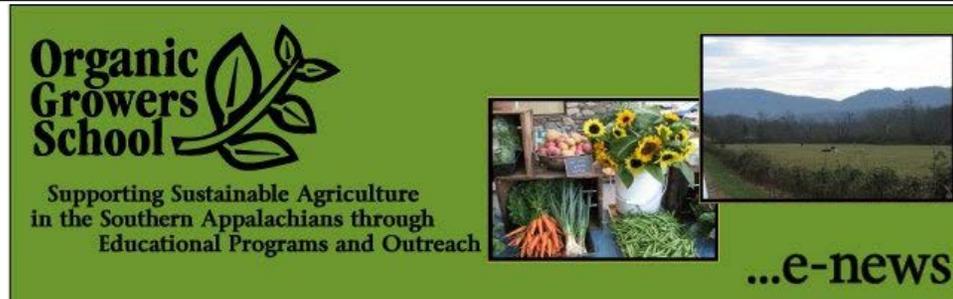


[View as Web Page](#) [Subscribe](#) [Send to a Friend](#)

[Organic Growers School](#)



MEET CRAFT: Mountain Harvest Organics

by Andrea Van Gunst



October 15th found us at our second to last CRAFT Tour for 2011. It's amazing how quickly the summer has gone by: there's been so much learning and getting to know one another!

This tour was held at Mountain Harvest Organics (MHO), a beautiful 100+ acre farm run by Carl Evans and Julie Mansfield. With over 80 acres of this in timber, it made good sense to organize this tour both around the farming operations as well as Carl and Julie's new winter project - sustainable timbering on the farm and, in the future, timber frame structures and kits for sale.

We started out the tour by taking a look at the current farm operation. There are 5 large greenhouses at MHO and 3 of them are currently being outfitted to be heated by a wood boiler. This reduces the on-farm cost for petroleum while making good use of all the available wood. The wood boiler does a great job of keeping the houses warm in early spring - on single digit nights, the boiler can effectively keep the greenhouses at 44 - 55 degrees....with wood added last thing at night and first thing in the early morning.

With over 12,096 square feet in production, these greenhouses make up large part of the growing operation at MHO. Main crops that are grown in the houses include: tomatoes, bell peppers, spinach and sugar snap peas. Carl and Julie also have an effective and easy way to trellis tomatoes and sugar snaps - they use a series of cattle panels secured to T-posts. This is easy to take in and out and holds up well to the weight of the plants. While most of the houses are cover cropped for the winter, some of them stay in production for year-round greens.

After touring the greenhouses and having a quick overview of their field production, we spent the rest of the time learning about small-scale timbering. Carl and Julie were looking for on-farm ways to supplement their summer income and by chance, they ended up hosting a guest for the winter who had extensive logging experience. He helped Carl and Julie come up with a forestry plan and from that they were able to see what equipment they needed and how much investment was necessary. They decided to clear about 35 acres of low-value timber to create more pasture for grazing livestock and the rest of the wooded acreage will be used for timbering for the next several years.



The next step was to clear roads to get the tractor into the woods and after that, they needed to acquire all the needed equipment. Carl and Julie applied for, and got, a cost share to buy a small scale saw mill that they will start using this winter. They also bought a winch for their tractor and bought a larger, more commercial chainsaw. Carl demonstrated how to use the tractor winch to pull trees: this utube has a good demo - <http://www.youtube.com/watch?v=NpJnLif5Ps>. He also showed us what to look for when a buying a chainsaw for more large scale use and of course, the safety basics of using a chainsaw.

This coming winter will be their first season focusing on their sustainable



came out.

timbering business and they're excited to get to know this work and to expand. The first projects will be timber framed buildings on the farm and when that's perfected, there will be custom timber frame kits for sale!

As usual we ended the tour with a great dinner and a campfire. The pizzas were incredible – thank you Carl and Julie for doing so much cooking for us! And thanks again to all those that made the drive and



CRAFT is a unique, hands-on farmer training program that involves on-the-farm education and social interaction throughout the course of the farm season, and classroom-based learning in the winter months. Tours are drawing to a close for 2011, with just one more farm visit schedule for Nov. 5th. Farm business management classes are available throughout the winter months, and peer-dialogues for both farmers and interns/students will take place in early 2012.

