

EXTENSION NEWS

WATAUGA COUNTY CENTER

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"Partnering with communities to deliver education and technology."

Spring/Summer 2013

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Congratulations to Bill Moretz

2013 NCA&T SMALL FARMER OF THE YEAR!

Just as we were going to press with this newsletter, Watauga County Cooperative Extension received the good news: NCA&T State University has awarded its 2013 Small Farmer of the Year honor to Bill Moretz of Moretz Mountain Orchard in Boone, NC. Nominated by Area Agriculture Agent, Richard Boylan, Bill was chosen based on his many contributions to agriculture, sustainability, and community. He has mentored many other farmers as they sought to learn about new crops and marketing systems.

A third-generation farm, Moretz Mountain Orchard has always focused on apples as its main crop, but Bill notes that they now also grow "a wide variety of other fruits, including hardy kiwi, goumi, quince, raspberries,

seaberries, honeyberries, peaches, pears, cherries, blackberries, huckleberries, blueberries, and more." Bill's

mother, Virgie, still actively participates in the farm's operation, helping to tend the chickens and collect their eggs, and also making many of the farm's value-added products such as jams, jellies, and dried apples. Some of the apple varieties grown on the farm are modern varieties such as honeycrisp and fuji, while others are heirlooms that "date back to the 1500's."

Most apples are grown in a high-density, trellised planting system, on dwarf rootstock. Bill chose this production system after his grandfather had planted standard trees on their farm two generations ago. By the

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Photos submitted

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4-H Opportunities

Thinking of summer fun yet? 4-H has several opportunities for youth in the summer. But while you are thinking about your plans, be sure to let us know your needs for summer programs by taking our sur-

vey at: go.ncsu.edu/wc4hsummer. The survey and information about summer programs can be found on the 4-H Blog, under Summer Activities; watauga4h.blogspot.com/.

4-H Camp

Watauga County 4-H will escort a group of 8-14 year old campers to Betsy-Jeff Penn 4-H Center. The center is located above Greensboro in Rockingham County, near Reidsville. The camping week is July 7-July 12. Reserve your spot with a \$100.00 deposit and have until July to save up for the rest of the fee, which is \$360.00 more (total of \$460.00). The fee covers meals, lodging, t-shirt, transportation to camp and more. Special programming for 12-14 year olds is an



additional \$65.00. Some scholarship money is available.

Contact the 4-H office at 264-3061 for more information and to ensure a slot. The Registration form is located watauga4h.blogspot.com.

4-H Super Summer

Each summer, youth explore interesting topics, the community, and more through 4-H Super Summer. The workshops are designed for 5-12 year olds to not only learn about topics that might interest them, but to meet others and practice lifeskills. Plans are underway for 4-H Super Summer 2013. The Pizza Adventure Week/Local Foods for Local Kids is slated for June 17-20. This program,



designed for 6-10 year olds helps the youth explore local sources of food as they collect ingredients for pizza. They make pizza from scratch and enjoy other food fun, see a cheese factory, dairy, other farms, and more! The Super Summer brochure will be ready by the beginning of May, so check with us to find out what other summer fun you can get into with 4-H. Information will be posted at go.ncsu.edu/4hsummer.

4-H Horse Program

Horses are a great topic engaging to many youth. Whether the youth have horses or not, interacting with the subject of horses is a great motivator for many to spend time productively and practice learning skills. Caring for horses encourages life-skills such as responsibility and following instructions. Through the 4-H horse program, youth can participate in competitions related to horse subject matter, either on a horse with horse shows or without even getting on a horse through horse bowls, artistic op-



portunities and more. 4-H horse groups are in the process of being formed in Watauga County. For more information, contact Watauga County 4-H.

Bill Moretz

Continued From Page 1

time Bill was a child, "some of those trees required a forty-foot ladder just to get up to the lower limbs." Bill's father, not wanting to have to climb so much and use ropes and buckets in order to harvest, replaced many of these old standard trees with apples planted on semi-dwarf rootstock. The current high-density, trellised planting system allows for even easier pruning and harvests, plus a lower volume of pest-control sprays. When Bill started with this modern orcharding technique, "almost no one" had tried grafting antique apple varieties onto dwarf rootstock, but the combination proved fruitful at Moretz Mountain Orchard. Now, farmers market customers, csa customers, and others in the community can enjoy more than 100 varieties of apple grown on just about three acres at Moretz Mountain Orchard.

Bill also grows vegetables, primarily for his Community Supported Agriculture Market and Watauga County Farmers Market stand. In order to get a jump on the mountain growing season, he leases about five acres in Wilkes County. The lower elevation there "is about a full USDA zone warmer" than his land at the orchard. "From the first week of the farmers market, people are asking



for beans, corn, tomatoes, and other summer crops," Bill notes. The Wilkes County land helps shorten the wait. Bill is scheduled to receive the 2013 Small Farmer of the Year award at the 2013 Small Farms Banquet on March 27, 2013, held at NCA&T State University in Greensboro. This event will serve as a launching point for educational events about perennial fruit crops, permaculture systems, and related topics, to be organized in conjunction with Cooperative Extension. The year of workshops and education will culminate with the kickoff of the 2014 Small Farms Week, to be held at Moretz Mountain Orchard. Stay tuned for more information!

Thinking about joining 4-H?

Looking for "something to do"? 4-H offers project resources in a variety of topics for individuals, groups, 4-H clubs, school classrooms and after-school settings.

An information session will be held Tuesday, April 16. Drop in between 4:30-6:00 to find out more information about 4-H opportunities. A few of the topics you can explore through 4-H:

Personal Development and Leadership Citizenship:
Workforce prep
Service learning

Communication and Expressive Arts:
Photography

Healthy Living:
Bicycles

Consumer and Family Science:
Foods, sewing

Science:
Environmental Education and Earth

Science:
Bugs, trees, wildlife

Plants and Animals:
Rabbits, chickens, dogs

Technology:
Small engines, robotics, electricity

AND MORE!.....

