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UNIVERSITY OF WYOMING EXTENSION

SURVIVING THE WINTER

How plants survive Wyoming's harsh winter

Brian Sebade– Extension Educator based in Crook County

It is not a mystery that winter in Wyoming is usually packed with wind, snow, and sub-zero temperatures. Most of us living in Wyoming first think to keep ourselves and families warm during these conditions, while pets and livestock are next on the list. It is hard to find someone who gives too much attention to how plants are faring during this time of the year. We often take it for granted that plants livestock depend on for forage and we depend on for food are left braving the elements during the coldest parts of the year.

Plants living in Wyoming have developed many different strategies and adaptations for surviving the harsh climate of Wyoming. These vary depending on the growth type of each plant. For example, plants that keep living stems above ground year round (including evergreens) differ in the way they survive the cold compared to plants that die-back or become dormant each year.

The most important strategy perennial plants use to cope with winter time conditions is reallocation of energy from stems and leaves to roots. By storing this energy , which is in the form of carbohydrates, the plants have the ability to move these carbohydrates back to leaves and stems when soils warm in the spring. When carbohydrates are stored in plant roots they are in the form of starches. Evergreens practice storing starches during cold temperatures, except during this time there are minute photosynthetic processes occurring. These photosynthetic processes can be ignored because the plant is not growing.

Perennial grasses, trees, forbs, shrubs, rushes, and sedges all use the starch storage strategy for winter time survival. This winter survival adaptation is unique to trees and shrubs in Wyoming compared to many trees in tropical regions in the world. Because of a decreased growth period, trees and shrubs in Wyoming form a condensed dark colored layer of cells during winter and then form lighter colored cells during rapid expansion of cells in warmer growing conditions. This process forms tree rings which can be used to measure tree growth and age. Depending on the area, trees in the tropics do not experience drastic seasonal differences and therefore do not form tree rings. This causes difficulties for forest managers and scientists in tropic areas for trying to determine ages of trees.

We know winter conditions in Wyoming limit growth, but why are there only certain plants that grow in Wyoming compared to the Southeast of the United States for example? The Southeast has evergreens and deciduous trees just like we have in Northeast Wyoming. This question can be answered by looking at the cells of plants. Plant leaves, stems, trunks, and roots are all made of tiny cells. These cells are made out of cellulose and help with structure. They move, water, sugars, and gases through the plant. It is critical that plant cells are not damaged during the winter in order for cells to function properly during the growing season. Lets compare the cells of a ponderosa pine in Wyoming to that of a loblolly pine in Georgia as an example of how important these cells are.

During cold temperatures most of the water within a tree has been relocated to the roots as stated before. However, there is some water that stays within these cells. This is especially true with evergreens. The water that is left within the cells often freezes during cold temperatures and therefore expands and adds pressure to cell walls. The Cells of the Wyoming ponderosa pine are thicker than those of the loblolly pine. Thicker cells help deal with the increased pressure of expanding water when it freezes and make the ponderosa better suited for Wyoming's climate. With out thick walls, the cell would burst from the expanding water and therefore lead to damaged cells during the growing season. The thinner cell walls of the loblolly pine can not withstand extreme cold and therefore they would be unsuccessful in a cold climate.

Some perennial plants (usually trees and shrubs) also have developed a different strategy for freezing temperatures and coping with the problem of expanding water within cells. These plants produce their own antifreezes that help safe guard cells from the risk of cell ruptures from expanding water. These antifreezes are usually made from antifreeze proteins that the plant produces. Plants also allocate water outside of their cells which helps increase the sugar concentration within the cell and lowers the freezing point of water within the cell.

On the other hand, annual plants use a completely different strategy compared to those of the perennial plants. Their strategy is simply to completely die off each year while relying on their seeds for the next generation. With this strategy there is little water within the seed itself and is able to survive harsh conditions and germinate when the conditions are best suited for survival. Many people, however, would probably rather see annuals not survive so well considering some of the problem weeds in the state, such as cheatgrass and Russian thistle, utilize this growth method.

Snow and soil also help protect plant roots and exposed stems. Snow and soil are excellent insulators that help prevent roots from freezing completely and keep microbial activity occurring during the worst of conditions. Soils can even help prevent trees and shrubs from budding out during warm winter days that could potentially be hurt later when temperatures return to freezing.

