

Nursery & Landscape NOTES



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2014 GREEN & GROWIN' SHOW



We've Got Something Growin' For Every Season

Education – January 13-15, 2014
Sheraton Four Seasons Hotel ~ Greensboro, NC

Trade Show – January 16-17, 2014
Greensboro Coliseum ~ Greensboro, NC



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Agronomic Services Help Identify Nutrient Problems

Services available from the Agronomic Division of the N.C. Dept. of Agriculture and Consumer Services include soil testing; nematode assay; analysis of plant tissue, waste/compost, nutrient solutions, irrigation source water and soilless media; as well as field consultations. For high-value nursery crops, in particular, plant/waste/solution/media testing enables growers to monitor production parameters and maintain quality. If problems do arise, however, these tests can also be used to pinpoint causes and generate recommendations for management.

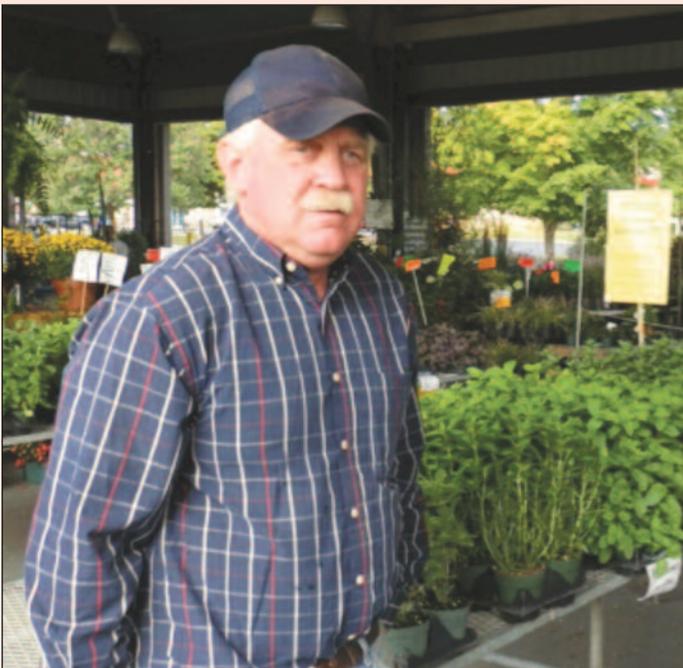
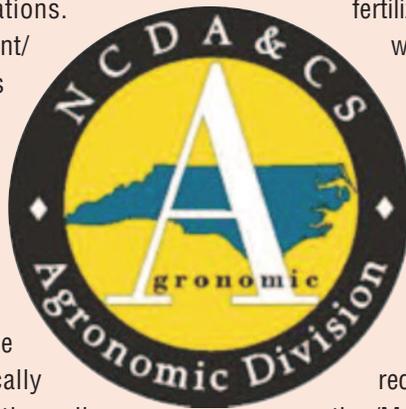
John Harmuth and Anthony Penny, two experienced Wake County growers, routinely use Agronomic Division services. Penny typically monitors pH and nutrient levels by having the soil tested before laying plastic or planting vegetables, whereas Harmuth relies on solution analysis before using new water sources for fertigation. This past year, both men made use of

the full range of testing and consulting services to resolve critical production issues.

Harmuth grows an assortment of herbs, including several kinds of mints. He roots mint from cuttings in a leaf-mold medium, fertilizes them with a complete fertilizer and within a few weeks has plants ready for sale. This past April, as warm weather began to stimulate growth, the tops of Harmuth's plants suddenly turned a creamy yellow.

"The problem was urgent. I had two greenhouses full of plants — about \$50,000 worth," Harmuth said. "I knew I had to do something quickly or I wouldn't have a saleable product."

Harmuth carried a flat of discolored plants directly to the Agronomic Division's Plant/Waste/Solution/Media laboratory. Staff gathered around and suggested a battery of tests: soilless media, irrigation water, nutrient solution and plant tissue. Agronomist Aaron Pettit asked to see a fertilizer label.



