



# NORTHEAST EXTENSION CONNECTION

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October-December 2014

Volume 11, Issue 4

## Fall Moisture: Its Influence on Rangeland Plants



**By Blaine Horn**  
*Sustainable  
Management  
of Rangeland  
Resources  
Educator*

Does moisture received in September and October influence how much rangeland grasses and forbs will grow the next year? In most years it appears to have little effect. However, once in a Blue Moon it apparently does and it can be significant!

An on-going project looking at the correlation between timing and amount of moisture and rangeland peak plant production in early July has been conducted on a ranch south of Buffalo since 2002. The project's objective is to provide rangeland livestock producers of the area a trigger date in the spring to engage their drought plan if precipitation is below normal. Rangelands of Wyoming generally are dominated by cool-season grasses, thus April through June moisture has appeared to have the greatest influence on how much they will grow that year.

Annual precipitation for Johnson County averages around 13 inches with nearly half of it coming during the spring months. April through June moisture between 2002 and 2013 averaged 93% of normal (1981 – 2010, NOAA) with peak rangeland plant production averaging 96% of the USDA Natural Resources Conservation Service's (NRCS) estimate for the ecological sites of this pasture under "Normal" precipitation years. Whereas annual precipitation (measured from 1 July to 30

June) over these years averaged only 83% of the long-term norm. This difference would indicate that spring moisture is the main driver for how much forage the rangeland plants will produce in this region.

Then along came this year and threw a monkey wrench into the works! Spring precipitation for this year was 96% of normal but the rangeland plants produced nearly twice as much dry matter biomass (190%) then would have been expected. What in the world happened to result in such production? Was it due to daytime temperatures during these months? A possibility but in itself probably not. Maximum daily temperatures for these three months averaged 62 degrees whereas for the previous 12 years it averaged 66 degrees (same as the norm). Daytime highs averaging four degrees less might have slowed evapotranspiration rates a little but optimum temperature for cool-season grass growth is 65 degrees.

What appears to have caused this nearly twice the expected amount of rangeland plant growth with near normal spring precipitation was the amount of moisture that occurred last September and October, 260% and 240% of normal, respectively. In three of the years between 2001 and 2012, Sep-Oct moisture averaged 105% of normal with the following spring precipitation averaging 93% of the long-term average. Peak rangeland plant production for these three years also averaged 93% of normal. This would indicate that even with slightly above average Sep-Oct moisture the amount of rangeland plant growth the following year was more dependent upon how much moisture was received in the spring. In addition, Sep-Oct moisture and the following spring's precipitation the other nine years averaged 56% and 94% of normal, respectively, with rangeland peak plant production those years averaging 97% of the expected amount. Thus, when Sep-Oct moisture is no better than the long-term average, or less, the effect it has on the following year's rangeland plant growth appears to be miniscule.

The amount of precipitation that occurred in September and October 2013 resulted in the soil profile being filled

with moisture which had not occurred in the previous eight years (soil moisture probes installed in March 2005). This soil moisture carried over into the spring and was available for the plants to use once they began growth. Had the spring of this year been dry plant growth would probably had been less but still possibly near normal. Had this spring been wetter how much more biomass the plants would have produced is hard to say. It is possible that the plants were pushing their maximum growth level without additional resources, especially soil nitrogen.

How often might we expect to have a September and October with the kind of moisture we received in 2013? The last time this occurred in Buffalo was 1961, 52 years ago, with the amount being 240% of average (185% and 317%, respectively). In 1982 and 1986 September moisture those two years was 380% of normal with October moisture those two years slightly over 100%. It is possible that the following year's rangeland plant production was above normal but spring precipitation was below average (90% and 75%, respectively). The bottom line is, the amount of moisture received in Sep-Oct 2013 does not happen often but when it does it can be of great benefit for rangeland forage production, especially if spring precipitation is near normal.

A couple of thoughts for those that produce hay!

For dryland hay producers; if we receive exceptional fall moisture as occurred in 2013 it might warrant applying 50 to 75 pounds of actual nitrogen to your hay fields in April the next year.

For those that raise grass hay under irrigation; if you do not already, I suggest if you have the water to irrigate in the fall to do so and fill the soil profile with moisture. This practice might especially pay off if the following April is dry and irrigating at that time is not doable.