No matter the strategy (thick cell walls, antifreeze, or root starch storage) plants have made many adaptation to live in the tricky climate conditions of Wyoming. Without these strategies we would not enjoy some of the food we do nor would we have the available forage to feed most of our livestock and pets. So the next time you are taking a stroll in the winter make sure to think about the many adaptation plants have made to live in Wyoming.

What to do with board members who don't do anything

By

Bill Taylor, Area Community Development Educator

"He never comes to meetings or does anything. Why does he even stay on the board?" "She always says she'll take care of it and then she doesn't follow through. Aaagh!"

Whose responsibility is it to "do something" about a board member who is AWOL, deadwood, undependable, a procrastinator, or worse? Regretfully the answer is: Yours. If you're the board president or an officer, you have a special role, but every board member has a stake - and therefore a responsibility - in all members being active. In some cases you may need to talk with the executive director about improving the way he or she works with board members. If you're the executive director, you may need to discuss the situation with board leadership.

You *must* do two things in the case of a board member who is not participating. First, you must do *something*. The problem is likely only to get worse, and nonparticipating board members have a demoralizing impact on even the best of boards. Second, *be confident and hopeful*. Many board members just need a little reminder to be more conscientious, and others will be grateful that you've given them a graceful way to relinquish tasks or even leave the board. Things will work out.

Short-term strategies

- Check to be sure that expectations were made clear to the board member before he or she joined the board. "I know you joined the board recently and I'm not sure that you realize that we ask all board members to attend the annual dinner and, hopefully, to help sell tickets. Let me explain to you what most board members do, so you can see whether you'll be able to work on this with us."
- Hold a board discussion at which expectations are reconsidered and reaffirmed. Agree on a list of minimal expectations for *every* board member, and ask people to suggest how they might individually help as well.
- Be sensitive to possible health issues or personal reasons why a good board member isn't participating as much as he or she has in the past.
- Transfer responsibilities to someone else. "I'm concerned about finishing the revision of the personnel policies. Since you're so busy, maybe it would work out for the best if John took your notes on the policies and developed a first draft."
- Together with the board member, explore whether he or she really has the time right now to be an active board member. "I'm calling to check in with you since you haven't been able to make a meeting in the last several months. Are you temporarily a lot busier than usual? We really want to have your participation, but if it isn't realistic, perhaps we should see if there's a less time-consuming way than board membership for you to be involved."

Longer-term strategies

Make it possible for individuals to take a leave of absence from the board if they have health, work, or other reasons why they cannot participate fully for a while. An individual can, for example, take a six-month maternity leave or a disability leave.

Have a board discussion or conduct a written board survey on what makes it difficult for people to participate fully. "Are there things we can change about the frequency, day, time, or length of board meetings that would make it easier for you to attend?" "Are there things about the way that board meetings are conducted that would make it easier for you to attend or that would give you more reason to want to attend?"

Consider whether board participation is meaningful to board members. Have lunch with semi active members or the executive director: "I'm sensing that board participation just isn't as substantive or significant as some board members want it to be. What do you think are the reasons, and what do you think we can do to make board membership more meaningful?"

Revise what is expected of board members. Perhaps responsibilities have been given to a board member that are unrealistic for any but the super-board-member. Reduce the number of committees and utilize short-term task forces instead. Redesign jobs and responsibilities to fit the ability of a busy achiever to accomplish them.

And what if *you* are the one who isn't as active as you had expected to be? Fix the situation either by going to the next meeting and committing yourself to something big, or by calling the board chair and explaining that you're just too busy to be a good board member, and you'd like to part ways on good terms.

Adapted from an article in *Blue Avocado* by Jan Masaoka

HEALTHY NEW YEAR

By: Kentz Willis, M.S., UW Extension Educator in Nutrition and Food Safety

Healthy New Year

How are those New Year's Resolutions coming along? If my sources are correct, many of you made resolutions that involve losing weight, exercise, and better eating habits. Unfortunately many of these changes will not last long, and research shows that very few will realize (and maintain) their weight loss goals. Sound familiar? What can we do to stop this cycle of failed weight loss plans?

Here's one idea: stop trying to lose weight!

If you are now thinking I'm a little bit crazy, at least I can take comfort in the fact that I'm not the only one. Many health professionals are recognizing that weight is just one determinant of overall health, and typical weight-loss routines are remarkably unsuccessful.