What do you want to explore with 4-H? Give us feedback on what sorts of programs you would like to see and how we may help serve your needs. go.ncsu.edu/wc4hsurvey or see the 4-H Blog at: watauga4h.blogspot.com/

Explore 4-H and Science

Celebrate science with the NC Science Festival. Fun activities are offered across the state. To celebrate, Watauga County 4-H is offering 4-H "Grow Green" for 5-12 year olds



from 3:30-4:30. Get ready for Earth Day by exploring some hands-on science with a "grow green" theme. For other NC Science Festival activities, check out www.ncsciencefestival.org/newsroom/resources.

FAMILY & CONSUMER SCIENCES

Time to Plan Gardens and Save Dollars

by Margie Mansure, Extension Agent and Registered Dietitian

A \$70.00 investment in gardening yields \$600.00 in produce for the year, according to the

National Gardening Association. To get those savings, a gardener has to have some basic knowledge. Many of us did not grow up around a family garden, but it's never too late to learn gardening skills.

If you are interested in this increasingly popular undertaking, now's the time to plan for the growing season.

Your first step is taking a soil test. Most mountain soil is acidic, and vegetables require a pH of 6.0 to 6.5 to thrive. You will receive information



about how much lime you need to add, plus how much fertilizer or amendments your plants will need. Free soil tests are

offered to North Carolina residents and the boxes and instructions are available in my office, 971 West King St. in Boone. It takes a while to get the results back this time of year, so the sooner the better.

If this is your first garden, start small. Being too ambitious may make your first garden your last. Staying ahead of the weeds in a large site may become overwhelmingly frustrating. A small garden is a smaller science experiment, which is

easier to learn lessons from.

Think about a location that receives at least 6 hours of full sun, with more being better. Then consider if you will use the existing soil (which is the least expensive choice), are going to build raised beds, or use containers. If you are planning a garden at a newly constructed home site, raised beds may be easier to start with, since the soil is usually compacted. Raised beds can be any length, but 4 feet is the maximum width, with 3 feet being even easier to reach across.

If you are limited in space or really want to start small, consider container gardening. You may use almost any container that has good drainage, including whiskey barrels, plant pots or old buckets to grow vegetables.

While the official date for planting in the High Country is May 15th, some cold hardy plants such as carrots, kale, lettuce, mustard greens, collards, sugar snap peas and potatoes may be planted as early as March 15th, with beets, broccoli, cabbage, and cauliflower tolerating a planting date of April 15th.

If you want small plants for your garden, March is the time to get those

seeds started inside. Seedlings are also available at the farmers' market in May.

To assist those who have gardening questions, NC Cooperative Extension has put together excellent on-line gardening resources. We also have some publications available in our office.

■ www.ces.ncsu.edu/depts/hort/consumer/hortinfo.html

This site has numerous factsheets covering flowers, shrubs, trees, vegetables, houseplants, and other horticultural topics.

■ www.ces.ncsu.edu/depts/hort/consumer/ag_publications.html

This website brings you to NCSU and NCCES Horticultural Publications, available as PDF documents.

■ www.ces.ncsu.edu/depts/hort/consumer/hortinternet/

The NCSU Horticulture Department has compiled information on various types of plants and garden topics at this website.

For a combination of lecture and hands-on instruction, an Organic Gardening 101 class will be offered July 22nd through 26th, 9 until 12:30 each day. More information to come.

Personal Food Rules Should be Sensible

by Margie Mansure, Extension Agent and Registered Dietitian

It seems that people have more rules about eating than ever before. "I don't eat anything that has feet" is one of the most amusing I've heard. Of course, the most popular food rule for 2012 was no gluten. People who have celiac disease or are truly gluten sensitive benefit from the gluten-free craze, while others may not.

Instead of just going with the latest trend, take a close look at what you eat and drink to consider a rule or two that would make the biggest difference in your health.

After analyzing thousands of diets in my career, I can say that these 10 simple food rules would benefit most people:

1. Eat as close to nature as possible.
2. No processed food that contains artificial colors and lots of preservatives.
3. No foods that you can eat forever and never be satisfied.
4. No fried food.
5. No sodas.
6. Only sweets of the highest quality, not every day.
7. Only whole grain cereal, bread, pasta, rice and other grains unless not available.
8. Add vegetables to most everything you cook.
9. Eat at least two vegetarian evening meals a week.
10. No skipping meals.

You will be able to make sensible food rules a lifelong commitment by figuring out satisfying alternatives to foods you may crave. For example, instead

purchasing deep fried foods at the drive-thru, learn how to prepare a healthier version at home.

Foods that oven fry or pan fry well:

- Chicken, boneless breasts or thighs
- Fish
- Summer and zucchini squash
- Eggplant
- Potatoes, which do not need breading

The Method:

Cut chicken and fish into desired size. The smaller the pieces, the less time it takes to cook. Squash and eggplant are best cut into coins. Cut potatoes in half and then slice.

Coating sticks to some foods better if they have been dipped in milk first. After dipping into milk, dredge food in crushed up corn flakes or seasoned flour. Italian seasoning or other herb blends are great.

To oven fry, pre-heat oven to 400 degrees. Spray a cookie sheet with non-stick spray. Place breaded food on cookie sheet and then lightly spray the top. After 15 minutes, check the bottom of the food to see if it is brown and needs turning. Bake until it looks brown and crisp on both sides. Serve immediately.

To pan fry, add a small amount of vegetable oil to a skillet and place over low – medium low heat. Make sure skillet is hot and add breaded food, cooking each side until brown. If you are cooking chicken this way, you may need to add a lid to the skillet after it is browned to cook all the way through.

Family Meals Provide More Than Nutrition



For those who share a home, sitting down to a meal together may nourish the body and soul. There is nothing quite like sharing events of the day with someone who is interested.

But employment and academic obligations, athletic events, and extra-curricular activities often interfere with the dinner gathering.

For families with children, scientific researchers tell us that regular meals together will reduce the risk for teenage depression, pregnancy, and alcohol and drug abuse, while increasing academic achievement.

According to a recent study published in the *Journal of Marriage and Family*, the main issue is for parents and caregivers to make a daily connection. Finding a routine time to communicate with children is imperative.

