



BARNYARDS & BACKYARDS

UW Cooperative Extension Service  Profitable & Sustainable Agricultural Systems



UNIVERSITY OF WYOMING



U.S. Department of Agriculture Risk Management Agency

Our goal is to provide information on a variety of subjects

By Bridger Feuz

On behalf of the University of Wyoming Cooperative Extension Service and the Profitable and Sustainable Agricultural Systems (PSAS) Initiative Team, I welcome you to the fourth year of our efforts to provide you, the people of Wyoming, with a newspaper insert entitled *Barnyards & Backyards*.

This year's insert is our largest effort yet, with more information going out to more Wyoming newspapers and their readers. Our goal with this outreach effort is to share educational resources and information on a variety of topics of interest to you, our clientele.

Past Barnyards & Backyards inserts, as well as additional information, can be viewed at www.insuringsuccess.org. You can also catch our page titled "Barnyards & Backyards" in the *Wyoming Livestock Roundup* each month. The PSAS team hopes these inserts are beneficial, and we hope you enjoy reading them.

All articles are written by UW personnel, as well as other members of the PSAS Initiative Team, and address a variety of topics. I hope you will take the opportunity to contact any of the authors for additional information, and contact me to suggest future topics. I can be reached at (307) 783-0570 or brfeuz@uintacounty.com, or contact a local extension educator. Contact information is at <http://ces.uwyo.edu/Counties.asp>.

Ag Help Wanted: A New Tool for Managing Agricultural Human Risk

By James Sedman and John Hewlett

Production agriculture and agribusiness in Wyoming and the Intermountain West are inherently risky businesses.

One of the increasingly important aspects of production risk these businesses face comes with employees – especially in light of increasing competition from other industries in the region. Properly managing human resource risk, by recognizing employees as an important asset, should be a goal.

Ag Help Wanted: Guidelines for Managing Agricultural Labor is a new resource available to producers. The book was a joint effort of land-grant universities in seven Western states and one Canadian province. The effort included the University of Wyoming Cooperative Extension Service. Available in book form or online at aghelprawanted.org, this resource contains ideas, examples, and references for nearly every agricultural labor situation.

The book itself can serve ranchers, farmers, and other producers in several ways: it can be a quick reference for ideas in dealing with problems or situations that arise, it can be a source of new ideas for managers or owner/operators, and it can show numerous real-life examples of these ideas and principles in action. The book is organized in six chapters discussing the roles and responsibilities of the employer, organizational planning, staffing, supervising, managing employees, and communication and problem solving.

Planning, Implementing, and Communicating

Ag Help Wanted devotes significant space to the area of planning, both organizationally and individually. Presenting the overall organizational goals and objectives helps make defining goals for individual employees more straightforward as well as helps to diffuse problems before they start.

Planning and communication go hand-in-hand. Planning improves the ability of managers to effectively communicate with employees. The ability to staff and lead an organization becomes easier as goals are more clearly defined, which can also translate into greater employee effectiveness. Benefits are returned to both the employer and employee as productivity increases or costs decrease.

Ag Help Wanted outlines detailed strategies and examples for implementing management goals and objectives for employees. Practical guidelines for recruiting and training employees, as well as supervising and mo-

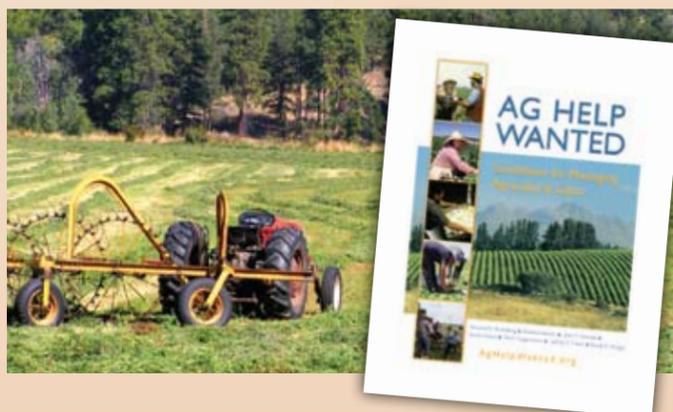
tivating, are discussed in the book. Communication plays a big role across most areas of interaction. Effective communication can mean the difference between successful businesses with happy employees and faltering businesses with failed objectives.

Numerous examples in the book illustrate concepts, suggest effective ways of avoiding or dealing with common problems, and provide points of comparison for readers reviewing their own operations. *Ag Help Wanted* also describes how farm and ranch employers have successfully applied labor management ideas to reduce risks or improve operational results.

For More Information

To access *Ag Help Wanted* online, visit aghelprawanted.org. The entire book and supporting references may be viewed at the site. For \$25/copy, a softbound version is available; a CD-based version is also available for \$10/copy. Orders for these materials may be made via the Web site. Additional information on the topics discussed in the book, sample forms and checklists, short case studies, and links to additional information may be found on the Web site as well. For more information on this and other risk management topics, visit the Western Risk Management Library online at agecon.uwyo.edu/riskmgt.

James Sedman is a consultant to the UW Department of Agricultural and Applied Economics, and John Hewlett is a farm and ranch management specialist in the department. Hewlett can be reached at (307) 766-2166 or hewlett@uwyo.edu.





Plant Select®, the perfect selection for rural gardens

By Donna Cuin

Rural residents often have many more environmental conditions to consider when selecting plants for their gardens compared to their urban counterparts.

Wind is an issue throughout much of Wyoming, but wind in rural areas can be much more brutal due to the windbreak effect of existing trees and larger buildings. Temperatures in Wyoming can plummet to extreme lows in the middle of winter, and rural residents don't have the urban heat sinks of concrete and asphalt and the many buildings surrounding an urban garden.

Another gardening roadblock that some rural residents face is the extreme lack of organic matter in the soils. Areas that have been gardened for years have improved soils due to the addition of organic matter through the gardening process. Newly planted rural areas have only the organic matter of the existing soils.

Many Wyoming residents feel the need to plant trees and shrubs to slow the wind and protect their homes and properties from the elements. Many do this by creating windbreaks, but many also desire to beautify their yards.

Plant Select® is a Colorado-based program that seeks out, identifies, and distributes the very best plants for landscapes and gardens in the Rocky Mountain region, including Wyoming. It offers plants to the horticul-



Pawnee Buttes sand cherry, *Prunus besseyi*

ture trade – and consumers through garden centers – that are either new introductions of varieties or recommendations of plants that have been available but not often used in landscapes.

These plants are selected for conditions just like the ones faced by rural gardeners in Wyoming, so here are some plants I believe rural gardeners should try. There are specimens of each of these varieties at the Agricultural Resource and Learning Center (ARLL) adjacent to the Central Wyoming Fairgrounds in Casper. The plants are exposed to the full force of Wyoming wind and receive minimal water now that they are established.

Hardy Trees

The first tree I would recommend is the Hot Wings Tatarian maple, *Acer tartaricum* 'GarAnn,' which was introduced in 2007. This tree is native to the Tatarian region of the Russian steppes. A specimen has been growing at the U.S. Department of Agriculture's High Plains Grasslands Research Station near Cheyenne since 1930. The plants growing at the arboretum have survived the conditions of the southeast Wyoming plains from 1974 through 1990 without any supplemental water or care. The Hot Wings variety is a beautiful tree because of its shape but especially because of its hot pink or red seeds throughout the summer growing season and the beautiful fall leaf color. The Hot Wings tartarian grows 15 to 25 feet tall and is hardy to Zone 3 and does well in most, if not all, of Wyoming' soils.

Another 2007 Plant Select introduction was the Clear Creek golden yellowhorn, *Xanthoceras sorbifolium* 'Psgan.' It is a small tree or large shrub, 18–22 feet. This especially hardy strain was developed at a nursery in Golden, Colorado. It has strikingly beautiful white and burgundy flowers in spring and develops a large, fuzzy seed that resembles kiwi fruit and contains several seeds the size of large gumballs. There is a specimen growing in Casper at the ARLC, but it may only

be hardy up to an elevation of 6,000 feet. According to Plant Select®, the plant is hardy in zones 5-9, but it is doing just fine here in Casper at the ARLC in Zone 4b.

Fernbush, *Chamaebatiaria millefolium*, 4-6 feet tall, zones 4b-8, was recommended in 2006. It is a somewhat unusual shrub in that the foliage resembles our native yarrow, but the flower is a cluster similar to that on many plants in the rose family. The foliage is fragrant, and seeds remain on the plant throughout the winter. The seeds provide winter interest by themselves, and, when snow collects on the seeds, the winter beauty is heightened. This native shrub provides protection for birds in the winter.

Apache plume, *Fallugia paradoxa*, 3–6 feet tall, zone 3, is a native of the Southwest and was recommended in 2002. This shrub is a member of the rose family, and the flowers and foliage resemble those of the potentilla shrub more familiar in Wyoming landscapes. The unusual aspect of the Apache plume is the soft, fluffy seed heads. Ripening seed clusters have feathery plumes attached. The plumes resemble feathers on Apache dance costumes. This plant is a must have for those who like unusual but hardy specimens.

Fruit Producer

The Comanche gooseberry, *Ribes uva-crispa* 'Red Jacket,' about 2 feet tall, zone 3, recommended in 2001, is the only fruit producer for humans I have listed here. It will provide fruit for jelly making and pies, and it also provides food for wildlife. The size of the fruit is much larger than other gooseberries, and the fruits are showy on the shrub. The flowers are nondescript, but the variety is also very disease resistant and has drought-resistant characteristics.

