



Mountain Farms Update

Mitchell County Center

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2019 AgOptions Grants:

WNC Agricultural Options is now accepting grant applications from farmers diversifying or expanding their businesses. With funding from the N.C. Tobacco Trust Fund Commission, WNC AgOptions is distributing a total of \$216,000 to western North Carolina farmers in 2019. The application deadline is Nov. 19th.

WNC AgOptions helps offset farmers' risk of trying new ventures and expanding their farms with \$3,000 and \$6,000 grants. "The WNC AgOptions program is an excellent example of grant funds providing direct support to those who need it most," said Ross Young, Madison County Extension Director and WNC AgOptions steering committee leader. "Our farmers are arguably the most important people in our society. I sincerely appreciate the Commission's interest in supporting western North Carolina agriculture."

The Commission has supported the mountain region throughout major changes in agriculture, ensuring farmers continue farming. "Farmers in western North Carolina have proven time and time again that they are

very innovative, resourceful and creative in how they produce and market their products," said Bill Teague, Chairman of the N.C. Tobacco Trust Fund Commission. "Our board is committed to the success of farmers in the targeted counties and we know these grants will encourage many successful projects."

Applicants should contact their local Cooperative Extension Agents to discuss their grant ideas before submitting the application. Applications are available at www.wncagoptions.org or at local Cooperative Extension centers. Extension agents remain a resource for farmers throughout the year as they complete their projects.

Since 2004, WNC AgOptions has awarded more than \$2.8 million to farmers. Grants often pay for a simple improvement that makes a big difference, such as the addition of a high tunnel at Trosly Farm in Avery County last year. The new high tunnel has allowed Amos and Kaci Nidiffer to double vegetable production and expand their growing season, which is critical for a farm located in a high altitude with a short growing season. As a result of their grant, Trosly Farm has increased its Community Supported Agriculture membership and now has the means to grow year-round. Evan Chender in Buncombe County used his 2017 AgOptions grant to purchase a BCS brand walk-behind tractor. As a result, Evan has expanded from 800 square feet to more than an acre, doubling the size of his operation

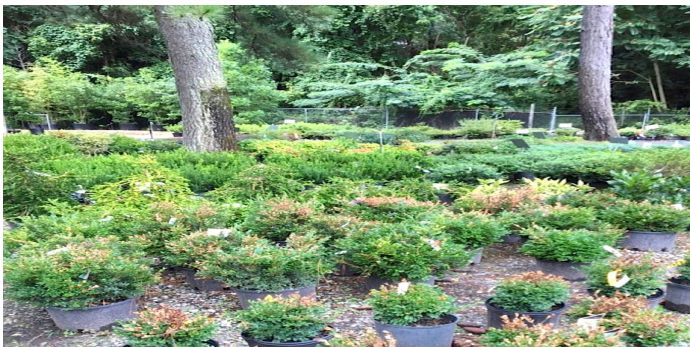


and income. Evan grows specialty greens, herbs, edible flowers and unique vegetable varieties and sells to approximately ten restaurants in Asheville. WNC AgOptions offers grants to farmers in the following counties/units: Avery, Buncombe, Burke, Caldwell, Cherokee, Clay, Cleveland, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Mitchell, Polk, Rutherford, Swain, Transylvania, Watauga and Yancey counties as well as the Eastern Band of Cherokee Indians.

2019 AgOptions Grant Informational Session:

You are invited to attend an informational meeting about the WNC AgOptions grant program for growers and producers in 2019. Jeff Vance, Mitchell County Extension Director, will be present to discuss the program, go over the 2019 application time line, and answer questions.

Grants of \$3000 and \$6000 are available to farmers located within a 22-county area of Western North Carolina in 2019. The informational session will be held on Tuesday, October 23, 6:00 pm, in the Sam's Center on the Spruce Pine campus of Mayland Community College. For more information contact Jeff Vance at the Mitchell County Extension Center, 828-688-4811.



Boxwood Blight Update:

I have seen Boxwood Blight in multiple landscapes this summer. Here is an article, from Cliff Ruth, Extension Area Agent and Regional Certification Program Coordinator, about managing Boxwood Blight in the landscape.

Boxwoods are a very widely used landscape plant but recently have become heavily infected with a relatively new pathogen: Boxwood Blight (*Calonectria pseu-*

donaviculata). This pathogen started showing up in nurseries in 2011 and has started to spread into landscapes over the past 3-4 years. The pathogen can't be controlled effectively in the landscape and caution must be made to prevent the spread.

