



Southern Colorado Ag and Range Newsletter

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Ag Agent Greeting

I hope this newsletter finds all of you enjoying your spring. After a warm, dry winter we have finally received some moisture the last few weeks. I read the other day that we are now at or above precipitation for the year. For those of you with water in the reservoir it looks to be a good year as storage is at or near capacity. For the rest of us, let's hope we continue to get timely rains throughout the season.



This has been a busy spring thus far and I hope to stay that way. We completed another round of our Beginning Beekeeping class and we are working on getting a Pueblo County Bee Club started. If you would like more information on this club, feel free to give me a shout here at the office. We also conducted another Backyard Chicken class for those interested or currently raising poultry.

In May, I am planning several programs starting with a class on Regenerative Land Management. Tate Smith will be presenting on concepts of permaculture, holistic management and Keyline principles to help bring our land to a more productive state. For those of you living in wildfire prone areas, we will be hosting a class on Shaded Fuel-Breaks at the Pueblo Mountain Park. We will take a walk around the park and see exactly what a shaded fuel-break is and how we can apply this concept to our own properties. We will again be hosting a Range Walk on June 10 where we will discuss plants found on our rangelands and the current range conditions.

Keep watching as we continue to plan and host classes to further our knowledge of the natural resources we all use. For the most up-to-date information 'like' our CSU Extension Pueblo County Ag Range page on Facebook. As always, feel free to give me a call, send an email or drop by if you have any questions or concerns.

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Monday—Friday 8 a.m.—5 p.m.
(excluding holidays)

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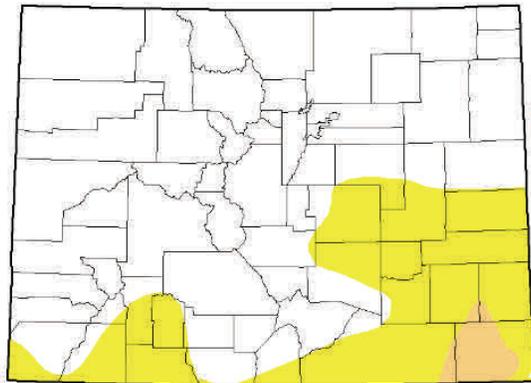
www.facebook.com/CSUExtensionPueblo

All articles written by Tom Laca unless otherwise indicated.

U.S. Drought Monitor Colorado

April 26, 2016
(Released Thursday April 28, 2016)
Valid 8 a.m. EDT

Statistics type: Traditional Percent Area Export table: PNG CSV XLS



| Week | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|--|-------|-------|-------|-------|-------|------|
| Current 2016-04-26 | 74.64 | 25.36 | 2.09 | 0.00 | 0.00 | 0.00 |
| Last Week 2016-04-19 | 74.62 | 25.38 | 2.09 | 0.00 | 0.00 | 0.00 |
| 3 Months Ago 2016-01-26 | 90.01 | 9.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| Start of Calendar Year 2015-12-29 | 90.02 | 9.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| Start of Water Year 2015-09-29 | 71.49 | 28.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| One Year Ago 2015-04-28 | 41.76 | 58.24 | 50.86 | 35.92 | 0.00 | 0.00 |

Estimated Population in Drought Areas: **4,660** [View More Statistics](#)

Intensity:

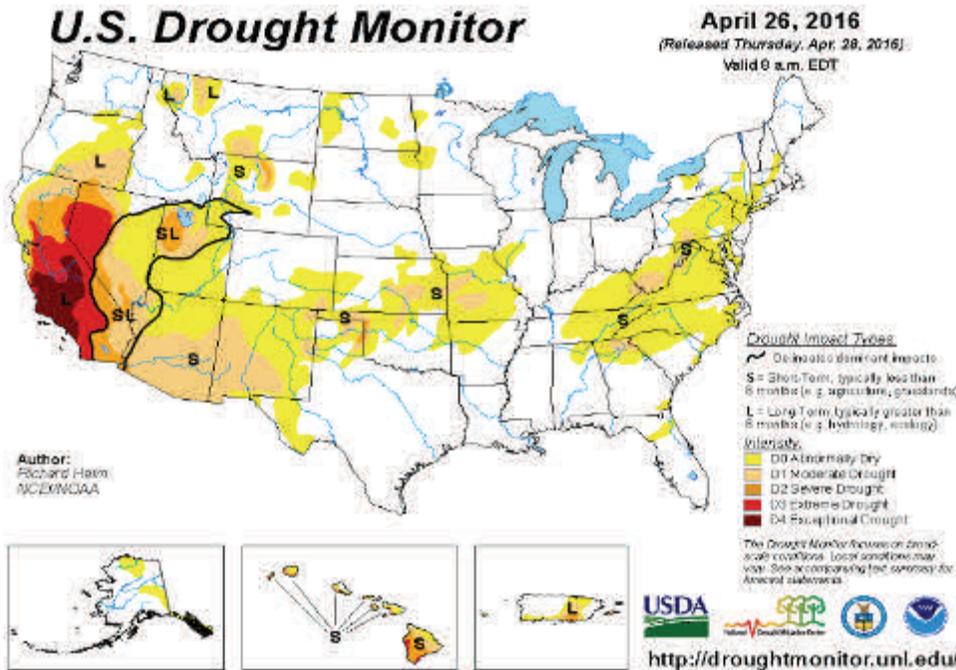
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying [text summary](#) for forecast statements.