Contact andrea@organicgrowersschool.org for more information about the CRAFT program.

THANKS to our advertisers

REEMS CREEK
Nursery & Landscaping

- Organic Gardening Supplies
- Veggie Transplants & Herbs
- Organic & Open-Pol. Seeds
- Organic Potting Soil
- Compost & Soil Amendments
- Fruit Trees
- Blueberries & Small Fruits
- Native Plants & Water Plants
- Full Service Garden Center

Just 10 minutes North of downtown Asheville - Since 1979 - We're Local!

70 Monticello Road
Weaverville, NC
828-645-3937
www.reemscreek.com

19th Annual Spring Conference

Sponsor or Exhibit!

19th ANNUAL
Organic Growers School
spring conference

It's time! Make sure your business is showcased at the southeast's largest sustainable living convergence! We're expecting over 1700 people from 18 states and Canada at UNCA on **March 3 & 4, 2012 for our 19th annual Spring Conference.** We're busy planning the class schedule now and plan to open registration before the end of the year. **DECEMBER 1ST** is the date to remember for sponsors and exhibitors. Sign up anytime (of course), but if you do so by Dec. 1 you will ensure exposure in all of our conference materials.

[Download Sponsor/Exhibitor info NOW!](#)

Farmer's Corner

Ask Tom

Tom –

What is the best way to heat a greenhouse?

Tim, Candler NC



Dear Tim,

Most growers are looking for ways to extend the market season and to bring crops in early when demand is high. Cold tolerant crop selection, row cover, quick hoops and cold frames are relatively low cost options but a little supplemental heat is often useful, even if it is just in your transplant greenhouse. While the question is heating several preliminary steps may reduce the size of the heater you need or allow you to do without a heater, depending on your crop.

Optimizing solar gain is probably the first step in greenhouse heating. Even on overcast days most greenhouse heating comes from the sun. Placing your greenhouse on an east-west axis optimizes solar gain. If you are considering a passive solar greenhouse, this is the best choice if your site allows. Most commercial greenhouses are oriented north-south to avoid shading problems as the sun moves across from east to west. Potential shading problems in an east-west house can be minimized by putting shorter crops near the south wall and taller ones to the north. Our greenhouses run roughly north-south.

As with a home energy audit, the next step is to **minimize air leaks** in your greenhouse. We used four cans of spray foam insulation last spring improving the connection between our sidewalls and roll-up sides. Your crop may need ventilation – particularly on cloudy days when the cooling fans are not operating. Actively growing crops can use most of the carbon dioxide in the greenhouse if it has no vents. Lack of CO2 reduces plant growth and yield. Once you tighten up your greenhouse periodic ventilation becomes more of a concern. I suggest a vent fan on a timer to exchange the volume of your greenhouse about once an hour. To save fuel you may not want to vent as much at night but be aware of humidity increases if you reduce ventilation frequency. High humidity can bring on disease problems.

Following the energy audit analogy – plug leaks first then **insulate your greenhouse**. Your first step should be to deal with the north wall. If it's a poly house like ours consider an inch or two of insulation put between the frame and the poly on the north wall. Foam with a foil surface will actually improve solar gain by bouncing light off the north wall onto your crop. We also added an insulated knee walls on the east and west sides. I plan to do the south wall too. The knee wall (2-4 feet high) casts a small shadow but only very early or late in the day when sun intensity is low.

Our biggest insulation improvement is **movable insulation over the top of our greenhouse** at night. Uninsulated double poly glazing has an R value of less than one (R0.3-0.5 by some estimates.) Our movable insulation has an R value of roughly R12. This change reduces heat loss and fuel costs by about 30 times so it is worth a little effort to put the insulation in place on cold nights and untie it in the morning. ("R" is defined at http://en.wikipedia.org/wiki/R-value_%28insulation%29)



One vendor of the insulation that



we used is at <http://www.insulation4less.com/Default.aspx> we made the purchase several years ago so better options may exist now but the site describes their product fairly well (double foil over closed cell foam). I can give more detail on making the insulation quilts if folks are interested, but in short it's a sheet of **closed cell foam quilted to two layers of landscape fabric** with baling twine. We found this approach cheaper and more durable than cement curing blankets which we also considered.

