborough County Extension Service

5339 County Road 579 • Seffner, FL 33584-3334
(813) 744-5519, Ext. 54131



Vol. 14-02



February 2014

Dear Growers,

Inside this Issue:

2014 Florida Citrus Growers' Institute	2
USDA Annual Open House	2
2014 Citrus Pest Management Guides	2
Citrus Nutrition and Soil pH	2
Agricultural Tax Planning - The 2013 Filing Season is Here	4
Pesticide News & Information	6

Make plans to join us for the 2014 Florida Citrus Growers' Institute to be held on April 8, 2014 in Avon Park. There is also an "Open House" over at the USDA's Ft. Pierce Lab in April. The 2014 Citrus Spray Guides are still available and I have copies here at my offices. Check out the article on the effect of soil pH on citrus nutrient availability. I think it is a good review in understanding the potential pH plays in citrus nutrient. In agricultural tax planning this month, the 2013 filing season is here. Lastly, catch up on the latest pesticide news and information.

Enjoy the issue,

Chris Oswalt
Citrus Extension Agent
Polk/Hillsborough Counties
863-519-1052
P.O. Box 9005, Drawer HS03
Bartow, FL 33831-9005

2014 Florida Citrus Growers' Institute

The 2014 Florida Citrus Growers' Institute will be held on Tuesday, April 8, 2014 at South Florida State College in Avon Park. We will have the program brochure and registration information available in the very near future. Please mark your calendars for this premiere UF/IFAS educational event.



USDA Annual Open House

The USDA in Ft. Pierce will be holding their annual open house on Wednesday, April 2, 2014 from 11:00 a.m. to 3:00 p.m. The Horticultural Research Laboratory is located at 2001 S. Rock Road in Ft. Pierce. For more information you can call the Lab at 772-462-5800.



2014 Citrus Pest Management Guides

The 2014 edition of the Citrus Pest Management Guide is now available. Copies are available at our Bartow or Seffner Extension offices. The Guide is also available on the web at the following: <http://www.thegrower.com/florida-citrus-pest-management-guide/>.

Citrus Nutrition and Soil pH

There has been a lot of recent information presented on citrus root health as related to *Phytophthora*, bicarbon-



ate levels and the pH of Florida citrus soils. Understanding the complex interactions around these effects and how they contribute to overall citrus root health is difficult to simply explain and is still being studied. So, for the sake of the following discussion I'll limit my comments to the effect of soil pH on nutrient availability in citrus and how a change in pH might occur. In Florida, microsprinkler irrigation creates a distinct pattern or wetted zone under the canopy of citrus trees. In



this zone under the citrus tree canopy, elevated pH values above 7.0 can occur depending on the source of irrigation water.

What mechanisms could cause this situation of drifting soil pH values in the irrigation zone of citrus trees? One would logically think that, with the 50 or so inches of rainfall received annually in Florida, the leaching of these calcium and magnesium carbonates would be sufficient to remove them. This increase in soil pH rarely, if ever, occurs in humid tropical and sub-tropical production soils with high annual rainfall amounts (without irrigation). This does seem to be more common place in areas with drier climates, with reduced rainfall amounts. In these drier climates, the addition of irrigation water containing pH increasing solutes will have a tendency to remain in the root zone of trees due to the lack of leaching rainfall.