In fact, an article I recently read in the Journal of the American Dietetic Association highlighted the benefits of a *size acceptance intervention* designed to embrace the idea that health is related to many behaviors *independent* of body weight. This so-called 'Health-At-Every-Size' (HAES) approach demonstrated beneficial effects on multiple eating behaviors as well as body weight management. It seems that many of the participants benefitted from the positive focus on healthier lifestyles.

Now this is not to say that body weight is irrelevant. Being overweight and obese is unquestionably linked to a greater risk for certain chronic conditions. However, a growing body of evidence is demonstrating that our focus on weight may, in fact, be unhealthy—and more positive approaches produce better results for many individuals

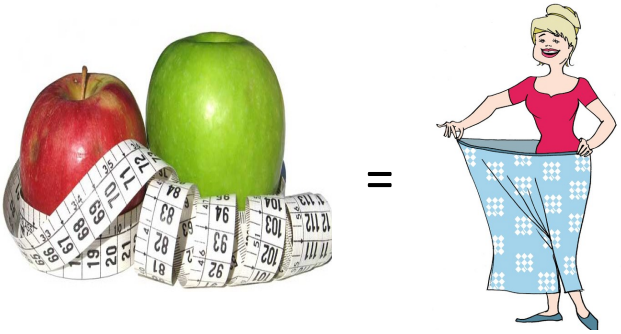
How can you get started?

1. **Toss that scale,** and make your health a priority**.** Positive lifestyle choices will often lead to a healthy body weight.
2. **Set a goal** and write it down! Make sure your goal is S.M.A.R.T. (**S**pecific, **M**easurable, **A**ttainable, **R**elevant, **T**ime-bound).
3. **Have a plan** (and follow it J). Major lifestyle changes don't happen by accident, and they don't happen overnight. Know what challenges you will face and take small steps to overcome these challenges.

As we kick off 2012 please beware of quick weight-loss plans or severely restrictive diets. While they may show results in the short-term, these are often not healthy habits and are certainly not sustainable. More positive efforts towards wholesome food and activity choices that you enjoy will be the ones that stand the test of time.

To view *The ABCs of Health-Focused Well-Being,* a great UW Extension publication on this very topic, please visit http://www.wyomingextension.org/agpubs/pubs/MP112-4.pdf. For further handouts and information feel free to visit www.uwyo.edu/winwyoming, the home page for the Wellness IN Wyoming project.

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



WELCOME 2012 WITH HEALTHY HABITS

Vicki Hayman, UW Extension NE Area Nutrition & Food Safety

Are your New Year's wellness goals in full swing? If so, to your next goal…Congratulations! One of the quickest ways to achieve your goals is to develop specific day to day "healthy habits" that over time create amazing results. Creating healthy habits from your New Year's resolutions is an important part of getting the results you want long-term. They say it takes 21 days to create a habit, so if you focus your attention on one goal for January you should be set. Then in February you can move on .

To get started, here are suggestions based on the Dietary Guidelines for Americans.

Build a Healthy Plate

Before you eat, think about what goes on your plate or in your cup or bowl. Foods like vegetables, fruits, whole grains, low-fat dairy products, and lean protein foods contain the nutrients you need without too many calories. Try some of these options.

Make half your plate fruits and vegetables.

- Eat red, orange, and dark-green vegetables, in main and side dishes.
- Eat fruit, vegetables, or unsalted nuts as snacks—they are nature's original fast foods.

Switch to skim or 1% milk.

- They have the same amount of calcium and other essential nutrients as whole milk, but less fat and calories.
- Try calcium-fortified soy products as an alternative to dairy foods.

Make at least half your grains whole.

- Choose 100% wholegrain cereals, breads, crackers, rice, and pasta.
- Check the ingredients list on food packages to find whole-grain foods.

Vary your protein food choices.

- Keep mean and poultry portions small and lean.
- Twice a week, make seafood the protein on your plate.
- Eat beans, which are a natural source of fiber and protein.

Cut Back on Foods High in Solid Fats, Added Sugars, and Salt

Many people eat foods with too much solid fats, added sugars, and salt (sodium). Added sugars and fats load foods with extra calories you don't need. Too much sodium may increase your blood pressure.

Choose foods and drinks with little or no added sugars.