Cheyenne mock orange, *Philadelphus lewisii* 'Cheyenne,' 6-9 feet tall, zone 3, introduced as a Plant Select® plant in 2001, is a North

Mock orange



American native developed at the High Plains Grasslands Research Station. The Cheyenne variety of mock orange is a new variety that researchers bred and selected for larger flowers and drought resistance at the Cheyenne arboretum. A special feature of this plant is the 2-inch, very fragrant, stark white, four-petaled blossoms that develop in the early summer. The foliage is a wonderful contrast with bright to dark green glossy, almost leathery leaves, which make it very tolerant of drought conditions once established. The waxy coating on a leathery type leaf helps prevent water from evaporating or transpiring out of or off of the surface of the leaf.

Pawnee Buttes sand cherry, *Prunus besseyi*, 15–18 inches tall, zone 3, is a variety of the native western sand cherry and was introduced in 2000. In bloom, the plant is covered with white or light pink flowers that develop into heavy crops of dark or black cherries in fall that are accented by beautiful orange and red foliage. The fruit can be an attractant for wildlife.

Blue Velvet honeysuckle, *Lonicera korolkowii* 'Floribunda,' 8–12 feet tall, zone 3, was introduced in 1999 and is used as a windbreak around a seating area in our gardens at the ARLC. It has a very dense form, which helps break the force of the wind. They have beautiful fragrant pink flowers in spring and into summer followed by berries

that attract birds throughout the summer and into fall. The feature that gives the plant its variety name is the soft, fine hairs on the leaves, which give it a feeling of velvet and the blue-green coloring. Hairs on the leaves also help the plant conserve water, making it more drought tolerant. The hairy covering of a leaf surface holds moisture to the surface instead of releasing it right away to the atmosphere, keeping the leaves hydrated. It also cuts the amount of direct sun rays that reach the leaf surface preventing heat and sunburn damage to the leaf.

Butterfly Bewitcher

The Silver Fountain butterfly bush, *Buddleia alternifolia* 'Argentea,' 12–15 feet tall, zone 4, introduced in 1998, is my favorite of the Plant Select® varieties. It has wonderful blue gray foliage all year and develops entire branches of silvery lavender flowers in the weeks of the early summer. It definitely attracts butterflies to the garden while in bloom.

There are approximately 80 trees, shrubs, flowers, and groundcovers on the Plant Select® list, which can be found on the Web at www.plantselect.org. Plant Select is a program administered by the Denver Botanic Gardens and Colorado State University.

Donna Cuin is a horticulture program associate for the Natrona County University of Wyoming Cooperative Extension Service office. She can be reached at (307) 235-9400 or dcuin@natronacounty-wy.gov.



Rising input costs having large impact on cattle prices

By Bridger Feuz

Three major factors affect the market dynamics of the beef industry – the supply of beef, the demand for beef, and the status of beef trade.

Looking at each of these provides a better understanding of long-term market trends. One additional factor that also must be addressed is input costs.

Starting in 2004, the January 1 total cattle inventory experienced slow growth through 2006. The inventory increased at a rate of about 0.5 percent in 2004, 1.5 percent in 2005, and 0.3 percent in 2006; however, after three years of growth in total cattle inventory, 2007 inventory declined 0.3 percent. The number of heifers held as beef cow replacements actually declined by 3.5 percent in 2007. Drought conditions over many of the cattle producing states, including Wyoming and other Western states as



well as Texas and Oklahoma, along with increasing costs of production, are likely to blame for the decline.

The beef demand index, an index that adjusts for inflation and uses 1980 as the base year for comparison, bottomed out in 1998 at a 50-percent decline from 1980 levels but showed consistent growth through 2004, managing a 13-percent increase.

Much of this growth can be attributed to a positive image of beef quality and to consumer diets that encourage protein and discourage carbohydrates; however, in

2005, the demand index declined 2 percentage points and another 4 percentage points in 2006, or 43 percent below 1980 levels. The year 2007 saw a slight increase in demand over 2006 of 1 percentage point.

This recent decline emphasizes a constant need to focus on meeting the changing needs and requirements of consumers, especially as consumers see a tightening in disposable income.

Prior to the first incident of bovine spongiform encephalopathy (BSE) in the United States, Japan and South Korea were the two biggest importers of beef followed closely by Mexico and Canada. In 2006, Mexico and Canada returned to the pre-BSE import levels while beef exports to Japan and South Korea just started to return in 2006. The U.S. continues to focus on restoring these two important markets, but it remains a slow process

and could take a few years to return to pre-BSE levels.

Finally, one of the largest impacts on cattle prices at the end of 2007 was not supply, demand, or trade, but input

costs. The sharp increases in corn prices have had a direct impact on cattle prices and will continue to do so in 2008. With an increase in demand for corn from the growing ethanol industry, expect corn prices to remain strong for the next few years even with increased production.

With the cost of feeding cattle increasing due to corn prices, calf prices will be under the most pressure; however, with growth in beef cow herds stalling, feeder cattle supplies will remain relatively tight. If producers are able to retain calves longer with a cost of gain less than in the feedlot, they should be rewarded in the market by supplying heavier cattle to the feedlots.

Bridger Feuz is a University of Wyoming Cooperative Extension Service educator serving Lincoln, Sublette, Sweetwater, Teton, and Uinta counties and can be reached at (307) 783-0570 or brfeuz@uintacounty.com.



Savvy consumers seek locally grown products

By Hudson Hill

For Sale – Locally Grown.

Signs like this are popping up all over Wyoming and the United States.

Knowing where food is coming from and how it is produced seems to be the driving appeal of consumers looking for locally grown food. This new trend may allow people to purchase locally produced products through community supported agriculture projects, farmers' markets, and local roadside stores. Producers may also have additional opportunities to create financial opportunities for their business when selling locally.

There are many reasons to consider locally grown food. The fact is more and more people are choosing to support and buy food produced locally. Consumers who choose to purchase locally grown food are as diverse as the reasons for doing so. The following are some reasons for their choices.

The first is taste. Many buy and eat local products because they taste the way

the consumer wants them to. Many things factor into the way food tastes, and locally produced food may have a distinctive flavor. Locally produced food generally is harvested and sold in a much shorter time frame than food sold from a distance. Food produced locally does not have to be shipped long distances so the damage done through the transportation process may be minimized. Food produced locally is more likely to be produced in smaller quantities and harvested when flavor and texture is at maximum quality. The food produced in a person's local community may simply be food that person is accustomed to eating and therefore be the preferred taste.

Next, food safety — although the food supply in Wyoming is as safe as any in the world, food borne illnesses are still a possibility. One recent survey asked participants what food concerns they had. The areas of greatest concern were pesticides used in food, chemicals and other drugs, and the manufacturing processes. Food safety has be-

come a very important factor among some American consumers. Consumers may have more trust in a product they know was produced locally. Consumers have the ability to create a relationship with local producers and understand the process by which their food is produced. Trusting what they eat may be easier for people if they drive past the farm where the food is produced.

Open space and environmental awareness are two more reasons some consumers buy locally produced food. As more and more agricultural land is developed, residents of communities are realizing the connection agri-

culture has with open space. It would seem elementary if the community residents can help keep agricultural production profitable their community will benefit from open space agriculture provides. Also, people are becoming aware of a connection between food they eat and the effect production may have on the environment. Food that doesn't travel as far may use less non-renewable energy. The key element in this author's mind is the ability a consumer may have to create a relationship with a local producer and understand and have confidence in the stewardship the producer has

with soil, water, and air that is used to produce a product.

Evolving to a local marketing system may be a very natural step for many producers. It may help many, especially small-acre producers, create sustainability. It may meet the goals many producers have for their own lives and farms.

The products a person may find to purchase locally may range from apples and lettuce to milk and meat. Wherever one may choose to purchase food, it is important to realize the average American enjoys the safest, best, and least expensive food supply the world has ever known. Locally produced products may enable consumers to buy a product to fit their specific needs and are examples of another way American agricultural producers are helping consumers enjoy their food.

Hudson Hill is a University of Wyoming Cooperative Extension Service educator serving Lincoln, Sublette, Sweetwater, Teton, and Uinta counties. He can be reached at (307) 885-3132 or hrhill@uwyo.edu.





Using *A Lasting Legacy*: What will your legacy be

By James Sedman and John Hewlett

People involved in production agriculture know risk can take many forms. While price and production risks may be the first that come to mind, an equally important area of risk is estate planning.

For many, the thought of developing and implementing a comprehensive estate plan is daunting. An online interactive course titled *A Lasting Legacy* was developed as a resource for people in agriculture and rural communities to assist them in estate planning.

A Lasting Legacy, available from RightRisk.org, is a comprehensive planning course developed by extension educators from the University of Wyoming and Colorado State University. The course is designed for individuals to help determine what the legacy for their life, family, and (in many cases) business will be.

The Need for *A Lasting Legacy*

Well over two-thirds of farms and ranches in the United States are owned or controlled by individuals 46 and older, with more than half of the farms owned by people age 55 and older. This, coupled with the trillions of dollars of wealth that will be transferred over the next 20 years, shows the need for producers to have a sound estate plan. Defining your legacy, and therefore defining your estate plan, can provide comfort and security to your family and business as well as diffuse issues before they have a chance to become problems. It can potentially reduce the tax burden as well as legal and other



fees paid by surviving families.

Few events can negatively affect a family more than an unexpected loss of a family member in which little or no planning or communication of wishes had occurred. No matter what the age of the owner or manager, it is important to plan ahead for the legacy that will be left when they are gone.

What is *A Lasting Legacy*?

