**Burley Tobacco Day**

On **Thursday, February 12th** at the Madison County Cooperative Extension Office we will host Burley Day. A tentative schedule is below. If you have questions, please contact Elizabeth Ayers at 649-2411 or Elizabeth_ayers@ncsu.edu

**Topics:**
- 2009 Burley Tobacco Situation & Outlook
- Fertilization Management
- Burley Production
- Dark Tobacco Production
- Insect and Disease Management,
- Update from the Burley Stabilization Corporation

Pesticide Credits will be offered

**Sponsored by: Burley Stabilization Corporation**

**TENTATIVE PROGRAM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00</td>
<td>Registration &amp; Coffee</td>
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<tr>
<td></td>
<td>Welcome and Moderator – Dr. Kenneth McCaskill</td>
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<tr>
<td>8:40</td>
<td>Opening Remarks – Dr. Thomas Melton</td>
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<tr>
<td>8:45</td>
<td>Insect Management on Burley - Dr. Hannah Burrell</td>
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<td>9:15</td>
<td>Fertilizer Management for Burley Tobacco – Dr. Greg Hoyt</td>
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<td>9:45</td>
<td>Burley OVT and sucker control – Dr. Loren Fisher</td>
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<tr>
<td>10:15</td>
<td>Coffee and snack break</td>
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<td></td>
<td>Moderator – Elizabeth Ayers</td>
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<tr>
<td>10:35</td>
<td>Burley Tobacco Situation &amp; Outlook – Dr. Blake Brown</td>
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<td>10:55</td>
<td>Burley Production Cost Update – Gary Bullen</td>
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<td>11:10</td>
<td>Black Shank Management – Stanley Holloway &amp; Dr. Mina Mila</td>
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<td>11:40</td>
<td>Dark Tobacco Production in NC - Dr. Loren Fisher</td>
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<td>11:50</td>
<td>Introduction of Fire Cured Production – Scott Schoulers</td>
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<td>12:00</td>
<td>Burley Stabilization Update – Charlie Finch</td>
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<td>12:20</td>
<td>Lunch – Sponsored by Burley Stabilization Corp.</td>
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<td>Closing Remarks – Dr. Bill Collins</td>
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**INVITE YOU**

To: An Agricultural Assembly  
Date: Wednesday, February 4, 2009  
Time: 7:00 pm  
Location: WNC Agricultural Center, McGough Arena in Fletcher, NC  
Topic: Update on WNC Regional Livestock Project  

The Leadership of the WNC Livestock Development Commission will announce the project and give a progress report.

The Concession Stand in the McGough Arena will be open for business
Tobacco Expo

The 2009 TN-VA-NC Tobacco Expo is to be held at the Civic Auditorium in Kingsport, TN on Friday, January 23, 2009. The Expo consists of a trade show and seminars related to burley tobacco production and marketing. Registration starts at 8:00am and the Expo concludes at 1:00pm.

The seminar topics and speakers for this year include *Variety Selection and Development* by Dr. Bob Miller, University of Tennessee/University of Kentucky; *Pesticide Concerns* by Dr. Paul Denton, University of Tennessee/University of Kentucky; *Insect Control* by Rob Ellis, University of Tennessee; and *Burley Stabilization Update* by a Representative.

Madison County Tobacco/Livestock Annual Meeting

On Tuesday, March 3rd, Madison County will hold its Annual Tobacco/Livestock Meeting with the meal starting at 5:30pm and the program to follow at 6:00pm. More information will be coming soon!
Below is the WNC Beef Cattle Commission schedule for 2009. Please note, the day of our 2009 meetings have changed to THURSDAYS at Ryan’s Steakhouse near the Biltmore Square Mall.