The findings also suggest that the effects of family dinners on children depend on the extent to which parents use the time to engage with their children and learn about their day-to-day lives. Eating dinner while being distracted, such as watching a TV show or game doesn't have the same benefits.

Nutritionally, family meals inspire us to try a greater variety of food. All people, no matter what age, tend to eat familiar and easily prepared foods when left alone. Who wants to spend a great deal of time and energy in the kitchen if there is nobody to share with?

When children are developing their palates, lack of variety may lead to picky, unhealthy eating. If left alone to prepare what they desire and have the skill for, processed foods, typically high in sodium and fat may win.

Making dinner connections may be impossible due to scheduling issues. Try checking in

over breakfast, a healthy snack or even beverage. Time in the car together may be the only chance to communicate.

Even if family members are eating at different times, having prepared recipes that only need to be heated provides better nutrition and variety. Think of such recipes as "planned-overs" instead of leftovers. Cooking twice as much as needed at a meal is smart, since two meals are on hand for just a little bit more effort.

This simple soup recipe takes only 20 minutes to prepare. It serves 6, but I like to double the amount for more than one dinner and to pack in lunches.

■ Noodles Lo Mein

- 3 tablespoons dark sesame oil
- 8 oz. firm tofu, cut into 1" cubes.
- If you don't like tofu, use chicken breast
- 1 large clove minced garlic
- 1 small onion, chopped
- 1 tablespoon minced fresh ginger root
- 4 cans chicken or vegetable broth
- 1/8 teaspoon crushed red pepper (optional)
- 3 tablespoons teriyaki sauce
- 1 pound bag frozen oriental style vegetables
- 8 ounces linguine of choice (fresh tastes best, whole grain is healthiest)

Heat 1 tablespoon of sesame oil over medium heat and sauté tofu or chicken for 3 – 5 minutes, until golden on all sides.

In a large soup pot, heat 2 tablespoons sesame oil over medium heat add onion and garlic. Saute until tender, 2 – 3 minutes. Add ginger, then broth, red pepper, teriyaki sauce and turn heat to high. Once boiling, add linguine (if using dried. Fresh may be added at very end to boil for 3 minutes).

Bring back to a boil a cook 6 minutes. Add bag of Oriental style vegetables and cook until they are a nice texture, 4 - 5 minutes. Stir in browned tofu or chicken and serve.

AGRICULTURE, NATURAL RESOURCES & ENVIRONMENT

SPOTTED WING DROSOPHILA FRUIT FLY

Male *D. suzukii* on raspberry leaf.

Photo by Absalom Shank,
NC State Horticulture Department

The following article consists of excerpted writings of Professor Hannah Burrack, Assistant Professor of Entomology & Extension Specialist at NC State University. She has been at the forefront of research of this new insect pest's impact on small fruit production in the southeast. Many more related photos, fact sheets, and ongoing updates can be found at this link of her blog - ncsmallfruitsipm.blogspot.com/search/label/SWD.

The final paragraph on Organic Management Options is written by Richard Boylan, based upon posts by Professor Burrack, and also Mark Bolda, University of California Cooperative Extension Farm Advisor in Santa Cruz County (ucanr.org/blogs/blogcore/postdetail.cfm?postnum=3086).

Spotted wing drosophila (SWD) is a new pest of soft skinned fruit which has recently been detected in the southeast. As of now, we do not expect this pest to impact the quality of berries and other fruit produced in North Carolina or other southeastern states, but SWD presents new management challenges for fruit growers. The resources presented here are intended to inform the public and aid growers in managing SWD.

Background

Spotted Wing Drosophila (SWD, *Drosophila suzukii*) is an invasive pest of soft skinned fruit in North America. First observed in Fall 2008 in central California, SWD was not correctly identified until early 2009. In 2009, SWD was detected in fruit crops throughout the west coast, from California to Washington. SWD is polyphagous, meaning it feeds on many different plants, all soft skinned fruits. Known hosts include: blackberries, blueberries, raspberries, cherries, peaches, apples, pears, nectarines, plums, grapes, strawberries, and figs. In California, which represents the largest acreage of these fruits nationwide, SWD was responsible for an average of 20% crop loss, although near total infestations are possible. Because of the significant threat SWD represents, a group of entomologists from California, Oregon, and Washington received a large USDA Specialty Crops Research

What does the fly mean for Watauga County fruit growers?

Initiative (SCRI) grant to study its biology and management. This project is headquartered at Oregon State University.

In late Fall 2009, SWD was detected in Florida, near the main strawberry producing area. The appearance of SWD on the east coast prompted the establishment of a monitoring network in NC, SC, and VA with the support of the Southern Region Small Fruit Consortium. SWD was detected in SC and NC in July and August 2010, respectively. In September 2010, SWD was found in Michigan.

Management Strategies for Homeowners and Small-Scale Growers

1 Remove all ripe and ripening fruit and immediately use, preserve, or destroy it (SWD can be killed in over-ripe fruit can be by freezing, "baking" in the sun inside a clear plastic bag for a few days, or removing from the site). Eggs or larvae may be present in otherwise sound appearing fruit. Leaving this fruit means that potentially infested fruit is present and could be harvested.

2 Begin an aggressive (once per week if it does not rain, reapplication in the event of rain) spray program. Rotating between at least two modes of action will reduce the likelihood of resistance development. See (ncsmallfruitsipm.blogspot.com/2011/01/management-tools-for-spotted-wing.html) for information about the probably efficacy of registered insecticides in southeastern small fruit crops. Because these efficacy ratings are based on work done largely in the western US, where environmental conditions differ, they are not set in stone.

3 Practice excellent sanitation. Remove all ripe fruit and sell or destroy it. Do not discard culls in the field, and clean up after rain and u-pickers. Unpicked fruit is a reservoir for SWD larvae.

4 Sample fruit regularly and consider trapping flies. Traps tell you SWD presence or absence and are not perfect, but they are helpful. Place traps in strawberry rows, near fruit for the best chance of catching flies. Sample fruit each harvest by either cutting them open and looking for larvae, crushing them in salt water (1/4 cup salt per gallon), or freezing them. Salt water and freezing will cause larvae to exit fruit. Sample at least 30 berries per field. See

here and here for trapping information and here for larval sampling information.