The pathogen starts out with small brown spots on the leaves and black sunken cankers along the stems. The brown spots eventually grow with darker rings around the outside of each. The entire leaf will turn tan or straw-like in color and drop. Leaf drop may appear to be sudden with the lower branches becoming defoliated early. Unlike root rot pathogens (that also attack boxwoods) the roots system will remain relatively healthy.

The disease can be transmitted by tools or by handling infected plant parts including pruning and moving of clippings; raking leaves; contact with clothing and movement to non-infected plants; as well as on the tools used to maintain the plants. Birds and other animals can also move the pathogen from infected to healthy plants.

If you have or suspect that you have boxwood blight, follow the steps below to prevent the spread of the pathogen:

- ◆ Disinfect pruners and other tools frequently within and between different blocks of plants, especially between different field locations or landscapes in counties suspected to have box blight; *
- ◆ Never work in fields or landscapes when the plants are wet;
- ◆ Wearing clean disposable booties or washing off debris and dirt entirely from soles of shoes between different boxwood fields or landscapes, especially in counties suspected to have box blight;
- ◆ Wearing clean tyveks or laundering clothes between different field locations or landscape areas in counties suspected to have box blight; Burning or burying box-blight infected plants on-site (composting is not recommended);
- ◆ NEVER discard boxwood waste material where it could contaminate other boxwood plants.
- ◆ Avoid hauling the infected debris, off-site, in an open truck. Consider bagging it to haul away and then dumping the debris into a pit. After which the empty bag can be disposed of in the trash.

*The best way to sanitize tools is to dip them for TEN SECONDS into these products and then allowing the tools to dry: ethyl or isopropyl alcohol at 70-100% (most Lysol formulations, grain/rubbing alcohol), sodium hypochlorite (10% Clorox or other brands of household bleach- the same as 1 part bleach to 9 parts clean water- made fresh each day), phenolics at 0.4-5% (trade name Pheno-Cen), or quaternary ammonium at 0.5–1.5% (trade names Greenshield, Consan Triple Action 20, Physan 20).

If you suspect that you or your clients have Boxwood, Sweet Box, or Pachysandra species that may be infected with this pathogen please contact your local Cooperative Extension office to have an agent assist you in getting the plant material to the laboratories for proper analysis and diagnosis.

Some reference material that can be referred to:

<https://plantpathology.ces.ncsu.edu/wp-content/uploads/2013/05/Ivors-box-blight-fungicides.pdf? fwd=no>

<https://plantpathology.ces.ncsu.edu/wp-content/uploads/2013/05/Ivors-box-blight-fungicides.pdf? fwd=no>

<http://www.ncagr.gov/PLANTINDUSTRY/Plant/disease/BoxwoodBlight.htm>

<https://swain.ces.ncsu.edu/2015/09/boxwood-blight-update-2/>



Boxwood Greenery Precautions:

As the holiday season is fast approaching many of our Christmas tree producers are starting to look for green-

ery of various kinds. The use of boxwood in wreaths and roping is very popular and much sought after by many retail outlets. A lot of our boxwood producers also use this opportunity to make some extra money selling boxwood greenery to florist or other outlets that use boxwood greenery for holiday decorations. With this opportunity also comes the concern of moving Boxwood Blight, *Calonectria pseudonaviculata* (syn. *Cylindrocladium pseudonaviculatum*) to areas or landscapes that previously have not been infected. We urge Christmas tree growers, nurserymen and homeowners to be very cautious when moving this plant material.

Boxwood blight shows up as circular tan leaf spots with darker borders and linear, black streaks on stems. The whole leaf can turn a darker brown and drop off the plant. In severe situations the plant will almost completely defoliate. This has been occurring a lot this fall after all the wet weather we had this summer. The pathogen that causes boxwood blight has very sticky spores, which can lead to movement of the disease from location to location on infested tools, shoes, clothing, equipment, bags, animals or vehicles. Below are some recommendations to prevent spread of the disease from the Virginia Cooperative Extension Service and Virginia Department of Agriculture and Consumer Services publication entitled, “Best Management Practices for Boxwood Blight for Greenery Producers.”

1. Greenery producers who maintain their own stock plants should also refer to the VCE publication “Best Management Practices for Boxwood Blight in Virginia Production Nurseries WITHOUT Boxwood Blight” for information on avoiding introduction of boxwood blight to a nursery.
2. Early detection is crucial. Educate workers or anyone who tip-prunes to recognize and report suspicious symptoms and to understand the importance of all the practices listed below.
3. Avoid bringing in equipment or vehicles that may have been used on sites where boxwood blight has been detected.
4. Make sure that all greenery transport vehicles entering a property have been cleaned and sanitized as completely as possible and are free of soil and plant debris (e.g. on truck beds, trailers, tires) before entry.
5. Ask visitors to the property to park their vehicles in a specified area located away from boxwood plantings.