Author(s):
Richard Heim, NOAA/NCEI

For more details and maps go to:

http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.php



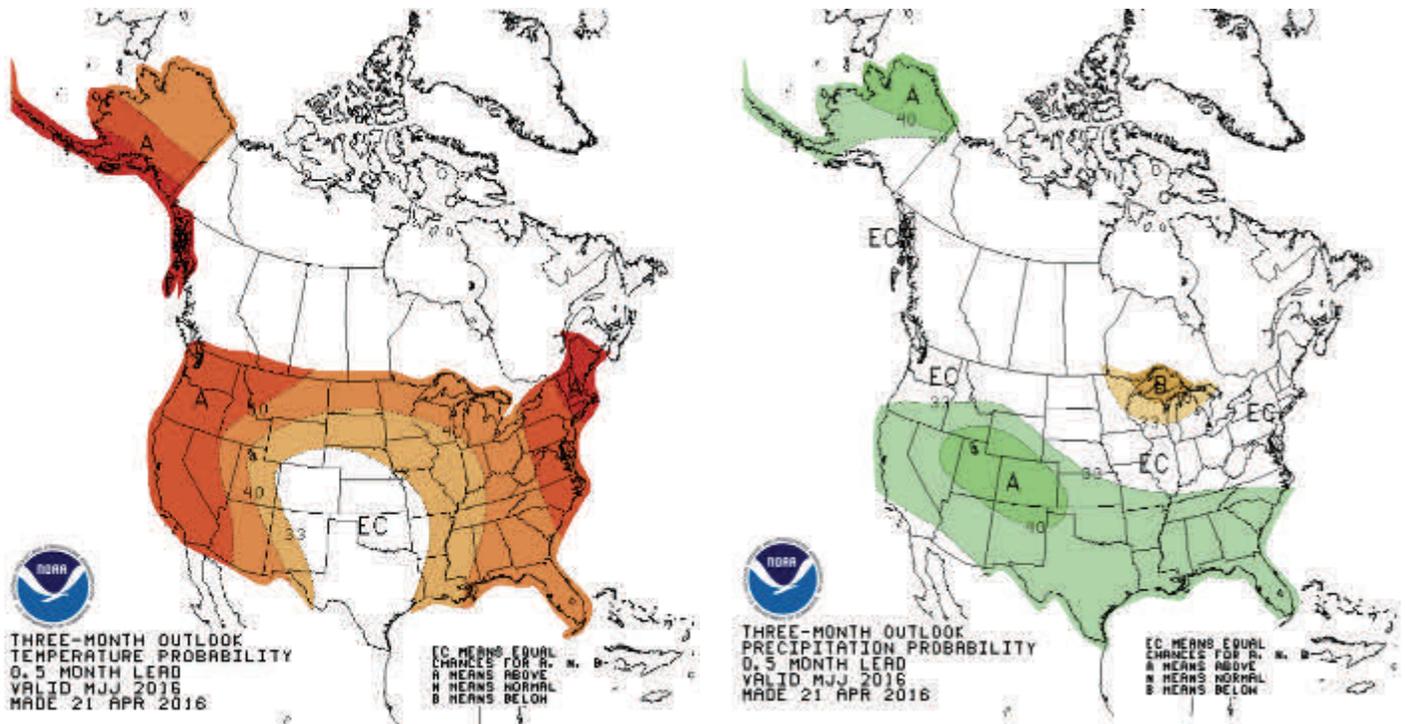
This map is updated weekly and can be viewed at <http://droughtmonitor.unl.edu/>

From this website, if you are viewing the US map, click on the state of Colorado to view a more detailed map.

NOTE: To view regional drought conditions, click on map above. State maps can be accessed from regional maps.

The data cutoff for Drought Monitor maps is each Tuesday at 8 a.m. EDT. The maps, which are based on analysis of the data, are released each Thursday at 8:30 a.m. Eastern Time.

The U.S. Drought Monitor is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration.



