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UNIVERSITY
OF WYOMING



Northeast Extension Connection

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significance and/or relationship between "In vitro dry matter digestibility," "acid detergent fiber," and "neutral detergent fiber." I took a stab at it but unfortunately he felt I gave him a graduate level response and I probably did. So below is another attempt and hopefully in layman's terms.

IVDMD: *In vitro dry matter digestibility* is a laboratory technique that estimates how digestible forages are for ruminant animals (cattle, sheep, goats, etc). However, it is an expensive, time consuming method and most commercial

IVDMD, ADF, and NDF –

A review of what they are and why they are important in livestock nutrition

By Dr. Blaine Horn

UW Extension Range and Forage Management Educator—NE Area

I was recently asked by a client to provide a layman's explanation of the

labs do not offer this procedure due to the need for a caanulated animal. A caanulated animal has a hole surgically placed in their side to allow access to their rumen so fluid can be collected and used to incubate the forage sample(s).

If the forage samples are placed directly in the animal's rumen (samples put in Dacron bags) instead of being put in a test tube with the rumen fluid the procedure is known as *In Situ*. Rumen microbes degrade the forage's sugars, starch, hemi-cellulose, and some of its cellulose leaving behind lignin and any cellulose tied up within the lignin. The amount of the forage that disappears during the procedure is considered to be the digestible portion and a percent digestibility can then be assigned (forage sample amount left after incubation divided by amount started with).

ADF: The procedure commercial labs use to determine forage digestibility is the "*acid detergent fiber*" (ADF) method. Forage samples are incubated in a sulfuric acid detergent solution that dissolves sugars, starch, and hemi-cellulose leaving behind cellulose and lignin. →



IVDMD? ADF? NDF? Making sense out of your forage testing results

Winter Ag Programs

Several programs for NE Area agricultural producers and small acreage landowners are planned for this winter. Not all details are completely available, but here are the tentative topics & schedule:

- Energy alternatives - 2nd Wk–Feb
- Horses - February
- Greenhouses - March
- Forages - April

See page 3 for further details



As with IVDMD the more of the forage sample that disappears the higher its digestibility [100 - (forage sample amount left after incubation divided by amount started with)]. Thus, the lower the %ADF the more digestible the forage is but %ADF in itself is not how digestible the forage is, i.e. a 40% ADF forage is not 60% digestible although it is close. The reason is that some of the cellulose is digested by the rumen bugs but ADF does not dissolve it. Because of this conundrum ruminant nutrition researchers developed a formula to account for this: $88.9 - (77.9 * \%ADF) = \% \text{ "digestible dry matter" (DDM)}$. If a forage has an ADF of 40% its DDM is 57.4% [$88.9 - (77.9 * 0.40)$]. The calculated DDM value of the forage is generally close to its IVDMD value.

DDM or IVDMD only tells you how digestible forages are compared to each other. What producers need to know about a forage is either its "total digestible nutrients" (TDN) or "net energy maintenance" (NEm) content in order to determine if it will meet their ruminant livestock energy needs. Both of these values are calculated by the lab from the forage's ADF value. Thus, an ADF analysis of the forage is what the producer needs to have conducted. Note that the above method to determine %ADF is a wet chemistry procedure and is what should be requested unless the forage is alfalfa or smooth brome grass. For these two forages a computerized method called near-infrared reflectance spectroscopy (NIRS) can be used to determine their %ADF as it is cheaper and faster. The reason NIRS should not be used to determine forage quality for many other forages, especially rangeland grasses, is that the lab may not have the algorithms to correctly calibrate their NIRS equipment.