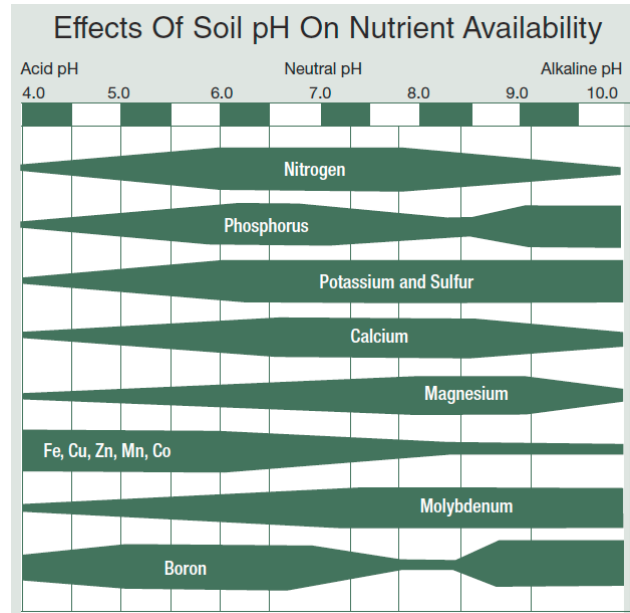
I went back in the literature to see if there would be some indication of why this may be occurring now compared to years ago. First, I thought if this typically occurs in drier climates, what conditions may now exist that would be different. Some of the early citrus irrigation work in Florida looked at effectiveness of irrigation and distribution of overhead irrigation. Dr. Koo published a paper in the Proceedings of the Florida State Horticultural Society in 1975 that was titled "Water Distribution and Evaporational Loss from Sprinkler Irrigation in Citrus". In the manuscript I found information on the distribution pattern of overhead sprinklers within a citrus grove. I looked at the information derived from permanent overhead irriga-

tion systems and noticed that the average application rates in inches/hour collected from catch cans were as follows: at the tree drip line 1.95 acre-inches, between trees 1.75 acre-inches and under the tree canopy 1.36 acre-inches. I didn't locate any information on rainfall distribution within a citrus grove, but I think overhead is a close approximation to that situation. From this one could summarize there would be less rain falling under the canopies of citrus trees and thus potentially less leaching.

Secondly, I looked back in the literature to determine if there had been any work done on what areas of the grove do citrus trees extract water (overhead applied irrigation used in this study). This study looked at where from around a citrus tree do the roots extract water. To give you an idea of how dated this information is, the variety used was Parson Brown on sour orange on ridge soil (in Marion County). In the study it was found that water extraction under these trees began at areas closest to the tree trunk (with 56 inches) and at the 6 inch depth. A week later without irrigation or rainfall the area of greatest water extraction expanded to 56 inches from the trunk and down to a depth of 24 inches. In addition, at this time there was another zone of high water extraction at the 6 inch depth in an area 86 to 116 inches from the trunk. Looking at the distribution figure this looks to be outside the drip line in an area of direct solar radiation.

From the two studies one could logically deduce that the area that would be most conducive to a drift up in pH values would be that which are under the tree canopy which receives less total rainfall, but in addition includes the area of the grove that dries out the quickest. In our efforts to more efficiently manage our micro sprinkler irrigation systems we apply more frequent application of irrigation using shorter durations. In times of low rainfall this could be a contributing factor to the higher pH values seen in the wetted zone of microsprinklers.

Based on current IFAS recommendations, soil pH for citrus should be maintained in the 6.0 to 6.5 range with 6.5 to 7.0 used in situations when excessive soil copper levels are elevated.



The above figure graphically displays the relationship between soil pH and nutrient availability. At about 7.0 pH nitrogen, potassium, sulfur, calcium and molybdenum are at their maximum availability. Phosphorous, magnesium, iron, copper, zinc, manganese, cobalt and boron are at levels less than their maximum. This should not be interpreted as these levels are deficient, but less than maximum availability.

At 7.5 pH nutrients at maximum availability are nitrogen, potassium, sulfur, calcium and molybdenum. Phosphorous, iron, copper, zinc, manganese, cobalt and boron availability is further reduced compared to 7.0 pH. Magnesium availability on the other hand increases at 7.5 pH.

When soil pH reaches 8.0 pH potassium, sulfur, calcium, magnesium and molybdenum are at maximum availability. Nitrogen, phosphorus, iron, copper, zinc, manganese, cobalt and boron have further decreased in availability when soil pH reaches this level.

Considering the above discussion at a soil pH between 7.5 to 8.0 one would expect, depending on the pH sensitivity of the rootstock, that phosphorous, iron, copper, zinc, cobalt and boron could exhibit deficiency symptoms.