2009 BEEF COMMISSION CALENDAR
- Thursday, February 19 at 6:30 pm – Meeting & Program at Ryan’s Steakhouse
- Thursday, March 19 at 6:30 pm – Meeting & Program at Ryan’s Steakhouse
- Thursday, April 16 at 6:30 pm – Meeting & Program at Ryan’s Steakhouse
- Thursday, May 21 at 6:30 pm – Meeting & Program at Ryan’s Steakhouse
- June – Field Day (details to be determined)
- July 26-30 – Annual Beef Cattle Tour to Arkansas
- Thursday, August 20 at 6:30 pm – Covered Dish Dinner & Auction
- September 11 & 12 - Jr. Beef Show & Sale at WNC Mountain State Fair
- Thursday, October 29 at 6:30 pm - Steak Supper
- Thursday, December 3 at 6:30 pm - Happy Hollow Dinner

The North Carolina Forage & Grassland Council 2009 Winter Conference Series

“MANAGING FORAGE & GRAZING COSTS”

Tradeshow & registration 1:00  Program 2:00 - 7:30

Waynesville: Haywood County Extension Center Thursday – Jan 29th, 2009
Contact: 828-456-3575  re: NCFGC Forage Conference

Program (planned)
1:00  Trade show and registration
2:00  Welcome –V. Mac Baldwin NCFGC President
2:10  Dr. John Andrae- Clemson University – Pasture costs
2:50  Break
3:10  Regional Producer Presentations and Panel
5:10  Extension Updates
5:30  Dinner and Tradeshow
6:30  Dr. Dennis Hancock – U Georgia – Cost management
7:30  Adiourn

NCFGC Conference Registration

Please register __________________________ for the _______Waynesville (Jan 29) conference.

Total number registered_____  A check for _________ payable to NCFGC is enclosed.

Mail to: NCFGC, 2228 N. Main St, Fuquay-Varina, NC 27695
**Tobacco Disease Management in Greenhouses**

Tobacco Disease Note No. 5 - Thomas A. Melton, Philip Morris Professor and Department Extension Leader

**Introduction**

Most of the tobacco transplant production in North Carolina is produced under the float tray system in greenhouses. In the float tray system, cells of styrofoam trays are filled with a soilless (1:1 peat:vermiculite) medium, seeded with a pelletized seed, and floated in a shallow water reservoir. The cells in the styrofoam trays are perforated in the bottom to allow for water and nutrient uptake. Trays are typically 26" x 13" with 200 to 394 cells per tray, which allow the production of more transplants of uniform size in a smaller area compared to seedbeds.

The high plant density and high moisture conditions present in the greenhouses provide extended periods of leaf wetness and promote succulent plant tissue for the development and spread of seedling diseases. In addition, certain diseases that may not be a problem in outdoor soilbeds become a problem in greenhouses. The most common diseases observed in tobacco greenhouses are Rhizoctonia stem rot or damping off, Rhizoctonia target spot, Pythium root rot, and Sclerotinia collar rot. Some other diseases with less incidence are bacterial soft rot, Botrytis gray mold, and blue mold.

The pathogens that cause disease may enter through vents, in contaminated soil, on workers' hands, in water, on flats, on tools, etc. The key to managing diseases in greenhouses is to keep the pathogen out of the greenhouse and manage environmental conditions to keep humidity low and float water temperature cool.

**Disease Management**

Disease management in tobacco greenhouses can be accomplished through the use of adequate sanitation practices that prevent the introduction of pathogens into greenhouses. Also, controlling the greenhouse environment by reducing excessive moisture reduces or delays disease infection and spread. Frequent monitoring of plants for disease, good production practices and solarization (were suitable), can also help reduce losses to disease.

