2014 Winter Cold
On January 4, 2014 the temperatures dipped to single digits followed by a temperature dip to 4 °F on January 7, 2014 in central Maryland. It reached a low of 1 °F in Frederick, MD on this date. An artic depression sent a cold wave across the mid-west to the south down to Florida. This is the coldest winter in 2 decades. On January 22 the temperatures dipped to 5 °F in central Maryland followed by a low of 4 °F on January 23, 2014. On January 24 it reached 7 °F, single digit temperatures for three days in a row. The cold dipped deep into the south with Georgia and Florida seeing very low temperatures.

We have had reports of fruit bud damage on some apples and peaches in the mid-west this winter when temperatures reached into the -20 to -30 °F temperature range. This has been one of the worst winters in a long time for heating greenhouses. In the coming week, the prediction is for temperatures to be higher than we have had for awhile.

Spider Mites on Boston Ivy
John Speaker is reporting that Boston ivy and croton plants with spider mite populations appear to be very resistant to most miticides. These plants came up from Florida where spider mites are a regular problem. Often growing operations in Florida have used so many classes of miticides that they end up with strains that are more resistant to most conventional miticides.

If you are experiencing problems with spider mites at this time of year, back off the miticide applications for a couple of weeks, then try spraying the undersides of the foliage in the morning hours with sprays of water. The mites do not do well with a humid environment. Try releasing the predatory mite, *Phytoseiulus persimilis*, (available from biological supply houses such as Syngenta Bioline, Koppert Company or IPM Labs to name a few). *Phytoseiulus persimilis* is one of the mainstays of greenhouse integrated pest management programs for control of spider mites.

This predatory mite species is a specialized predator of web-spinning spider mites such as the twospotted spider mite. In fact, *P. persimilis* feeds, reproduces, and completes development only on mites in the subfamily Tetranychinae, although it also feeds on young thrips and can be cannibalistic when spider mite prey is unavailable. John mentioned that some of the plants brought in had thrips present so the mite can also attack the thrips population. The mite can do a good job of knocking down mite populations, but the predaceous mites die or wander off when the spider mite population drops. You could follow up with 0.5 – 1.0 horticultural oil to keep the spider mite population suppressed a couple weeks after the predatory mite release and the predatory mite has had a chance to crash a population.
Problem With *Ilex verticillata*

If you grow winterberry (*Ilex verticillata*) for cut stems, and noticed a berry rot problem last fall, we want to hear from you! Several growers from states in the Northeast and Midwest saw berry discoloration and fruit drop which had a significant impact on the ornamental value of this holiday product. Several fungi, including a *Colletotrichum* species, have been associated with this rot problem. If you grow winterberry for cut stems and saw symptoms like those in this photo, please drop us a line (rane@umd.edu or sgill@umd.edu) and let us know the extent of the problem, the age of the planting and also which cultivars were affected. If you grow this crop but did not have any problems, we want to know that, too. This information will help us in investigating management tactics to minimize berry rot issues on this cut stem crop.

**Pansy Crops**

Most pansy crops are still in the very young stage. We are not seeing fungus gnats or aphids take off yet in these crops. Now is a good time to apply beneficial nematodes such as *Steinernema feltiae* to keep fungus gnat populations low.

**Grandevo – New Biopesticide**

GRANDEVO® PTO is a biological insecticide/miticide containing fermentation solids of *Chromobacterium subtsugae* strain PRAA4-1T for use on edible crops, ornamental plants and turf against pests such as aphid, whiteflies and mealybugs. The label states that “GRANDEVO is microbial based and is powered by a number of compounds that create complex modes of action, resulting in a potent biopesticide.” When talking with one of the chemical representatives, I was told it is a bacterium that produces various metabolites and is killed in the manufacturing process.

The Grandevo product is manufactured by Marrone Bio Innovations and the ornamental formulation is called Grandevo PTO which is being sold by Engage Agro Company. The material impacts insects in several ways, including reducing fecundity and oviposition, deterring feeding and acting as a stomach poison on Homoptera and Hemiptera, such as aphids, psyllids, whiteflies, Lygus and mealybugs, and on thrips and phytophagous (plant feeding mites) mites. It is a contact material and has no systemic qualities. The label suggests thorough coverage to be effective. It apparently functions primarily as a stomach poison.

On the label it lists that it has repellency, oral toxicity, reduced egg hatch, and reduced fecundity (ability of pest to reproduce). It works best when populations are small and is best applied to young stages of insects. Under heavy pressure it is suggested that a knockdown chemical be applied first.