- Drink water instead of sugary drinks. There are about 10 packets of sugar in a 12-ounce can of soda.
- Select fruit for dessert. Eat sugary desserts less often.
- Choose 100% fruit juice instead of fruit-flavored drinks.

Look out for salt (sodium) in foods you buy — it all adds up.

- Compare sodium in foods like soup, bread, and frozen meals—and choose the foods with lower numbers.
- Add spices or herbs to season food without adding salt.

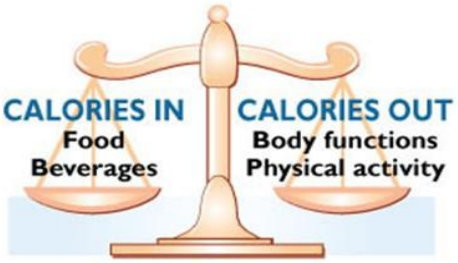
Eat fewer foods that are high in solid fats.

- Make major sources of saturated fats—such as cakes, cookies, ice cream, pizza, cheese, sausages, and hot dogs—occasional choices, not everyday foods.
- Select lean cuts of meats or poultry and fat-free or low-fat milk, yogurt, and cheese.
- Switch from solid fats to oils when preparing food.

► Eat the Right Amount of Calories for You

Everyone has a personal calorie limit. Staying within yours can help you get to or maintain a healthy weight.

If you are...	Your caloric balance
Maintaining your weight	"**in balance**." You are eating roughly the same number of calories that your body is using. Your weight will re-
Gaining weight	"**in caloric excess**." You are eating more calories than your body is using. You will store these extra calories as fat and you'll **gain** weight.
Losing weight	"**in caloric deficit**." You are eating fewer calories than you are using. Your body is pulling from its fat storage cells for energy, so your weight is **decreasing**.



Enjoy your food but eat less.

- Get your personal daily calorie limit at www.chooseMyPlate.gov and keep that number in mind when deciding what to eat.
- Think before you eat...is it worth the calories?
- Avoid oversized portions.
- Use a smaller plate, bowl, and glass.
- Stop eating when you are satisfied, not full.

Cook more often at home, where you are in control of what is in your food.

When eating out, choose lower calorie menu options.

- Check posted calorie amounts.
- Choose dishes that include vegetables, fruits, and/or whole grains.
- Order a smaller portion or share when eating out.

Write down what you eat to keep track of how much you eat.

If you drink alcoholic beverages,, do so sensibly-limit to 1 drink a day for women or to 2 drinks a day for men.

► Use Food Labels to Help You Make Better Choices

Most packaged foods have a Nutrition Facts label and an ingredients list. For a healthier you, use this tool to make smart food choices quickly and easily.

Check for calories. Be sure to look at the serving size and how many servings you are actually consuming. If you double the servings you eat, you double the calories.

Choose foods with lower calories, saturated fat, *trans* fat, and sodium.

Check for added sugars using the ingredients list. When a sugar is close to first on the ingredients list, the food is high in added sugars. Some names for added sugars include sucrose, glucose, high fructose corn syrup, corn syrup, maple syrup, and fructose.

► **Be physically active your way**

Pick activities that you like and start by doing what you can, at least 10 minutes at a time. Every bit adds up, and the health benefits increase as you spend more time being active.

Habits are hard to change. Choose one goal at a time to work on and then move on to the next to ensure you meet your health goals. Don't underestimate the power of small changes and what they can bring for you!

No one has as much vested interest in you as you do yourself. If you have health issues take action. Learn all of the ways you have contributed to your current state of health, and then change them. There is nothing more powerful than the right kind of knowledge that empowers us to take the right kind of action.

Many blessing for a joyous New Year full of abundance and good health!

Cent$ible Nutrition

NEVER TOO EARLY

Trish Pena, Cent$ible Nutrition Educator, Crook & Weston Counties

Start off the New Year by teaching your children or grandchildren how to cook. A skill that will last a life time! They will learn to provide nourishment, master an enjoyable skill and have something to pass on to their families. They will also gain self confidence by knowing how to prepare food and have fun spending time with you.

To be successful, match the tasks to the age of the child and what they can accomplish in the kitchen. For example, a four-year-old may enjoy counting potatoes and then later mashing them. They can also add ingredients to a salad and help chose a menu.