1. **Sanitation** - Helps to ensure that pathogens do not have an opportunity to come in contact with plants and cause disease. All precautions should be taken to ensure that field soil or used media does not enter greenhouses.
   - Polystyrene trays should be sanitized using 3-lb/1000 cu ft. methyl bromide for 24 hours and allowed to air dry for 48 hours.
   - Most importantly, always use new media and never reuse media. Never use field soil or attempt to sterilize field soil.
   - The black shank and Pythium root rot organisms have been brought into greenhouses by the use of contaminated irrigation water, primarily from ponds. Pond water should not be used for either water beds or overhead irrigation.
   - Mowers that are used to clip plants should have their under-carriages washed and sanitized with a 50% bleach solution at least between every clipping and preferably more frequently.
   - If disease does appear to be developing, remove trays that show any symptoms of disease. Bury or burn the contents of those trays and store the trays in an enclosed area away from the greenhouse.
   - Never dump old trays, old media, infected plants, and clippings around greenhouses.
   - No tobacco products should be used or allowed in greenhouses.
   - Workers who need to step into water beds should first wash and sanitize their boots to prevent the black shank and Granville wilt organisms from being carried into the water.
   - Walkways should be constructed of gravel, asphalt, or concrete to be easily washed.
   - It is also important to clean work areas (flat filling, seeding, etc.) daily. Storage areas for trays should be kept clean.
   - Finally, keep stray animals out of the greenhouse.

2. **Control of Environment.** Proper ventilation and air circulation are key in preventing foliar diseases such as target spot, collar rot, gray mold, and soft rot. Most tobacco greenhouses use a passive (no fans) ventilation system in which vents are on the end of the house or on the sides (full length of the house). End vents alone are usually not adequate to reduce moisture in the leaf canopy. Where side vents are used, they are not usually adequate whenever they are in a wide-open position. Disease problems begin when conditions too cool to open vents persist for several days. A supplement air circulation system called horizontal air flow (HAF) has been adopted by most tobacco producers and is very common in the floriculture industry. HAF uses large diameter fans that move air slowly around the greenhouse in a circular fashion just above the plant canopy. This system helps to reduce condensation, keeps foliage drier, and helps to eliminate cold spots in the greenhouse. The system is relatively inexpensive and may be very beneficial during periods when side curtains cannot be opened.
Another supplemental system, the polytube, has been adopted by only a few transplant producers but is widely used in the vegetable transplant industry. This system is slightly more expensive than the HAF but probably provides benefits for crops other than tobacco that remain in the greenhouse for longer periods of time. With the polytube system, the plastic tube, ranging in diameter from 2 feet up, is hung from the ceiling of the greenhouse and is stretched from one end of the greenhouse to the other. A pressurizing fan is at one end of the tube and an exhaust fan is located somewhere else in the house. These fans insure that the tube stays inflated and that air is pushed through the tube. Air exits the tube through two rows of holes, approximately 45 degrees from bottom vertical. Polytubes have the advantage of allowing cool air to be brought in through the polytube and warmed before the air comes in contact with plants. Therefore, fresh, dry air, may be brought into the house during cool periods when vents would not otherwise be opened. The polytube system also provides for excellent heat circulation and reduces condensation and foliage moisture. Using heat in combination with either supplemental air circulation system also helps to reduce relative humidity.

3. Frequent Monitoring - Monitoring is very important because of how rapidly diseases can spread in a greenhouse. When disease development is noted, remove the diseased plants immediately. Afterwards, get the disease identified.

4. Follow Good Production Practices - Read and follow recommendations provided by the N. C. Cooperative Extension Service and keep close watch on pH and salts. Be sure not to over-water or over-fertilize. Another factor that may have an effect on disease severity is media texture and water holding capacity. The design and size of trays and cells may also influence disease. Insuring adequate media drainage is essential to preventing root disease. Clipping practices that reduce debris left on plants should be used, because debris can be the starting point for diseases such as collar rot. Maintain moderate temperatures. It is better to be too cool than too warm.

