



**This month's meeting will be held on Wednesday August 20th @ 7pm at
Menne Nursery & Garden Artistry
3100 Niagara Falls Boulevard
Amherst, NY 14228
716.693.4444
<http://www.mennenursery.com/>**

Upcoming Events

August 11th to the 15th check out the Bonsai competition at the Erie County Fair.

At our meeting on August 20th we will be having a guest speaker. Mike Shadrack will present a slide show and discussion on mini hostas. Mike and his wife Kathy are the authors of "The Book of Little Hostas: 200 Small, Very Small, and Mini Varieties". I have heard Mike speak on Hosta's before and I was amazed at the wide variety of size, color and shapes of leaves these hardy plants possess. I am sure that we will be entertained and learn of many varieties that will help us in choosing the perfect companion plant for our trees.

September 13th & 14th is the 4th US National Bonsai Exhibition in Rochester, NY. The show will be at the Unity Health Systems Total Sports Experience, 435 West Commercial Street, East Rochester, NY 14445.

On September 18th we will have our annual auction. This is a great opportunity for all members to participate in. You may want to lower the number of trees that you care for or you may want to grow your collection. The auction is not limited to trees, there will be pots, maybe tools, or other accessories. The forms for selling items will be in next months' newsletter.



Bonsai Picnic

The Annual Bonsai Picnic was held on July 19th at Paulette Jurek's home. Despite the rainy day we managed to stay dry. Thanks to our cook, Dick Smith, the food was grilled to perfection. There was so much food and many dishes to choose from that no one walked away hungry. In true Buffalo fashion the rain ended around 8pm as we were all leaving.

Thanks again to Paulette for sharing her lovely home with us.

Horticultural Charcoal (Biochar)

Benefits for Bonsai

By Peter Hobbs

Bonsai have restricted rooting and are grown in soils with coarse structure that allows for good drainage but also results in loss of soil nutrients in the drainage water. So why would biochar be important for growing bonsai? What is biochar? Where do I buy it and how do I use it? This is the topic of this short article.

Explorers traveling in the jungles of the Amazon noticed scattered patches of fertile black soil interspersed with poor fertility red soils. Later research showed that these soils had significant quantities of charcoal and hence the black color. For more details read Marris 2006; Myers et al., 2003; Spokas et al., 2012.

Why did these soils exist in these regions and how were they formed? Researchers hypothesize that they are a result of human activity and seem to be associated with dumps of domestic waste (called middens) on the edge of a village or path. Today, these soils are highly prized by local people and farmers for growing horticultural crops and food crops. They can produce two to three times better yields than their neighboring red soils. Yet the two soils composition are similar except for the biochar component in the black soil.

These black soils were found to have much higher soil organic carbon contents, higher and more neutral pH (measure of acidity and alkalinity), high exchange capacity for nutrients, and higher elevated nutrient contents available for plant growth. In other words biochar can store more nutrients and readily make them available to plants when needed.

The key component of these soils is charcoal, a carbon form that is stable and can exist in the soil for thousands of years. Normal soil organic carbon is easily oxidized and lost if improperly managed especially in intensive tillage (plowing, soil disturbance) systems.



AUGUST 2014 Newsletter

Page 3 of 5

This charcoal has many names including biochar, black carbon and terra preta de indio in Brazil. The question today is can this biochar be used to help sustain modern agriculture? Many scientists are now conducting experiments to test if additions of biochar to soils are beneficial and results look encouraging.

Biochar is made when organic matter or biomass smolders in an oxygen poor environment instead of a full burn. This is how charcoal is made in many parts of the world. It is a byproduct of residues burnt with a porous material and as such has the ability to gather up nutrients and would otherwise be washed away. It becomes much less prone to nutrient loss by water drainage.

The pores are filled with different nutrients needed for plant growth like nitrogen, phosphorus, potassium and the many other elements needed for healthy growth. The pores are also homes for diverse populations of microorganisms – bacteria, fungi and mycorrhiza. These microbes live and die in these pores adding to the fertility of the char. In summary, the biochar is more efficient at doing what we want soils to do; store nutrients for plants. The biochar also decays slowly and is stable with time.

Bonsai Applications

Adding biochar to your soil mix for bonsai will provide all the benefits of a fertile soil and at the same time preserve this fertility over time. The longer the biochar is left in the soil, the better it will become for plant growth including the availability of nutrients and microbial activity.