On the other hand, eight-year-old scan read and follow simple recipes. They can make pancakes, prepare kebabs, and create a fruit salad. Young cooks may benefit from using children's cookbooks to see pictures, measurements, and steps along the way.

Older children can do more and try harder recipes. As they succeed with various recipes they can move on to preparing meals for the family.

Children of all ages like to have input into meal planning and selecting recipes. Have them think about what is in season, what everyone likes, and what foods the family should eat more of, such as fruits and vegetables.

What a wonderful gift for every child - to know how to cook!

A Cent$ible Nutrition educator can show you how to start teaching young people in your life how to cook and the nutritional values of foods. Other factors taught are how to save time and money, keep food safe, and meal planning. *(Source: December 2011, Cent$ible Nutrition News, Helping Families Eat Better For Less)*

4-H and the BIG-M

By: Janet Lake
University Extension Educator, 4H/Youth
Photos done by Janet Lake

In 1999, a team of evaluators from the National 4-H Impact Design Implementation Team was charged with determining the critical elements in a 4-H experience. The team identified eight essential elements. These elements were later distilled into four key concepts: Belonging, Independence, Generosity, and Mastery—the BIG-M.

The "B" of the BIG-M is the concept of **Belonging** and includes:

1. Essential Element: A Positive Relationship with a Caring Adult. A caring adult acts as an advisor, guide, and mentor. The adult helps set boundaries and expectations for young people. The adult could be called supporter, friend, or advocate.

2. Essential Element: An Inclusive Environment. An inclusive environment is one that creates a sense of belonging, and encourages and supports its members with positive and specific feedback. Healthy groups celebrate the success of all members, taking pride in the collective efforts of all participants.

3. Essential Element: A Safe Emotional and Physical Environment. Youth should not fear physical or emotional harm while participating in a 4-H experience, whether from the learning environment itself or from adults, other participants, or spectators.

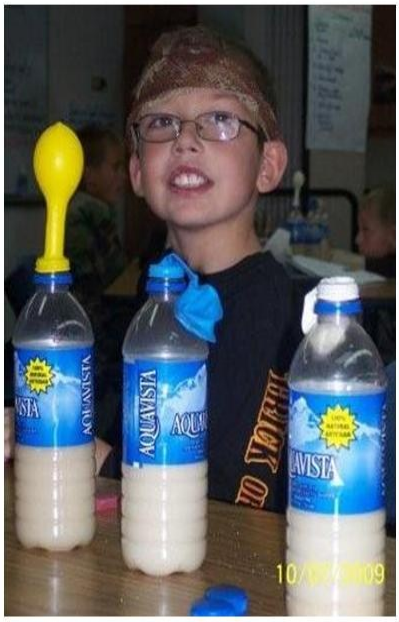
The "M" of the BIG-M is the concept of **Mastery** and includes:

4. Essential Element: Opportunity for Mastery. Mastery is the building of knowledge, skills, and attitudes and the demonstration of the competent use of this knowledge and skill by a proficient practitioner. The level of mastery is dependent on the developmental ability of the individual or youth. The development of mastery is a process over time.

5. Essential Element: Engagement in Learning. An engaged youth is one who is mindful of the subject area, building relationships and connections in order to develop understanding. Through self-reflection, youth have the ability to self-correct and learn from experience. The engaged learner has a higher degree of self-motivation and an inexhaustible capacity for creativity.

The "I" of the BIG-M is the concept of **Independence** and includes:

6. Essential Element: Opportunity to See Oneself as an Active Participant in the Future. The ability to see oneself in the future is to have hope and optimism to shape life choices, which facilitates the transition into participating in the future.



7. Essential Element: Opportunity for Self-Determination. Believing that you have impact on life's events rather than passively submitting to the will and whims of others is self-determination. Youth must develop a sense of influence over their lives, exercising their potential to become self-directing, autonomous adults.

The "G" of the BIG-M is the concept of **Generosity** and includes:

8. Essential Element: Opportunity to Value and Practice Service to Others. Finding yourself begins with losing yourself in the service of others. Service is a way for members to gain exposure to the larger community and, indeed the world itself.

(All photos by Janet Lake except the photo above.)