All growers are strongly encouraged to monitor for SWD adults before larvae are found. If adults are present and fruit are ripe, pesticide treatments are recommended through the end of harvest. We hope that this strategy will prevent larvae from showing in fruit and triggering the actions listed here.

5 Unfortunately, sanitation alone will not eliminate and SWD population. However, if you can pick your fruit a bit earlier or a bit less ripe, it will be exposed to SWD for less time and will perhaps be at a lower risk of infestation. It's also important to note that while SWD larvae cause fruit to decay quicker and are unpalatable if present in fruit, they are not poisonous or parasitic. If you have inadvertently consumed fruit from your home garden that SWD larvae have been present in, they do not pose a health risk.

6 A couple of Japanese references suggest that mesh cages or bags (specifically 0.98mm mesh) prevented SWD infestation in blueberries without impacting plant growth. This strategy is worth a shot for homeowners who can tolerate the sight of bags on their plants. In order to exclude SWD, cages should be placed before fruit begins to change color and tightly sealed at the bottom. We'll often place a piece of quilting foam between the cage and the stem of the plant to allow us to tightly tie the cage shut (with a zip tie or twine) but protect the stem from damage. Cages should stay in place until you harvest your fruit. We use organdy mesh from fabric store and sew our cages to size, but paint strainers also work in a pinch. I plan to try this method with my backyard blueberries, blackberries, and figs next year and will be interested to hear if others also give it a shot.

Organic Management Options

The above strategies for sanitation, early harvest and monitoring are all a necessary first step for any small fruit grower who wants to try to control spotted wing drosophila in organically managed blueberries, raspberries, strawberries, or grapes. However, spraying these crops organically will impose some higher costs than those faced by conventional growers. The primary tools in the organic spray arsenal are Entrust (an OMRI-listed 80% spinosad

product), Pyganic 5.0 (an organic formulation derived from pyrethrum), with horticultural oils (JMS Stylet Oil, various neem products, etc.) and insecticidal soaps (Safer Soap, M-Pede) as possible second-tier defenses. All are considered 'restricted' use under the National Organic Program, so preventive and cultural controls, such as described above, must be employed before using any of these sprays.

Mark Bolda, University of California



Apple cider vinegar baited SWD trap in primocane fruiting blackberry tunnel.

Photo by HJB

Cooperative Extension Farm Advisor in Santa Cruz County, conducted a 2010 trial of Several Organically Registered Pesticides for Control of Spotted Wing Drosophila in Raspberry in California. "Treatments were Pyganic 5.0 applied at 9 fl oz per acre, Pyganic 5.0 applied at 18 fl oz per acre, Pyganic 5.0 applied at 18 fl oz per acre + Aza-Direct applied at 2 pt per acre and Entrust applied at 2 oz per acre.

Two applications of all Pyganic materials and mixes were made; one on 6/29 and the other on 7/2. As per recommendations from the distributor, carrier pH's were modified to below 6.5 with Mix-Well.

Entrust was applied once on 7/2. As per label recommendations, pH was not modified and checked out at 7.0. Applications made with 75 gal water per acre.

He found good control of SWD at the higher Pyganic rate (regardless of whether neem was added or not) and also after spraying Entrust. He concludes, "a single application of Entrust or two applications of a high rate of Pyganic can offer organic growers up to five days of SWD control."

While these results are promising, they do come at a significant cost. The chemical costs alone of spraying an acre of raspberries with Entrust or Pyganic are in the range of \$70 per spraying at the described rates. Growers will have to evaluate potential sales and improvements in quality against these costs of management. It may be that pick-your-own operations can control SWD tolerably well via sanitation and encouraging their customers to freeze, jam, or otherwise process their berries immediately upon arriving home. On the other hand, growers hoping to sell organic raspberries into grocery stores will almost certainly need to experiment with two or more of the above-listed organic materials.

AGRICULTURE, NATURAL RESOURCES & ENVIRONMENT

2013 RAIN BARREL SALE

The Watauga County Cooperative Extension, Soil and Water Conservation District, and Town of Boone are working with Rain Water Solutions to offer High Country residents the opportunity to purchase the new and improved "IVY" rain barrel at the discounted price of \$75 versus the regular retail price of \$119 (plus \$50 shipping). We are able to bulk purchase and deliver to pass the savings along to you!



Not all rain barrels are created equal! The "IVY" rain barrel provides a new era of design innovation for an economical price. The forest green barrel features a 50-gallon capacity, locking lid, 2 overflow ports, screened inlet, and its 50% recycled plastic. Best of all, the entire barrel and all the components are **MADE IN THE USA!!!** Dimensions are 43" high and 22" diameter.

The average homeowner uses approximately 40% of water for outdoor use. A one-inch rainfall on a 1,200 square foot roof will yield over 700 gallons of water. Using a rain barrel is an excellent way to conserve some of this water. A quarter inch run-off from an average roof will easily fill the barrel. If you have 5 storms a season, that equals 275 gallons of free water. Rain barrel use reduces the stress on municipal water systems during the summer months and improves storm water management.

How to order:

Go to the following website to order your rain barrel.

www.rainbarrelprogram.org/watauga-county

You must place your order by May 31st, 2013. The barrels will be available in Boone on June 6th for the one-day pick up event. Pick up will be at the Agricultural Conference Center at 252 Poplar Grove Rd

Top 5 Reasons to Harvest Rainwater!

- Protect our rivers and streams from runoff pollution
- Divert water from the municipal storm drain system
- Conserve this vital natural resource and reduce your water bills
- Use the rain water to grow healthy and lush plants
- Control moisture levels around the foundation of your home

The Rain Barrel Sale is presented to you by: Watauga County Cooperative Extension, Watauga County Soil and Water Conservation District and The Town of Boone.

Rain barrels are a great way to conserve water and save money. Use a rain barrel for watering lawns and flowers, as well as, washing cars, pets, and driveways. Since we can't see into future weather patterns, and we don't know what this summer holds, why don't you go ahead and get your "IVY" 50-gallon rain water harvesting system today!

