



# What's Cooking!

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## TOP OF THE HEAP

It was good to see so many of you at the annual meeting. The meetings have become so popular that we needed to move to a larger venue this year. Chesapeake College provided an ideal setting for our group; and Marc Tefteau made sure the program was diverse, interesting, informative and fun. Thank you, Marc, for a lot of hard work, it sure paid off. The fact that the Maryland Department of Agriculture recognizes attendance at our annual meeting as satisfying the compost facility operator's renewal requirements says a lot about the quality of the annual meeting.

In the business meeting portion, we chose a new Board of Directors (see page 5). The Board consists of three members each from Maryland, Delaware, and Virginia. In making way for Virginia representation, we lost some good Board members: Steve Ellis, Wayne Hudson, and Ed Meade. Also, and we owe a debt of gratitude to, the "founding sisters": Helen Waite and Nancy Goggin, both of whom provided outstanding leadership for our association. Thank you all for your dedication.

At the Board meeting in November, we discussed our agenda for the year. We will incorporate as a non-profit;

and write new by-laws, which will be written to accommodate future participation of the other Mid-Atlantic states, Pennsylvania and West Virginia. It is recognized that we need to continue to educate our regulators and lawmakers and encourage their participation in developing good compost regulations that are consistent from state to state.

The importance of Education at all levels can not be understated. In the past, we have had tremendous effort on the part of our education committees. I now sound the first call for volunteers to assist with this mighty endeavor (the next sound may be your phone ringing, or better yet-call any Board member to make known your availability); please participate to whatever extent you can. Check out the website for upcoming events.

Remember-  
Make Compost the First Amendment to  
Your Soil's Constitution.

*C. Patrick Condon*

## WARRINGTON GRANT FUNDS STILL AVAILABLE

The Warrington Foundation will provide funds for a limited number of small demonstration projects each year. Warrington's primary focus is to improve the utilization of Delmarva poultry litter nutrients as compost. Applicable projects must include the goal of consumer education to improve the market potential for compost. Activities can include exhibits, plots and gardens, meetings or other educational activities. Demonstrations showing plant response to compost use must include scientific measurements such as soil tests, compost quality and application rate, weather and other parameters to define the conditions of the demonstration. Projects should be located in the urban regions surrounding the Delmarva Peninsula.

Warrington funds are available to any educational institution, agency, garden club or other organized non-profit group. Proposals should be no more than four pages in length and contain a concise description of the proposed activity including: how the activity will improve consumer knowledge; how the activity will be presented to consumers; what measurements will be made; a brief description of those conducting the activity; and itemized expected project expenditures. Requested budgets should be less than \$1,500. The budgets of selected projects may be increased through negotiation for increased activity depending on the total number of projects funded.

Proposals will be accepted all during the year for review in January and July. Send proposals as an MS Word, Wordperfect or PDF file via e-mail to [hbrodie@bluecrab.org](mailto:hbrodie@bluecrab.org)

## BETTER COMPOSTING

by Francis R. Gouin, Professor Emeritus, University of Maryland, College Park

Understanding the significance of carbon to nitrogen (C/N) ratios in the organic soil amendments and mulches you use in landscaping can make the difference between success and failure. The difference between a flourishing installation and a stagnating installation can often be traced back to nutrient immobilization due to an improperly balanced C/N ratio in the materials you used.

It is important to understand that all organic materials contain carbon. However, it is also equally important to understand that not all carbon compounds are similar. We know from experience that fats are different from oils, sugar is different from starch, starch is different from paper (cellulose), and paper is different from wood (a blend of cellulose, hemicellulose and lignin).

Because all organic materials have different levels of stored energy and are structurally different. They have very different rates of decomposition. For instance, lignins are very resistant to decomposition and are found high concentrations in the barks of coniferous trees (pine, spruce, hemlock and so forth), in the redwood and cypress trees and others. The high lignin content of these trees are the primary reason why the wood of these species do not decompose readily.

As organic materials decompose, they release the minerals contained within their structures. Since oils, fats and sugars are high energy compounds, they contain relatively few minerals, are easily oxidized and do not decompose readily.

As energy levels in organic compounds decrease – that is, from starch to cellulose and hemicellulose – as commonly found in leaves, grasses, the sap-wood of plants and the bark of hardwood trees, they tend to hold more minerals and require a greater diversity of micro-organisms and enzymes to digest the carbon compounds present.

Although lignins are carbon compounds, they have a complex structure that is not easily attacked by micro-organisms and enzymes. The brown residue that you see in compost is mostly lignins.

Micro-organisms need nitrogen and other minerals with which to reproduce and for building their bodies. Their affinity for nitrogen and minerals is greater than that of roots of plants and this is where conflicts exist between the needs of plants the needs of micro-organisms. This is why newly planted plants or shallow rooted plants turn yellow when you mulch them with raw wood waste or incorporate un-composted organic waste into soil just prior to planting.