The *Lasting Legacy* course is a two-part interactive course designed to help users begin to think of their legacy in comprehensive terms. A legacy is not defined merely by material possessions left behind – it encompasses all facets of an individual's life and how he or she would like to be remembered. There are often numerous wishes, beliefs, history, and other parts of an individual's life just as important to pass on as material possessions.

Part one of the course involves defining and improving family and generational relationships, steps for transferring property, and steps to impart important life lessons and values. The corresponding course workbook includes a step-by-step process to define these values and relationships.

Part two of the *Lasting Legacy* course deals with the implementation of wishes to be fulfilled and the processes involved in transferring property such as real estate.

Getting Started with *Lasting Legacy*

To begin defining a legacy, simply log on to RightRisk.org, and select *A Lasting Legacy* Course #1 from the Products link near the top left of the page. From there, follow the online lessons, which are available with audio accompaniment. The course workbook is available for download as well as viewing during the lessons. Simply click the workbook link.

Families or anyone seeking to start developing their legacy are encouraged to visit RightRisk online at rightrisk.org and view the interactive courses. Course materials are also available in a CD-based version. E-mail information@rightrisk.org for information on ordering.

For further information on this and other risk management topics on the Web, visit the Western Risk Management Library at agecon.uwyo.edu/RiskMgt.

James Sedman is a consultant to the UW Department of Agricultural and Applied Economics, and John Hewlett is a farm and ranch management specialist in the department. Hewlett can be reached at (307) 766-2166 or hewlett@uwyo.edu.



Start today by defining your legacy

Estate and end-of-life planning are often essential to the financial survival of a farm or ranch business. Well-formed plans can help mitigate potential taxes and liabilities.

Proper planning is essential for a smooth transition to surviving family members – especially areas such as reducing financial risks, emotional stress and hardship, and defining the legacy of the deceased.

A legacy may be defined as more than an individual's material possessions. A legacy includes beliefs, wishes, values, and, in some cases, maintaining family history as well. The *Lasting Legacy* course available online from RightRisk.org can be a valuable resource for agricultural producers and others who wish to thoroughly define their estate plan and wishes. *A Lasting Legacy* is a two-part course designed to help people define their legacy and provides the resources and methods to do so.

Define Your Personal Information and Your Family Relationships

It may seem trivial, but an important first step in the *Lasting Legacy* course is recording your personal information. Worksheets provided in the workbook range from basic information such as education and family history to medical history and genealogy. Beliefs and values are defined as well as important family traditions. Personal possessions are recorded at the end of the first chapter. This personal information serves as the basis and foundation for the balance of the end-of-life plan.

Once this information is completed, the course moves to defining and improving family and intergenerational relationships. It is an important theme in the course that family decisions and meetings are at their best when communication is open and honest. First, review who is and should be involved in the decision-making process. Family meeting rules and guidelines should be agreed upon,

and a meeting coordinator should conduct each business meeting.

Transferring Property and End-of-Life Considerations

Once family meeting guidelines have been set, decisions about transferring real and titled property can be made. One of the most important decisions to be made in this step is choosing a trusted professional (lawyer or estate planner) to properly allocate assets. The *Lasting Legacy* workbook covers a series of property and asset lists in this chapter, including who will receive them. Plans should be made for dealing with property that has associated liabilities, such as mortgages on real estate. End-of-life considerations are dealt with in the next chapter. These range from medical decisions, last wishes, ceremony preferences, and even care of animals and livestock. Putting these decisions into writing can save an enormous amount of headache for the surviving family later.

For more information

Further references for estate and tax planning, as well as funerals and other considerations, are provided in the *Lasting Legacy* workbook. These references and guides can further assist in the end-of-life planning process. To access *A Lasting Legacy* online, visit RightRisk.org and click Lasting Legacy under the Products link. From there, follow the online prompts; the workbook is available for download within the course as well.

Families or anyone seeking to start developing their legacy are encouraged to visit RightRisk online at rightrisk.org and view the interactive courses. Course materials are also available in a CD-based version. E-mail information@rightrisk.org for information on ordering.

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Cow nutrient requirements during and after calving critical for success

By Steve Paisley

As many ranches are either in the middle of or approaching calving, adequate nutrition is critical.

From pre-calving through breeding, the cow's nutrient requirements (especially energy and protein) are at their highest, while cold weather and wind only add to the energy demand. Maintaining cattle in good nutrition through calving is critical for good breeding success in the spring.

The following list describes factors that have a definite impact on a cow's overall requirements.

1. Cow size, or weight. As hay and grain prices remain high, range-based operations will continue to look for ways of reducing ranch feed expenses. One of the first items many operators consider is actual cow size. As Table 1 describes, cow requirements obviously increase as cow weight in-

Table 1. Impact of stage of production and cow weight on energy (TDN) requirements.

Daily energy requirement, Requirement, lb TDN	Cow Mature Weight, lbs		
Stage of Production	1,000	1,200	1,400
Dry	9.1	10.5	11.8
Last 1/3 Gestation	12.0	13.8	15.6
Early Lactation	15.2	16.7	18.0
Late Lactation	12.3	13.7	15.2

creases. While the cow's total feed requirement can be reduced by decreasing frame size and mature weight, there are also potential sacrifices in feedlot average daily gain and final carcass weight for those who retain ownership.

2. Stage of production. As Table 1 and Figure 1 illustrate, cow requirements change dramatically depending upon what stage of production the cow is in. Energy requirements, as illustrated in Figure 1 by the red line, increase by approximately 30 percent as cows transition into late

gestation and then by an additional 30 to 35 percent during early lactation. Although there are many factors to consider, many range-based operations have either studied or adopted a later calving season to better match their cows' requirements with the quality and availability of forage that naturally occur in late spring. Regardless of operation or calving season, recognizing and adjusting the nutrition program to match requirements during calving is critical.

3. Age. An often-overlooked factor that can dramatically affect feed requirements is age. Younger cows, especially first-calf heifers, are continuing to grow and mature while competing for feed with mature cows and producing their first calf. Producer surveys and case studies suggest this group of younger cows has poorer (lower) body condition and are more difficult to get re-bred. Adjusting management by managing younger cows separately or with older, thinner cows will help keep these genetics in the herd.

4. Weather. My impression is that, comparatively, this winter has been "harder" than the last five or six winters, statewide and has reminded all of us what tremendous impact weather can have on a cow's ability to maintain weight. As wind chill (a combination of wind speed and temperature) drops below 20 degrees F., the cow must expend additional energy to maintain her own body temperature. For each degree drop below 20° wind chill, the cow's energy requirement increases by 1 percent; therefore, a -10° wind chill means an unprotected cow requires 30 percent more energy above her normal requirement to maintain weight.

5. Body condition. Maintaining adequate fat cover going into the fall is an important management consideration for the herd. Thin cows, because of reduced fat cover and lack of insulation, require an additional 1 pound of hay during the winter just to maintain weight.

6. Level of milk production. Similar to size, as milk production increases, the cow's energy requirements also increase. Table 2 suggests that, as milk production increases

from 10 to 20 pounds, energy requirements during early lactation increase by 30 percent. It is important to keep in mind that selecting for lower milk production ultimately reduces a mother cow's energy and feed requirement, but it also will negatively affect fall weaning weights of the calves and, therefore, potential income.

7. Additional considerations. Other factors that can impact energy requirements include: a) internal parasite load, which affects the ability of the cow to absorb and utilize nutrients in feed and forage, b) conditions of the feeding area – deep, muddy lots can impact the cow's performance, c) Method of feeding, and amount of hay waste.

Recognizing changes and factors affecting nutrient requirements, while also analyzing and balancing rations to match feed requirements, can have a dramatic impact on efficiently utilizing feed resources and reducing feed costs while maintaining adequate cow nutrition.

Steve Paisley is the beef cattle specialist with the University of Wyoming Cooperative Extension Service and can be reached at (307) 837-2000 or spaisley@uwyo.edu.

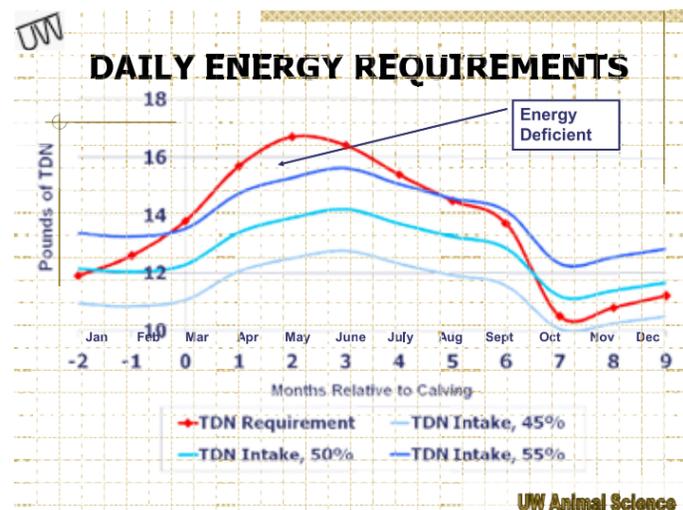


Figure 1. Daily TDN requirements for 1,200-pound cow with average milk production.

Table 2. Impact of milk production on TDN requirements.

TDN req. peak lactation	1,200-lb Cow
10 lbs. milk production	13.9 lb TDN
20 lbs	16.7 lb TDN
30 lbs	19.3 lb TDN



Raise specialty fresh cut flowers

By Karen L. Panter

Specialty fresh cut flowers? Wondering what these might be? Let's try to define them.