WATERING FOR A HEALTHIER LANDSCAPE

Water is one of our most valuable natural resources. Most of the time, however, we take it for granted and use it in abundance

until drought sets in and we are forced to conserve. It seems that the High Country received plenty of precipitation this past winter, but drought can set in at any time unexpectedly. To protect our water supply from shortages, we should strive daily to conserve water instead of waiting until an emergency drought to conserve. This article introduces some basic ideas that will help you conserve and protect our water resources.

One area where water use can be decreased without sacrificing beauty or function is in landscaping. The term xeriscaping means landscaping for efficient water use. By using plants that are drought tolerant and by knowing what amount of water is right for your landscape and when to water, you can use much less water. A truly efficient way to use water in a yard is to design the yard so that it thrives predominantly on rainfall.

When planning your landscape, divide the area into low, moderate, and high water-use zones. Water should be applied to meet the needs of the plants in each of your zones. Incorporate as many of the natural elements of the site into the design as possible. Shade can hold more moisture than full sun areas, so it can make the landscape more water efficient. Older, established plants should be watered less often than young or new plants.

An established plant refers to the time it takes for roots of newly planted plants to spread outside the root ball into existing soil. During this time plants need 1 inch of watering or rainfall per week. Perennials and shrubs may take up to 12 weeks to establish, while trees could take up to two seasons. Initially, water should be applied to the root ball. As the roots mature, the water should be applied at the canopy drip line.

Many of us have lawns that require maintenance to continue looking nice. To keep your lawn healthy and require less maintenance, let your grass grow higher. The higher the grass blade can grow, the more extensive the root system will be, and the lawn will be healthier. When the roots are able to grow deeper, the lawn becomes more drought-tolerant and requires less fertilization. Raise the mowing height, and mow often enough that no more than one-third of the leaf tissue is removed. Keep the mower blade sharp; a dull blade

causes more plant water loss and undue stress.

When water is scarce, avoid unnecessary plant stress and seriously minimize fertilization. Many fertilizers

are chemical salts and may damage roots and prevent water absorption. Fertilizers also stimulate new growth, which increases demand for water. Pruning also stimulates new growth and should be avoided during water shortages.

Different plants show different drought-related symptoms. The leaves of some plants may exhibit marginal leaf burn, whereas others simply wilt. Some daily wilting is normal during hot summer days, but prolonged drought conditions can cause continuous wilting.

For trees and shrubs, wilting is one of the first signs of drought stress.

Certain plants in the landscape wilt readily and can be used as early indicators of drought stress. Plants to watch for signals that it is time to water include azaleas, dogwoods, hydrangeas, most annuals, herbaceous perennials, and turf-grass. The first symptoms of moisture stress in turf-grass are a dull grey-green color and leaf blade folding or rolling. It is most effective and efficient to wait for these symptoms of stress before irrigating.

Some drought tolerant plants that thrive in the High Country include; Tulip poplar, Sycamore, Laurel oak, Live oak, Pin oak, White oak, Hollies, Chaste tree, Sweet gum, Yaupon holly, Strawberry bush, Forsythia, Viburnum, Black-eyed Susan, Rudbeckia, Coreopsis, Cosmos, Butterfly weed, Gaillardia, Goldenrod, Blazing Star, Purple coneflower, Stokes' aster.

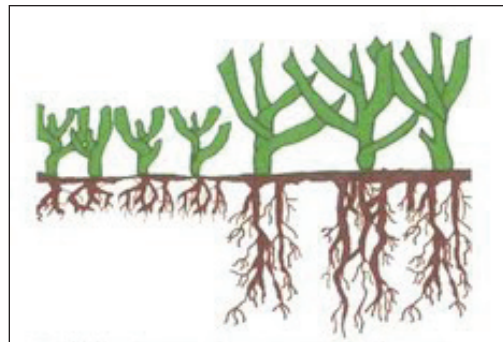
Information from this article is found in the following articles:

How to Plan and Design a Water-Wise Landscape, www.bae.ncsu.edu/programs/extension/publicat/wqwm/ag508_2.html.

Water Wise Use in Landscaping, www.bae.ncsu.edu/programs/extension/publicat/wqwm/ag508_1.html.

The Carolina Yardstick Workbook is a great resource to think about the functionality of your yard. www.clemson.edu/extension/natural_resources/water/carolina_yards/carolina_yardstick.pdf#

Download the PDF version.



The higher the grass, the more extensive the root system, and the healthier the lawn.

Photo by Carolina Yards & Neighborhoods, www.carolinayards.org

Avery County Backyard Stream Repair Workshop

erosion and return stream banks to a healthy, attractive state. Attendees will have the opportunity to watch, ask questions, and even install plants that stabilize and beautify a stream bank.

When: March 27, 2013 from 9 am to 3:30 pm (snow date is April 3)

Where: Newland Volunteer Fire Department - 342 Estatoa Ave. Newland, NC 28657

Cost: \$25 includes lunch

Register Here: www.bae.ncsu.edu/workshops/stream_repair.php

Who Should Attend: homeowners, local government personnel, landscapers, utility workers, park managers

Agenda:
9:00 Morning registration
9:30 Classroom discussion of problems and solutions
12:00 Lunch (provided)

1:00 Field Demonstrations of Streambank Repair
3:30 Adjourn

This workshop is sponsored by the NC Cooperative Extension, NCSU Biological and Agricultural Engineering Dept, the Town of Newland, and Avery County. For more information go to www.bae.ncsu.edu/workshops/stream_repair.php.

Questions? Contact Wendy Patoprsty at 828-264-3061 or email Wendy_Patoprsty@ncsu.edu.