Note: In the next issue of Extension Connection I plan on writing about how to put up good hay as I've had a request for such an article. Might even have graphics and/or photos in that article.

# Winter Evergreen Tree Care



**By Scott Hininger**  
*Agriculture and  
Horticulture  
Educator*

Starting sometime from now until this spring we will start noticing some evergreen trees especially Rocky Mountain Junipers starting to turn brown. This is generally caused by winter desiccation (the drying out or loss of water from plant tissue (leaves, twigs, needles)). This is the main reason we have "winter kill" here in Wyoming. We have such dry (humidity) winters along with warm spells during the winter. All trees transpire (give off water) year round even in winter, especially evergreens. The rate obviously goes down to very little but it still occurs during the winter especially when the air temperature is above freezing. As long as the ground is not frozen all perennial plants can use and need water, and most of Wyoming was very dry the month of October. Most of the issues with evergreens last year was from lack of water.

In late winter, the wind can also cause desiccation of foliage. One thing we can do also do this time of year if we are concerned with our evergreens especially young or recently planted ones, is to use a product called an anti-desiccant spray. Typically, this waxy looking material is mixed with water and sprayed on. What it does is to apply a thin coating over the branches or needles so the plant does not transpire (give off water) as rapidly as it would normally. This can help considerably, especially those of you who have planted new trees this last year. The other benefit of using these products is they will control many types of insects especially scale and any overwintering eggs.

One other thing I was reading was adding hot pepper juice from either habanera or jalapeno peppers to this spray mixture. If you are having deer or rodent

problems this may help, since they do not like hot pepper juice and the anti-desiccant spray will hold it on the trees or plants most all winter long instead of washing off.

The other question I have received is if my evergreen is turning brown then I should use a spray fertilizer, such a miracle grow. If the tree is having a problem either insect, lack of water, or other stress, that problem needs to be taken care of first. However, we do recommend keeping the tree as healthy as possible including proper watering, and a good fertilization program. If the tree is stressed and you add this spray fertilizer to it, the tree could start to grow fast and this could actually compound the problem. So be careful when adding this kind of fertilizer to evergreens. September or April is a good time to fertilize trees.

In addition, rodents, and other animals, can do their share of damage. This can be prevented to some extent by adding wraps to the trunks of trees. To control porcupines use a fence with an outward angle to keep them from climbing the fence and getting to the tree. Be especially on the lookout for vole activity, as these mice looking rodents will leave race ways in the grass and can eat the bark off of perennials this winter.

