

# The Forager

THE NORTH CAROLINA FORAGE AND GRASSLAND COUNCIL  
IN COOPERATION WITH  
THE GRAZING LANDS CONSERVATION INITIATIVE

## FORAGE ID: SWEET VERNALGRASS (*ANTHOXANTHUM ODORATUM* L.)



Fig. 1

### Distribution/Adaptation:

You can find sweet vernalgrass (Fig. 1) in poor moist sandy loam soils regardless of pH all over the southeastern US and specifically in pastures in western NC. It is also possible to come across this plant in your neighbor's house as it is often grown indoors because of the vanilla-like or newly mowed lawn aroma the seedhead puts off due to a compound called **coumarin** (see box), which becomes more pronounced as the seedhead dries.

**Uses:** Sweet vernalgrass gives fragrance to hay but has little nutritional value (similar to unfertilized fescue) as a livestock forage because animals do not find it palatable. It produces a lot of pollen and is considered a major allergen. While it is often found in low performing or overgrazed pastures and hay fields, frequent close grazing or mowing will make it less persistent.

Herbalists make cream that can be applied externally for the relief of rheumatic pain.

### How to Identify:

The seedhead has brownish-yellow spikes (Fig. 2) and a distinctive sweet smell when crushed in your fingers.



Fig. 2

Virginia Tech Weed ID Guide

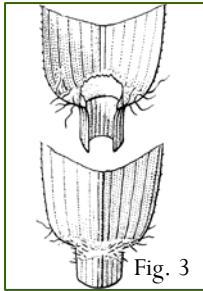


Fig. 3

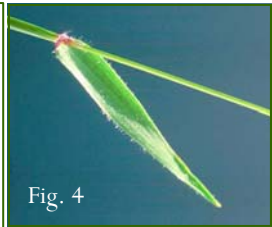


Fig. 4

Also it's one of the earliest grasses to flower making it less likely to be confused with other grasses. Leaves are rolled in the bud. Leaf blade is flat with rough edges and short hairs (Fig.4). Ligule is membranous and toothed/jagged, auricles are absent. Roots system is fibrous with no stolons or rhizomes. Collar regions has some long hairs at the edges (Fig. 3). The flowers contain both male and female parts and are pollinated by wind.

## TWO NEW SWITCHGRASS CULTIVARS RELEASED



The North Carolina Agricultural Research Service and USDA-ARS have jointly released **two new lowland type switchgrass cultivars** named 'BoMaster' and 'Performer'. These improved cultivars are the result of index selection with weightings for dry matter yield, dry matter disappearance (DMD) and crude protein. Data for both cultivars were obtained in the same trials over multiple years at two Coastal plain locations. Alamo is a lowland type of switchgrass that is adapted to the southern part of the country while Cave-In-Rock (CIR) is an upland type that is more adapted to the northern part of the country.

BoMaster is a high yielding selection and can be used

either for **forage or biomass (Table 1)**. Table 1 also indicates results from an in vitro study comparing weighted averages from multiple cuts of the four cultivars. In vitro means that the plant matter was digested in the laboratory in small porous bags using rumen fluid from cannulated steers (the steers with the windows into their rumens) and gives us a measure of how much of that plant is digested by the animal. This does not indicate utilization since 80-90% of what a cow digests is used for non-production purposes.

Cell wall yield (lbs/acre) is one way to evaluate the potential of a plant for biomass conversion to bio-fuel. Dry Matter Disappearance (DMD) is the esti-

**Coumarin is an ingredient in rat poison that prevents the blood from coagulating.**

Preorder The Forager for your next event!