In horticultural circles, these are just about any type of cut crop you can think of besides roses, carnations, and chrysanthemums. Specialty cuts can be herbaceous, like annuals or perennials or even bulbs, or they can be woody plants, usually shrubs. Many are grown in greenhouses or in other types of protected cultivation. Quite a few are field-grown – the focus of this article. Many share the common characteristic of not shipping well. One of the best markets for many specialty cuts is local retail outlets.

Financial returns depend on many variables (flower type, stem length among them) and are very hard to predict. There is an organization dedicated to specialty cuts: the Association of Specialty Cut Flower Growers (www.ascfg.org). ASCFG provides conferences, publications, and many other resources for those interested in growing and marketing specialty cut flowers.

Prep work

For successful production of field cuts, good quality soil and water are essential.

Soil should be tested to determine pH, salt levels, and nutrient content before planting anything. The pH should be as close to 7 or neutral as possible. Most Wyoming soils have higher pH levels, and good quality organic matter, such as peat moss or coconut coir, should be added and tilled in before planting. Coconut coir behaves much like peat moss and is available through many online horticultural supply companies or larger garden centers. It is a bit more expensive than peat moss. Compost tends to be variable,



but commercially produced types can be used. The University of Wyoming College of Agriculture provides soil testing services. The standard test is \$20, which includes pH, salts, organic matter, phosphate-phosphorus, nitrate-nitrogen, lime, and texture. There is a \$4 fee for additional tests. The lab can be reached at (307) 766-2135, or e-mail the director of the lab, Kelli Belden, at soiltest@uwyo.edu.

A good quality water source is critical as is good water quantity. Water should be as low in salts, sodium, and particulates as possible, largely because these will clog drip irrigation systems, which are recommended for growing these crops. A water test is highly recommended. The Wyoming Department of Agriculture Analytical Services Laboratory can handle such tests [(307) 742-2984]. Information and fee schedules can be found on its Web site at wyagric.state.wy.us/divisions/aslab.htm.

Optimum production of fresh cut flowers depends on regular irrigation; natural precipitation levels in Wyoming are not high enough to sustain good production. Also remember fertilization, which can be accomplished by "fertigation" – adding fertilizer in with irrigation water – or by using any number of other types, including

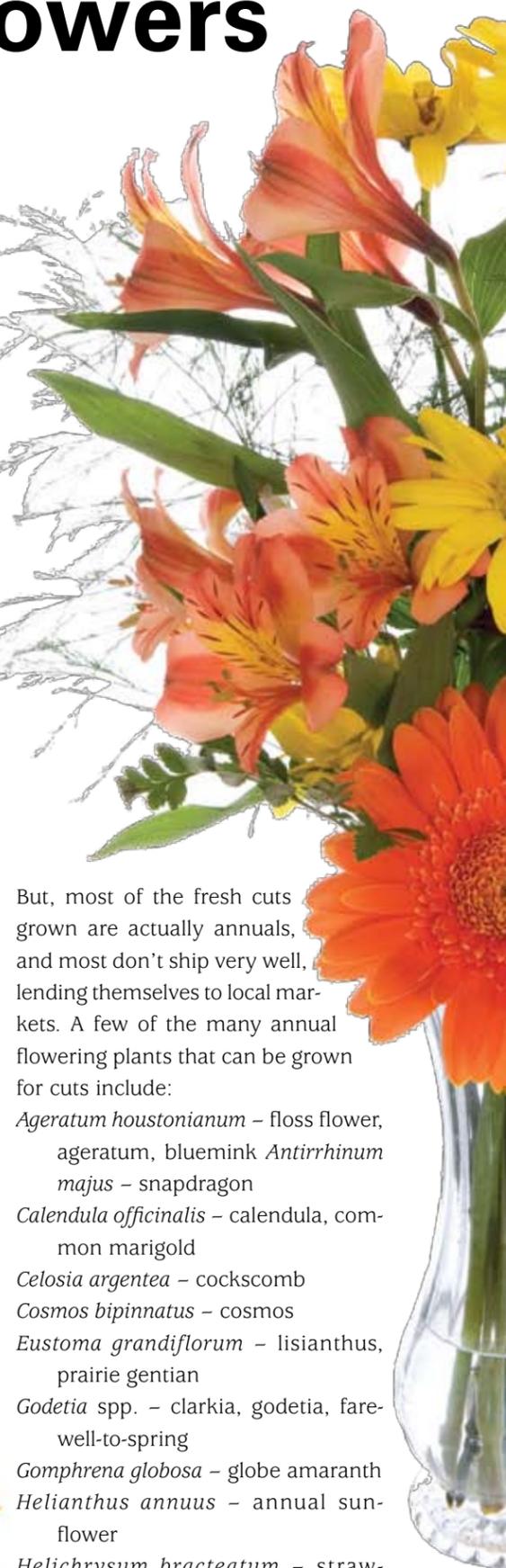
slow-release. The type and amount of fertilizer to use depends on several factors: soil test results, water analysis results, and plant species.

Spaces between rows of plants should be just wide enough to walk and kneel comfortably – 18 inches is usually sufficient. Space between plants is entirely dependent on the species being grown so no general rules can be offered.

Annuals

Let's start with herbaceous flowering annuals. Many of these are well-suited to use as cut flowers, despite the fact they only are in the ground one growing season. Many are routinely grown from seed while others can be purchased in "plug" form – trays containing individual seedlings called "plugs." Specialty propagation greenhouses sow the seed and grow the plugs to a saleable stage. These are more expensive to purchase than seeds, but if you sow and grow your own seedlings you will need germination facilities. These facilities need not be fancy, but some mechanism for misting is needed as well as special trays for sowing seeds. Temperature control is also crucial for seed germination. Seeds can also be sown directly in the field, but most of Wyoming suffers from short growing seasons, and this method may not allow for full plant development prior to fall frost.

Annuals also have the disadvantage that soil must be prepared each season, beds must be weeded, planting must be done each year, and dead plants must be removed in the fall.



But, most of the fresh cuts grown are actually annuals, and most don't ship very well, lending themselves to local markets. A few of the many annual flowering plants that can be grown for cuts include:

- Ageratum houstonianum* – floss flower, ageratum, bluemink
- Antirrhinum majus* – snapdragon
- Calendula officinalis* – calendula, common marigold
- Celosia argentea* – cockscomb
- Cosmos bipinnatus* – cosmos
- Eustoma grandiflorum* – lisianthus, prairie gentian
- Godetia* spp. – clarkia, godetia, farewell-to-spring
- Gomphrena globosa* – globe amaranth
- Helianthus annuus* – annual sunflower
- Helichrysum bracteatum* – strawflower

Alternative crop risks – ensure your

By Bonda Habets

Whether you want to grow a new crop (camelina, switchgrass) or an existing crop (canola, sunflowers) not typically grown in your environment, be prepared to address the risks to ensure success.

Agricultural producers look for the golden egg – that niche to bring more money into the farming or ranching operation. It requires little money to start, little labor, and produces lots of money. It is not that it can't

happen, but it takes more than luck – being prepared.

Being prepared takes planning. You will need a good pencil and eraser, a calculator, and a piece of paper to calculate the pros and cons of your great idea. Put a "warning statement" at the bottom of your page "WARNING: If it looks good, and it sounds good, it still may not be good." There are many enterprising people out promoting their niche! If you want to take the risk, do so on

a small scale that won't hurt much financially if the idea doesn't work.

Let us step backward from the end product and review the steps. Your best piece of ground was used to give it a good try. You had a contract that or buyer who bought your product for the guaranteed price in the time allotted. Delivery was within the set time and the amount of storage needed was adequate. You had the equipment to get the product produced, harvested, and delivered.

You had mentoring from another grower to guide you through the development of your product. There were hurdles but, with help, they were jumped. There were good working relationships developed, and it was a rewarding experience.

The idea was a success because your plan was executed as developed. The unexpected was planned for. You were ready! Your product may have been a new specialty crop, a new cropping rotation,





One of the best markets for many specialty cuts is local retail outlets.



flower beds is somewhat different than annuals. Soil preparation must be taken care of before planting because plants will be in the beds for several years. This makes additions of amendments very difficult after plants are established. Addition of at least three inches of good quality compost or other organic matter will help. Till it in to a depth of at least 6 inches – deeper if possible. Weeds should be pulled since they compete with flowering plants for water and nutrients. Irrigation and fertilization can be handled the same way as for annuals.

Some types to try, hardy to Wyoming's climate, include:

Achillea spp. – yarrow (there are several species)

Asclepias tuberosa – butterfly weed

Catananche caerulea – cupid's dart

Delphinium – delphinium

Dianthus barbatus – sweet William

Digitalis purpurea – foxglove

Echinops bannaticus – globe thistle

Limonium spp. – statice, sea lavender

Lychnis chalcedonica – maltese cross

Lysimachia clethroides – gooseneck

loosestrife (unlike its cousin purple loosestrife, gooseneck loosestrife is not a noxious weed).

Paeonia hybrids – peony

Phlox paniculata – summer phlox

Scabiosa caucasica – perennial scabiosa, pincushion flower

Sedum hybrids – sedum, stonecrop

Solidago hybrids – goldenrod

Veronica spp. – veronica

Veronicastrum virginicum – Culver's root

Underground bulbs, corms, rhizomes, and tubers

Many excellent cut flowers are in this category, including tulips and iris. Pre-planting tasks include those of perennial plants because plants in this

category will be producing for several years. Irrigation and fertilization can be accomplished as for perennials. Some species to try include:

Allium spp. – ornamental onion

Dahlia hybrids – dahlia

Iris hybrids – iris

Liatris spicata – gayfeather

Lilium hybrids – lilies

Narcissus spp. – daffodil

Tulipa spp. – tulip

Woody Plants

Lastly, many species of shrubs and small trees can be grown for their flowers, foliage, and/or fruit. Preparation for planting should be similar to perennials, keeping in mind these plants will need quite a bit of space. Many reach several feet tall and wide over their lifetimes, and space will be at a premium. Make sure plants tried are hardy to at least USDA Zone 4.