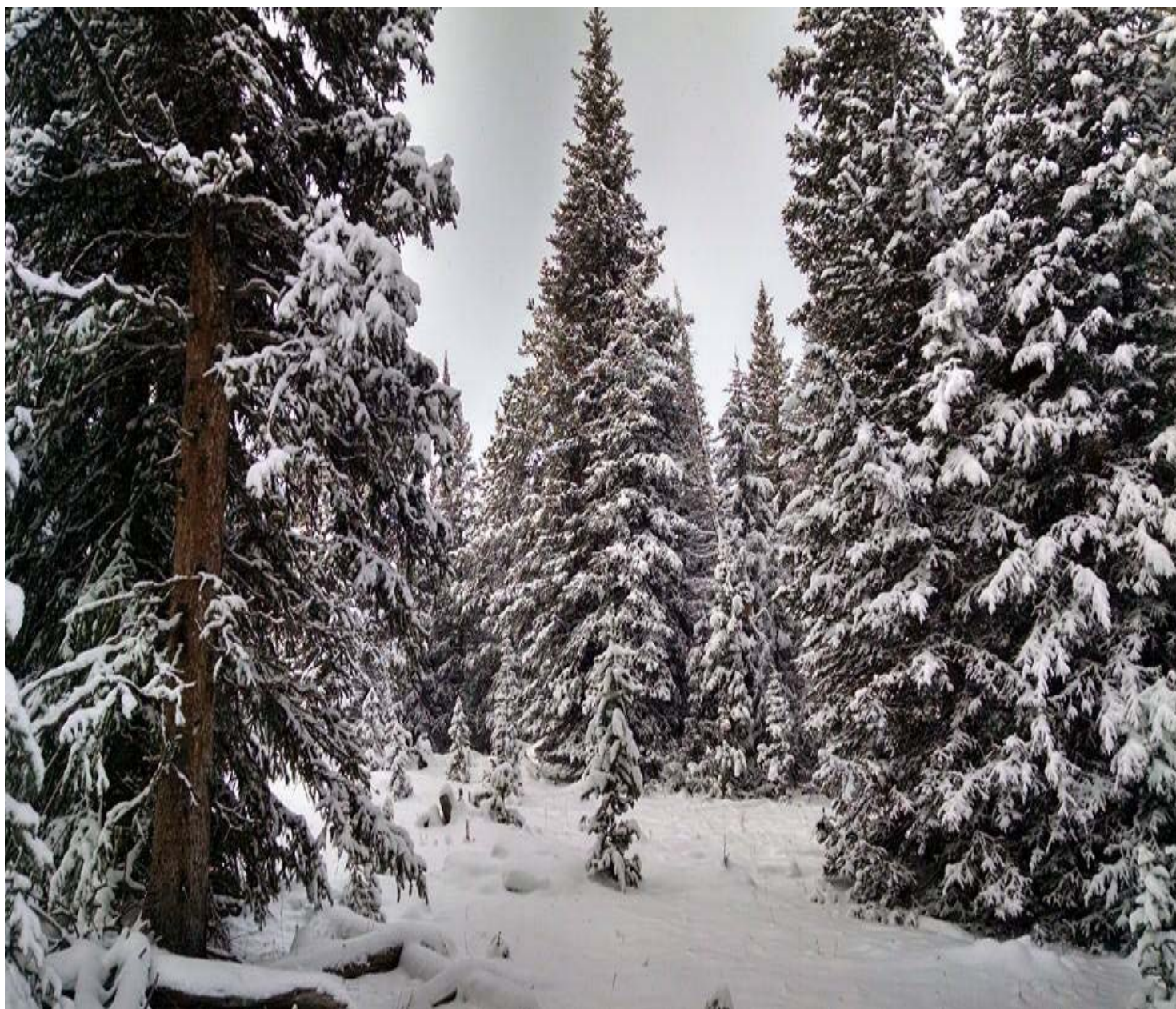
Winter is a great time to do some pruning of deciduous plants (plants that lose their leaves in fall). With no insect or disease activity and no foliage, it is easier to see the shape of the plant and safely prune, and inspect plants in the yard for damage. Be sure to prune out any diseased looking branches or double leaders. Make sure you do not leave any stumps, as the tree will not be able to heal round these.

Now is a good time to start thinking about expanding your garden or ordering seeds for next year. I have noticed a lot more interest in gardening the last couple



of years, and by planning now you should be ready this spring with your plantings.

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# Estimating Forage Production:

## Tools of the Trade



**By Brian Sebade**  
*Sustainable  
Management of  
Rangeland Resources  
Educator*

Knowing how many animals to put on a particular piece of rangeland can be a challenge for anyone. Estimating annual forage production is a skill that is used every spring and summer to determine the duration for a set type and number of livestock that can be fed. Most often this means estimating the forage production of desired plants from the undesired plants as well.

Estimating annual forage production can feel overwhelming. Fortunately there are few tools available to help anyone faced with this annual estimation dilemma. The pros and cons associated with different methods are listed below to help point you in the right direction this growing season.

### Web Soil Survey

The web soil survey (WSS) is a free online database that can help you make estimates from the comfort of your personal computer. The United States Department of Agriculture has compiled soil maps and information, plant community information, and precipitation data and placed the information on a free online database. The WSS works by generating a map of the area the user is interested in. Once a map of the area of interest (AOI) has been drawn, a variety of information can be accessed. Annual forage estimates for normal, drought, and above-normal conditions are provided for each soil type located within the map created. This information is found under the soil data explorer tab. These values are estimates of the amount of annual biomass production to expect depending on the amount of precipitation for that year.

Positive aspects of this system include ease of access and use, maps and information that can be saved or

printed for future reference, a fast system to acquire estimates without having to make it to every pasture in a large area, and the ability to gain knowledge on a property in another state or area.

An obvious drawback to this system is you do not have an idea of the current rangeland health or condition of the AOI. Not knowing the range condition means there is the potential for weed invasions, erosion issues, poor plant communities that are not noted with the system. The WSS also does not go into great detail regarding topography, water availability, and other on site information.