5. Solarization - Solarization is using the heat from the sun to kill plant pathogens in the greenhouse during periods when plants are not present. Solarization is very effective in controlling many pathogens but may have the disadvantage of damaging certain components within the greenhouse structure, including PVC pipe and polystyrene trays. For proper solarization, heat sensitive items should be removed and the gravel should be moist. All doors and vents should be closed during July or August for a period of at least 7 days (bright, sunny), 8 hours a day, to allow temperatures to reach 140 F. Another form of solarization is practiced when at the end of the transplant-growing season, the black plastic or black ground cloth is left on the ground. This helps to prevent weed growth and keeps soil temperatures high enough to kill disease-causing organisms close to the soil surface. Solarization will kill most of the disease-causing bacteria, fungi, and nematodes down to about 1/2 inch in the soil.
Forages have been, and will continue to be, the basis for beef production systems in the Mid-Atlantic and Southeastern regions of the United States. With rising grain prices there will be a need to produce better quality forages and improve forage utilization. This in general is true, but the producer must decide how intensively their management system needs to be and this will be related to the amount of time they have to spend on the system. In general, systems where a significant amount of hired labor is available need to be more intensive to be profitable. This paper will discuss important components of managing cattle in a more intensive system.

Forage System Development
To start evaluating an existing or potential production system, the producer should consider the goals of the beef operation and the physical limitations of the land base to be used. In many situations, soil type and topography will have a lot to do with the make up of the final forage system. Any system to be used for brood cow production needs to produce medium to high quality grazing nearly year around, while stocker systems are more flexible and may be the system of choice for producers who do not produce forage during a significant time during the year. In general, forage systems should be built around perennials, because annuals are expensive due to high seed and establishment costs.

In the Mountains, spring calving is likely the best choice of systems due to the high cost of winter-feeding of fall calving cows, and the potential for both high feed cost and high calving losses as a result of severe weather conditions with winter calving cows. The mountain system may not require warm season forages (other than native warm season plants that invade pastures in late summer and fall) because cool season forages will grow well through the summer.

Most old pastures in the piedmont and mountains evolve into a mixture of cool and warm season forages, and strategic use of fertilizer application can provide high quality grazing when it is needed. Many producers think it is necessary to reestablish pastures after the main seeded variety starts to decrease in stand share, but in most situations a pasture will evolve into a plant community that can be maintained indefinitely. If reseeding is needed, overseeding perennial grasses and legumes is often a better alternative than complete destruction and reestablishment. In general from 1.5 to 2.5 acres will be needed to support one cow/calf unit.

Stocker cattle need high quality forage to perform. The systems that work best are winter grazing on rye/ryegrass pastures, grazing on stockpiled fescue (with some energy supplement provided), or summer grazing on crabgrass, switchgrass, eastern gamagrass or other high quality warm season forages. Bermudagrass doesn't have the quality potential to be very good for stockers without grain supplementation. We have consistently had 1.75-2 lb/day summer gains on bermudagrass with 3 lb of grain as compared to 1.25-1.5 lb/day with bermudagrass alone. Most cow-calf producers should consider stockering their own calves (depending on economic conditions each year) and selling them weighing 700-800 lbs at one year of age, which adds diversity and flexibility to the system.

Once the system is laid out in terms of the acreage and production available, we can estimate the carrying capacity of the system and where the potential holes are in the feed supply. This will give you an initial idea of what a target will be for stocking. The fencing and watering system should be installed before stocking if possible as that will facilitate getting things going. When modifying an existing system, the producer will have to work around the day-to-day needs of the cattle and this complicates things. Once the permanent pastures are laid out and established, it is time to take control of the animal groups.