NDF: "Neutral detergent fiber" (NDF) is a laboratory procedure similar to ADF, except the forage sample is incubated in a neutral detergent solution that dissolves only the sugars and starch. NDF provides an estimate of how much an animal can potentially consume of the forage; its "dry matter



Forage sampling can help provide better livestock nutrition and save you money!

intake" (DMI). Forage with a high %NDF – more fiber than sugar and starch – is slow to digest and takes longer to pass through the animal's digestive system limiting how much the animal can eat of it (known as bulk limitation). For example, a cow would only be able to consume 1.7% of her body weight of a 70% NDF forage (120/70%) compared to 3.0% of a 40% NDF forage (120/40%). Thus a 1200 lb cow would only be able to consume 20.4 lbs/day of the 70% NDF forage compared to 36 lb/day of the 40% NDF forage. The importance of this is if a low quality forage is provided there is a possibility that the animals may not be able to consume enough of the forage to meet their nutritional needs and thus be starving on full bellies. However, knowing either TDN or NEm content (from ADF analysis) of available forages along with crude protein and mineral contents is what producers need to know so they can furnish the appropriate supplements to meet their livestock's nutritional needs.

New NE Area Educators

Victoria (Tory) Vanderpool Moble is now the 1/2 time 4-H Educator in Weston County

Jerrica Lind is the full-time 4-H educator in Sheridan County

Karen Phillippi is the Centsible Nutrition Educator in Johnson County

Whit Stewart has been hired for the Area Sustainable Agriculture position based in Campbell County. He will start Jan. 10.

The Range/Natural Resource Educator position based in Crook County is being advertised. If an acceptable candidate is found, the position should be filled this spring.

WINTER PROGRAMS

Energy — Alternatives for generation and conservation in rural areas

Tuesday, February 15 - Afternoon in Buffalo, Evening in Sheridan

Wed., February 16 — Gillette (probably in afternoon)

Thurs., February 17— Crook and Weston Counties (time/place tentative)

Speakers: Milton Geiger (UW Energy Specialist; experts from utilities, etc.

High Tunnels and other ways to grow stuff better in Wyoming's climate

Probable for the week of March 7 in three NE Wyoming locations

Speakers: Jeffery Edwards, Scott Hininger and/or others

Horses — Health, nutrition, grazing management issues

Probable for the week of March 21 in three NE Wyoming locations

Speakers: UW Horse Specialist Amy McClean, Blaine Horn and/or others

Forages — Alternatives for both dryland and irrigated production

Tuesday, April 5 — Weston (afternoon) and Crook (evening)

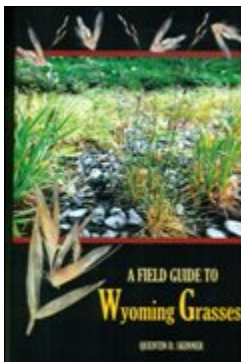
Wed., April 6 — Gillette

Thurs., April 7 — Sheridan (afternoon) and Buffalo (evening)

Speakers: Roger Hybner (USDA ARS—Bridger MT Plant Materials Center; Blaine Horn and/or others

A Field Guide to Wyoming Grasses

By Quentin D. Skinner



The long awaited color and soft-cover edition of Dr. Skinner's definitive book on Wyoming Grasses was published this month. The thousands of excellent photos were taken by Skinner over many years.

A Field Guide to Wyoming Grasses is a 596-page full color book containing text, maps, and detailed color plates of each species and corresponding plant morphology useful for identification are presented for each species. An index presents all scientific and common names of grass species, and a glossary defines scientific terms used.

This excellent reference can be purchased for \$55 plus tax and \$5 shipping and handling from:

University of Wyoming; Ag Resource Center; Department 3313; 1000 E. University Ave.; Laramie, WY 82072 or on-line at <http://www.uwyo.edu/cessupport/agpubs/>

FOOD SHARING: A HOLIDAY GESTURE

By Kentz Willis

Nutrition, Food Safety Educator—NE Area

Around this time last year I came across a wonderful article on holiday gift giving written by Dayle Hayes, a registered dietitian in Billings, MT. Food was a central theme, which was the first thing that caught my attention. Beyond that, however, I think this article was a good reminder of holiday ideals that are too often overlooked: counting your blessings, spending time with family and friends, and offering a hand to those in need. Here is Dayle's article in its entirety—re-printed with her permission, of course.