The largest and oldest youth development organization, 4-H offers nearly 60 different project areas, along with opportunities for teamwork and leadership. Be a part of 4-H, either as a member or a leader! Get more information from the Extension office nearest you:

Crook County, 283-1192

Campbell County, 682-7281

Johnson County, 684-7522

Sheridan County, 674-2980

Weston County, 746-3531

Source: National 4-H

Tree Risk Assessment

By Scott Hininger, Sheridan County, UW PSAS Area Educator

We all have seen tree branches or trees in our communities break or fall over. On the news, we see this happen whenever there is a storm. Along the east coast whenever there is a hurricane the combination of wet soil and high winds can cause trees to blow over. In the Midwest with tornados, there are the same conditions high winds and wet conditions. In the high plains or Rocky Mountain area, we have high winds, sometimes with moisture, but typically, we have wet snow in the fall and spring, which can break limbs.

When this happens, we can look at the health of the tree as it is being cut up and removed. The condition of the roots, branches or trunk can be seen, and with this information, we can make predictions of other similar aged trees and species in that community or neighborhood. Since I am often asked about the health of a tree, I am continually on the lookout of these downed branches or downed trees to see if they have any disease or insect problems.

Any tree can have the appearance of looking healthy and everyone wants his or her tree to live forever. The leaves can be green, it can show new growth, but it can also be showing signs of future problems. Diseases can come in many forms and may or may not lead to structural problems of a tree, but may cause the tree to die. Typically, the first sign most everyone can identify especially once the tree is cut up or downed is a rot where the trunk or branch is hollowed out. A disease or improper punning can cause this. This may take many years or decades to occur or cause a structural problem. Some signs to look for are the obvious hole in the trunk or branch, or a brown looking discharge coming from the tree.

The next issue of a tree blowing down is the condition of the roots. Sometimes it may just be wet conditions in the soil and the roots just cannot hold the tree up. However, we can have problems such as root rot, which can cause the roots to die or become structurally unsound. This can be hard to see, but many times the base of the trunk will show these signs. Of course, if the roots are cut on one side, due to construction this can lead to disease or the inability of the tree to compensate from the wind from that direction.

The next category is improper pruning. One main cause here is leaving a stub when pruning a branch; the tree cannot heal around this stub so it can rot into the tree. Alternatively, when the tree is young, leaving multiple stems growing will cause the tree to split at some point down the road, or by topping the tree or leaving, more than one dominate branch. Then we come to leaning branches or trees these should have been taken care of years before when they were much smaller. Any of these improper pruning practices can cause problems years later.

All trees have a natural life expectancy, they are similar to people as some live much longer than others do. That is one reason why it is a good idea wherever possible to plant trees over time and to plant a diversity of trees so they are not all mature at once or when a disease or insect that does occur not every tree is affected. For more information, contact your local University of Wyoming Extension Educator, horticulturalist, local Master Gardener volunteer, or a Certified Arborist.

Beef Cow Nutrition following Calving

By Blaine Horn, NE Area Range & Forage Management Educator

Calving season is underway or will be soon for many NE Wyoming ranchers. Meeting their cows' nutritional needs during this period is critical if they hope to have each cow calve again in a years' time. A cow has her best chance of breeding within three months following calving if she was in a body condition of 5 to 6 (1-9 scale) at time of calving. A Colorado study found that 91% of cows in body condition 6 at time of calving exhibited estrus 60 days after calving and 98% 80 days afterwards. Whereas only 61% and 46% of cows in body condition 5 and 4 exhibited estrus at 60 days post-calving, respectively, and only 88% and 62% at 80 days. Thus cow body condition at time of calving has a large influence on her chance of rebreeding within three months following calving.

Why cows in body condition 6 have a better chance of rebreeding within three months after calving compared to those in poorer condition is due to her nutritional needs being highest during the first months of lactation when she also needs energy to repair her reproductive tract. A cow in condition 6 at time of calving has energy reserves within her body to help her through the post-calving period, whereas one in lower condition does not have as much reserve energy and thus less feed energy is available for reproduction.

Monitoring cow body condition during the last three months of pregnancy and making necessary feed adjustments so that they are in good condition at time of calving is important if the cow is to calve again within a years' time. With that time passed for many cow-calf producers is there anything they can do to increase the chance that their cows will rebreed within this three-month window, especially if the cows were not in body condition 5-6 at time of calving? The answer is yes. Make sure her nutritional needs during early lactation are being met and if weight gain is necessary provide additional nutrients.