If we now look back at availability of nutrients at 6.5 pH, the upper end of our recommended range for Flor-

ida citrus, the following better situation exists. Nitrogen, phosphorous, potassium, sulfur, calcium and boron are at maximum availability. This situation has the macronutrients of nitrogen, phosphorous and potassium.

At a pH of 6.0 nitrogen, potassium, sulfur, iron copper, zinc, manganese, cobalt and boron are at maximum availability. Correspondingly there is a decrease in the availability of phosphorus, calcium, magnesium and molybdenum.

Considering pH and nutrient availability growers should maintain a soil pH in a range from 6.0 to 6.5 unless there are other nutrient availability considerations.

Agricultural Tax Planning - The 2013 Filing Season is Here

(Author: Thomas J. Bryant, CPA is Senior Tax Partner, Beasley, Bryant & Company, CPA's, P.A., Lakeland, Florida (863) 646-1373).

Another year has come and gone and we are well into the 2013 filing season. This article highlights for you the major tax returns, information returns etc., that we as farmers and growers will be filing this year, most of which are for the tax year 2013. This article does not address every possible return or form that may be required. It also does not address estimated and quarterly payments or Florida Sales and Use Tax payments and returns. I have commented on some but not all of the forms listed below.

FEDERAL

Forms 1099 and Form 1096; Form W-2 and Form W-3; Form 940; Form 941 (Quarterly); Form 943 (Annual); Form 944 (Annual); Form 1120 and Form 1120-S; Form 7004; Form 1040 including Schedule F & Schedule C; Form 4868; Form 1065; Form 1041; Form 720 (Quarterly)

STATE

Form RT-6 (formerly Form UCT-6); Form F-1120; Form F-1065; Form F-7004; Florida Annual Report

COUNTY

DR-405 Tangible Personal Property Tax Return

Form 1099-MISC

Generally, amounts aggregating to \$600 or more paid to individuals in the course of your trade or business for **services performed**, such as payments to repairman, veterinarians, attorneys and rents paid (excluding rents paid to real estate agents) are required to be reported on Form 1099-MISC. Payments for merchandise and payments to most corporations are not reportable. However, payments to corporations for **healthcare and medical services are reportable including payments to incorporated vets.**

Forms 1099 were required to be given to recipients by January 31, 2014. Paper copies to the IRS are due by February 28, 2014 along with transmittal Form 1096. If you are filing 250 or more information returns of any one type, you are required to file electronically using a different transmittal form and the due date is extended to March 31, 2014.

FORM W-2 & W-3

Most of you are familiar with Form W-2, Wage and Tax Statement. The form is used by employers to report salaries, wages and other compensation including non-cash payments for services performed by an employee and any taxes withheld including the new Medicare surtax of 0.9% on remuneration over \$200,000 paid during the calendar year.

W-2 copies to employees were due by January 31, 2014. Copies to the Social Security Administration (SSA) are due by February 28, 2014 along with a Form W-3 Summary. If you have issued 250 or more forms, the copies must be submitted electronically, and are due March 31, 2014.

The new FICA wage base limit for 2014 is \$117,000; the 2013 amount was \$113,700.

Form 940, Employer's Annual Federal Unemployment (FUTA) Tax Return

Form 940 is used to calculate your FUTA tax liability for 2013, taking into account the Florida Reemployment (unemployment) tax payments made. The amount due will depend on the amounts paid on a quarterly basis. If you made all of your deposits on time, you had until February 10, 2014 to file the form. Otherwise the due date was January 31, 2014.

Form 941, Employer's Quarterly Federal tax Return

This form is used to report quarterly wages paid and federal taxes withheld and deposited during the quarter. The return is due on the last day of the month following the end of the quarter.

Form 943, Employer's Annual Federal Tax Return for Agricultural Employees

This form is used to report annual Ag wages paid and federal taxes withheld and deposited during the year. The return was due January 31, 2014 but could have been filed as late as February 10, 2014 if all tax deposits were timely made.

Form 944, Employer's Annual Federal Tax Return

This form is filed by small employers, \$1,000 or less in total taxes withheld for the year.