Types to try include:

Cornus spp. – dogwood

Euonymus alatus – euonymus

Ilex verticillata – winterberry, coralberry

Lonicera spp. – honeysuckle

Prunus spp. – ornamental plum, cherry

Salix spp. – willow

Spiraea spp. – spirea

Symphoricarpos albus – snowberry

Syringa spp. – lilac

Viburnum spp. – viburnum

Postharvest care

Stage of flower opening for cutting depends entirely on the plant. Some flowers, like lilies, will open even if cut when the buds are still closed. Others, like roses, will not open unless petals are starting to unfold. For all, though, postharvest care is crucial.

A good supply of clean five-gallon buckets will help. Harvesters will also

need a pair of clean, sharp pruners or a good horticultural knife. After cutting, stems should be placed immediately in buckets of lukewarm water. Some grading will need to be done, separating out poor quality, unsalable flowers from better quality ones. Like harvest times, grade standards vary among crops.

After grading, flowers should be set in buckets of lukewarm water containing some type of floral preservative. Preservatives provide carbohydrates for the cut stems to utilize as they mature. They also provide anti-bacterial and anti-fungal ingredients to keep the water clear. Fungi and bacteria can clog stems' vascular systems, keeping the stems from taking up water, and shortening vase life. Floral preservatives can be purchased from many online floral and horticultural supply companies as well as local florists.

After placing stems back in water, cooling them to prolong postharvest life is helpful. A large refrigerator or walk-in cooler will work. The temperature in the cooler should be about 40 F. From there, flowers can be transported, preferably at temperatures between 40 to 60 F, to market and sold.

Karen Panter is the University of Wyoming Cooperative Extension Service's state horticulturist. She can be reached at (307) 766-5117 or kpanter@uwyo.edu.



stakes in the game

an organic product, carbon sequestration credits, etc.

The basic key considerations were addressed up front. You didn't just gamble that it could work! The product was adapted in your area. The adaptability was dependent on adequate available moisture, altitude, soil types, temperature, elevation, and growing season.

Management analysis: You knew the estimated costs of production and the added cash out-flows; your banker

was on board with a modified line of credit; you were reasonably sure of expected expenditures; this new enterprise will benefit your cropping system and rotation; and you had a marketing plan. You also had an experienced mentor to guide you.

Marketing requirements: You understood the standard or grades of quality the product should attain; storage was available and will preserve the quality of your product; transportation was budgeted

and vehicles were available; you knew what processing or packaging was necessary; and you knew the nearest cash buyer and competition for your product. Best of all, you had an advance sales contract. Remember: there's more to a contract than just price! Contracts are binding on both parties.

Production inputs: You had the moisture requirements (precipitation and/or irrigation) available and timely. You knew the fertil-

ity needs and could address them; you met the machinery needs (preplanting, harvesting, and tillage requirements); you were ready and knew it required more attention, patience and labor; your weed, insect, and disease management were in control.

Now that you have gone through a year of production, take a good look at the plan. Before making a judgment of nay or yea, you should repeat this production three years. Success could have been due

to the weather or other anomaly. Was the extra labor, frequent scouting, stress of timely harvesting, special storage facilities, and more marketing effort worth the extra demand of time and expense? Was the challenge interesting, rewarding, and, hopefully, a financial success?

Bonda Habets is a state agronomist with the Wyoming Natural Resources Conservation Service in Casper and can be contacted at (307) 233-6767 or bonda.habets@wy.usda.gov.



AgrAbility project helps producers with limitations or disabilities keep farming and ranching

By Amanda Hearne
and Randy Weigel

AgrAbility.

Interesting word – great meaning. Take “agriculture” and mesh it with “ability.” A disability in agriculture doesn’t have to mean the end of a way of life.

AgrAbility provides education, networking, and assistance to ranchers, farmers, agricultural workers, and their families who have limitations or disabilities and want to continue ranching and/or farming.

Farming and ranching is notably one of the most dangerous occupations. In Wyoming, the major industry with the highest nonfatal occupational injury and illness rate is agriculture.

An estimated 288,000 workers in agriculture nationwide between the ages of 15 and 79 have a disability that affects their ability to perform one or more essential tasks.

The 1990 Farm Bill authorized the AgrAbility program and then reauthorized

it again in 2002. One of the requirements is that partnerships must be established between land-grant universities, including the University of Wyoming, and a non-profit organization that helps people with disabilities.

Beginning in 2006, the UW Cooperative Extension Service partnered with the Wyoming INstitute for Disabilities and the Center for Rural Health Research and Education at UW, Gottsche Rehabilitation Center in Thermopolis, and Wyoming Independent Living Rehabilitation Inc. in Casper to provide services for ranchers and farmers experiencing injury or disability. Through this partnership, Wyoming AgrAbility pools resources of occupational therapists, independent living specialists, assistive technology specialists, and agricultural production professionals to provide the best possible advice and services.

The Wyoming AgrAbility project provides information



and referral services, training for rural professionals, technical assistance and assessments, education, and peer-support.

Wyoming AgrAbility staff members are also available to visit a ranch or farm and provide suggestions on adaptations and accommodations to the work environment, ideas to make the work site more accessible, job restructuring recommendations, equipment modification ideas, and recommendations concerning agricultural adaptive devices, such as equipment lifts.

Wyoming AgrAbility is available to any individual engaged in agriculture who has a limitation, injury, or disability or a family member with a disability including, but not limited to, arthritis, heart disease, diabetes, spinal cord injuries, amputations, acquired brain injury, age-related conditions such as hearing/vision impairment, or disabilities present at birth.

In Wyoming AgrAbility, farming and ranching is broadly defined as cultivating, operating, or managing a farm for profit. A farmer/rancher is anyone actively

engaged in farming or ranching, deriving income from agricultural activities or retired from farming or ranching. It includes individuals who want to work in agriculture and family members of farmers or ranchers. Agricultural activities can include raising stock for food or fiber, dairy, poultry, fish and fruit, providing range or pasturage, and growing and harvesting forages, crops, grains, and horticultural products.

The Wyoming AgrAbility project strives to help individuals increase their ability to perform current or new work tasks, inform consumers on secondary injury prevention, and increase independence at home and in the community.

If you would like an AgrAbility staff member to visit your operation or know of someone who could benefit from this program, contact us toll-free at (866) 395-4986, e-mail AgrAbility@uwyo.edu, or go to the AgrAbility Web site at www.uwyo.edu/agrability.

Grain Bin Safety

By Sandra Frost

Grain bins are becoming more prevalent on U.S. farms as producers raise more corn for ethanol fuel production.

Some Wyoming producers are considering adding grain bins to their operation in order to increase profits for small grain, corn, and malt barley.

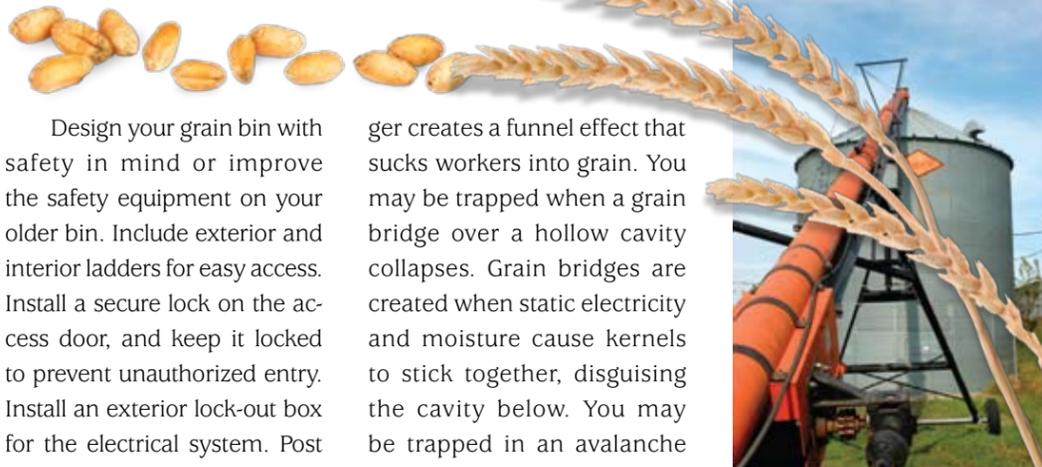
The Occupational Safety and Health Administration (OSHA) regulations cover safe operation of grain elevators but not grain bins on farms with fewer than 10 employees. The Wyoming OSHA office helps ensure all workers in the state have safe and healthful working conditions free from recognized hazards, including hazards in and around grain bins. Thoughtful planning and careful work habits can help prevent injuries.

There are several styles of grain bins, including low-profile bins 12 to 13 feet deep, deep bins 17 to 18 feet deep, and hopper-bottom bins of varying sizes. Grain bins are not static structures; they have moving parts that may

include loaders, augers, power sweeps, fans, dryers, heat recyclers, aerators, and ventilators. Once a bin has been filled with grain, producers typically inspect the stored grain every two weeks to check on grain condition and potential insect problems.

All the moving parts contribute to safety risks during inspection.

There are physical properties of a pile of grain that also contribute to safety risks. When a pile of grain has a depression in the center from auger action, grain against the outside walls may be at the angle of repose or steeper. Any disturbance of the grain will cause an avalanche down onto the worker.