On to heating options - propane or natural gas heaters seem most common in the US but we have found that style of greenhouse heater generally unreliable. Pilot lights blow out. Heat exchangers rust out. Bugs love to build nests in gas burners in the summer often plugging up parts of the burner and on and on. Vendors seem to see heaters as disposable devices so I recommend having a redundant system – two smaller heaters instead of one larger one. One of my most depressing days began with finding that the heater failed overnight and that my tomato crop was frozen. Hal Oliver, a grower in Hendersonville seems to be a local expert on propane heat. Look for his ASAP post last year on heater maintenance. Others use oil or even waste oil.

The Dutch are the world leaders in greenhouse vegetable technology in my view. Many of their growers use boilers during the days and circulate the **hot water through heating pipes** at night in the aisles between the beds. Those pipes also support harvest carts. Normally a large insulated hot water tank is the source of the hot water. With a boiler approach, any number of fuels can be used including wood. Mountain Harvest in Spring Creek showed CRAFT their hydronic (hot water) heating system using an outdoor boiler with wood as the fuel source. Some of these heaters are now EPA approved related to emissions. That approval implies fewer smoke nuisance problems as well as more efficient burning and less wood to cut.

We are exploring **wood furnace heat** to supplement our propane heater. Our woodlot produces more than enough fuel and it might be cheaper depending on how efficient I am with a chain saw. Wood chips are also fairly affordable and their price is more stable than propane or oil. I have not decided for sure on a wood furnace yet but one vendor with several models to choose from is Northern Tool. I welcome leads on other furnace dealers in WNC.

[http://www.northernool.com/shop/tools/NTESearch?](http://www.northernool.com/shop/tools/NTESearch?storeId=6970&N=0&Ntk=All&Ntt=Wood+furnace&Nty=1&D=Wood+furnace&Ntx=mode+matchallpartial&Dx=mode+matchallpartial)

[storeId=6970&N=0&Ntk=All&Ntt=Wood+furnace&Nty=1&D=Wood+furnace&Ntx=mode+matchallpartial&Dx=mode+matchallpartial](http://www.northernool.com/shop/tools/NTESearch?storeId=6970&N=0&Ntk=All&Ntt=Wood+furnace&Nty=1&D=Wood+furnace&Ntx=mode+matchallpartial&Dx=mode+matchallpartial)

My rationale on considering wood furnaces is that they are somewhat less expensive than wood boilers, tend to have fewer emissions because they burn hotter. Since we want hot air eventually it may save heat transfer losses buy avoiding going from hot air to hot water and back to hot air again. I am still working on this concept so comments are welcome.

I recently heard about an innovative design that at least one local grower intends to use to heat a greenhouse called a **rocket mass heater**. It uses the mass storage methods also used in Russian or Finish masonry stoves.

<http://www.richsoil.com/rocket-stove-mass-heater.jsp>

With **mass heat storage devices** such as water barrels, rocks or cob in this case, be aware that in critical situations (single digits outside and tomatoes that want 55 degrees inside) you may need a supplemental heater to move heat into the greenhouse air more quickly than is possible with convection from warm surfaces. Thermal mass may be able to reduce the load on your heating system over long run and save on propane.

If you want to **heat just with the sun** consider this design

<http://energyfarms.wordpress.com/2010/04/05/solar-greenhouses-chinese-style/>

Many of these structures are operating in China and at least one in Manitoba.

<http://www.engr.usask.ca/societies/csae/protectedpapers/c0611.pdf>

If oil availability is likely to decline in the future the more complicated design of these passive solar structures is likely to make more and more sense.

Stay warm.

-- Tom

Farmers: Got a Question for Tom?

Email it to enews@organicgrowersschool.org

Gardener's Corner

Ask Ruth



Dear Ruth,

In the latest issue of the Organic Growers School newsletter, you recommend planting flowers to attract parasitic wasps and flies for the control of harlequin bugs. Can you offer any advice on what the maximum effective distance should be between your flowers and your crops?