For organic materials to decompose efficiently the C/N ratio must be near 30:1. In addition to N, micro-organisms also need the other nutrients that are also equally essential for plant growth. Thus, if you incorporate into the ground a rich source of carbon materials, it is likely that micro-organisms will be competing with plant roots for those nutrients that are available in the soil.

The rate of decomposition of organic compounds is as different as night and day. Some have a very short life period while others may last for several years. Apply sugar to the soil, and there will be a rapid demand for N by invading micro-organisms, but it will not last long because sugar is very soluble and easily digested. The N stress of surrounding plants would be of very short duration depending on the amount of sugar applied. Incorporate green grass clippings into the soil and you will quickly see a beneficial effect. Unlike sugar which contains no N but is easily solubilized and easily digested, green grass clippings contains a C/N ratio of 20:1 or less, which means there is an ample supply of N for the micro-organisms and within a week or less, plants will be utilizing the N being released. It is for this reason that grass clippings in piles or stored in plastic bags release pungent odors within days. There is so much N and so little C in grass clippings that the micro-organisms quickly utilize all of the available oxygen (O), making the piles anaerobic, thus causing odors. Also, most of the carbon is in sugars, starches and cellulose which are easily decomposed.

Place straw or fallen leaves gathered in the fall into the ground or into a pile, and depending on the amount that is incorporated, surrounding plants will stop growing and their older leaves will turn yellow. Depending on the season and amount of material incorporated, the plants may die. Or, place the leaves or straw into a pile or into a plastic bag at 50 percent moisture and nothing much will happen. It will take more than a year for the materials incorporated into the soil to decompose sufficiently so that plant growth will not be affected. It will take a couple of years for those placed in piles or in a plastic bag to decompose.

The difference between these and grass clippings is due to C/N ratio. Leaves and straw have a C/N ratio of 80 to 100:1 and an insufficient amount of N and other nutrients to support micro-organism activity. Most of the N has drained back into the branches or the root system.

Because pine bark and redwood sawdust contain mostly lignins, they can be incorporated into the soil or used in formulating potting mixes without composting and without causing a nutrient stress.

Composting destroys the organic compounds that are readily decomposed and release the nutrient contained within. However, depending on uses, not all organic compounds need to be thoroughly composted before they can be used.

In future articles, I will discuss the differences between grades of compost for soil uses as compared to those for formulating potting mixes. I will also be discussing the differences between composting to make a mulch and composting for soil or potting media amendments. Other topics include the advantages of using compost over chemical fertilizers in the landscape and how compost is better than sand to improve heavy soils.

## NEWS FROM PENNSYLVANIA...

by Patricia E. Heuser, Executive Director, Pennsylvania Composting Association  
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The Pennsylvania Composting Association began the New Year with several new people in leadership positions. Bill Toffey of the Philadelphia Water Department was elected to be president. Dan Eichenlaub of AgRecycle moved into the Vice-President's position, and Dale Mickle of Ag-Bag Environmental became Secretary-Treasurer. Glenn Musser of Millcreek Manufacturing and Dr. Rick Stehouwer of Penn State were newly elected Board members.

PACA continues to be represented on the Organics Recycling Task Force of the PA Department of Environmental Protection, which is putting together a list of recommendations to address issues in Pennsylvania. Also planned is a Composting Conference at the Penn Stater Conference Center in State College, scheduled for May 23 and 24, 2002. PACA will be co-sponsoring this event and possibly providing organizational support to its planning and execution.

On Monday, March 11, PACA will host its Spring Roundtable featuring two key topic areas and resource speakers. Ann Wolf, Director of the Analytical Services Laboratory at Penn State will talk with the group about their needs for testing compost products, and how the Penn State lab can respond to those requirements. Hank Zygmunt of the EPA Region III office will give the group an update on CAFO regulations – this area of regulation has some opportunities for composting. The meeting will be held at the offices of the PA Farm Bureau from 10:00 a.m. to noon, and anyone is welcome to attend – there is no registration fee. The PACA Board will then meet after lunch.

Of major interest to PACA this year is the possibility of updating its Directory of Pennsylvania Sources for Recycled Organic Products. This compilation of those

public and private operations doing large-scale composting for commercial sale has not been updated since 1997, and the group is prepared to develop the survey information, arrange for personal contact to confirm details of each operation, develop an extensive database, and put the information in a searchable site on PACA's website ([www.pacompost.org](http://www.pacompost.org)). The PA Department of Agriculture has provided some funding for this update, and PACA has asked the PA Department of Environmental Protection to provide the additional funds to get the project finished early this year.

Two training courses on composting will be sponsored by PACA under a contract with the Professional Recyclers of PA (PROP) in June – one in the Allentown area (June 18 and 19) and one in the Pittsburgh area (June 26 and 27). Cary Oshins and Al Rattie revised and updated the yard waste manual previously developed by PADEP, and are designing the workshop content and materials. They will facilitate the training courses as well. More information will continue to appear on PACA's website.