Form 1120, U.S. Corporation Income Tax Return

Farmers and growers operating as corporations generally will file Form 1120. Other types of organizations, such as LLC's may elect to file as corporations. The due date for filing Form 1120 is the 15th day of the third month following the close of the tax year. For calendar year 2013 filers, this year's due date is March 17, 2014 as the 15th falls on a Saturday.

Form 7004, Application for Automatic Extension of Time to File

This form is used to request either a 5 or 6 month extension (depending on the form extended) of time to file a multitude of forms including Forms 1120, Form 1065, and Form 1041, among others. The extension is for filing only and taxes due must be paid by the origi-

nal due date of the return. Form 7004 must be filed by the original due date of the return being extended.

Form 1040, U.S. Individual Income Tax Return

As you may be aware, there are several changes and additions to the individual federal tax laws for 2013 including a new highest income tax bracket of 39.6%, a new capital gains rate of 20%, the Medicare surtax on earned income of 0.9%, and the 3.8% Medicare surtax on investment income. Medical and dental expenses must now exceed 10% of adjusted gross income, replacing the previous 7.5% threshold. The new personal exemption amount is \$3,900, but is now reduced as your income exceeds certain thresholds and itemized deductions have similar restrictions. The standard mileage rate for vehicles used in a trade or business is 56.5 cents per mile and there is a new simplified method for computing the office in home deduction. The due date for 2013 returns is April 15, 2014.

Schedule F is used to report income and expense from farming and Schedule C for other businesses. Farmers who owed tax but did not make an estimated payment on January 15, 2014 can file Form 1040 on March 1, 2014, pay the tax due and avoid a late payment penalty.

Form 4868, Application for Automatic Extension of Time to File Form 1040

Individuals can request an automatic extension of time to file Form 1040, but this does not extend the time to pay any tax due. Extensions are due by April 15, 2014.

Form RT-6, Florida Department of Revenue Employer's Quarterly Report

This form is filed on a quarterly basis to report to the state salaries and wages paid per individual employee during the quarter. It also reports total gross and taxable salaries and wages used to compute and pay the Florida Reemployment Tax. The report is required to be filed even when no tax is due and is filed by the last day of the month following the end of the quarter. Electronic filing is required when employers exceed a certain number of employees.

Form F-1120, Florida Corporate Income/Franchise and Emergency Excise Tax Return

All corporations doing business, earning income, or existing in Florida must file this return. The return is due on the first day of the fourth month following the end of the taxable year.

Form F-7004, Florida Tentative Income/Franchise Tax Return and Application for Extension of Time to File Return

Form F-7004 is required to extend the filing date for Form F-1120 and Form F-1065. The filing of Federal Form 7004 will not extend the filing date of the Florida returns.

Florida Annual Report

The Florida Annual Report is filed with the Florida Department of State, Division of Corporations. The report is due May 1st of each year. All corporations, LLC's, LP's, and LLLP's must file the report. The report is filed online.

DR-405, Tangible Personal Property Tax Return

Tangible Personal Property Tax Returns are to be filed with the appropriate county by any business owning tangible personal property. A timely filed return in the initial year is considered an application for the \$25,000 exemption. The exemption will be applied to the first \$25,000 of assessed value. In subsequent years a return is not required to be filed as long as the assessed value of the property on the return is not over \$25,000. The due date of the county returns is April 1st; however, extensions may be requested.

Summary

Both the federal and state governments strongly suggest e/filing whenever possible and in many cases e/filing is required. This article does not cover all tax returns and reports that farmers and growers may be required to file in any one year. However, it serves as a reminder of the forms generally filed. It also shows the volume and complexity of government tax reporting that businesses must comply with in today's business climate. I will happy to provide any additional information on any of the forms mentioned above.

For more information on this topic and other tax planning for farming, please contact me at (863) 640-2008 or Tom@beasleybryantcpa.com and /or Ryan Beasley at (863) 646-1373 or Ryan@beasleybryantcpa.com.