### Clip and Weigh

Clip and weigh is a technique that involves on-the-ground work for a specific range or pasture site. This technique is a good method if you are a numbers and details-type person. The clip and weigh method involves going out to a site and manually clipping the forage growing, drying the forage, and then weighing the dried forage to determine annual production. A specific size of hoop or quadrat is used to extrapolate many samples from a site to convert to pounds of forage per acre. There are conversion charts available to help skip the drying step to cut down on the time and energy needed to dry the forage and remove moisture within the sample. These conversion charts do add more variability to the estimate compared to actually drying the samples, but save on time.



An accurate picture of the annual forage production is one positive reason to do the clip and weigh method. The method can also be used to separate out individual plant species which is useful for determining forage production of desired and undesired plants. If records are kept this method will help show trends that occur with the specific site over time.

Negative aspects of this methods obviously include the time commitment needed for clipping enough forage samples to get a quality number. The estimate will not be accurate if you only clip one quadrat for the entire pasture. This means taking as many samples as possible.



A scale, hoop, scissors, and bags are tools needed for collecting samples with the clip and weigh method.

Taking different sample for rangeland sites that change in plant structure or community is also needed to account for more or less production in certain areas. There is also some error involved if samples are not correctly clipped or dried correctly. While the conversion charts are fast they also add variability to your overall estimate.

### Ocular Estimate

The last type of forage production estimate tool is the ocular estimate. The ocular estimate is a fancy way of saying looking a sight over and giving your best visual guess as to what is there for annual forage production. Many range professionals and long time managers will use this method after they have spent many years training their eye with a visual estimate and then comparing that with the number found using the clip

and weigh method. The technique works by separating out the desired and undesired plants in your head. Once separated a forage estimate is developed based the height and types of plant species present. Sometimes measuring tapes are used to help with the making an estimate.

This is by far the fastest and easiest method for making annual forage estimates. Many sites can be covered in a short amount of time and does not require much for equipment compared to the other estimating methods.

A downside to this method however is the amount of time it takes training your eye for estimate the amount of production available. For some people this can take many years, while others it may only takes a few months or weeks.



### Final thoughts

While there is not a method that fulfills every need, there are many resources available for range managers when it comes to forage production estimation. It is important to remember that estimating forage production changes for every rangeland site because of the soil, precipitation (amount and timing), and the plant community present. The best time to estimate forage production is during the peak growth stage of plants which usually occurs during the later part of June or early July. Many times you may think you have a good estimate until animals are put on the site and you find you have estimated too much or too little. Keeping a record of how you are off or on is always a good idea. Working with your local UW Extension educator might be a good place to start if you have questions regarding this information. Good luck and happy estimating!

# What can volunteering do for me?



**By Stacy Buchholz**  
4-H/Youth  
Development  
Educator

Volunteers are the heartbeat of the 4-H program. In the Northeast area, volunteers have been engaging 4-H youth in a number of diverse and fun ways. Youth benefit greatly from building relationships with and the positive attention of caring adults.

Volunteering for the community is a positive outlet for many folks, have you thought about what you can do to help make a difference for someone this year? If not, think about it! Many folks volunteer for a number of reasons to help others in the community, however did you know that volunteering has some benefits just for you? According to [helpguide.org](http://helpguide.org), volunteering can benefit you and your family in a number of ways!



Volunteering can benefit you while you benefit your community!

First, volunteering connects you to others! Volunteering impacts our community greatly, in fact, volunteers are the glue that holds the community together. Volunteering helps you build ties to the community while connecting you to others on a more personal level. One of the best ways to make new friends or build

existing relationships is to commit to a common activity together.

Additionally, volunteering can broaden your support network as you build ties to your community. On a more personal level, volunteering can help you build your social skills.



Volunteering helps you build connections within your community. Here, Weston County 4-H'ers are getting a

Next, volunteering is good for your mind and body. Volunteering can provide a healthy boost to your self-confidence, self-esteem, and life satisfaction. You are doing good for others and the community, which provides a natural sense of accomplishment, as well as pride and identity within your community.

Volunteering also combats depression. Reducing the risk of depression is another important benefit of volunteering. A key risk factor for depression is social isolation. Volunteering keeps you in regular contact with others and helps you develop a solid support system.