Upcoming Classes:

Regenerative Land Stewardship, Friday, May 6, 2016, Cost is \$10 person and the registration deadline has been extended to May 4. Cash or check only. Location: CSU Extension/Pueblo County, 701 Court St., Ste C.

Shaded Fuel Breaks, Friday, May 20, 2016, Cost is \$5 person and the registration deadline is May 18. Cash or check only. Location: Beulah Mountain Park

Range Walk, Friday, June 10, 2016, Cost is \$10 person and the registration deadline is June 6. Cash or check only. Location: Two locations, food and transportation provided.

Monthly Meetings

Pueblo County Farm Bureau meets the second Thursday of each month at Farm Bureau Insurance office, 1900 E. Santa Fe Dr., at 6:00 p.m.

Pueblo County Stockmen's Association meets the first Thursday of each month at Mesa Vet Clinic at 7 p.m.

Turkey Creek Conservation District meets the 2nd Tuesday of every month, Time: 2:30 p.m.
Location: 200 S. Santa Fe Ave., 4th floor, Call: (719) 543-8386 Ext. 116 for details.

South Pueblo Conservation District meets the 3rd Thursday of every month, Time: 6:00 p.m.
Location: 200 S. Santa Fe Ave., 4th floor, Call: (719) 543-8386 Ext. 3 for details.

Noxious Weed Control Plan

- 50% **Cost Share** is available to property owners who apply and are afflicted with a species of weed listed on the Colorado Noxious Weed A or B List.
- Turkey Creek Conservation District highlights their role in Pueblo County's **Noxious Weed Control Program**.
- User friendly method of making this cost share an easy reality for landowners.
- Contact Turkey Creek Conservation District at 719-543-8386 ext. 116 or email: info@puebloweeds.com

website: www.puebloweeds.com

Approximately twelve years ago, when I was a County Extension Agent in Virginia, I built a grow rack in my office. I used it to raise forage plants that I could use in plant identification workshops to help my livestock producers better understand the plants they were using for grazing their livestock. Recently I've been thinking about building such a grow rack again. However, I want something that is multi-purpose and could be utilized for various programming efforts growing forages, vegetables, and flowers. This multi-purpose approach left me wondering how much of a difference the lighting would make on the various types of plants. So, I've been doing some literature review the past few weeks and I thought I would share some of the base points I've read.

The wavelength of light, better known as the color, impacts a plant's growth. Sunlight has an array of light within it. Using a prism, you can separate these to see that there is red, orange, yellow, green, blue, indigo, and violet light. Full spectrum lighting tries to simulate this and plants grow well under it. However, energy from these bulbs can be wasted, as plants will reflect off the yellow and green color rays. A bulb or diode that is created to produce light can be designed to emit particular light colors from the spectrum. Blue light is good for vegetative leaf growth and greater leaf surface can signify a better opportunity for photosynthesis. This is why cool white fluorescent bulbs, which are high in blue wavelengths, are often used by nurseries that are starting seeds. Think of blue light as producing a compact, bushy plant. Red light enhances stem growth; generating elongated plants with thicker stems. Additionally, red light initiates the hormone responses required for bloom development. Considering the different growth responses to blue light and red light, it is good to have a combination of the two.

Light intensity can impact your plant's growth and production. Photosynthesis is the harvesting of light energy and conversion to chemical energy that the plant can use for growth and maintenance. When more leaves of the plant are able to absorb light, a greater amount of photosynthesis can occur. Therefore, in addition to having lighting above the plant, one may want to consider also having lighting mounted to the side of the plant, allowing a greater amount of light energy to penetrate the leaf canopy. This is why some of the newer indoor growing systems have lighting mounted up and down on the support beams of plant shelving. Another aspect of light intensity that should be considered is the location of the plant in respect to a fluorescent light bulb. The center of the bulb will emit more light than the ends of the bulb. Therefore, you should rotate your plants once per week to ensure that some plants are not being restricted by the level of light energy received.

The amount of time that plants are exposed to light is called the light duration. Different plants desire varying lengths of light. Consider this when putting a mixed set of vegetables under artificial lighting and make sure your plant choices have similar lighting preferences. It is important to point out that while many plants like long periods of light, few are tolerant of continual lighting. A good rule of thumb is to allow between six and ten hours of darkness, depending on



Photo courtesy of Steven E. Newman,
Colorado State University

the plant. This leads us to photoperiods; the length of uninterrupted darkness. In general, there are three types of plants, as they relate to photoperiods. Short day plants are those that flower in response to long periods of darkness. Long day plants will flower as a result of short periods of darkness. Finally, the day neutral plants can flower under either circumstance but may do so earlier and more brilliantly under long periods of light.