For information on other relevant topics visit our website at www.beasleybryantcpa.com.

We at Beasley, Bryant & Company, CPA's, P. A. are experienced in agricultural business problems, tax issues or concerns, and are here to help you.

Pesticide News & Information



RNAi Insecticides Coming

With corn rootworm building resistance to genetically modified corn that makes its own pesticide, seed companies are working on new crops that target the insects' genes. A decade ago, researchers developed corn genetically modified to produce a protein that kills the bugs, allowing farmers to back off chemical pesticides. However, the effectiveness of Bt corn is beginning to decrease, leading farmers across the Midwest to revert to older management schemes. Seed companies are preparing a new solution: RNA-interference, sometimes called gene silencing. Researchers using the technology introduce a strand of RNA that essentially stops an organism ingesting the molecule from expressing a certain gene.

Genes are expressed through RNA that is transcribed from DNA. By introducing a piece of interfering RNA, a gene can be suppressed. RNA-interference, or RNAi, is a natural way plants and animals fight off viruses, but scientists use it as a genetic on/off switch to study and manipulate plants. Tom Clemente, a researcher in plant biotechnology at the University of Nebraska Lincoln, says RNAi was discovered in plants when researchers were trying to make flowers darker. "They were trying to make a darker, purple flower and they were getting white flowers," Clemente said. "They were trying to make more of this protein and they were making zero of the protein."

As RNAi is being studied to treat human diseases from cancer to high cholesterol, RNAi crops are already in the field. "The classic example is for virus resistance," Clemente said. "In the state of Hawaii, the entire pa-

paya population is papaya ringspot virus (resistant) and it is a form of RNAi that provides that resistance.”

Corn could be the first row crop to attack an invading insect with RNA. Monsanto hopes to commercialize rootworm resistant corn with RNAi by the end of the decade. When a rootworm eats the corn roots, it would ingest interfering RNA that would silence a gene the rootworm can't live without. “It blocks expression of that particular gene – no other gene – and impedes the life cycle of that rootworm,” Clemente said.

The question goes to the Environmental Protection Agency (EPA). At a meeting in early 2014, scientists from around the world will advise the EPA on how to assess the potential risks of RNAi crops. For his part, Tom Clemente doesn't believe the technology warrants extra scrutiny. “You can dial it in to be very specific for a gene in a particular organism,” Clemente said. “Now, we can never say with a straight face that would mitigate any collateral damage in any other organism. But you can mitigate that probability to a very, very small number.” Clemente says, when paired with Bt in corn, RNAi would give farmers a more durable weapon against rootworms. (KCUR.org, 12/30/13).

Cotton Weed Control Currently Unsustainable

For nearly a decade, southern cotton growers have been battling to save crops from glyphosate-resistant Palmer amaranth. Though in many ways they are finally gaining the upper hand, an expert with the Weed Science Society of America says progress has come at a great cost. “The current model simply isn't sustainable,” says Stanley Culpepper, a professor in crop and soil science at the University of Georgia and member of WSSA. “Growers have gone to war, and they are making progress from a weed management perspective, but not from an economic or environmental perspective. We need to figure out a way to get the same result far more cost effectively and in a way that better protects our natural resources.”

Palmer amaranth became a problem in cotton after growers began to rely solely on glyphosate for weed control. After repeated and exclusive exposure to the chemical, resistant weeds began to appear. It was clear that growers would need to make significant changes in their weed control practices or lose their crops. Cur-

rent integrated weed management programs complement glyphosate with a variety of other weed control tools and techniques that have become commonplace in cotton. They also are using two approaches that may seem decidedly “old school.”

More than 90 percent of cotton growers in Georgia are now hand-weeding a significant portion of their cotton crop, Culpepper says. They also are tilling more to keep Palmer amaranth at bay. Though the multifaceted approach is working, there are definite downsides. Additional herbicides, labor and fuel have tripled the cost of weed control in cotton and that means profit margins are declining. In addition, increased tillage raises concerns about soil erosion from water and wind.