Volunteering will also help you stay physically healthy. Volunteering is good for your health at any age, but it's especially beneficial in older adults. Studies have found that those who volunteer have a lower mortality

rate than those who do not, even when considering factors like the health of the participants.



Volunteering is great for your health! Here, Crook County 4-H leader Tina Fish teaches 4-H campers about the Batik craft.

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Further, volunteering can benefit your career. Are you looking for a new career, or trying to get a foothold within a specific career area? Volunteer in that field. Not only will you be making connections with future colleagues or employers, you will also be building your resume! That is a winning combination! Volunteering in your career field could also expose you to possible internships or professional organizations that will benefit you in the future as well.

Lastly, volunteering teaches you important job skills. Just because you are not getting paid does not mean that the skills you are developing are less valuable. So get out there and develop your personal skills while you help make our community better!



Volunteering helps you build job skills!

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Finally, volunteering can help you live a fun and fulfilled life. Find a volunteer opportunity that aligns with your passions, or will allow you to have fun as a family, or even help you develop a new hobby. Find that outlet that will help you escape from your everyday routine and go for it! Not only will you be enjoying yourself, but you will also create a greater good for the community!

Don't forget, when you pay it forward, you are setting a good example for the youth in our community, and you never know when someone else's volunteer efforts will help you and your family down the road! So, let's get to work!



Volunteering is for everyone! What can you do to help?

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# Soup-er Time!



**By Vicki Hayman**  
Nutrition and  
Food Safety  
Educator

To some the idea of making homemade soup seems both intimidating and time consuming, but it doesn't have to be. In fact, you can create a tasty soup without even using a recipe. Even less experienced cooks can do this at home; it's very easy! Use whatever you have on hand (no last-minute trips to the store for one ingredient!) and you just might love the result. Here is a simple formula for making your own soup recipe, and you can be as creative as you'd like – or not.

## Step 1: Choose one fat

- 1-2 tablespoons oil (vegetable, canola, olive) or
- 1-2 tablespoons butter or margarine

## Step 2: Add 1 medium chopped onion or leek

## Step 3: Choose one or more vegetables (2-3 cups, chopped)

• Celery, bell pepper, green beans, carrots, peas, corn, zucchini, squash, mushrooms, cauliflower, broccoli, cabbage, spinach, kale, etc. (fresh, canned, or frozen) or ½ -1 cup uncooked rice

• Avoid using eggplant, okra, or strong greens such as mustard

## Step 4: Choose one protein

- 1 pound beef, chicken, ham, sausage, etc. or
- 1 (16 oz.) can beef, chicken, ham or
- 1 (16 oz.) can beans (pinto, kidney, black, white, chick peas, hominy, etc.) or
- 1 cup grated cheese

## Step 5: Choose one starch

- 3-4 cups diced potatoes/sweet potato or
- 2 (16 oz.) cans beans (pinto, kidney, black, white, chick peas, hominy, etc.) or
- 4-6 oz. egg noodles, macaroni, pasta or
- ½ -1 cup uncooked rice or
- 1¼ cup uncooked lentils or split peas

## Step 6: Choose a base liquid—need 4 cups (1 quart)

- 2 (16 oz.) cans chicken, beef, and/or vegetable broth or
- 4 cups water and chicken, beef, or vegetable bouillon or
- 1 can puréed, crushed, or diced tomatoes and 3 cups water or
- 4 cups milk and chicken bouillon or
- Any combination of above to make 1 quart

## Step 7: Choose one or more seasonings

- 1 – 2 teaspoons dried herbs (oregano, basil, cumin, chili powder, thyme, rosemary, parsley, etc.)
- 1 bay leaf
- 1 – 2 tablespoons fresh herbs
- Minced garlic

**The key is to try to think of flavors that might mesh well with what you've already got going, and that will mesh well with each other as well.** Here are a few popular flavor combinations:

- \* Chicken - celery seed, marjoram, thyme, parsley, and sage.
- \* Beef - marjoram, rosemary and thyme
- \* Tomato-based soups - basil, oregano or fennel.
- \* Chilis - chili powder and perhaps cumin.
- \* Cream soups - parsley or thyme.