"Holidays are a time for generosity, and there are many ways to give even when our budgets are tight. Nourishing gifts of foods are always welcome. They help shift the focus from the typical holiday overeating to sharing with those who may not be eating well. If you want to make a generous donation of food and nutrition this year, there are ideas to fit every wish list and every pocketbook.

The most direct way to make a nutrition donation is to invite someone to share food with you — in your home, in their home or at a restaurant. Consider an invitation to a neighbor or to someone from church. Be especially generous to those who may have limited income, mobility or social contacts. If you don't have extra money to spend, offer to take someone shopping or to prepare a meal for them.



There are several simple ways to give generously on a limited budget. As you consider how best to give individuals on your list and to charities in your community, remember that gifts from the heart are more powerful than fancy packages and large checks.

- **Give things you make:** If you're a crafty person, you've got plenty of ideas for inexpensive gifts. Not crafty? No worries! Bake a loaf of whole-grain bread or make friendship soup in a jar. Not a cook? Burn a CD of your favorite holiday music and listen while you cook a meal with friends or family.

- **Give your time:** In our busy world, time is a truly generous gift. Not able to make a usual financial contribution to your food bank or soup kitchen this year? Donate time

throughout the year.

These organizations may have lots of volunteers



over the holidays but need help on a regular basis.

- **Give your compassion:** There is no more powerful gift than compassion, something money can't buy. Share holiday companionship with those who may need a smile, some help with eating or a conversation. Ask how to help your local hospice, children's hospital, or nursing home at mealtime.

- **Give your expertise:** All of us have special skills. For organizations who feed the hungry, your skills may fill a serious need. If you're not in a position to donate money, consider giving your expertise in planning meals, cooking, or finding simple, delicious recipes that use donated food.

A sense of community is one of the strongest ways to celebrate the special meaning of the holidays in our lives. By joining others around a table and enjoying a meal together, we can take comfort from the blessings of nourishing food and simple companionship."

Registered dietitian Dayle Hayes is a consultant to school districts and other groups across the U.S. and is co-chair of Billings Action for Healthy Kids.

Kentz Willis, M.S., is the University Extension Educator in Nutrition and Food Safety for Northeast Wyoming. He can be reached via email at kwillis3@uwyo.edu.

Meadow (a.k.a. Regar) Brome: a candidate for some NE Wyoming pasture seedings

By Gene Gade

University Extension Educator—NE Area—Range/Natural Resources

Meadow Brome grass is not as widely used as some other introduced grass species that are seeded for pasture or hay. However, it may be a good choice for planting in some locations of northeast Wyoming.

Regar Brome is the oldest and most famous of the Meadow Brome varieties in the United States. Collected in Turkey in 1949 and tested at USDA Ag. Research Service stations in Idaho and eastern Washington, Regar Meadow Brome was officially released in 1965. For over 20 years, Regar was the only Meadow Bromegrass variety available. Several more varieties have been released more recently including "Fleet", "Paddock", "Bigfoot", "MacBeth" and "Montana" (which the UW Powell research station helped develop and test). A new variety "Cache" was released in 2006 which is even easier to establish and is more productive in dryland conditions.

Some desirable characteristics: Meadow Brome has several properties that make it potentially valuable for this region. 1) It's a perennial that can be productive in either dryland or irrigated situations. 2) It is fairly easy to establish on well-prepared seed beds, and can be used for either grazing or haying. 3) It greens up earlier than native range grasses and can produce fall re-growth if adequate soil moisture is available. Therefore, meadow brome can be used to extend the grazing season. 4) It is palatable for cattle, sheep or horses. 5) Meadow Brome also recovers fairly quickly after cutting or grazing. 6) It is very winter-hardy, fairly drought-tolerant and long-lived. 7) Under very favorable growth conditions, the seed heads of meadow brome can reach heights of 40" or more, but the more nutritious foliage normally clusters about the base (see photo).