[FORAGER@CROPSCL.NCSU.EDU](mailto:FORAGER@CROPSCL.NCSU.EDU)

## UPCOMING EVENTS

- ⇒ JUNE 19: PASTURE POULTRY PROD. & RARE BREEDS WORKSHOP, GOLDSBORO, CEFS
- ⇒ JUNE 26: FIVE COUNTY BEEF TOUR, LOUISBURG (919.496.3344)
- ⇒ JUNE 30: BMPs FOR COASTAL PLAIN BEEF PROD., GOLDSBORO, NC ; CONTACT EILEEN COITE AT 919.731.1520 TO REGISTER BY JUNE 25)
- ⇒ JUNE 28: IN-SERVICE TRAINING FOR AGENTS ON PASTURE PORK PRODUCTION; HILLSBOROUGH (919.515.2390)

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## NEW FACES AT THE NC FORAGE & GRASSLAND COUNCIL



The NC Forage and Grassland Council recently had a meeting of the new Board of Directors whom were elected/appointed during and after our annual membership meeting in February, 2007.

The current board members will all serve for the next two years. After that, the membership will elect one new board member from industry, farming, and a public agency each year to replace the three that rotate off the board.

Officers will be elected at the next meeting of the board. The President and Vice-president are to come from within the board. The secretary and treasurer may be from general membership. Traditionally the Executive Director of the NC Cattlemen's Association has served as treasurer, and Bundy Plyler is willing to continue in that role. The secretary will likely be one of the public servant members of the board, or one of the ex-officio advisors.

The bylaws spell out six standing committees; **membership, finance, policy, activities, public relations, and nomination.** In the near future we will concentrate on activating the membership, activities and public relations committees. If you are an active member of the council you may be asked to serve on one of these committees.

**Membership:** Major responsibility is recruiting and retaining members as well as revising, printing and distributing the membership brochure.

**Activities:** The activities committee is charged with planning field days, conferences and other activities deemed beneficial. We will

continue to have an annual membership meeting associated with the NCCA conference in February and we sponsor the NC State Fair Hay Show.

**Public relations:** The public relations committee is responsible for awards (currently we sponsor the NC Environmental Stewardship Award), for distributing the newsletter, and for preparing a display for use at events.

**If anyone would like to get involved in the revitalization of the Council as a member of one of our standing committees please make contact with any of the board members.**

### North Carolina Forage and Grassland Council Board of Directors

**Producers:** Steve Walker (Granville Co); Rick Morgan (Gates Co); Eddie Leagans (Davie Co); V. Mack Baldwin (Caswell Co)

**Public servants:** Charles Young (Ashe Co); Karen McAdams (Orange/Durham Co); Mark Hucks (Nash Co); Steve Woodruff (NRCS)

**Industry:** Chris Agee (Pennington Seed); Wistar Heald (Evergreen Seed); Bill Clemmons (Dow); Kent Crowel (Pasture Management Systems)

**Exofficio advisors:** Matt Poore – NCSU Dept. Animal Sci.; Jim Green - NCSU Dept Crop Sci. (Emeritus)

## QUESTIONS FROM THE FIELD

**Q: What is the best plant species for quick cover and erosion control for ditchbanks and pond dams that will not become invasive to adjacent cropland or pastures?**

**A:** During the summer months the quickest cover will be obtained from annuals like millet (browntop, foxtail or Japanese) or volunteer crabgrass and barnyard grass. The millets are cheap, easy to plant, germinate in a few days and provide excellent cover for the summer. If common bermuda is already on the farm and especially near the sites to be stabilized, then planting a "seeded cultivar" of bermuda at 10-15 lbs/acre would be an excellent alternative. Seeded bermudagrass has weak seedlings for the first few weeks, therefore having 3-5 lbs of millet per acre can serve as a nurse crop. On fine textured soils and in the western part of the state, nothing beats infected fescue (KY 31) for these sites. At this time of year it would be best to plant the millets at (10-15 lbs/acre) and perhaps add 15-20 lbs of fescue seed/acre, but the odds are you will have to replant the fescue in the fall after the millet dies.

"WHAT IS THE BEST PLANT SPECIES FOR QUICK COVER AND EROSION CONTROL?"