John Harmuth (left) and Anthony Penny (center) both resolved serious plant nutrient problems this year after consulting with N.C.D.A.&C.S. agronomist Aaron Pettit (right).

"It was like an emergency room," Harmuth said. "I got undivided attention. About four people stopped to help me. They recognized the urgency ... the potential economic disaster. My situation mattered to them."

Pettit decided to zero in on the nutrient content of the media and the fertilizer. He had Harmuth bring in a sample of the original growth media. He analyzed that sample and a sample from the flat with the discolored plants. Test results showed that the media originally contained 13 parts per million sulfur, but there was no sulfur left in the media the plants were growing in and none in the fertilizer.

Meanwhile Harmuth had gone home to research the problem online and had settled on sulfur as the possible cause of the problem as well. He felt vindicated the next day when Pettit called him with test results that confirmed his hunch. Pettit recommended a modification of the fertility program and provided all the necessary calculations.

"Harmuth had been using a fertilizer that did not contain sulfur," Pettit said. "He had also been applying iron and calcium nitrate as an extra nitrogen source to see if that would help the problem. I suggested that he add Epsom salt (magnesium sulfate) and omit the iron application. It was also necessary to eliminate calcium nitrate, which chemically reacts with Epsom salt to form a precipitate that could clog the drip system."

"I switched from calcium nitrate to ammonium nitrate and added Epsom salt to provide sulfur," Harmuth said. "Within two days, I saw marked improvement. Within four days, the change was incredible. It was a miracle turn around. I had a real problem; I found a real solution; and it was real quick."

In early July, Anthony Penny faced a crisis similar to Harmuth's. Penny, who primarily grows produce, had decided to branch out into mum production. He figured the crop would pair well with his other fall items: pumpkins, gourds, onions, cabbage and sweet potatoes. Three weeks into production, however, the mums developed a bleached-out appearance.

Like Harmuth, Penny went straight to the Agronomic Division for advice. Pettit and Penny discussed the fertility program and production practices for his entire operation. Pettit suggested comparative soilless media tests instead of plant tissue analysis because the mums were at such an early stage of development. Test results indicated that both magnesium and sulfur were especially low.

Penny followed Pettit's recommendation to apply Epsom salt through the drip system twice a week at a rate of 40 parts per million sulfur. The new fertility program caused a growth spurt, and the crop improved significantly. By mid-August, however, another deficiency manifested itself—yellow tops with interveinal chlorosis. This time the plants were large enough to make it practical to collect leaves for tissue analysis, and this test indicated iron deficiency.

"Penny was using a 20-20-20 fertilizer that contained 1.5 parts per million iron," Pettit said. "I figured that the mums needed 50 to 75 percent more iron so I suggested a new course of action. For his vegetable crops, Penny was already using a 3-15-27 grade fer-

tilizer that contained 10 percent sulfur and twice as much iron as the 20-20-20. By using 3-15-27 on the mums as well, he could take care of the sulfur and iron issues at the same time."

Penny liked the idea of using the same fertilizer for both sets of crops. He switched fertilizers in late August, and by mid-September, the mums had grown so much that he couldn't walk between them. He had 2500 plants come into bloom just in time for sale at the Raleigh Farmers' Market in October.

Harmuth and Penny are both regular vendors at the Farmers' Market. Pettit enjoys strolling through the market on the weekends and is gratified by the success of growers he has helped.

"These [agronomic] services pulled me back from the brink of economic disaster," Harmuth said. "They are valuable and the charge is nominal. I'd highly recommend them to anyone."

Agronomic Division services are available to all greenhouse and nursery producers who encounter critical nutrient problems. The base fee for most plant/waste/solution/media tests is \$5 per sample, but there is some variation so refer to the comprehensive schedule available at www.ncagr.gov/agronomic/fees.htm for details. Growers who live in the Wake County area may prefer to come straight to the Raleigh office for assistance, but others may wish to contact their local NCDA&CS regional agronomist. See www.ncagr.gov/agronomi/rahome.htm for contact information.

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