This product temporarily repels honey bees for up to 4 to 6 days after spraying. When needed, time applications so that pollination is not disrupted. It is OMRI certified and NOP compliant and it is labeled for field and greenhouse use on ornamental and edible crops. The REI is 4 hours.

This biopesticide looks interesting and it should have a place in a rotation of materials to help you control greenhouse pests.
A New Information Source
A new source of timely information on greenhouse crop management has been developed by floriculture researchers and extension specialists from several universities. With support from the American Floral Endowment and the Fred Gloekner Foundation, the website is called e-Gro (for Electronic Grower Resources Online). The site contains alerts, videos, e-books and webinars on a variety of topics of interest to greenhouse growers. You can also sign up for automatic notification, via email, of new posted information. Check it out at http://e-gro.org.

Operator Certification (FTC) for Writing Nursery Nutrient Management Plans on April 9th, 2014
Central Maryland Research and Education Center, 11975-A Homewood Road, Ellicott City, MD 21042

Nursery Operator Certification (FTC) for writing nursery nutrient management plans will be offered to growers who are interested in attaining Farmer Training Certification for writing nutrient management plans. This training program will assist you in writing a nutrient management plan for your nursery or greenhouse operation. You must write a nursery nutrient management plan if you use fertilizers and you gross $2500 of over per year in sales. With this certification, you will be able to sign-off and submit your own plan and annual implementation reports.

Each program consists of a Training Day and an Exam/Signoff Day. The Training Day will consist of learning the plan-writing process. After the Training Day you will have about 5 weeks, during which time you will study the Nursery Nutrient Management Training Manual and develop your plan. The Exam/Signoff Day will be for taking the exam and going over your newly developed plan (or renewing your old plan).

The process is relatively simple for small (or low-risk) operations, so if your operation size is less than 5 acres, we would strongly encourage you to think about becoming a certified operator. If your operation is larger than 5 acres, we would still encourage you to become a certified operator, even though the nutrient management process may be a little more complicated. Drs. John Lea-Cox and Andrew Ristvey will be happy to help you write your nutrient management plan.

The first day of the program will be April 9, 2014 at Central Maryland Research and Education Center (see address above). We have tentatively scheduled the Exam/Signoff Day for May 12th at Maryland Department of Agriculture in Annapolis, MD (that day may change to either the 13th or 14th depending on attendee’s schedules). After passing the exam, you will be able to “sign off” on your plan and submit it.

To express your interest in taking this training, please contact Mike Webster, Maryland Department of Agriculture at (410) 841-5957. State that it is for Nursery FTC.

Call Andrew Ristvey (410) 827-8056 x113 for directions to the Central Maryland Research and Education Center or for any other questions.

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What is Coming with Genetically Modified Plants?

BBC News just released a story on a new purple colored tomato that was genetically modified. Why is this important? Purple colored tomatoes produce a fair amount of anthocyanin which is an antioxidant that has potential in fighting cancer. In the article they compare these purple tomatoes to the same benefit as eating cranberries and blueberries. Prof Cathie Martin, John Innes Centre in Norwich, is the scientist credited with developing the purple tomato. In the article they say that British scientists feel the new tomatoes could improve the nutritional value of everything from ketchup to pizza topping.

Here is the really interesting part – the production of anthocyanin was the result of a gene transfer from a snapdragon plant which triggers the tomato to produce anthocyanin in enough quantity to result in purple fruit. The Brits are working with a Canadian greenhouse to produce the plants in quantities to produce juice that will be evaluated for its health benefits to humans. The Ontario greenhouse operation called New Energy Farms is now producing enough purple tomatoes in a 5,000 sq. ft. greenhouse to make 440 gallons of juice.

I looked through my Totally Tomatoes catalog this weekend and found several tomatoes, including the “Indigo Series” that are purple in color and claim to be high in anthocyanin content. It might be that this new GM tomato line is producing more than average amounts of the anthocyanin than what is out in the marketplace presently. If this research documents that the extract from purple tomatoes has human health benefits then it may create a strong interest in purple tomatoes this season. In the greenhouse business you always need to be the look out for the next “health trend” and this might be it. It can’t hurt to ride a “wave” of interest especially relating to health issues.

As a side note, in a parallel project the British were working on a GM wheat that repelled aphids. This technology may show up in ornamentals plants in future greenhouse crops. We will see what the public opinion is on these GM plants.