**Q: Tall fescue is heading, but there is not much growth; what is best management for hay fields?**

**A:** If the weather will allow it, one may want to clip and bale the grass because the stem is not going to disappear and it is not going to get more digestible and it is likely going to slow any potential regrowth of leaves even if moisture and temperature become favorable immediately. If there is not a lot of growth on some fields (not enough to justify baling), it would be best to graze through it if possible and then clip the heads in a couple of weeks. Some people are afraid to graze the hay fields because they want the hay, but if grazing is in short supply on the farm already, then it makes little economic sense to bale this growth and soon have to turn around and feed it back to the livestock. Even though the first growth of fescue usually provides the most yield, it is entirely possible that the moisture and temperature for the month of May could allow for excellent yields, plus it would not have the seed stalks if they are clipped now. Of course, growth in May will assume that manure or N fertilizer has been applied recently.

## SWITCHGRASS VARIETIES CONT'D

mate of digestibility for the animal and used to evaluate the cultivars in terms of their use as a forage. Dry matter yield\*DMD is a lab-based indication of digestible dry matter per acre and is important to know how much digestible forage for ruminants each cultivar is capable of producing.

Performer had lower yields but higher DMD% and thus no reduction in digestible nutrients/acre when compared to the Alamo and Cave-In-Rock, indicating its potential as a feed for ruminants. BoMaster had the highest Dry Matter and Cell Wall yield and digestible nutrients/acre, although lower DMD concentration, indicating its value as a biofuel and a forage.

**Table 2. Digestibility Comparison of Switchgrass Varieties in Animal Study**

Variety	DMD %	NDF %
BoMaster	61.6	70.3
Performer	66.5	68.7
Alamo	60.7	68.5
CIR	56.0	67.0

When fed to animals in a different study using different forage to measure selective consumption, the diet selected from Performer averaged 66.5 % DMD vs. 61.6 for BoMaster, 60.7 % for Alamo and 56.0 % for CIR (**Table 2**). Neutral detergent fiber (NDF) concentrations were similar among cultivars while the DMD% was more varied. Higher NDF % indicates that a greater percent of the plant dry matter is contained in the cell wall, which is the key fraction in the conversion of both hemicellulose and cellulose to biofuel.

**These cultivars are presently being advertised for an exclusive release to an interested seed company for seed production. No seed is expected on the market of either cultivar prior to the winter of 2009 or 2010.**

**Table 1. Digestibility Results from Switchgrass Study**

Variety	Dry Matter Yield (lbs/ac)	Cell Wall Yield (lbs/ac)	DMD %	Yield*DMD (lbs/ac)
BoMaster	15,773	11,854	53.2	8,748
Performer	12,811	9,515	56.5	7,567
Alamo	14,529	10,826	52.3	7,984
CIR	12,397	9,181	52.3	6,982

## RESEARCH HIGHLIGHTS:

### DOES MILK FROM PASTURE-BASED COWS TASTE DIFFERENT?



A recent study by the **Departments of Food and Animal Science at NC State University** evaluated the chemical properties and consumer perception of fluid milk from conventional and pasture-based production systems (**Croissant, Washburn and Drake**). Fluid milk composition and flavor variations have been attributed to feed, seasonal variation, and breed. The objectives of this study were to compare chemical properties and consumer perception of fluid milk from cows fed pasture-based or total mixed ration (TMR) diets.

Fluid milk was collected on several occasions over a year from two dairy herds; one fed on a pasture-based diet at the Center for Environmental Farming Systems in Goldsboro and one fed on a TMR diet at the NCSU dairy herd in Raleigh. Milk from Holstein and Jersey cows was collected separately and milk fat was standardized by breed. Fatty acid profiling was also conducted. A trained descriptive sensory analysis panel documented the flavor profiles of the milks. Triangle tests and acceptance testing were conducted with consumers in separate sessions. Triangle tests are those for which a consumer tastes three separate samples of milk and then determines if one of the three samples tastes different than the other two samples. Triangle comparisons were always done between the two feeding systems and not based on breed of cow. Acceptance tests were based on a 9-point scoring system ranging “dislike extremely” to “like extremely.”



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Significant differences in pasture-based and TMR milks were noted both by use of instruments and by sensory analysis. Milk from pastured cows contained higher percentages of unsaturated fatty acids, including conjugated linoleic acid (CLA) which may be beneficial for human diets.