6. Do not re-use burlap (or other) bags or bundling materials that have previously been used for boxwood plants or cuttings. (Currently there are no practical methods for disinfecting used burlap bags that may be infested with the boxwood blight pathogen.)
7. Dispose of used burlap bags in the landfill or bury them under two feet of soil. Burning bags may also be an option, depending on local fire regulations.
8. Workers entering a boxwood property where the disease has not been found should wear clean, laundered clothes and shoes that are free of soil. (Sanitizing shoes with 70 percent ethanol may also reduce the risk of spreading boxwood blight, although research results on efficacy have been inconsistent.)
9. Alternatively, workers may wear new, disposable gloves and protective shoe, arm, or leg covers between sites. Place used covers in plastic bags and dispose in the landfill.
10. Workers coming from properties where boxwood blight has been found should not be allowed to enter a property with healthy boxwoods until their clothes have been laundered and shoes are free of soil and covered with disposable shoe covers.
11. Try to limit pet access to boxwood plantings because animals could carry spores from infested areas to healthy plants in non-infested areas.
7. Do not compost boxwood plant debris.
8. When planning your tipping (tip-pruning) schedule, start in areas least likely to have boxwood blight and move toward higher risk areas. Always work in highest risk areas LAST to minimize the risk of disease spread to healthy plants.
9. Workers entering any part of a property containing boxwood where the disease has NOT been found should wear clean, laundered clothes, disposable gloves, and shoes that are free of soil. (Sanitizing shoes with 70 percent ethanol may also reduce the risk of spreading blight, although research results on efficacy have been inconsistent.)
10. Alternatively, workers may wear new, disposable gloves and protective shoe, arm, or leg covers while working in boxwood plantings. Change covers between sites or between blocks of plants. Place used covers in plastic bags and dispose in the landfill.

Tennessee and Pennsylvania have established external quarantines against the boxwood blight pathogen. Shipping boxwood greenery or Christmas wreaths with boxwood greenery into Tennessee will require that you are a boxwood blight compliance program participant and you will need to have the shipment inspected by a NCDA&CS field representative and an accompanying phytosanitary certificate. If shipping into Pennsylvania you will need to be a compliance program participant or have an accompanying phytosanitary certificate.

Minimizing spread of the pathogen from locations where boxwood blight has been found:

1. Early detection is crucial. Educate workers and anyone who tip-prunes on your property to recognize and report suspicious symptoms and to understand the importance of all of the practices listed below.
2. Disinfect pruning tools with a recommended sanitizer (see table on next page) when moving between different blocks of plants and between different fields.
3. Disinfect pruning tools with a recommended sanitizer (see table on next page) when moving between different blocks of plants and between different fields.
4. Do not work in fields when plants are wet.
5. Assemble wreaths or other holiday adornments away from existing boxwood plantings.
6. Never discard boxwood plant debris near existing boxwood plantings. Remove boxwood plant debris at the end of each day by vacuuming, bagging, and disposing in the landfill or by burying under two feet of soil.

For information on how to get into the boxwood blight compliance program you can contact Leah Roberts, NCDA&CS Plant Pathologist, at (919)707-3754 or contact your NCDA&CS regional Plant Pest Specialist.



Recommended sanitizers for greenery producers for disinfesting pruning tools and other equipment of the boxwood blight pathogen.²

Active Ingredient	Brand name	Rate	Contact Time for Best Efficacy / Comments
Sodium hypochlorite (5.25%)	Clorox, other brands of household bleach	Prepare 1:9 solution of 5.25% bleach to water (or 1:14 solution of 8.25% bleach to water). Must be prepared fresh.	5 min for tools; 10-15 min for equipment surfaces
Hydrogen dioxide, peroxyacetic acid	Zerotol 2.0	Prepare 1:100 – 1:300 solution of product to water for clean, non-porous surfaces. Prepare 1:50 solution for unclean surfaces.	5-10 min Personal Protective Equipment (PPE) required.
Phenolic compounds (O-benzyl-p-chlorophenol)	Lysol Brand Concentrate Disinfectant	Prepare solution of 125 – 2.5 oz/gal.	At least 5 min.