And the PACA exhibit continues to be a traveling road show, appearing at a variety of conferences and trade shows where the audience has interest in composting or in compost products. PACA Board members have | donated time and funds to staff the exhibit at the turf shows, sustainable agriculture conference, nursery/landscape show, and related events. Part of the cost is supported by a grant from the PA Department of Agriculture to promote Pennsylvania products.

For more information about PACA and Pennsylvania activities, visit our website at [www.pacompost.org](http://www.pacompost.org)

## VIRGINIA'S NEW COMPOSTING REQUIREMENTS

by Mike Dieter, Regulation and Program Consultant, Virginia Department of Environmental Quality

The Commonwealth of Virginia has recently adopted new provisions for composting. These provisions are included in the Virginia Solid Waste Management Regulations (VSWMR, 9 VAC 20-80), effective May 23, 2001. The Organics Recycling and Composting Committee of the Virginia Recycling Association, a diverse group of pro-composters now part of MACA, offered advice and comments regarding the composting portions of the regulation. The group provided practical and technical concerns regarding the existing regulation and worked with the Commonwealth to ensure that these concerns were considered in the development of the regulation.

The composting provisions have been modified to include revisions that are practical, technically based and protective of the environment. The modifications provide reduced site design requirements for composting using in-vessel systems and different categories of feedstock. Testing for metals and compost stability is based on the feedstock category and the volume of the feedstock received by the composting facility. The new regulations also include modifications allowing for reduced permitting requirements and no permitting fees for compost facilities receiving less than 700 tons/quarter of waste feedstock.

The new regulations only address a portion of Virginia composting requirements. Two separate Virginia regulations deal with composting. Yard wastes and vegetative wastes consisting of materials such as leaves, tree trimmings, grass clippings, brush, wood chips and shrubs are regulated under the Vegetative Waste Management and Yard Waste Composting Regulation (9 VAC 20-101). Composting using other feedstock is regulated under the new VSWMR. The Vegetative Waste Management and Yard Waste Composting Regulations, in addition to offering permits for composting facilities, provide for composting under a variety of exemptions from permitting requirements. Facilities that compost yard waste on the site where they are generated and agricultural operations enjoy several of the exemptions under the regulation. The new provisions of the VSWMR will allow agricultural and other operations to compost a more diverse array of feedstock.

If you are interested in Virginia's composting regulations, a copy of the Virginia Solid Waste Management Regulations (9VAC20-80) can be downloaded from the Virginia DEQ website at [www.deq.state.va.us](http://www.deq.state.va.us). Questions regarding composting regulations in Virginia can be directed to Mike Dieter 804.698.4146. Questions regarding compost facility permitting can be directed to Paul Farrell at 804.698.4214.

## EROSION CONTROL WITH COMPOST!

by Rod Tyler

University research, private research, field demonstrations, and now commercial use of compost for erosion and sediment control show it works better than most BMP's available today, yet it continues to suffer an identity crises. Erosion prevention (keeping soil from moving off of slopes) is about 90-98% effective. Trying to control the mud and sediment once moving (Sediment control) is normally less than 50% effective when using other commercially BMP's like silt fence. Therefore, compost blankets should become a leading tool, especially for challenging projects.

### Reasons to use compost for erosion control as blankets and filter berms

- Construction can run it over and it still works – and it is easy for them to fix with a shovel
- Re-use of material afterwards makes it twice as good – in landscaping or seeding activities
- It works better than standard BMP's like silt fence and straw bales
- Berms offer more actual filtration than coir rolls, silt fence or straw bales
- Compost is annually renewable
- Compost is 100% recycled
- Compost is all organic & all natural
- It helps create an annual market in all municipalities that generate compost of some kind
- Compost is critter friendly – aquatic wildlife can negotiate berms but not silt fence
- Compost is a biobased product while silt fence is a petroleum based product
- Compost provides chemical, biological and physical filtration while other provide physical
- Compost is less expensive when construction, maintenance, removal and disposal costs are considered

For more information contact Ron at [rodndon@gte.net](mailto:rodndon@gte.net)

## MID-ATLANTIC COMPOSTING ASSOCIATION BOARD MEMBERS

Front Row: Jeff Smith, Dr. Rosalie Green, Stephen Lange, Ann Bleinberger - Treasurer, Steve Rohm - Secretary

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Watch for a complete list of MACA members on our website [www.DelmarvaCompost.org](http://www.DelmarvaCompost.org)

## **ANOTHER SUCCESSFUL BETTER COMPOSTING SCHOOL**

Thirty-five participants from eleven states participated in the 10th annual Better Composting School in October. The school is always a good place to meet compost facility operators, managers, regulators, planners, educators and other folks to learn of their experiences. Participant interaction has proven to be just as important as the classroom activity. In three days participants were exposed to the vast critical mass knowledge of composting as presented by Lew Carr, Marc Tefteau, Herb Brodie, Frank Gouin, Pat Millner and Tate Saderholm. An all day tour of five compost sites demonstrating different feedstocks, technologies and management was well received. As always the weather was very cooperative.

Mark your calendar for the 11th school to be held on October 23, 24 and 25, 2002. The place as usual is the Ramada in Hanover near BWI airport.

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