Trained panelists documented higher intensities of sweet aromatic, grassy, and “cowy/barny” flavors in pasture-based milks compared to TMR milks when milk was tasted at approximately 59 degrees F. Consumers were also able to detect differences between pasture-based and TMR milks when tasting samples at about 39 degrees F, although there were no significant differences found in consumer acceptance scores. The results indicate distinct flavor and compositional differences between TMR and pasture-based milks while also showing that flavor may not affect overall consumer acceptance. These findings are important to consider and optimize for the growing interest in pasture-based feeding systems. There may also be implications for organically produced milk because of the organic requirement to include pasture as a significant part of the ration.

The pastures used in the current study included common forage species including winter and summer annuals and perennials such as fescue and clover or hybrid Bermudagrass.

If additional funding can be obtained, future studies might further characterize flavor and chemical differences in milk from cows receiving differing types of pasture or different proportions of pasture in relation to supplemental concentrates.

More information about pasture-based dairy research can be found at the CEFS site at: <http://www.cefs.ncsu.edu/dairy.htm>



## THE FORAGER

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If you would like to receive **The Forager** via email, submit a question or upcoming event, or let us know how much you like the Newsletter contact us at

[forager@cropsci.ncsu.edu](mailto:forager@cropsci.ncsu.edu)

### N.C. Forage & Grassland Council Membership Form

Name \_\_\_\_\_ Name of Operation \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone \_\_\_\_\_ Occupation: Farmer \_\_\_ Industry \_\_\_ Agency \_\_\_ Other \_\_\_\_\_

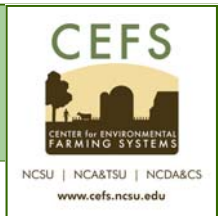
- \_\_\_\_\_ **Individual** — \$25.00 (open to producers, professional agricultural and industry personnel, etc.)
- \_\_\_\_\_ **Individual** — \$75.00 (membership for 3 years)
- \_\_\_\_\_ **Associate** — \$100.00 (open to farm supply dealers, formulators, distributors)
- \_\_\_\_\_ **Supporting** — \$300.00 (open to basic suppliers of chemicals, equipment, plant food, seed, etc.)

Make check payable to: N.C. Forage and Grassland Council  
Mail to: 2228 N. Main St., Fuquay-Varina, NC 27526

\* You must be a member of the NCFGFC to receive a **printed** copy of The Forager in your mailbox

### WEB RESOURCES:

**CENTER FOR ENVIRONMENTAL FARMING SYSTEMS**  
(GOLDSBORO, NC; [www.cefs.ncsu.edu](http://www.cefs.ncsu.edu))



The Center for Environmental Farming Systems (CEFS) has launched their new website at [www.cefs.ncsu.edu](http://www.cefs.ncsu.edu).

The Center for Environmental Farming Systems (CEFS) was established in 1994 by North Carolina State University, North Carolina A&T State University, and the North Carolina Department of Agriculture and Consumer Services to serve as a center dedicated to sustainable agriculture research, extension, and education. These partners work closely with state and federal agencies, non-governmental organizations (for example, Carolina Farm Stewardship Association, Rural Advancement Foundation International, Farm Bureau), farmers, and citizens to provide agricultural research, extension, and education for our state. The development of CEFS is a national model for partnership, innovation, and interdisciplinary cooperation.

Get some Training! Access the **programming schedule** to learn about the lectures, workshops and fall festival slated for 2007.

**Subscribe** to the /Inside CEFS/ newsletter to stay up-to-date on the programs, extension and research initiatives at CEFS.

**Access resources** like the new Organic Production Guide which contains ten chapters of information on different organic farming practices. In addition there are links and information for all pasture based livestock production projects, including **NC Choices**, the new pasture based pork initiative.

Do you know someone that would like more hands on experience with organic or sustainable farming practices? Check out the **internship and apprenticeship programs** at CEFS! This program offers practical experience, participation in research projects and a cultural exchange since the program receives interns all over the world.