## Step 8: Choose one garnish

- Croutons or crackers
- Tortilla, corn, or pita chips
- Chinese noodles
- Crumbled, grated, or shredded cheese
- Sour cream, crème fraîche, cream, or plain yogurt
- Olive tapenade or sliced olives
- Diced sundried tomatoes
- Pimentos
- Salsa, pico de gallo, or hot sauce
- Chopped avocado, hot or sweet peppers, sliced radishes
- Nuts or seeds
- Chopped pepperoni, bacon, or pancetta crumbles

Here are a few popular combinations:

- \* Crunchy on smooth (croutons on a silky puréed soup)
- \* Smooth on chunky (sour cream on chili)
- \* Bitter on savory (herbs or black pepper on lentil soup or almost anything!)
- \* Salty on sweet (crumbled prosciutto on sweet potato carrot soup)

## Directions

1. Heat fat in large soup pot. Add onion and cook, stirring occasionally, until soft but not brown, about 5 minutes. The goal is to break down their cellulose (making them easier to eat or purée later) and get them to give off some of their liquid, which will deepen the flavor of the soup.
2. Add remaining ingredients (except fresh herbs).
3. Partially cover pot, simmer until meat is cooked and starch and vegetables are tender (about 20 – 30 minutes).
4. Add fresh herbs. Season with salt and pepper to taste. Simmer another 5 minutes.
5. Garnish and serve. Serves 4 adults.



## Soup Suggestions

- Chicken & Rice soup - combine onion, celery, carrots, chicken, rice, chicken broth, rosemary, parsley, and garlic.
- Beef and Vegetable soup - combine onion, potatoes, carrots, celery, beef, crushed tomatoes, beef broth, oregano, basil, parsley, and bay leaf.
- Black Bean and Corn soup - combine onion, green pepper, corn, green chilies, black beans, rice, crushed tomatoes, chicken broth, oregano, cumin, chili powder, cilantro, and garlic.
- Cream of Broccoli soup – combine onion, broccoli, celery, cheddar cheese, milk, chicken bouillon, and garlic. Mash or blend together.

## Freezer Tips

Many of the rules for freezing soup basically simmer down (...pun intended!) to holding back the ingredients that won't freeze well and then adding them back in when reheating the soup later. If making some soup to eat now and some to freeze, just scoop out the portion to be frozen before adding these final ingredients. Make a double batch of soup and follow these steps on how to freeze and store soup so you'll be set all winter long!

1. **Hold Back the Cream:** Cream and milk tend to separate and become grainy if frozen. It's easy to

freeze the soup without this ingredient and stir it in while re-heating.

2. **Hold Back the Pasta:** Pasta can turn to mush after freezing. It's much better to boil pasta and add it directly to the reheated soup.

3. **Hold Back Any Ingredients Added in the Last 5 Minutes:** Ingredients like fresh herbs and eggs tend to be very delicate, which is why they're added so late in the process. They will taste better if added fresh to the reheated soup. The exception to this is canned beans, which do fine when frozen.

4. **Slightly Undercook Vegetables:** The vegetables will cook a little more when the soup is reheating, so freezing while they're still slightly underdone prevents vegetables from turning to mush. This is an especially good tip to remember with potatoes. Again, if you're making some soup to eat now and some to freeze, scoop out the portion you plan of freezing before finishing the soup you plan to eat.

5. **Cool the Soup:** Refrigerators and freezers cannot cool soups quickly enough to be food safe. Speed up the cooling process by placing the pot of soup in a bath of ice water in the sink. Stir soup often to help release the heat. This method allows less time for bacteria to grow.

6. **Package Soup for the Freezer:** Label and date gallon or quart-size zip-top plastic freezer bags, place in a bowl, and cuff the bag over the edge. Ladle soup into each bag, then let out any excess air and seal.

7. **Freeze the Soup:** Lay bags flat in a single layer in the freezer; when frozen, stack bags to save space. For best flavor, do not freeze more than 3 months.

8. **Reheating the Soup:** Thaw overnight in the fridge. Re-heat over low heat. Stir occasionally.

**Soups That Freeze Best:** Bean soups, vegetable soups, broth-based soups, soups with brown rice or wild rice, pureed soups, beef soups, and chicken soups.