Thanks,
Mike

Dear Mike,

First a comment about harlequin bugs; from personal experience ...these are bad guys with a capital "B". I would not count on a few flowers to keep them in check, but would be very proactive as soon as I spotted even one. Meanwhile, you can plant flowers that attract beneficial insects as part of a holistic approach to gardening - that may eventually make headway with the harlequin bugs. ATTRA advises imagining your beneficials are a mini-livestock "herd" that you build on every year.



Queen Anne's Lace

Texas A & M defines **beneficial insects** as "any insect that has a life style that is advantageous to [humans]. Insects that preserve the balance of nature by feeding on others, pollinators, and recyclers are examples of beneficial insects." Today we will focus on beneficial insects that feed on or disrupt the life cycle of "bad bugs". The subject of pollinators, recyclers, and other beneficials (like bats) may be addressed in a future column, however it is important to note that many of the same plants that attract and nourish beneficial insects, will also attract butterflies and bees. Generally we are hoping that the good guys (ladybugs, parasitic wasps, ground beetles, syrphid flies, lacewings, predatory bugs and wasps, tachinid flies, etc) will eat, parasitize, or otherwise out-compete the bad guys (the bugs eating our crops).

Let's explore why flowers are useful to beneficial insects ... ideally, beneficials want *lots* of the food that they *like*, and they want it *easy to find* and in a *predictable* location. Flower nectar provides just that! Nectar provides insects with sugar and the energy to look for prey, to mate, and to lay eggs. In addition to nectar, the protein and fat in pollen aids in egg development, and flowers provide a site where insects can locate mates. Extrafloral nectaries (these are nectar-producing glands on the plant that are physically apart from the flower) are also an important supplemental food source that contains about 95% sugar. Well-fed beneficials produce exponentially more eggs...which means much larger populations of upcoming good guys.

Mike, I would locate the flowering plants as close as possible (and practical) to the crop you want to protect with beneficial insects, but within at least 200 ft. **Make it easy for the beneficials to find and eat the pest.**

A few options include ~ planting your beneficial-attracting plants in your actual garden beds, in a hedgerow along the border of your garden, in rows adjacent to your crops, or in clumps dispersed around your garden area. If you have a 1000 sq. ft. garden, plant about 50 -100 sq. ft. (or 5-10% of your garden or neighboring area) with plants that attract beneficials. You can "gardenscape" with annuals, cover crops, perennials and trees, or a mixture of these. The layout and scale of your garden, and your personal gardening style, will be the determining factors. For instance, if you till the entire garden annually, perennial plantings are impractical within the main garden.

Utilize flowers that the beneficial insects you hope to attract & retain are known to enjoy. Local entomologist, Dr. Richard McDonald says "**Plant it and they will come!**" *Set the table, and invite them to sit down and have dinner.*

Consider whether the flower structure of the plant is easily accessible to the beneficial in question. For instance, tiny parasitic wasps have short mouthparts, so they prefer to obtain nectar from small, shallow flowers such as



Seven Spotted Lady Beetle
photo: J. Ogradnick, Cornell

those in the parsley (umbrel) and sunflower families. The ATTRA link below is an excellent resource for determining which good bugs eat which bad bugs, and the flowers that they prefer.

Year-round plantings are considered ideal. The objective is to have plenty of flowers blooming all season that will attract and nourish beneficial populations and their young - by the time the unwanted insects show up. Remember to plant *early* and *late* blooming flowers to extend your bloom time to cover the entire season. Plant annuals successively, and deadhead both annuals and perennials throughout the season to encourage continual flowering. If you allow periods without blooms, your beneficials may disperse to greener pastures.

Try planting bands of cover crops between your crop rows to attract beneficials. Clovers and vetch will produce nitrogen, as well as attract beneficial insects. Buckwheat can be planted every 2-3 weeks, attracts beneficials, and is loved by the honeybees that pollinate most of our food crops. Grains also attract beneficials. When you mow the cover crop, consider mowing alternate bands of the cover crop, while leaving some strips in place to provide continued habitat for the beneficials. Avoid using a rotary mower when you mow the cover crop, so that you disturb/damage the beneficials as little as possible. Where farmers might mow with a sickle bar, gardeners could try using hand-held hedge shears, or a weedeater with a *blade* (rather than strings) and swiping an area only once.