Adaptations: Meadow brome is probably best adapted to transition zones where grasslands phase into brush and trees. It can supposedly tolerate a site that receives 14"+ of precipitation per year, but that's the extreme lower end. This species probably really needs 16" of precipitation or more to thrive.

Also, meadow brome can grow on loamy or

somewhat clayey soils, but it is not well adapted to sandy soils.

Meadow Brome vs.

Smooth Brome:

Meadow brome compares favorably with its better known cousin, Smooth Brome. Meadow brome

produces a short rhizome under irrigation, but it is really more of a bunch grass in dryland pastures, compared with smooth brome which produces a very dense sod. Probably because of its rhizome, Smooth Brome spreads more vegetatively .

Forage yields of meadow brome are usually as high or higher than those of smooth brome. Meadow brome recovers from grazing more rapidly, has better production during the hottest part of the summer and produces more fall re-growth than smooth brome. In general, smooth brome produces little or no re-growth.

NE Wyoming Research: Research in Johnson and Sheridan Counties by UW CES Educator, Blaine Horn, found that Regar Meadow Brome had a total forage yield of 4,830 lbs. dry matter per acre. The work was done on private ranches under irrigation during the 2006 to 2010 period. Smooth brome production was 80#/ac higher. (The other forages tested were: Luna and Mandan Pubescent Wheatgrass, NewHy Wheatgrass, Rosana Wheatgrass, Hycrest Crested Wheatgrass, Bozoisky Russian Wildrye and Manchar Smooth Bromegrass.)

Management: Animals should not be allowed to graze meadow brome until the forage is 8-12 inches high. The animals should be removed when the forage is grazed to 3-4 inches. Typical rest period is 3-4 weeks. In the fall, it is desirable to leave approximately six inches of stubble for winter.





WYOMING OPEN MEETINGS ACT

by Bill Taylor,
Northeast Area Community Development Educator

Wyoming boards and agencies are covered by law to ensure that government conducts its business in an open manner. The Wyoming Open Meetings Law was passed in 1995.

Who is governed by the provisions of the Open Meetings Law? Generally, all state boards and agencies. The courts have interpreted this to mean all government appointed and elected boards – from the Wyoming Public Service Commission down to the local sewer district board or county fair board. The interpretation of who and how the law applies varies somewhat from county to county, depending upon the interpretation of the County Attorney. Therefore, if you have any question on whether your board or group is covered and how the law is applied, be sure to check with your local county or city attorney.

Generally, the Open Meetings Act dictates that deliberations and business of covered boards and agencies shall be done openly and that all records shall be available to the public, except for those few things exempted by the act. To quote the Attorney General's summary, "All meetings of the governing body of an agency are public meetings, open to the public at all times, except as otherwise provided, and no action may be taken except during a public meeting." According to the statute, "meeting" is defined as an assembly of at least a quorum of the governing body of an agency which has been called for discussion, deliberation, presentation of information or taking action regarding public business. However,

the interpretation of this paragraph has been broadened to mean **any** gathering of a quorum of board members in which board issues are discussed.

What does this all mean for your board? If you are a public board, this would mean that any time a quorum of your members are together, whether in the meeting room or in the local café, **no** board issues can be discussed or decided unless it is a properly publicized public meeting. What is required for public notice? Boards and agencies are expected to hold regular meetings and provide notice of those meetings to any person who requests one. It is a good idea to provide notice of regular meetings to public media and to any other group or individual that would have an interest. If special meetings are called, a timely notice must be provided to each member of the board and to each newspaper, radio, and television station requesting notice. Again, it is best just to assume that all public media have requested notice of your meetings. The notice shall specify the time and place of the special meeting and the business to be transacted. **No other business may be considered at a special meeting.**

The Open Meeting Act has been determined by the Attorney General to also apply to all telephone conferences and video meetings of a governmental board or agency. →



Emergency meetings are allowed if there are matters of serious immediate concern. However, a reasonable effort must be made to provide public notice, and **all actions taken at an emergency meeting are considered temporary**. In order for these actions to become permanent, they must be reconsidered and action taken at an open public meeting within 48 hours of the emergency meeting.