Is your backyard stream washing away? Here's your chance to learn more about sustainable backyard stream-repair solutions to reduce

AGRICULTURE, NATURAL RESOURCES & ENVIRONMENT

Beaverdam Watershed Water Quality Project in Last Year of Funding

Although Beaverdam Creek flows through a picturesque landscape, the stream itself has been listed as "impaired" by the North Carolina Division of Water Quality. The presence of several pollutants, such as biological pollutants, sediment, or high water temperatures, could be the cause of the "impaired" designation. Impaired water quality from sediment, runoff and thermal pollution not only affects Beaverdam Creek, but the overall water quality of the Watauga River because Beaverdam Creek is a headwater stream.



Part of the grant project is monitoring water quality three times a year.

Photo submitted

The Watauga River Partners, a nonprofit environmental organization based out of Watauga County N.C., received a grant from the North Carolina Department of Environment and Natural Resources to develop a watershed rehabilitation plan for Beaverdam Creek, located in the western Watauga County community of Bethel. Developing a plan to remedy these impacts is important to water quality in the Watauga River basin. Funding for the Beaverdam Creek Watershed Restoration Project has been used to help landowners prevent land loss, improve drinking water and fish habitats, and implement best management practices for their farms.

The Watauga River Partners have until the end of 2013 to provide financial assistance to residents who own land along Beaverdam Creek or its tributaries and

are willing to share costs, labor and equipment. The funding may be used for plants along creek banks, rain gardens, alternate watering and feeding approaches, cattle crossings and fencing and other approved alternatives. This is a great opportunity for landowners to not only improve their property, but to insure the Watauga River remains a vital, healthy waterway for fishing, habitat and drinking water. Watauga River Partners is working with Watauga County Cooperative Extension and North Carolina Division of Soil and Water Conservation to install projects in the Beaverdam community. If you are interested contact Ashley Wilson at (828) 773-8652.

■ About the Watauga River Partners:

The Watauga River Partners formed in 1999 as a chapter of the Western North Carolina Alliance in response to the growing pressures on the water quality of the Watauga River and its tributaries. The purpose of the organization is to educate the community about the Watauga River and to promote conservation and rehabilitation of the river. Watauga River Partners' efforts to protect the Watauga River serve communities along the 60-mile stretch of river. The Watauga River is perhaps the most outstanding natural resource of the North Carolina High Country, where it is a center for outdoor recreation, a site of scientific research, a fragile ecosystem that is home to endangered species of aquatic life, a source of high-quality water, and a contributor to local and regional economies.

New Micro Loans Through the Farm Service Agency

The Farm Service Agency (FSA) developed the Microloan (ML) program to better serve the unique financial operating needs of beginning, niche and the smallest of family farm operations by modifying its Operating Loan (OL) application, eligibility and security requirements. The program will offer more flexible access to credit and will serve as an attractive loan alternative for smaller farming operations like specialty crop producers and operators of community supported agriculture (CSA). These smaller farms, including non-traditional farm operations, often face limited financing options.

Microloans can be used for all approved operating expenses as authorized by the FSA Operating Loan Program, including but not limited to:

- Initial start-up expenses;
- Annual expenses such as seed, fertilizer, utilities, land rents;
- Marketing and distribution expenses;
- Family living expenses;
- Purchase of livestock, equipment, and other materials essential to farm operations;
- Minor farm improvements such as wells and coolers;
- Hoop houses to extend the growing season;
- Essential tools;
- Irrigation;
- Delivery vehicles.

The application process for microloans will be simpler, requiring less paperwork to fill out, to coincide with the smaller loan amount that will be associated with microloans.

Requirements for managerial experience and loan security have been modified to accommodate smaller farm operations, beginning farmers and those with no farm management experience.

For annual operating purposes, microloans must be secured by a first lien on a farm property or agricultural products having a security value of at least 100 percent of the microloan amount, and up to 150 percent, when available.

Microloans made for purposes other than annual operating expenses must be secured by a first lien on a farm property or agricultural products purchased with loan funds and having a security value of at least 100 percent of the microloan amount.

Eligible applicants may obtain a microloan for up to \$35,000. The repayment term may vary and will not exceed seven years. Annual operating loans are repaid within 12 months or when the agricultural commodities produced are sold. Interest rates are based on the regular OL rates that are in effect at the time of the microloan approval or microloan closing, whichever is less.

Contact Gay Isaacs at the USDA Farm Service Agency at (828)264-3850.

Integrated Parasite Management for SHEEP/GOATS

The weather is starting to break and the grass is starting to green up, and the livestock is testing fences trying to find every green blade of grass. I hope this time of year motivates you to examine your grazing program and to make improvements.

If you have sheep and goats I am sure you are aware of the problems with internal parasites. The industry is small and parasites have been building resistance to de-wormers, and there are few new ones being developed. There are many gimmicks out there, with most not working. If you want to reduce losses then you should follow an integrated approach.



The main parasite that affects sheep and goats is *Haemonchus contortus* (Barber Pole Worm). This worm sucks blood and causes anemia in the host animal. It has a very long life out of the host in pastures. The Barber Pole worm is prolific and can produce 5000 eggs per day. It over winters in a hypobiotic state, and sheds eggs after the ewe/doe has given birth.

A grazing plan should be the first step in developing an integrated parasite management plan. This grazing plan should list paddocks and the rotation schedule. The Barber Pole worm eggs are shed in the feces and then the larvae climbs the blade of grass up to 2 inches. If you rotate the pastures and only allow livestock to graze down to 4 inches and then move them to taller rested forages, this rotational grazing will help reduce the reinfection of animals. Rotational grazing is more effective if you graze horses or cattle the next rotation of grazing. The worms cannot live in another species, so when they ingest the larvae it is killed during the digestion process.

The old recommendation of rotating de-wormers every other time is no longer the best practice. Research has shown that rotation has caused resistance to most of the de-wormers. It has been found that 25% of the animals cause 80% of the problems with parasites. You need to determine which animals are infected and only treat those animals. The easiest way to determine if an animal is infected is by using FAMACHA.

The FAMACHA system has been around for several years and was developed in South Africa to aid in parasite control. FAMACHA is no more than examining the eyelids of sheep or goats to determine if they are suffering from anemia. A color card is used as a guide. There are differences in the pigment of different breeds but with practice it can be effectively used for all sheep and goats. The card is needed to be consistent in determining the score. The cards are only available after completing a class in its use and integrated parasite management.