Bronze Fennel
photo: biology.missouristate.edu

Gardener Jeff Ashton planted both ends of his 12' raised beds with an 18" band of tansy, yarrow, lovage, and Queen Ann's lace (all perennials). The predatory wasps were especially attracted to the **lovage** and the whole affect was very pretty. The planting was kept in bounds by pruning, and Jeff provided auxilliary water for the insects in a cake pan filled with gravel. Richard McDonald (Dr. McBug) has a special fondness for **bronze fennel**. This tall perennial returns every year reliably, produces yellow umbral flowers that resemble dill flowers, reseeds readily, and is beautiful. It is a host plant for black swallowtail butterflies, and provides excellent habitat for beneficials. Farmer Patryk Battle has experimented with an array of techniques to attract beneficials – outdoors and inside his greenhouse. Richard and Pat have both taught classes about beneficials at the Organic Growers School Spring Conference, so keep your ears open for this year's conference schedule (to be held on March 3-4, 2012).

Beneficial insects can be mail-ordered and released into your garden to target a particular pest. Commercially-produced beneficials should be given a brief adjustment period (30 minutes?) in a cool spot, and released as soon as possible after receipt. When the beneficial insect has eaten most of the targeted pest in your garden, your "gardenscaping" will help retain them for continued pest control in the area. If they have no food nearby, they will have to exit your area in order to survive and reproduce.

FYI – Using beneficials **inside the greenhouse**

is becoming more mainstream every year. In our area alone...Banner Greenhouse, Van Wingerden Greenhouse, and the NC Arboretum use beneficials regularly and pro-actively. They scout for pests at least weekly, and order beneficials accordingly or receive them on a pre-determined schedule. However, they don't wait until an infestation is out of control, since it takes about a week to receive the beneficials in the mail. Our resident expert, Tom Elmore (Ask Tom) has lots of experience using beneficials in his greenhouse, and hopefully he will share his expertise in a future column.

It seems like a no-brainer, but please realize that any broad spectrum insecticide - even organic ones - that you use on a pest (bad bug) may affect your beneficial insect population (good bugs) simultaneously. Use insecticides with restraint. If you do use them, try the softest approach first – such as insecticidal soap, horticultural oils, and botanicals, etc. – and strive to target a particular pest with a suitable control (for instance, Bt targets only soft-bodied caterpillars) rather than killing everything with a "big gun" approach. Conventional (NON-organic) sprays are designed to last, so a "one spray" knockdown can keep killing beneficials as well as target species for weeks.

Permanent hedgerows will provide shelter, a windbreak, and nectar & pollen for many beneficials, butterflies, pollinators, and other wildlife. Providing habitat for wildlife in general is an important way every gardener can contribute to re-balancing nature – since human-created habitat loss has put pressure on many differing species. It is important to keep in mind that we are talking about a delicate balance here. To help prevent fungal diseases, site any plantings with an eye for air movement around your garden (if the plant harbors beneficials, but stifles air movement you will have a different problem to address). Be observant.

This season, many of us had drought-stressed plants that succumbed more easily to other pressures – like insects and diseases. Utilizing beneficial insects will add one more tool to your toolbox, but merely planting some flowers will not replace the need for common sense, on-going attention in the garden. Projects of this nature require the gardener to hone their observational skills, monitor (good and bad) insect population numbers regularly, rotate crops, recognize nutrient deficiencies, and attend to the basics – like weeding and watering. In any garden, thinking holistically is always a great idea!

RESOURCES –

SEASON OF BLOOM for Various Beneficial Insect-attracting Plants:

Spring:

Alyssum (likes cool weather), Borage, Buckwheat (flowers 3 weeks after planting), Clovers, Coriander/Cilantro (not the slow-bolt varieties), Grains, Lovage, Mustards (wild), Norway Maple, Parsley/Parsnip, Peony, Pussy Willow, Tulip Poplar, Vetch

Early summer:

Bachelor Button, Borage, Buckwheat, Clovers, Coriander /Cilantro(not slow-bolt varieties), Coreopsis, Cosmos, Dill, Lovage, Mints, Yarrow

Mid-summer:

Black-eyed Susan, Bronze Fennel, Caraway, Coriander /Cilantro (not slow- bolt varieties), Coreopsis, Corn, Cosmos, Dill, Fennel, Jerusalem Artichoke, Kenaf, Mints, Queen Anne's Lace, Sunflowers, Sweet Potato, Tansy, Yarrow

Late summer:

Black-eyed Susan, Bronze Fennel, Coriander/Cilantro (not slow-bolt varieties), Coreopsis, Cosmos, Dill, Jerusalem Artichoke, Mints, Queen Anne's Lace, Sunflowers, Tansy, Yarrow

Fall:

Alyssum (likes cool weather), Bronze Fennel, Buckwheat (blooms until frost), Chrysanthemum, Golden Rod, Queen Anne's Lace, Sedum 'Autumn Joy', Sunflowers

TYPE OF PLANT:

Trees:

Tulip Poplar, Pussy Willow, Norway Maple

Perennials (*comes back every year*):

Peony, Yarrow, Mint, Bronze Fennel, Black-eyed Susan, Jerusalem Artichoke, Queen Anne's Lace, Chrysanthemum, Golden Rod, 'Autumn Joy' Sedum, Yarrow, White Clover, Tansy, Lovage

Annuals (*replant every year*): Alyssum (early & late), Buckwheat, Sunflowers, Dill, Coriander/Cilantro, Bachelor Buttons (reseeds readily), Parsley (bi-annual), Clover, Mustards, Grains, Borage, Cosmos, Caraway, Kenaf, Corn, Sweet Potato (*replant many of these about every 3 weeks for maximum continual flower production – especially buckwheat, dill, coriander, and sunflowers*)

Extrafloral Nectary Plants:

a few of the over 2000 plants....Peony, Sweet Potato, Bachelor Button, Cowpeas, Vetch, Passion Flower Vine, Elderberry, Trumpet vine, Callicarpa, Willow, Black Locust

Good luck Mike!...and see the additional resources below.

Ruth

Gardeners: Got a question for Ruth? Email it to us enews@organicgrowersschool.org

Ruth Gonzalez is a former market farmer, gardener, local food advocate, and founder of the Tailgate Market Fan Club where she blogs at <http://tailgatemarketfanclub.wordpress.com>. In her job at Reems Creek Nursery, Ruth offers advice on all sorts of gardening questions, and benefits daily from the wisdom of local gardeners.

Ask Ruth © 2010 Ruth Gonzalez & Organic Growers School

ADDITIONAL RESOURCES ~

Sources for Insects:

<http://www.gardensalive.com/search.asp?ss=BENEFICIAL+INSECTS&x=13&y=9>

<http://www.ipmlabs.com> **IPM Laboratories, Inc.**
Locke, New York
ph. 315.497.2063
fax. 315.497.3129
e. ipminfo@ipmlabs.com

Hydro-Gardens <http://www.hydro-gardens.com/>

P.O. Box 25845
Colorado Springs, CO 80936-5845
888-693-0578
hgi@hydro-gardens.com

Articles:

Dr. McBug: http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=0CCoQFjAC&url=http%3A%2F%2Fwww.drmmcbug.com%2Fword%2520files%2FFarmscapingText03.doc&ei=_2qgTpXtKNGctwe5o4mcBO&usq=AFOjCNFah5gSdl7TgsZa_m9BF-tElybECw

Organic Growers School Spring Conference Library:

[The Good, The Bad, and the Ugly: Attracting Beneficial Insects in the Home Garden](#) (2011), Patryk Battle

ATTRA Farmscaping: (Well worth the price! This document includes: Plants that Attract Beneficials, Pests and Associated Beneficial Insects, and Seed Blends, Plants and Sprays to Attract Beneficial Insects)
<https://attra.ncat.org/attra-pub/summaries/summary.php?pub=145>

Biological Control: A Guide to Natural Enemies of North America <http://www.nysaes.cornell.edu/ent/biocontrol/> **Field Guide to Insects** <http://insects.tamu.edu/fieldguide/>

Organic Growers School • 926 Welch Road • Franklin • NC • 28734

<http://www.organicgrowersschool.org>

[Subscribe](#) | [Unsubscribe](#) | [Preferences](#) | [Send to a Friend](#) | [Report Spam](#)

powered by:  & 