Design your grain bin with safety in mind or improve the safety equipment on your older bin. Include exterior and interior ladders for easy access. Install a secure lock on the access door, and keep it locked to prevent unauthorized entry. Install an exterior lock-out box for the electrical system. Post signs warning of entrapment hazard on bin exterior walls.

Cleanliness will help promote a safe working environment around a grain bin. Clean aeration ducts, augers, and floors. Sweep or vacuum bin walls and floors. Clean dust off of ducts and fans. Remove weeds, trash, and moldy crop from inside and outside the bin. Clean, inspect, and replace aeration equipment and dryers before the bin is filled.

The most common source of insect infestation is old grain. If needed, treat cleaned bin walls and floors with insecticides while the bin is empty.

Three kinds of entrapment may happen in a grain bin. You may be trapped by flowing grain because the au-

ger creates a funnel effect that sucks workers into grain. You may be trapped when a grain bridge over a hollow cavity collapses. Grain bridges are created when static electricity and moisture cause kernels to stick together, disguising the cavity below. You may be trapped in an avalanche of grain piled steeply next to exterior walls.

Enter a bin only if you know its management history and if you are not alone. Shut off and lock out power before entering a bin. Do not enter while loading or unloading grain. Work from the top of a bin down, and wear a body harness attached to the top of the bin.

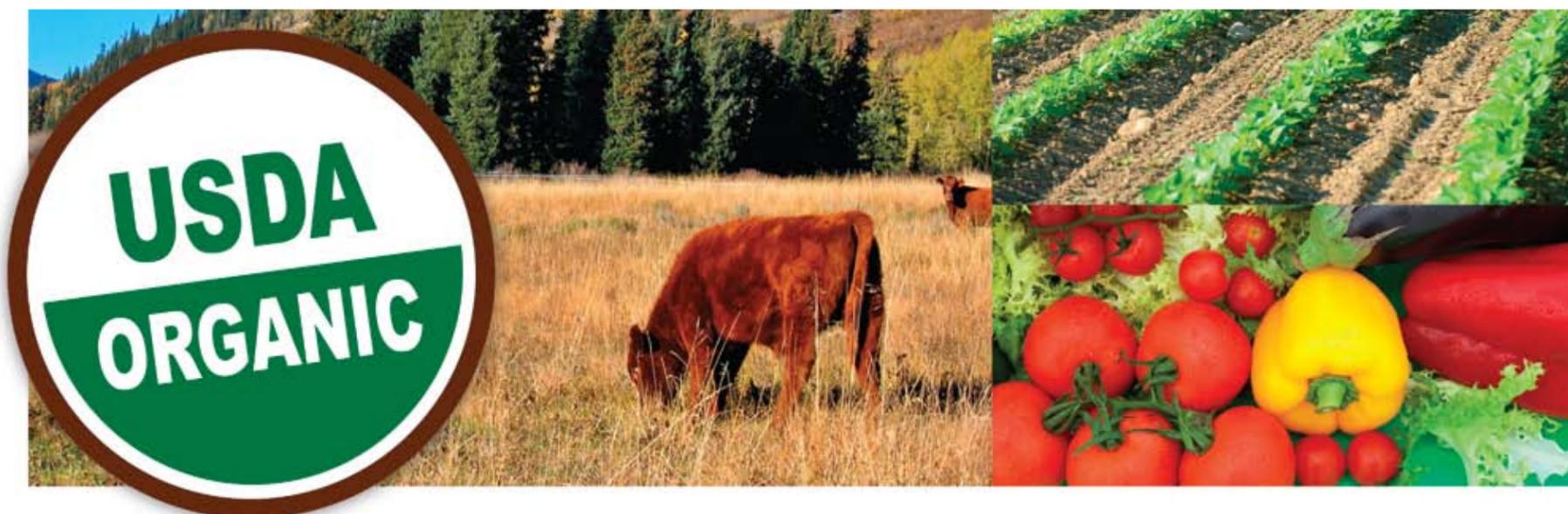
Wear a dust filter respirator while in the bin. The filter should be approved by the National Institute for Occupational Safety and Health. If grain has not been removed, an inverted cone in the middle of the bin should be visible. If grain has been removed, a flat area or depression and a shiny surface on the side of



the bin should be visible. If you do not see these signs, the surface may be crusted over and be unsafe to enter.

Preventing accidents is the best safety plan. Lock out power sources before entering a grain bin, work from the top down, wear a body harness, have an inside ladder for escape, and never work alone. For further information, contact the Wyoming OSHA in Cheyenne at (307) 777-7786 or visit <http://wydoe.state.wy.us/doe.asp?ID=7>.

Sandra Frost is a University of Wyoming Cooperative Extension Service educator serving Big Horn, Hot Springs, Park, Washakie and Fremont counties. She can be reached at (307) 754-8836 or sfrost1@uwyo.edu.



Organic and Natural – What Are They?

By Sandra M. Frost

A small sector of Wyoming livestock and crop producers are choosing natural and organic production methods for improving profit margins.

Natural beef is produced to fit into a branded beef program. The owner of the brand sets the requirements and is responsible for regulating compliance. The U.S. Department of Agriculture (USDA) requires only three things to use the term “natural” on a label: 1) the product must be minimally processed, 2) the product cannot contain any artificial ingredients, and 3) the product cannot contain any preservatives. There are no restrictions on management practices during the life of the animal.

Organic is a labeling term that refers to an agricultural product produced in accordance with the Organic Foods Production Act of 1990 (OFPA), as amended. The act required the USDA to develop national standards for organically produced agricultural products. The National Organic Program actually establishes the standards for organic production.

Organic production responds to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. Farmers planning to market their crops or livestock as organic must prove to consumers they follow organic guidelines through a certification process. The organic industry uses a process called third-party certification. A third-party, an organic certifying agent, evaluates produc-

ers, processors, and handlers against an established set of operating guidelines called organic standards, which are part of the National Organic Program regulations. Those who conform to the standards may use the agent’s logo, product statement, or certificate to document their product as certified organic.

Farming organically involves fundamental adherence to two principles: ecological production and maintaining organic integrity. Ecological production involves using methods and materials that enhance soil, water, and ecology resources. A farmer maintains organic integrity when he avoids contaminating organic production with prohibited compounds or non-organic farm products. Prohibited materials, those on the National List of Allowed and Prohibited Substances, may not be used for three years before a farm can be certified organic.

A producer may use the following steps to become a certified organic operation: 1) Identify a suitable certifying agent. This may be a state or private agent. Currently, there are no organic certification agents in Wyoming, and producers must bring in certified inspectors from California, Montana, and Nebraska. 2) Read and conform to the agent’s standards. When ready, submit an application to the agent. 3) The agent reviews the application, farm history, farm maps, and organic farm plan. 4) The agent will conduct an on-farm inspection. 5) The agent conducts a final review of the inspection report, application, and organic farm plan.

If certification is granted, the farmer can market his products as organic and may use the agent’s or USDA organic seal. There is one exemption to the certification process. A producer who markets less than \$5,000 of organic products annually is not required to become certified, although they may want to anyway. This producer may label his product as organic but not as certified organic. Nor may the producer use any organic seal on packaging.

The Wyoming Business Council (WBC) offers organic certification cost share program reimbursement grants for Wyoming organic producers and handlers to offset the costs associated in becoming organically certified. The organic certification grant program is a reimbursable grant, and the applicant must have paid all expenditures before the grant award is disbursed. Producers and handlers receive up to 75 percent of their organic certification costs, not to exceed \$500. For information regarding this opportunity, contact John Henn, WBC livestock and meat marketing program manager, at (307) 777-2847 or e-mail him at john.henn@wybusiness.org.

Crops and livestock are raised to meet various consumer market demands. Organic standards for meat, milk, and eggs require that animals must be raised under organic management from the last third of gestation, or no later than the second day of life for poultry. Feed must be 100 percent organic. Vitamin and mineral supplements are permitted.

Animals may be treated with vaccines but not antibiot-

ics or hormones. Meat labeled natural meets standards that differ from organic standards. According to the USDA Food Safety Inspection Service, all fresh meat qualifies as natural, but those labeled natural cannot contain any artificial flavor or flavoring, coloring ingredient, chemical preservative, or any other artificial or synthetic ingredient, and the product must not be more than minimally processed. Some beef is promoted as natural because cattle were not exposed to antibiotics or hormones and were raised on a range instead of being finished in a feedlot.

Further, the USDA Agricultural Marketing Service, in its Livestock and Seed Program, conducts a Process Verified Program, which tracks the age and source for cattle brought to slaughter. Consumers are able to trace meat to its source producer.

The WBC established the Wyoming Verified Natural program, which employs a third-party certifying agent to verify cattle carrying the Wyoming Verified Natural claim have never had antibiotics or growth hormones and are on an all-vegetarian diet without animal byproducts. These standards meet the criteria of nearly every natural meat company. Participation in the program involves annual on-site inspections and the use of radio frequency identification tags for individual animal identification.

Not all organic products are equal. Retail products may be organic to different degrees that are reflected in the labeling. A “100-percent organic” product must contain 100-percent organically produced



ingredients. An “organic” product must contain not less than 95 percent organically produced ingredients. A multi-ingredient product labeled “made with organic ...” must contain at least 70 percent organically produced ingredients. Consumers looking for organic and natural products must read labels carefully.