A handful of biochar can be added to your soil mix when repotting your bonsai plants and provide the benefits outlined above and reduce the need to continually feed your plants with fertilizers. You may need to add nutrients for a while to charge the biochar and fill the pores with nutrients and allow microbes to colonize these pores. The microbial diversity that will develop over time will keep the soil healthy and lead to more vigorous growth of your plants. Biochar has not been reported to have any toxicity or cause any injury to plants, only positive affects on plant growth.

About the Author:

Peter Hobbs was born in the United Kingdom and has studied and worked as an agronomist mainly in South Asia on sustainable intensification of wheat, rice and maize. Dr. Hobbs presently oversees the International Agriculture and Rural Development where he teaches and advises students. He is also academically placed in the Department of Crop and Soil Sciences.

a very interesting demonstration. Dan showed us how to start a bonsai from a large specimen, a juniper. There was a lively discussion at times on which branches to keep or remove. I will bring it back to a meeting next year to see what should be done to it next.

I would also like to thank Dick Smith for his donation of an assortment of small pots to the club. It was suggested that we start some companion plants in them to be used next year in our Bonsai Show. If you have any plants that you would like to suggest or donate for this please let a board member know.



Horticultural Charcoal As A Bonsai Soil Amendment

Horticultural charcoal is an excellent soil amendment for bonsai which is often used in Japan. Recently westerners are also using horticultural charcoal for bonsai as well for several reasons. In addition to filtering the soil of impurities horticultural charcoal retains more oxygen in the soil mix which is beneficial for healthy roots. It helps to retain and make fertilizers more available to the roots, which is called the CEC (cation-exchange capacity.)

Horticultural charcoal has been extensively used for orchids for many years and is mixed with other items such as sphagnum peat moss, perlite and lava rock. It lasts a long time and does not break down.

David DeGroot, curator of the Weyerhaeuser Pacific Rim Bonsai Collection in Tacoma, Washington, uses horticultural charcoal for his bonsai collection. He states, "We use charcoal in our mix, as one eighth or 12% coal, of the total volume, based on a study passed on to me by one of our plant physiologists here, in which various small areas of cleared rainforest land in Brazil were found to be highly fertile, even though surrounding areas were notoriously infertile. It was found that all of the fertile plots were probably old settlement sites where fires were kept burning. As a result, the soil in those areas contained 12-20% carbon."

David uses charcoal rather than organics such as bark or compost because it is clean, does not harbor chemical impurities or disease organisms and does not consume nitrogen in its own decay process, as do other organics. It is stable and does not break down as other organics do.

Not all charcoals are the same. Horticultural charcoal is made from burned wood and used as conditioners in soil mixes. Charcoal briquette, used in BBQ grills, are often made of crushed sawdust or any wood source and formed with clay or other binders to form the uniform sizes and shapes. This often dissolves and clogs up the air and water drainage and is sometimes toxic to plant growth. Filtering charcoal, used in aquariums, is not made from wood, but rather from coal, animal bone and other items. It retains more water and less oxygen than horticultural charcoal.

Chunk or lump charcoal can be used as a soil amendment but it must be first crushed and sifted to uniform sizes and to remove the dust. It is much easier and cleaner to purchase horticultural charcoal if available.

Orchid growers often have sifted and graded horticultural charcoal for sale.

In spring 2013 I began experimenting with horticultural charcoal for many of my bonsai to see how they react to the soil supplement. A rough handful of horticultural charcoal was added to the bonsai soil mix which is approximately 15 to 20% of the total soil volume. To date I have not seen any adverse reactions, but expect better growth next season and will continue to use horticultural charcoal as a soil amendment.

I have found an excellent source for sifted and graded horticultural charcoal and have been selling it to my students in Rochester and at my sales areas at bonsai gatherings.

William N. Valavanis



Contact Info

President - Mary O'Connor 863-2393

mary.koildady@gmail.com

Newsletter - Lin Oldenburg 632-9311

songarden4@gmail.com

Treasurer - Paul Pearson 553-1035

brusier556@yahoo.com

Secretary - Neil Jaeger 480-2317

jaeger.neil@yahoo.com

Board - Travis Schmitt 440-4529

travis.schmitt@yahoo.com

Board - Paulette Jurek

Pjurek1@gmail.com