The first nutrient that needs to be met is Net Energy for maintenance (NEm). Forages are assigned a NEm value in mega-calories (Mcal) per pound of dry matter. The higher the NEm value of a forage the more energy there is for the rumen bugs to convert to fatty acids, the energy source for the animal. Mid-bloom alfalfa hay contains on average 0.60 Mcal of NEm/lb of dry matter and mature brome hay 0.49 Mcal/lb. Immature green grass may contain as high as 0.80 Mcal of NEm per pound of dry matter.

A beef cow's NEm needs depend on her size and stage of production. She requires a minimum amount year round to maintain herself and the heavier she is the more this is. If she receives more NEm than she needs for maintenance she will gain weight and increase in body condition; if less than she requires she will lose weight and condition. Weather and terrain also influence how much energy she will need. Cold weather will cause her to use more energy to keep warm and traversing hilly terrain requires more energy.

During pregnancy a cow's NEm requirements increase as the fetus grows, especially during the last three months of gestation. In addition, the greater the calf weight, the more NEm that will be needed by the cow. A cow's nutrient needs are highest when she is nursing, especially the first three months. The amount of NEm she requires for

lactation is dependent upon how much milk she is able to produce along with its fat content. On average a beef cow's NEm needs increase by up to 60% during early lactation over her maintenance needs. A 1200-pound cow requires around 8.5 Mcal of NEm per day for maintenance but during the first three months of lactation it increases to at least 14 Mcal/day or more depending on weather conditions.

Based on the amount of NEm mid-bloom alfalfa hay and mature bromegrass hay contain will they meet a lactating beef cow's NEm needs? Assuming a 1200-pound cow will eat 30 lb of hay each day (26.5 lb dry matter) she would obtain 16 Mcal of NEm from the alfalfa (26.5 * 0.60) but no more than 13 Mcal from the brome (26.5 * 0.49). Thus the mid-bloom alfalfa hay would meet her NEm needs but the mature brome hay would not. However, if she needs to add body condition to improve her rebreeding chances it would be advised to provide an energy supplement, such as grain corn. Note: bromegrass, as well as other grasses, hayed prior to maturity, i.e. prior to seed set, will generally contain at least 0.6 Mcal NEm/lb of dry matter.

What about protein? The above cow needs at least 1.5 lb of crude protein each day for maintenance and during her first three months of lactation it can be as much as 3.0 lb per day. Would the mid-bloom alfalfa hay or mature bromegrass hay provide her an adequate amount of crude protein while in early lactation? Mid-bloom alfalfa hay contains on average 17% crude protein and mature brome hay 6% (Note: Grasses hayed prior to seed set usually contain at least 10% crude protein). The amount of crude protein the cow would obtain from the alfalfa hay would be 4.5 lb/day (26.5 lb * 17%) at least 1.5 lb more than her needs but she would obtain only 1.6 lb/day (26.5 lb * 6%) from the mature brome hay, as much as 1.4 lb less than her needs.

The mid-bloom alfalfa hay alone would meet her NEm needs and exceed her crude protein needs, whereas the mature bromegrass hay would not meet either. If the cow did not need to gain weight the mature bromegrass hay with a protein supplement would probably suffice. However, if the cow needed to add body condition the alfalfa hay with a high energy-low protein supplement such as grain corn might be advisable.

The cows' body condition at time of calving will dictate the level of additional nutrition she will need beyond that indicated above. If she was in a body condition of five to six then providing at least the minimum amount of what she needs should keep her in that condition with minimal loss in it. However, if her condition at time of calving was less than five it is important to provide her additional NEm and the appropriate amount of protein to allow her to gain condition. Thus, Ranchers need to recognize the body condition their cows are in, especially a few months prior to and following calving, and they need to know their livestock's nutrient needs and the quality of their feeds in order to formulate rations that meet those needs.

Ranchers whose cows don't calve until late spring still need to ensure that they have adequate forage – hay if range forage is short – along with a protein supplement, especially if the cows are grazing winter range. However, they can allow them to drop to a body condition four (not much lower) by calving but because they will be calving on young green grass their nutritional needs will more than be met and in many cases the cows will actually gain weight following calving being in a body condition six at breeding.

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Northeast Extension Connection

A quarterly report from Campbell, Crook and Weston County Extension Services

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