Producers who are considering entering the organic market can find specific information from the sources listed here:

- National Organic Program: www.ams.usda.gov/nop/
- Appropriate Technology Transfer for Rural Areas: www.attra.ncat.org
- Wyoming Business Council: www.wyomingbusiness.org/ag/ag_organicnatural.aspx
- Wyoming Beef Cattle Listing Service: www.wyobeef.com

Sandra Frost, a University of Wyoming Cooperative Extension Service educator for crops in the Northwest Area, can be contacted at (307) 754-8836 or sfrost1@uwyo.edu.



Enterprising Rural Families: Making it Work

By James Sedman and John Hewlett

Production agriculture and agribusiness is often a family activity. Many great ideas for products, niche marketing, and enterprises have begun with the family business unit.

An online resource has been developed for those interested or involved in a family business entitled *Enterprising Rural Families: Making it Work*. It is available at erurfamilies.org.

This comprehensive, online resource focuses on how to combine the needs, values, and visions of family members into an effective family enterprise system. *Enterprising Rural Families* – developed by a team of professionals with the University of Wyoming Cooperative Extension Service, Lifeline Australia, and the British Columbia (Canada) Ministry of Agriculture and Lands – combines visual, audio, and written materials, along with shared experiences of students.

The Purpose of *Enterprising Rural Families*

Enterprising Rural Families courses were developed to provide families with the tools and skills they need to deal with challenges, both current and long term, and build business resilience. Not everyone starting a family or home business has had formal (or informal) business training; these courses were designed to help families apply proven management principles to their enterprises. They help families



apply business skills such as thinking proactively, analyzing critically, managing profitable enterprises, recognizing potential, and acting on opportunities with confidence.

Enterprising Rural Families presents the four systems of the family business, including: the individuals, the family unit, the business enterprise, and the surrounding community. Each of these four systems overlaps to create a complex environment in which the family enterprise operates. *Enterprising Rural Families* helps families discover how well their business functions within that environment, as well as assess their balance across the component systems.

Enterprising Rural Families Course Material

Two, CD-based courses provide the foundation of *Enterprising Rural Families* material. The first is entitled “Strategic Management and Goal Setting,” and the second is called “Resource Inventory.” These courses are also available online at no cost.

In the first, participants focus on the question of roles and responsibilities of family members in the family business and how these may change over time. Alternative theories of family business are discussed, as well as the characteristics of example family businesses. Participants learn how family businesses are unique compared to other forms of business. A process for strategic management is presented, including writing a mission statement, setting strategic goals, and other steps in the planning process. Families are encouraged to set realistic goals and objectives for themselves and their businesses.

The “Resource Inventory” course focuses on discovering what resources the family enterprise has to draw from, including: individual, family, and business system resources. How detailed the inventory should be depends on the importance of each system in relation to the family enterprise. The course not only provides the background needed to develop an in-depth inventory for each system of a family business but also provides the tools and worksheets needed to get started.

Twenty-two system inventories are coupled with eight readings to expand on the course material, and 13 interactive components and exercises are provided to enhance participant learning throughout the course.

A third course is available via registration in an online-only format. The online course covers all the material presented in the two CD-based courses described above, as well as providing the strategies needed to help families implement plans for the business enterprise. Families completing *Enterprising Rural Families* are able to plot their own course for change and have knowledge of the resources available to help them accomplish their vision.

Families and anyone seeking to build a business are encouraged to visit *Enterprising Rural Families* online at erurfamilies.org and view the resources available. A monthly electronic newsletter is also posted at the site. E-mail information@erurfamilies.org for information on ordering materials or to be added to the newsletter e-mail list.

For more information on this and other risk management topics on the Web, visit the Western Risk Management library online at agecon.uwyo.edu/riskmgt.

James Sedman is a consultant to the UW Department of Agricultural and Applied Economics, and John Hewlett is a farm and ranch management specialist in the department. Hewlett can be reached at (307) 766-2166 or hewlett@uwyo.edu.

Native grasses play important part in Wyoming agriculture

By Sandra Frost and Susan Winslow

Native grasses are able to survive and flourish in Wyoming because they have adapted to the climate as well the soils. Native grasses are either generalists not too fussy about their surrounding conditions such as the Wyoming state grass, western wheatgrass, or specialists such as rough fescue that occupy a small niche very well.

The presence of a particular grass species may be influenced by temperature and precipitation, which vary with elevation. Air is cooler and precipitation generally increases at higher elevations. Further, grasses that flourish in cool temperatures (cool-season grasses) green up in spring and again in fall if there is moisture.

Some grasses need warm temperatures to green up (warm-season grasses) and

provide summer and fall forage value.

Soils, too, vary widely depending upon parent rock material. Wyoming has parent material ranging from marine sedimentary deposits to high-pressure, high-temperature granites.

Native grass species may be selected to meet dryland and irrigated pasture goals. Dryland Pastures in Montana and Wyoming is a detailed handbook that covers grass species, seeding techniques, and grazing management. The handbook, which contains tables that characterize native grasses, is available at www.montana.edu/wwwpb/pubs/eb19.pdf.

Native grasses provide forage for specific seasons of use. Cool-season native grasses, such as thickspike wheatgrass and mountain brome grass, provide forage in early spring and early fall when growth is stimulated

by cool temperatures. Warm-season native grasses, such as switchgrass or blue grama, need warm temperatures for growth and provide forage in summer and fall.

Native grasses have adapted to Wyoming's soils. For example, beardless wild-rye and slender wheatgrass tolerate alkali or saline soils. Sand dropseed performs very well in sandy soils. Sideoats grama, buffalograss, and green needlegrass do well in clay soils.

Scientists in Wyoming and Montana at the U.S. Department of Agriculture Natural Resources Conservation Service's (NRCS) Plant Materials Center near Bridger, Montana, the University of Wyoming Powell Research and Extension (R&E) Center, Powell, Wyoming, and the Sheridan R&E Center are conducting research evaluating ease of establishment, yield, and quality of native grasses for forage. Contact the



research centers for more information on cool-season and warm-season grass production performance in their areas.

Native grasses such as Indian ricegrass and basin wild-rye provide food and cover for native wildlife. Sharp-tailed grouse and mourning doves are among the wildlife species that eat seeds of native grasses. Native grasses are desirable in Wyoming agricultural systems and Conservation Reserve Program acreage because they help stabilize the soil and control erosion. Planting native grasses may meet

a goal you and the NRCS have set for your property.

Contact your local extension or NRCS office to find native grass species suitable for your agricultural operation. Contact information for UW CES offices is at <http://ces.uwyo.edu/Counties.asp>. Contact information for NRCS field offices is www.wy.nrcs.usda.gov/contact/wypers/area_ofc.html, and the Bridger Plant Material Center is www.plant-materials.nrcs.usda.gov/mtpmc/. Contact information for the Powell and Sheridan R&E centers is at <http://uwadmnweb.uwyo.edu/UWEXPSTN/>.

Sandra Frost is a UW CES educator serving Big Horn, Hot Springs, Park, Teton, and Washakie counties. She can be reached at (307) 754-8836 or sfrost1@uwyo.edu. Susan Winslow is an agronomist with the Bridger Plant Materials Center. She can be reached at (406) 662-3579 or susan.winslow@mt.usda.gov.



Pesticides and protecting your ag employees

By Ron Cunningham

The Worker Protection Standard (WPS) law containing employer regulations pertaining to pesticides went into effect in 1992 and was revised in 2005 but had little perceived impact on agricultural producers in the West.

Many producers didn't believe the law was important, and, therefore, they didn't worry much about it; however, the revisions are very important. They change the way anyone who grows and harvests a crop looks at the law and how farmers and ranchers comply with the intent of the law.

Few ranchers and farmers in Wyoming and the West thought the law applied to them unless they hired migrant workers. Though the law doesn't apply to agricultural producers who do not hire help, it does apply to those who do have hired hands.

For example, the WPS law affects all farmers and ranch-

ers who hire people to help harvest crops. This includes growing hay, alfalfa, corn, barley, oats, and other crops, and it encompasses all tasks involved in planting, cultivating, irrigating, swathing, baling, digging beets, or harvesting grains and dry beans.

It affects those who spray pesticides, and it may even affect you even if you never spray pesticides but your neighbor sprays within 1/4 mile of your land. This is because of pesticide drift.

If your swather, baler, or tractor breaks down and a mechanic has to go into a field that has been sprayed with pesticides, it affects you.

Listed are some of the numerous requirements that affect all ag producers:

Look on the pesticide label. If it says "Ag Use Requirements," you must comply.

Agricultural producers must provide pesticide WPS training approved by the U.S. Environmental Protection

Agency (EPA) every five years to hired workers. Training materials are available at University of Wyoming Cooperative Extension Service (UW CES) offices across the state. Contact information is at <http://ces.uwyo.edu/Counties.asp>.

Producers who hire employees must post an EPA pesticide safety WPS poster in a central location. These are available from many companies and stores that sell pesticides.

Producers must inform employees what pesticide(s) they plan to spray and go over the label precautions with them. Workers must be informed about the locations where pesticides were applied and exactly what was applied.

Make sure employees have access to pesticide product labels, and keep them in visible locations in a central location. Workers must be shown the locations.

You must post pesticide labels for 30 days. Labels are



available from pesticide suppliers.

Monitor agriculture pesticide applicators at a minimum of every two hours.

Provide decontamination supplies including water, soap, single-use towels, and clean clothes (clean clothes are necessary in the event other clothes become contaminated with pesticides).

Provide transportation to medical care if needed, and make sure workers know the names, addresses, and telephone numbers of nearby medical treatment facilities.

Know the reentry interval (REI) of the product applied, and post areas until the REI has passed. This information is on the pesticide labels.