Minutes must be taken at all meetings, regardless of whether official action has been taken or not. All minutes and other documents, except those exempted, must be available for public examination. If copies are requested, the board must provide copies, but may charge a normal copying fee.

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Controversy often arises over whether a board has authority to enter into an executive session. Executive session is not available for anything the board just wants to keep private, but is reserved only for specific occasions – when there is a threat to public or private property, to consider

employment of an employee (unless they request a public hearing), when considering litigation, on matters of national security, for license examinations, acting on parole or release of an inmate, considering real estate selection, considering acceptance of a gift or bequest, to receive information considered confidential by law, employment negotiations, or to consider discipline of a student.

The board must pass a resolution to enter into executive session, must take minutes of the executive session which are kept confidential, and can only take binding action once they return from executive session to the public meeting.

Penalties for violation of the act includes the nullification of all decisions made and actions taken while in violation, and a misdemeanor charged to perpetrators, with the possibility of up to \$750 fine.



Cent\$ible Holiday Eating

By Trish Peña: U.W. Extension Cent\$ible Nutrition Educator

The weather has definitely cooled off and the holiday season is rapidly approaching; this is that time of year when dwindling daylight and a calendar packed with holiday parties and high-calorie foods often leads to health and weight concerns. But do you really have to be a party pooper to prevent an expanded waistline during the busy holiday season? Experts say no! Contrary to popular belief, it is possible to celebrate the season without gaining weight or worrying over concerns like cholesterol or diabetic eating concerns.



Keep pre-meal snacking to a minimum, and keep them healthy!

The average weight gain during the six-week span from Thanksgiving to New Year's is approximately one to three pounds. It takes an extra 3,500 calories over and above what you need to maintain your current weight to pack on one pound of body fat. Still, Cent\$ible eating and calorie consciousness during the holidays - and all year-long - is extremely important as the weight gained over the winter holidays isn't typically lost during the year, which means those pounds can add up over the years. And, all those calories do affect some health disorders!

Many holiday favorites are packed with nutrients. For example, sweet potatoes are high in potassium and fiber and are loaded with the antioxidant vitamin A, while cranberries are high in vitamin C. Prepare foods that are nutritious and satisfying yet low in calories. Reducing the amount of fat and calories in meals can also help prevent weight gain. Create healthier versions of favorite baked goods by using fat-free milk instead of whole milk and applesauce in place of oil. Sweeten your beverage, casserole or dessert with a low-calorie sweetener such as aspartame. To thicken a liquid without adding fat, use flour, cornstarch, yogurt, or non-fat evaporated milk.



Artfully arranged fruit or vegetable trays make great appetizers and are good for us!

To address the problem of over indulging, use smaller plates and glasses. And don't have all the casserole and serving dishes on the dinner table - serve in the kitchen. That way, if you want another piece of pecan pie, at least you'll have to consciously get up and leave the room to fetch it. Also, be wary of falling into the trap of thinking you must eat a lot of food because you spent so much time cooking. If you're a guest and think you might offend your host by keeping your serving sizes small, remember that Grandma will be pleased if you go back for seconds on her stuffing, even if the total amount you eat is far less than if you'd just had one heaping plate. Finally, about 10 percent of what we eat on a big holiday may come from pre-meal snacking. So stick to a small napkin for appetizers and munchies, or just skip them entirely.

The Cent\$ible Nutrition Program offers sessions on healthy eating, meal planning and meal planning tools and tips. Please feel free to contact me at the Weston (746-3531) or Crook County (283-1192) Extension Offices. These classes are free to those with limited income and who are willing to invest time for a better future.