Scientists and growers are collaborating on new options. One of the latest involves the use of heavily planted winter rye as a cover crop for cotton. Once the rye is established, it is rolled down to create a thick, horizontal bed of mulch that can reduce Palmer amaranth infestations by as much as 70 to 90 percent. The impact of glyphosate resistance on cotton represents a cautionary tale for anyone relying on a single herbicide mode of action for weed control, scientists say. If the resistance “tipping point” is reached in a crop, it can be very costly to turn back the tide. (Delta Farm Press, 1/13/14).

Study Confirms Non-target Safety of Bt Proteins

A large body of literature has shown that genetically-modified plants that produce proteins from the bacterium *Bacillus thuringiensis* (Bt) to protect themselves from insect pests have little to no effect on a wide range of nontarget insects. However, concerns about Bt crops still exist. Two new studies using more exacting methods show that Bt crops have no negative effects on two beneficial insect predators or on a beneficial, entomopathogenic nematode.

In an article in the February 2014 issue of *Environmental Entomology*, called “Using Resistant Prey Demonstrates that Bt Plants Producing Cry1Ac, Cry2Ab, and Cry1F Have No Negative Effects on *Geocoris punctipes* and *Orius insidiosus*,” researchers took caterpillars that were known to be resistant to Bt proteins and fed them Bt maize and Bt cotton. They

then fed the caterpillars to two common, beneficial, predatory insects - insidious flower bug (*Orius insidiosus*), and big-eyed bug (*Geocoris punctipes*) - for two generations and compared them to another group of predators that consumed caterpillars fed on non-Bt plants.

The researchers found that the survival, development, adult mass, fecundity, and fertility of the insect predators in both groups were similar, regardless of whether they consumed caterpillars that fed on Bt plants or non-Bt plants. "This research demonstrates that the current Bt proteins used in corn and cotton crops globally do not harm *Geocoris punctipes* or *Orius insidiosus*, two important insect predators that help suppress pest populations on corn, cotton, and many other crops," said Dr. Anthony Shelton, a professor of entomology at Cornell University and one of the co-authors. "By using caterpillars resistant to the Bt proteins in this study, we were able to remove any 'host quality effects' that might have led to spurious misinterpretation of the results. This work demonstrated that the caterpillars consumed the Bt proteins, and the predators consumed the Bt proteins when they fed on the caterpillars, but they did not suffer any harm even over multiple generations."

In a similar article appearing in the February 2014 issue of the *Journal of Economic Entomology* called "Tri-Trophic Studies Using Cry1Ac-Resistant *Plutella xylostella* Demonstrate No Adverse Effects of Cry1Ac on the Entomopathogenic Nematode, *Heterorhabditis bacteriophora*," Shelton and his colleagues used similar methods and found that an important nematode predator was not harmed when it ingested another Bt protein. For this study, resistant caterpillars were fed Bt broccoli and then exposed to *Heterorhabditis bacteriophora*, a beneficial nematode that preys on insects. The researchers found that the virulence, reproductive potential, and time of emergence of the nematodes that consumed Bt-fed caterpillars were not significantly affected, compared to nematodes that did not ingest the Bt protein. "This is the first report we are aware of in which a nematode predator has been tested in such detail against a Bt protein," Dr. Shelton said. "Together, these two studies add to the scientific literature demonstrating that Bt plants can control targeted insect pests while not harming important natural enemies that help suppress pest species and maintain biodiversity in agricultural systems. (SeedQuest, 2/3/14).

Exirel/Verimark®

Based on a request by DuPont Crop Protection, tolerances have been granted for residues of the insecticide cyantraniliprole (Exirel®/Verimark®). Tolerances of interest to the region include brassica head and stem (subgroup 5A), brassica leafy vegetables (subgroup 5B), blueberry, citrus, fruit, pecan, bulb/green onion, peach, cucurbit vegetable (group 9), fruiting vegetable (group 8-10), leafy vegetables except brassica (group 4), and tuberous and corm vegetable (subgroup 1C). (Federal Register, 2/5/14).