Use of Animal Grouping in Your Management Program
Animal grouping is the key to efficient management of animals on pasture. The various classes of animals have a range of nutritional requirements (Chapter 16, bulletin 305) with baby calves being very high, followed by light calves/stockers, developing replacement heifers and bulls, young cows, and mature cows (and bulls) who have the lowest requirements. In late fall and early winter, most cow-calf operations using winter and spring calving will have a group of weaned calves (at least the replacement heifers), a group of bred replacement heifers, dry cows, and bulls. Fall calving herds will have lactating mature cows, lactating two-year old heifers, developing yearling heifers and bulls.
Managing Beef Cattle on Forage – cont’d

In the winter and spring calving situation the weaned calves have the highest requirements, and should be in the highest quality forage available. If the quality is inadequate they may need a grain supplement with an ionophore. If not, they should be fed a free choice mineral containing an ionophore unless they are replacement heifers well ahead of schedule in terms of development. The yearling replacement heifers may be used as a follower group for the calves, or may be used as a leader group for the dry cows. Regardless, the dry cows will be used to clean up the lowest quality forage available, with a goal of having them in body condition score of 6 at calving. The replacement heifers should be gaining about 1 lb/day and should be in a body condition score of 6.5 at calving. Some people want heifers to be a little thin at calving to help reduce calving problems, but it really doesn't help, and the calves tend to be weak at birth and the heifer is slow to breed back.

For the fall calving situation, the developing replacement heifers and lactating two-year olds have the highest requirements. They may be managed in the same group on small operations. These animals should get the highest quality grazing and/or hay available and will usually require an energy supplement such as grain or whole cottonseed. The lactating cows have moderate requirements and should be fed medium quality hay or pasture (stockpiled fescue) or lower quality hay with a supplement. There is not much use for low quality hay on a fall calving cow-calf system.

Evaluating Nutritional Status
There are two major tools that you will use day to day to evaluate when animals are ready to move to fresh grass. One is the fill that is visible in the animal’s stomach, and the other are their behavioral cues. A well-fed animal, where the goal is gain, will appear "full" most of the time. If these animals are allowed to become "gaunt" before moving, their performance will be hurt. In general, neither weaned calves nor replacement heifers should not be allowed to get empty. Dry cows, on the other hand, will probably become a little gaunt before moving is necessary.

The other tool in determining short-term nutritional status is the animal's behavior. A well-fed, contented animal will not get excited when they see you. The animals will begin to understand that you provide them feed when they need it, so when they see you and also are declining in their nutritional plane they will let you know it. Tuning in to what the animals are telling you is important. If they are almost impossible to drive out of a paddock, they probably don't need to be moved. Fecal consistency is useful in determining quality of the diet. Low quality results in "tall stacks", medium quality in "cow pies", and high quality the "grass scours".

Body condition scoring is the tool you use in the medium to long-term to evaluate the animals' status and whether you are cutting them too tight, or letting them waste feed. The dry cows need to clean up closer than the other groups, and they will be unhappy by the time you move them to fresh grass, but as long as you maintain their body condition that's fine. Growing animals should be in body condition score 6 most of the time, which indicates that they have adequate nutrition to grow at their genetic capability. Day to day mistakes in the amount of grass offered are inevitable and should be picked up by the short-term cues. If the mistakes are consistent, then body condition will start to suffer. Cows should be in an operating condition of 4-7 throughout the year, and the replacement heifers should never fall below a 5.

The group we haven't talked about are the bulls. Housing the bulls is a problem, and it seems that the best option is to maintain them in a pasture of their own that supplies about 2 acres/bull and then be prepared to feed them hay as necessary. They may need some grain supplementation starting 60 days before the breeding season so that they have a body condition score of 6.0 when put with the cows.

There are some other management considerations you should be thinking about. They include the use of a good mineral supplement, perhaps the use of alternative supplements like cottonseed and soybean hulls, and the use of creep grazing and other advanced grazing techniques.
If I may be of further assistance to you, please contact me at the number listed.

Elizabeth T. Ayers
Extension Agent
Agriculture

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Persons with disabilities and persons with limited English proficiency may request accommodations to participate by contacting Ross Young, County Extension Director, at 828-649-2411 or ross_young@ncsu.edu or 828-649-2020, or in person at the County Extension Office at least 10 days prior to the event.

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