Homemade soups can be a healthy option for meals. Including vegetables, whole grains, and lean protein into one dish is an easy way to get a balanced meal. Preparing homemade soups let you control what is in the pot and to limit the amount of salt.

Soup can be made using specific, fresh ingredients, or very frugally by putting together the week's leftovers.





# Farm Bill 2014 Update



**U**niversity of Wyoming Extension - Sustainable AG & Horticulture in cooperation with **Wyoming Farm Service Agency** will offer a series of meetings covering details of the new farm programs.

**Highlights** include: base acre update, yield update, Agriculture Risk Coverage (ARC-CO/IC), Price Loss Coverage (PLC), the Supplemental Coverage Option (SCO), Non-insured Crop Disaster Assistance (NAP) buy-up coverage, online decision tools, analyzing information for your farm, and more....

## Dates

## Locations

December 12- 10AM	Worland	<b>Community Center</b> 1200 Culbertson Ave.   Worland
December 15- 10AM	Cheyenne	<b>LCCC Health Sciences - Rm. 111</b> 1400 E. College Drive   Cheyenne
December 15- 2PM	Wheatland	<b>First State Bank</b> 1405 16th Street   Wheatland
December 16- 10AM	Torrington	<b>Platte Valley Bank</b> 2201 Main Street   Torrington
December 17- 10AM	Riverton	<b>Fremont County Fairgrounds</b> 1010 Fairgrounds Road   Riverton
December 17- 2PM	Wind River Casino	<b>Wind River Casino - Training Room</b> 2 miles south of Riverton   Hwy 789
December 18- 10AM	Powell	<b>UW Research and Extension Center</b> 747 Road 9   Powell
December 19- 10AM	Gillette	<b>Campbell County Library - WY Room</b> 2101 South 4-J Road   Gillette

**P**resenters:  
Dr. Nicole Ballenger, UW Ag & Applied Economics  
John Hewlett, UW Farm/Ranch Management Specialist  
Farm Service Agency, Farm Program Specialists



For more information, contact:  
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**UNIVERSITY OF WYOMING**  
**Extension** **Sustainable AG & Horticulture**





# NORTHEAST WYOMING SHEEP SYMPOSIUM



The Sheep Symposium will be held from 1:00 PM to 6:30 pm on Thursday December 11, 2014 in Buffalo, WY at the Johnson County Fair Grounds Conference Room.

Tentative Topics at the Symposium include:

- **Ewe lamb management: 'To lamb or not to lamb at 1 year of age?**  
- Dr. Bret Taylor USDA-ARS Dubois, Idaho Field Station
- **ASI's Lets Grow Our Flock Program- current update and promotion efforts**  
- Dave Ollila SDSU Extension Sheep Specialist
- **Sheep market outlook**—Bridger Feuz UW Extension livestock marketing specialist
- **Current research from the UW Animal Science Department**  
-Melinda Ellison
- **New wool products and wool testing** — Dr. Lisa Surber, MSU Sheep Specialist
- **Sheep Diseases of Importance in Wyoming; Prevention, Diagnosis, and Treatment**  
- Dr. Jim Logan Wyoming State Veterinarian
- **Wyoming Wool Growers update and news**

For more information and RSVP contact

Chance Marshall 307-682-7281 or Brian Sebade 307-283-4520

*Issued in furtherance of cooperative extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Glen Whipple, Director, UW Extension, University of Wyoming, Laramie, Wyoming 82071.*

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# **Northeast Extension Connection** *A quarterly newsletter from Campbell, Crook, Johnson, Sheridan and Weston County Extension*

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Hannah Hopp - Horticulture; Kim Bell - 4-H/Youth; Lori Jones - Cent\$ible Nutrition

**Crook County** 307-283-1192: Brian Sebade - Sustainable Management of Rangeland Resources;  
Sara Fleenor - 4-H/Youth

**Johnson County** 307-684-7522: Blaine Horn - Sustainable Management of Rangeland Resources

**Sheridan County** 307-674-2980: Scott Hininger - Agriculture and Horticulture;

Kentz Willis - Nutrition and Food Safety; Sandra Kolitska - Cent\$ible Nutrition; Elizabeth Shaffer - 4-H/Youth

**Weston County** 307-746-3531: Vicki Hayman - Nutrition & Food Safety; Stacy Bucholtz - 4-H/Youth

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