² Note that some disinfectants are corrosive. It is advisable to oil tools after treatment. Also, sanitizers will be most effective if surfaces are free of plant debris and soil prior to treatment. Information from: Douglas, S.M., "Products for Sanitizing Tools, Equipment, and Hard Surfaces for Managing Boxwood Blight." Conn. Ag. Expt. Station, 2014.



nutrients that were held in the plant tissue. The nutrients can then be used by the next crop.

Soil Structure

As the cover crop dies and breaks down it is forming a layer of organic matter. This layer along with the compounds that are found in it help bind soil particles together forming granules and aggregates. A well aggregated soil tills easily, is well aerated, and has a high water infiltration rate.

Nitrogen Production

This production comes largely when using legumes. Legumes include clovers, vetch and others. They can supply much of the necessary nitrogen for the next crop. The amount of Nitrogen supplied is dependent upon the specific legume you are growing. It is also dependent upon the biomass produced and the percentage of nitrogen in the plant tissue.

Farmers have been using cover crops for years. One of the main reasons behind doing this is to prevent soil erosion, but there are many more benefits to using cover crops than just protecting the soil from eroding from our mountainous farms. So, what are these added benefits?

Soil Microbe Activity

Soil microorganisms build up to attack the green manures that are incorporated into the soil. When the microbes attack the incorporated cover crop they release

Nutrient Enhancement

Cover crops can recycle other nutrients such as phosphorous, potassium, calcium, magnesium, sulfur and

other nutrients. Most of these nutrients are slowly available, but are not easily leached out of the root zone so the plant can use them.

Weed Suppression

Weeds have a hard-time growing where there is a lot of competition. A heavy cover crop can smother out many of the weeds that would normally compete with the crop.

Pest Management

Growing cover crops adds diversity to your production system allowing many different beneficial insects to have a place to live and reproduce. The cover crop also provides pollen, and nectar. Conservation tillage proves a better option than tilling because it leaves more crop residue on the surface to harbor the beneficial insects. Strip tilling or no-tillage disturbs a minimum amount of cover. Cover crops left on the surface may be living or in the process of dying.

Rooting Action

Cover crops produce a tremendous amount of roots. These roots loosen and aerate the soil as they grow. When cover crops are planted after a subsoiling treatment, they help extend the soil-loosening effects of the deep tillage treatment.

Soil and Water Conservation

Cover crop mulch that is killed down can increase water infiltration and reduce water evaporation from the soil surface. Soil cover reduces soil crusting and surface water runoff during rainy periods.

As you can tell you can get a lot of benefits for using the inexpensive practice of planting a cover crop in your planting system.



PREPARING FOR WINTER

As we near the winter months, the temperature drops, snow starts, and our livestock's needs increase. In order to meet these needs, we must properly prepare for the winter months. There are many precautions that need to be taken in preparation for cold weather and decreased forages. Below we will discuss the different preparations that need to be conducted to ensure that our livestock survive the winter.

LONG- RANGE PREPERATIONS

We should start preparing for winter several months before cold temperatures start. This early preparation allows us time to fix equipment, build shelter, and gather our needed feed, forage, and supplies. The amount of time and preparation depends on the location, size, and set up of your farm. Here in the mountains, we have relatively mild winters that can turn into nasty ones. Because of the fluctuation in severity of our winters, we need to prepare for the worst weather. Preparing for the worst weather allows us to have plenty of feed and supplies to get our animals through whatever weather we undergo.

We need to start our preparations several months out to make sure that our preparations are finished before the weather turns. There are some preparations that need to be fulfilled even earlier. One of these preparations is purchasing and storing forages for your livestock. Since this year has been an interesting hay year due to all the wet weather and flooding; I would suggest that if you don't have a sufficient hay supply already, that you go ahead and purchase your hay now before the supply is depleted.

Long-Range Preparations

- ◆ Purchase and properly store adequate amount of quality forage
- ◆ Build or repair shelter
- ◆ Purchase and/or check/repair Hay Ring
- ◆ Purchase and/or check/repair water trough and heater
- ◆ Purchase and/ or check/repair equipment
- ◆ Prepare winter fields
 - ◇ Check fence
 - ◇ Check shelter and/or make shelter

SHORT RANGE PREPERATIONS



WATER

The most important nutrient to livestock is water. Without adequate water livestock's digestive systems are unable to properly function; therefore, they do not properly receive the nutrients they need from the feed and for-

ages we give them. In order to ensure that our livestock receive the appropriate amount of water, we must make sure that the water source is clean, unfrozen, and plentiful. Our livestock's water needs increase during winter and different stages of life. On average the requirements of our livestock can range between 2 and 12 gallons of water a day depending on what livestock we own. Since livestock are known to drink more water if the water is above 40 degrees, we need to try to make our water source 40 degrees or higher. In order to do this in the dead of winter, we can use water trough heaters. Some farms may not have access to electricity at their water sources, but if possible, a heater will help keep the water from freezing and will keep the water at a warm enough temperature that will best suit our livestock. If our livestock do not meet their requirements for water intake, they will decrease their feed and forage intake, resulting in weight loss and therefore loss in profit.

