



Greenhouse TPM/IPM Weekly Report
University of Maryland Cooperative Extension
Central Maryland Research and Education Center

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Gardening Coaches?

There was an article published in the March 10, 2008 issue of *Newsweek* on Garden Coaches for hire. These professional gardeners identify your plants, make design suggestions, and demonstrate how to fertilize properly. I am not sure how one qualifies as a garden coach, but it's an interesting idea. To find a garden coach, you just log on to the worldwide directory www.thegardeningcoach.com

Easter is just around the corner

Easter lilies and pansies are starting to move out of greenhouses and into garden centers. Hopefully the weather will cooperate on the weekend and sales will go smoothly. In past periods of recession, homeowners still bought plants. With higher gas prices, hopefully they will stay home and fix up their landscapes.



Water is Important – Test it now before you get really busy

We had Dr. Karen Kackley from Kutztown University present at our Advanced IPM Scout Training at Brookside Gardens this week. She had some good information on the importance of water sources used in greenhouses. Here are some of her key points that might benefit you in your work:

- The importance of water pH is overemphasized!
- The pH of the growing media is what is most important.
- The pH of a soil-less growing medium is primarily influenced by the alkalinity of the irrigation water.

What is Alkalinity?

- A measure of the water's ability to neutralize acid.
- Composed of:
 - Bicarbonates - HCO_3^- - Primary Component (Ca, Mg, or Na)
 - Carbonates - $\text{CO}_3^{=}$ (only at pH > 8)
 - Hydroxyls – OH^- (small influence)

Hard Water

- Hardness refers to cations of calcium and magnesium
- Alkalinity is a measure of bicarbonate and carbonate anions.
- High alkalinity is not necessarily hard water.
- A water high in sodium bicarbonate has high alkalinity, but is not hard.
- Water softeners are not the answer!!

Effect of Alkalinity on Growing Medium pH

- Waters with high alkalinity will cause the pH of the growing medium to rise over time.
- Waters with very low alkalinity cause the pH of the growing medium to drop over time.
- These effects are most dramatic in small containers, e.g. plug trays.

Where Should Your Alkalinity Be?

| Pot Size | Optimum* | Concern* |
|----------------------|-----------|-----------|
| Plugs | 60 – 100 | <40, >120 |
| Small Pots/ Flats | 80 – 120 | <40, >140 |
| 4 - 5", Deep Flats | 100 - 140 | <40, >160 |
| 6"+/ Long-term Crops | 120 - 180 | <60, >200 |

*Depends on plant, media, feed and watering

Problems Associated With Low Alkalinity Waters

- Drop in the pH of the growing medium.
- Possible micronutrient toxicities as these elements become highly soluble.
- Deficiency of calcium and magnesium.

Managing Low Alkalinity Water

- Select fertilizers that are neutral or have a low potential acidity.
- Supply Ca & Mg via fertilizer or growing media additions.
- Monitor pH - make sure it is stable.
- Consider K bicarbonate injection.
- Monitor nutrient contents of media.

Problems Associated With High Alkalinity Waters

- Rise in the pH of the growing medium.
- Micronutrient deficiencies as these elements become insoluble.
- Possible magnesium deficiencies due to calcium imbalance.
- Possible high sodium levels.



Alkalinity Testing Kit



Combo pH/Soluble Salt Meter

Managing High Alkalinity

- Utilize acidic fertilizers.
 - Formulations with active acidity
 - Formulations with high potential acidities
- Practice constant liquid feeding.
- Consider acid injection.
- Modify the growing media to start at a lower pH.
- Monitor sodium levels.

Acid Use Calculator

- Available from NCSU
- www.pourthruinfo.com
 - go to floriculture
 - click floriculture software
 - click alkalinity calculator

What do you need to do?

Send your water sample to a lab that test water for greenhouse operations. Hope that this helps you to manage your crops this spring.

What is a Pottiputki?

Roger Styer, Country Fresh Flowers, attended our Cut Flower Short Course at Brookside Gardens last month. He said that they are now using a Pottiputki tube for transplanting their annual plugs. This device was originally developed for transplanting tree seedlings, and is available through various forestry supply companies.

This new planting technique has dramatically reduced wear and tear on their aching backs and knees. First, netting is laid over the bed for spacing purposes. Then they plant directly through the plastic mulch with the Pottiputki. The netting is raised up as the plants require more support. For their perennial plugs however, they are still burning holes through weed barrier and using a bulb planter.



Upcoming Programs

Interstate Ornamental Plant Management Conference

Monday, April 7, 2008

Maritime Institute, Linthicum

Recertification has been requested from: DE, DC, MD, PA, VA, and WV. Approval is pending.

For more information contact: Avis Koeiman at 301-405-3913

Invasive Species Training

Friday, April 11, 2008

Lisbon Fire Hall, Woodbine

Certification on emerald ash borer, *Sirex noctilio*, and Asian longhorned beetle

For more information contact: Suzanne Klick at 301-596-9413 or sklick@umd.edu

Procrastinators' Pesticide Recertification Conference

Friday, June 6, 2008

Montgomery College, Germantown

For more information contact: Chuck Schuster at 301-590-2807 or cfs@umd.edu