The FAMACHA system only treats animals identified as being anemic. This reduces the amount of de-wormer used and will identify animals that are more susceptible. It has been effective in reducing resistance of the worms. It is easy to do and with practice only takes minutes to execute. It can be done any time that you are working your animals, at foot trimming, when giving vaccinations, or other times when you are working your animals.

Grazing practices and using FAMACHA are 2 tools to help control parasites but one of the most important tools is keeping records. Keeping records seems to be one of the hardest tasks for livestock producers but can offer many returns. Records can be very simple and are needed to make good management decisions. Most producers that have adopted integrated parasite management have discovered that only a few members of the flock have parasites requiring treatment. Keeping good records that not only include production, but what their FAMACHA scores are, and what treatments are given. This is the only way to identify problems and work toward a solution.

The next step is what products are available and how do they work. The drugs available are limited and should be

AGRICULTURE, NATURAL RESOURCES & ENVIRONMENT

Where to Find Organic Farm & Garden Supplies in the High Country?

A few years back, trying to buy organic fertilizers and pest control products in the High Country meant, when such supplies could be found locally at all, many stops and long travels. Fortunately, a number of local farm and garden suppliers have stepped up and now carry a nice selection of organic growing supplies for both the small gardener and the commercial-scale organic grower. The following Ashe, Avery, & Watauga County vendors are listed in alphabetical order, so be sure to read all the great options below. Also, please remember that organic supplies are still a new field for some of these vendors, so please be patient and supportive as they try to serve you!

This list is probably not yet complete. If you know of an organic supplier that I have overlooked, please e-mail the information to richard_boylan@ncsu.edu.

■ Boone Stockyards

(828-262-0757) – Boone Stockyards in Deep Gap began stocking OMRI-listed organic fertilizers in ton-totes a few years back. They have recently changed brands, but the new product is OMRI-listed, and considered acceptable for all organic production. It

is “Chickity Doo Doo,” and lists as a 5-3-2.5 analysis, with 9% Calcium.

■ Crop Production Services

(336-846-3339) – CPS (formerly UAP – on the East Side of Jefferson) carries a mix of OMRI-listed, organic products for disease & insect control, including horticultural oils (JMS Stylet in gallon jugs), insecticidal soaps (M-Pede in 2.5 gallon jugs), fungicides (Oxidate in 2.5 gallon jugs), biofungicides (Serenade in 12 lb. bags), and more. In general, their products are geared toward commercial-scale growers, but ambitious home gardeners may also wish to investigate their stocks. Many organic products are also available at the Newland (Avery County) outlet of CPS, which can be reached at 828-733-6001.

■ David Miller Farm Supply

(828-297-4488) (828-297-4488) – Growers both large and small can find fertilizers such as bone meal (in 4.5 lb. or 24 lb. bags), Neptune’s Harvest 2-3-1 Fish & Seaweed Fertilizer in gallon jugs, ESPOMA Plant Tone (in sizes from 4 lb. to 40 lb.), Green Sand (36 lb. bags), and Perdue Micro-Start 3-2-3 (in 50 lb. bags or ton-totes) at David Miller Farm Supply, located in the Zionville area. They plan to add more brands and wider organic stock to their shelves during 2013, so be sure to check for new availability. Additionally, they now carry Countryside Organic Feed, including Organic Soy-Free Poultry Layer Feed, Starter Feed, Scratch, Cattle, Goat, and others available via special order.

■ Homestead Supply

(336-982-9777 or 336-620-9118) – This store, located at the corner of highways 163 & 16 in the Glendale Springs area of Ashe County, carries a wide diversity of hard to find items for the sustainable home and organic farm. You will find the large scale, such as bulk Rock Phosphate, available for sale in ton-totes to Fish Emulsion & other organic fertilizers in smaller quantities, plus industrial-grade tarps, Yanmar Trac-

tors, and other farm and homestead supplies.

■ Parsons Farm Supply

(336-246-4359) – Parsons, on the Back Street of West Jefferson, has long been a good source for alfalfa meal and a few other organic ‘fertilizers’, which they carried as feed. Now they have branched out to carry the full line of organic products offered by Seven Springs Farm Supply (see www.7springsfarm.com/catalog.html), plus Perdue Micro-Start 3-2-3 (in 50 lb. bags or ton-totes), and a growing list of other organic materials. Their bagged lime is also acceptable for use in organic production.

■ Southern Ag & Insecticides

(828-264-8843) – Southern Ag primarily serves larger-scale growers. While the bulk of their business remains conventional grower supplies, they have begun to stock some important organic pest control products and can special-order many more. Right now, they stock Cease (in 1-gallon jugs, a biofungicide also marketed as Rhapsody), Oxidate (in 5-gallon jugs), DiPel DF in 1-lb bags, Gnatrol, plus their own Conserve Naturalyte Insect Control (a dilute spinosad product) and Triple Action Neem Oil that have been recently listed by OMRI. Southern Ag can also special-order Mycotrol-O (the biological insecticide Beauveria bassiana), Serenade, Entrust (the full-strength version of Spinosad insecticide) and any other organic materials produced by BioWorks (Plant Shield, SuffOil, etc.). Also, they carry a Fish Emulsion in 5-gallon jugs.

■ Southern States

(828-264-8883) – Southern States in Boone carries several organic fertilizer products by Espoma and NatureSafe, as well as lime, gypsum, and other general use soil amendments suitable for organic production. Their pest control product section also has some natural products available in home and/or small-farm quantities.

Parasite Management

Continued From Page 6

managed to reduce resistance. There are 3 classes of drugs for use in sheep and goat deworming. Benzimidazoles (products in end ‘dazole’) these are mainly the “white drenches” and are broad spectrum with a wide safety margin. They are effective against tapeworms as well. Abendazole should not be used in the first trimester of pregnancy as it can cause abortions.

Nicotinics are a class of Membrane Depolarizers that can be broad spectrum. There is limited availability of some of these products.