FEED

The need for feed supplementation is high in winter months. This is because the forage that is available is lower in nutrition because it has gone into dormancy or has been sun cured (Hay). To make up for the loss of nutrients during this time, we must supply the livestock with supplemental feed and minerals. An animal's nutrition is extremely important in its growth and production. Without proper nutrition the animal will not properly perform, therefore not producing a profit for you. Ideally, we want our livestock to be at the same body condition score year-round, which requires our livestock have access to adequate nutrients at all times. To do this we want to supply our animals with unlimited access to good quality forage and minerals because

the majority of our livestock's nutrients come from their forage and mineral source.

FORAGES

Forages are important because they contain a large quantity of minerals and vitamins that our livestock need. You want your forage to be the best quality possible, so that the forage contains the most nutrients. There are several factors that degrade good quality hay. Some factors include sun bleached hay, wet hay, weedy hay, and weathered hay. These factors take away the nutrients that are within the hay. When those nutrients are depleted, it is lower quality hay, which means the livestock will not benefit as much from the hay. It becomes filler more than a nutrient source. When we supply hay we want our livestock to utilize the uttermost possible nutrients.

Not only does the forages act as a nutrient source, but they also act in your livestock's proper digestion. If forage requirements are not met, your animal will not be able to properly digest the feed and other nutrients given to them; thus meaning that they will not utilize the nutrients and will decrease in weight and production.

VITAMINS and MINERALS

The additional vitamins and minerals that are not supplied in forage needs to be supplied through a free choice mineral mix. These mixes are already pre-mixed but will need to be put in a proper container in the pasture so that livestock may have free access to the mix at all times. The free choice loose mineral mixes are best for some livestock because they allow the animals to consume all they need easily. Some blocks and tubs do not allow the livestock to receive enough minerals. This selection of mineral mix, whether loose or block needs to be determined by which livestock you own. Cattle and other small ruminants do well with loose minerals, while horses may do better with a block. Please be mindful of the minerals you are buying and make sure that they are approved for your livestock because some livestock have different mineral requirements and tolerances. Ideally you should have the mineral mixes out year-round to meet the needs of your animal, but just be mindful that the needs of those mineral requirements do increase in winter and different stages of life. Because of this you need to keep the mineral feeders full at all times so the animals can consume all they want. Animals are typically good judges of consuming how much mineral they need.

PROTEIN AND ENERGY

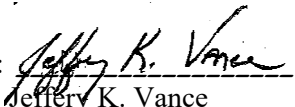
The protein and energy requirements for animals increase in the winter months due to the drop in temperature and lack of green forage. Protein and energy can be found in some dried forages but are in smaller quantities than when forages are green. With this said, we must supplement our livestock with some sort of energy and protein source. This can be found in pre-mixed rations. The type and amount of feed that needs to be given is determined by the type, size, age, and stage of production the animal is in. Be sure that when supplying the feed that all animals have access and that you take actions to ensure the smaller, younger, and older animals are not be cast out and away from the feed.

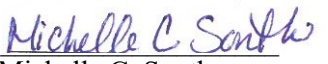
It may be a good idea to supply an unlimited amount of feed in the form of a creep feeder for some young and growing livestock such as calves or kids. This allows the young to grow appropriately and have all the nutrients they can eat.

PREPERATIONS FOR STORMS

It is always wise to prepare for the worst storms and be over prepared than it is to be under prepared. Since this is the case for livestock too, we must take all speculations and possibilities into consideration when we hear there is a storm coming. It is suggested that you make sure you have a considerable amount of feed and forage ready in case the storm is larger or longer than anticipated. If possible, you should also prepare an alternate field and shelter for the livestock incase their pasture is inaccessible. It is a good precaution to have excess medical supplies and equipment ready if your livestock happens to be injured or deliver during a bad storm. A good rule of thumb is to think of any possible situation that may occur and prepare for that. Also, don't hesitate to ask for help. Ask your neighbor or other personnel in advance to aid you in their care if a situation were to occur where you are unable to access your animals and they need attention.

The use of brand names and any mention or listing of commercial products or services does not imply endorsement by the N.C. Cooperative Extension Service nor discrimination against similar products or services not mentioned.

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