Before any ag workers apply pesticides, make sure

they understand all pesticide instructions. (Note: pesticides requiring a license to apply are covered under the Federal Insecticide, Fungicide, and Rodenticide Act and the Wyoming Pesticide Act of 1972.)

For more information about WPS regulations, contact a UW CES office. Educators can help producers locate written WPS requirements and computer CDs with WPS information on them.

UW CES offices can also provide information on upcoming private pesticide applicator trainings.

Ron Cunningham is a UW CES area educator serving the Wind River Indian Reservation and Big Horn, Fremont, Hot Springs, Park, and Washakie counties. He can be reached at (307) 332-1044 or roncc@uwyo.edu.

Russian olive and salt cedar control

By Dallen R. Smith

Removal of Russian olive and salt cedar (tamarisk) can have a significant impact on affected ecosystems. Stands form monocultures, which severely limit wildlife biodiversity. Large plants of salt cedar can transpire at least 200 gallons per plant per day. Studies show that removing the invaders can improve both the quantity and quality of water, help rejuvenate underground springs, increase stream flow, and return wetlands to their intended state. Russian olive and salt cedar are on Wyoming's noxious weed list.

There are several ways to control Russian olive and salt cedar. A control program in

Texas used helicopters with Global Positioning System guidance equipment to apply imazapyr to approximately 6,341 acres along a 120-mile strip of the Pecos River between 1999 and 2002. Imazapyr is the active ingredient in Habitat herbicide, a BASF product.

After three years of treatments, salt cedar control salvaged more than 36,000 acre-feet of water, or just under 12 billion gallons – roughly enough water to serve a city the size of Lubbock, Texas (population about 250,000) year after year as long as the salt cedar is kept in check. Total cost of the project was \$1,176,555, which comes out to \$185.54 an acre or \$4.70 a person.

Closer to home, a project on the Wyoming Game and Fish Department's Yellowtail Wildlife Habitat Management Area near Lovell involved the mechanical removal of 175 acres of Russian olive and tamarisk. Trees were ground up with a Gyro-Trac, and stumps were treated immediately with Garlon 4, a Dow AgroSciences product. Then 2,4-D herbicide was applied to regrowth. Those involved with the project believe mechanical removal, application of Garlon, and then monitoring for regrowth and spraying this regrowth with Habitat may be the best method for their situation. This method was preferred so that native cottonwoods and willows in the area would remain. Cost for mechanical and herbicide treatments can run from \$550 to \$700 per acre.

Biological control is also being used. The beetle *Di-orhabda elongata* was introduced in 2002, and, after four years, beetles had completely defoliated more than 95 percent of the salt cedar at least once along 32 miles of the Big Horn River. In some areas, beetles have completely defo-

liated salt cedar two to three years in a row, leading to an 11.5-percent mortality rate, according to Dave Kazmer, a research entomologist at the U.S. Department of Agriculture's Agricultural Research Service in Sidney, Montana. The beetles' host is specific to tamarisk so it does not feed on Russian olive. Cattle and Boer goats have also been used in grazing as a treatment.

A cooperative resource management area (CRM) was recently created for Shell Creek by landowners and the Big Horn County Weed and Pest Control District to remove Russian olive and salt cedar on Shell Creek. Stan Flitner from Shell was the key person in starting the CRM. Many other landowners and agencies are also involved in this cooperative process. A demonstration day was February 16, 2008, on land between Greybull and Shell owned by Ed Rech. Approximately 150 people watched as a Gyro-Trac and several Skid Steers equipped with either a shredder or shear removed salt cedar and Russian olive. Also, a trackhoe was used to remove Russian olives in the creek bed.



Removal of Russian olive and salt cedar can be costly, but there may be cost-share programs in your area. Contact your local county weed and pest control district or the Natural Resources Conservation Service to find out about funds that may be available. Depending on the project, one or many of the tools mentioned above may be used for the removal of Russian olive and salt cedar.

Dallen Smith is a University of Wyoming Cooperative Extension Service educator serving Big Horn, Fremont, Hot Springs, Park, and Washakie counties. He can be reached at (307) 765-2868 or dsmith69@uwyo.edu.





Alternative sources of nitrogen for pastures and hayland

By Jay Norton

Skyrocketing prices of nitrogen (N) fertilizers, along with the removal from the market of Wyoming producers' favorite form of N – ammonium nitrate – have many pasture and hayland owners asking how to maintain productivity without breaking the bank.

Irrigated pasture and hayland are widespread across Wyoming and constitute our largest crop in terms of number of farms, acreage, and income.

Grass hay and pasture have especially high requirements for N and must be supplemented to remain productive. The use of N-fixing legumes and applying manure, along with careful management and annual soil fertility tests, are very good alternatives that can reduce or eliminate the need for N fertilizer, but using them requires reassessment of production practices and objectives.

Legumes

Legumes are plants from the pea family, including peas, beans, alfalfa, clovers, birds-foot trefoil, and many others. Legumes form a symbiotic relationship with specialized rhizobium bacteria that infect their roots and are able to extract N from the air in soil pores. Although air is more than 78 percent N gas, plants cannot directly utilize it and must take up simple N compounds from the soil.



The legume-bacteria association is one of very few ways that N is transferred to the soil and is responsible for most of the N in soils. The rhizobium bacteria supply the legume plants with N released to the soil when the plant dies and decays or is eaten and passes through an animal.

In mixtures with grasses for hay or pasture, legumes can increase the yield and quality of forage. In such mixtures, grasses get the N they need from decomposing roots and tops of the legumes while the legumes get the N they need from the air.

Maintaining a balance of grasses and legumes can be difficult because grasses respond aggressively to added N fertilizer and are more resistant to grazing than most

legumes. But with the right choice of legume species, careful grazing management, and attention to soil phosphorus and potassium levels, legumes can be maintained and even increased while they supply all the necessary N in grass-legume pastures and hay ground.

For information on how to select, plant, and manage legumes in irrigated pastures and hayfields, check the Web site of the National Sustainable Agriculture Information Service (<http://www.attra.org/>). Type legumes and pastures into the search window, or try <http://attra.ncat.org/attra-pub/sustpast.html> or http://attra.ncat.org/attra-pub/past_range_graze.html. For information on hayland management in Wyoming,

try <http://ces.uwyo.edu/PUBS/B1088.pdf>.

Manure

Application of animal manure can provide much of the soil nutrients required for productive hay or pastures. A ton of typical fresh manure from cattle contains about 12 pounds of N, 2.6 pounds of phosphorus, and 14 pounds of potassium, but the amounts are variable, and analysis of manure samples at a soil lab is important. About half the N in fresh manure is available the year of application. The remainder is released as the manure decomposes over a few seasons. Fresh manure can contain viable weed seeds so you should know the source and what the animals were fed. Composting manure can kill weed seeds, but more than

half the available N is lost during composting.

Manure is mostly organic materials that improve the water and nutrient holding capacity of soils. This is even more beneficial than direct nutrient inputs, and annual manure application increases soil organic matter, improving soil health and productivity. Washington State University has a good guide on using manure as a fertilizer (<http://cru.cahe.wsu.edu/CEPublications/pnw0533/pnw0533.pdf>).

Combining legumes and manure applications with careful management can maintain healthy, productive pastures and hayfields with little or no supplemental fertilizer.

Soil testing is an excellent way to identify nutrient deficiencies and apply only the fertilizers needed to maintain balanced productivity.

To get the most out of a soil test, collect composite samples from each management unit and within the same soil type. Go to <http://ces.uwyo.edu/PUBS/MP6.3.pdf> for soil sampling guidelines from the University of Wyoming. Send dry samples to the University of Wyoming Soil Testing Laboratory or another analytical lab.

Jay Norton is the extension soil fertility specialist and is an assistant professor in the Department of Renewable Resources in the University of Wyoming's College of Agriculture. He can be reached at (307) 766-5082 or jnorton4@uwyo.edu.

Updating pesticide applicator training and materials

By Jim Gill

The University of Wyoming Cooperative Extension Service (UW CES) is working with the Wyoming Department of Agriculture to update training materials, exam, and presentations for the "private" and "commercial" pesticide applicator categories for the licensing process.

The needed change is being addressed to help better serve pesticide applicator clientele. The UW CES is charged with providing training and education for the Wyoming Pesticide Applicator Program. The Wyoming Department of Agriculture is the regulatory agency that

oversees and administers the program.

Licenses are issued by the Wyoming Department of Agriculture to private and commercial applicators who successfully pass the examination process. Commercial licenses are valid for three years and private licenses for five years.

The UW CES has looked at changes like integrating computer-based systems into county and area extension offices for pesticide applicator education and examination. The Wyoming Department of Agriculture will soon be providing computers to extension offices around the

state to help implement the process. The team is working with extension specialists to update materials for the general exam, weed control, plant pathology, insect control, and the 25 other categories offered under the commercial pesticide applicator examination process.

The change in extension from a "county-based" to "area-based" extension educator model has proved frustrating to some of the clientele needing assistance with pesticide certification. This, too, is being addressed to ensure a smoother transition for clientele needs. The Wyoming weed and pest control districts are important

partners in the process.

The team will be looking at training materials from other states to help update education materials offered to Wyoming applicators requesting assistance. If you have specific suggestions to help improve the process, contact me at (307) 347-3431 or jrgill@uwyo.edu, or Mark Ferrell, UW pesticide coordinator, at (307) 766-5381 or ferrell@uwyo.edu.

Gill is an extension educator serving Big Horn, Fremont, Hot Springs, Park, and Washakie counties. He is also the Profitable and Sustainable Agricultural Systems state pesticide applicator issue team chair.