TIPS OFFERED ON SELECTING AND CARING FOR POINSETTIAS

By Scott Hininger
Profitable & Sustainable Agriculture
Sheridan County—NE Area

Many colors of poinsettias are available for today's consumers. From traditional red, pink and white, breeders have developed marbled pink and mottled red types. There are shades of orange, cranberry, salmon and cream. Foliage colors range from light green to very dark green. Some foliage is green and white (variegated). Some leaves and bracts are even curly and twisted

For people shopping for poinsettias, University of Wyoming Horticulturist Karen Panter advises looking for plants with healthy green foliage. Remember, though, that some varieties have leaves that are naturally lighter green than other varieties. This does not mean the plant is not healthy.

Brightly colored bracts must be clean and free of spots or bruises. The flowers are small and are in the center of the bracts. They should be visible with small yellow centers. If the flowers have dropped off, the plant is old and will not last long in your home.

Shoppers should check to see if the lower leaves are green and healthy. If lower foliage is yellowing or has dropped off, you might want to pick another plant. If you can, check the root system. A healthy root system will be white with few brown areas.

I suggest the following easy care guidelines:

- * Put the plant in a protective bag or sleeve before leaving the store. Cold blasts of outside air can damage poinsettias.
- * Be aware that a poinsettia bought at Thanksgiving will not look as healthy at Christmas as one purchased in mid-December.
- * Put the poinsettia in a spot where there is enough natural light to read fine print during the day.
- * Avoid bruising the plant. Keep it away from high traffic areas.
- * Put a saucer or waterproof container under the

* When the top of the soil in the container is dry, water the plant thoroughly. After the water has poinsettia. This will protect furniture from water damage and allow water to drain out of the pot into the saucer. Empty the saucer into the sink. If roots become waterlogged, they will rot.

* Temperatures should be between 60 and 72 degrees Fahrenheit for a poinsettia to thrive.

All of these tips will work for other flowering plants as well, whether they are Christmas cactuses, kalanchoes, chrysanthemums or any other type.

One more item needs to be mentioned - poinsettias are not poisonous. Research at the Ohio State University has shown that the poinsettia plant is not harmful to human or animal health if parts of the plant are eaten.

If poinsettias are cut back in spring and again in late summer, it is possible that they will bloom again the following year. They would need at least 14 hours of darkness every night from early October until new buds appear. Giving live plants to others can add color and help with the festive nature of the holidays. By giving some small perennials, which could be planted outside next spring, would make the gift last even longer.

For further information, the UW Cooperative Extension Service bulletin "Care of Flowering Potted Plants" (B-1146), is available online at www.uwyo.edu/ces/plantsci.htm or at the Extension Office.

The University of Wyoming and the United States Department of Agriculture, Sheridan county Office cooperate.



Northeast Extension Connection

A quarterly newsletter from Campbell, Crook, Johnson, Sheridan and Weston County UW Extension Offices

Campbell County, 307-682-7281: Jessica Gladson, Family & Consumer Sciences 4-H/Youth; Lori Bates, Horticulture Program Coordinator; Lori Jones, Cent\$ible Nutrition; Erin Curtis, 4-H/Youth

Crook County, 307-283-1192: Gene Gade - Range; Janet Lake—4-H/Youth; Peggy Symonds - 4-H/Youth; Trish Peña, Cent\$ible Nutrition

Johnson County; 307-283-684-7522: Blaine Horn—Range; Rachel Variman, -4-H/Youth; Karen Phillippi-Cent\$ible Nutrition

Sheridan County, 307-Scott Hininger— Horticulture; Kentz Willis-Nutrition & Food Safety; Jerrica Lind-4-H/Youth; Sandra Koltiska— Cent\$ible Nutrition

Weston County, 307-746-3531: Bill Taylor, CDE; Vicki Hayman, Nutrition & Food Safety, 4-H/Youth, Trish Peña, Cent\$ible Nutrition

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