Macrolides are a broad spectrum with a wide margin of safety, and offer external parasite control. This class includes all the ‘mectins’. Before using any of the products be sure to follow the label directions or work with your veterinarian on the dosage. Many of these products are used in sheep and goats as an extra label use and require approval of a veterinarian.

To determine the effectiveness of de-wormers you can use a FEC (fecal egg counts). This test is a simple test that counts the number of parasite eggs in the feces. If you think you have resistance then the process is a FEC test pretreatment, treat and then a FEC test in 10 to 14 days. Extension service has a kit that you can check out to conduct your own FEC.

There are many home remedies for parasites and their effectiveness is questionable. One of the most commonly used home remedies, however, is Diatomaceous Earth. There is no research that shows it to be effective at controlling internal parasites. If you choose to use a home remedy then incorporate FAMACHA and FEC into your program to monitor anemia. This will help monitor the effectiveness of your treatment, and prevent losses.

Serecia Lespedeza, as well as other forages high in vitamins, shows promise as another tool to be used to battle parasites. This lespedeza is high in tannins, which is not palatable to most livestock but goats love it. Research has shown that while grazing Serecia Lespedeza fecal egg counts were lower than control groups. Incorporating this forage into your grazing rotation may offer some control against internal parasites in a managed pasture.

The use of copper wire particles also is a non-drug control that reduces worm loads. The copper wire particles are placed in a gelatin bolus and given orally at the start of the grazing season and can be re-administered in 4 to 6 weeks. Never give more than twice per season and use caution before giving to sheep. Sheep are susceptible to copper toxicity and use of copper wire particles can be deadly.

The good news is that the market for sheep and goats is the best I have seen in a long time. I hope that if you have sheep or goats you will incorporate these steps in your parasite management program.

Grazing for Increased Profits

In January I attended the North Carolina Forage Growers Conference. The meeting was informative as well as motivating. Anyone who is raising livestock is looking to increase profits. Higher input costs and stagnant prices result in lower profits. Forages are often overlooked as a way to reduce inputs and increase profits. Livestock producers should start looking at their forage program for ways to increase profits.

I challenge you to set some goals for your grazing system this year. This might be to control weeds, to graze 30 days longer, or as ambitious as only feeding harvested forage for 100 days. These goals can be reached but they require some planning and then a little faith and follow through. I am often asked if we can graze year round in the high country. My answer is yes if you are willing to work at it.

There are basically 3 ways to increase profits in the livestock industry, 1. Increase prices received, 2. Increase sales, and 3. Reduce expenses. The livestock business is a commodity market and it is hard to increase prices, but it may be possible. It can be achieved by retaining ownership and direct mar-

keting. Increasing sales is possible if you have the resources to expand or to retain ownership and add weight. Reducing expenses is probably the most likely way to increase your income.

There are several ways to reduce your expenses in a livestock enterprise. The first step is to examine your records and identify areas to make improvements. If you do not have records then start keeping them: remember the old saying “You can’t manage what you don’t measure.” The highest inputs on most livestock operations will be for stored feed for winterfeeding, fertilizer cost, and fuel costs.

The majority of the costs are associated with making or purchasing hay. Do you know how much it costs to produce a ton of hay on your farm? It is estimated that it costs around \$100 per ton to make hay. The average yield for Watauga County is around 2.5 tons per acre. I know most producers do not think hay costs this much, and considers it a must, there are other options.



AGRICULTURE, NATURAL RESOURCES & ENVIRONMENT

Grazing

Continued From Page 7

The first option is to allow the cattle to harvest the forage. I realize that with some hay fields this is not an option, but most you can make it work. This practice is called stockpiling and requires rotational grazing to be the most effective. NC State has conducted on farm research for the past couple of years and there are producers in the mountains grazing through February. The nutritional content of this forage usually tests higher than most hay I have tested in the county, these remain high even into January.

The positive benefits to winter graz-

ing is that the fertility remains on the field, and you don't have to fight the weather to get it harvested. If harvested it would require fertilizer to be added to the hay fields at a higher rate than if grazed. How much nutrients does the average ton of hay contain? Mixed grass hay contains an average of 40-15-55 per ton. If we look at the value for nitrogen, phosphorus and potassium that is contained in a ton of hay it would be around \$75/ton.

The average cow/calf pair removes 10-3-0.07 per year. So there is not much fertility removed by the pair per year, because most is recycled back into the soil. This would be around \$20 per year in removed fertility over the 2.5 acres required by the pair.

Hay can be purchased for \$75 to \$100 per ton and normally the only value considered is for feed. The value of the nutrients in the hay will be \$75/ton, and the spreading is free. Remember that not all of this will be available immediately because it will have to be broken down in the soil.

The next way to reduce expenses is through fertility management. The first correction to the soil should be pH. If the pH of the soil is low then no matter how much fertilizer you apply growth will be limited. This is also the cheapest input for your forages. Legumes require a pH of 6 or above to become established. There are alternatives to expensive chemical fertilizers. Since we are located close to poultry houses, poultry

litter is a great source of fertility. Be sure that you calculate all costs before using poultry litter, it can be hard to spread. Another alternative is Biosolids from the sewage treatment plant. Biosolids are a good source of nutrients on a pasture and are cheap but can be difficult to spread. State law requires 30 days after application of Biosolids before grazing or haying.

As you start the grazing season this year set some goals to improve your forages. This should increase production with more nutritious forage and should help reduce costs.

The extension service will be offering several workshops this summer and fall covering pasture management and stockpiling forages.

CALENDAR								
APRIL	22	4-H camp scholarship applications due	15	4-H Super Summer enrollment opens	24-29	4-H Camp		
16	4-H Grow Green/science festival fun, 3:30-4:30pm	27	4-H District Activity Day: Haywood County	JUNE	JULY			
16	4-H Information Session (drop in), 4:30-6pm			1	Hands-On Canning Class, 1-4 pm	22-26	Organic Gardening 101, 9am - 12:30pm	
19-20	Pick up 4-H Fruit Plant Sale Orders	MAY	15	West District 4-H Horse Show		AUGUST	3-4	High Country Farm Tour
To see an updated Calendar of Events, please visit our blog at wataugaces.blogspot.com .								

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