While fluorescent grow lights have been around for some time, LED lighting designed for plant growth is being researched and some commercial growers are starting to use it. Light emitting diode (LED) technology is expected to have a longer operational life and is much more efficient to operate than fluorescent lighting, but may be more expensive at the point of initial purchase. In addition to the energy efficiencies seen with LED lighting, it is flexible in its light patterns. In other words, a grower can select a mixture of light colors within a LED fixture that is best suited for his/her particular crop. Currently, several Universities are researching the best mix of light colors for a variety of specialty crops. Additionally, there are some research studies that are beginning to suggest that certain LED configurations can influence specific nutrient densities within vegetables and even the development of some cancer preventing antioxidants.

This article just scratches the surface of the plant growth light discussion. Yet, it shows that light can greatly impact plant production. The information I've learned in my literature review of plant lighting has definitely changed my plans for a grow rack in the office. I hope those of you considering indoor plant production will find this information helpful and that you will consider doing some research into the lighting needs of your individual crop(s).

Teff Grass

Are you seeking a new crop for your rotation? How about a summer annual to plant after the winter grain harvest? Teff grass could be a good option to meet several of your needs. This versatile forage grass is relatively new to the U.S. and is rapidly gaining in popularity in many regions. It makes excellent hay, and fits in many crop rotations. It can also be used as a green manure crop or planted as a cover crop for erosion control and reclamation purposes. Teff grass has also been successfully inter-seeded into existing alfalfa stands to boost yields in declining fields.

Teff has its origins in Ethiopia where it was used as a grain crop for flour. Teff grain is gluten free and is a good choice for those suffering from Celiac Disease or gluten intolerance. Since its arrival in the U.S. several varieties have been developed for both grain and forage production. Teff is a warm season annual grass, that when grown as a forage crop, can be harvested multiple times during the growing season. It is a fine stemmed and leafy grass that shows good yields with minimal inputs.

As a forage crop, Teff has many good attributes that make it worthy for consideration in your planting plans. For starters, Teff is highly palatable to livestock, often times being preferred over other grasses. It also is a fast growing plant that germinates quickly and can be harvested for hay in 45 to 55 days after planting and subsequent cuttings can occur every 30 days depending on conditions. The quality of Teff grass hay is often compared to that of Timothy hay. Teff grass is drought tolerant, but like every drought tolerant species production is limited by water availability. It has been



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successfully produced from elevations at sea level to over 9000 feet. It is also tolerant of salty and high pH soils.

The rapid summer growth of Teff makes it an excellent option for emergency forage, double cropping or as a rotational or a green manure crop.

Crop management guidelines continue to be fine tuned for Teff as it gains in popularity. There are some important considerations to pay attention to though as you decide to plant this crop. First, it does not tolerate a frost like many of the warm season annual plants. Planting of Teff should occur when soil temperatures reach 65 degree Fahrenheit and there is no longer a threat for frost. Teff seed is very small containing an average of 1.3 million seeds per pound. Because of this the seedbed should be firm enough to bounce a basketball on to prevent seed from being placed too deep. Seeding depth should be from 1/8 to 1/4 inch and packed to obtain good seed to soil contact. Seed can be either broadcast or drilled at a rate of 5-7 lbs per acre for raw seed and 7-10 lbs if the seed is treated. After the seed has been planted it is a good practice to follow with a roller to obtain that good soil contact.

Teff is considered a low input crop that requires minimal fertilization. Nitrogen needs depending on yield are generally in the range of 50-90 lbs. Over fertilization can lead to plant lodging making harvest difficult. Pest problems are minimal as it is an imported crop that does not have any native insect or disease issues at this time. Weeds can be the largest pest to this plant and there are few herbicides that are labeled for use on Teff. Planting at the proper time in good conditions coupled with the rapid germination and growth can help to suppress most of the weed issues. Finally, producers in Utah report obtaining a crop of Teff on 6-12 inches of water. Though it is drought tolerant higher yields will be obtained with more water.

Teff utilized for forage can be harvested as dry hay, ensiled as grass silage or grazed.

Harvesting as dry hay is the recommended method in order to maximize forage production and return per acre. The first cutting can generally occur 45-55 days after planting and should happen just prior to seed head emergence for maximum hay quality. It is also highly recommended to leave a 4-inch stubble height when cutting Teff to promote rapid regrowth. Because of its rapid regrowth, it is also important to get the hay put up as soon as possible to prevent injury to the new growth and delays in future harvests. It is common for subsequent cuttings to occur 30 days following the previous cutting.



Grazing of animals is another option for harvesting Teff. Teff is very palatable to most livestock and is a good quality feed that is comparable to Timothy for nutritional attributes. Teff does have a dense fibrous root system that is also shallow. Grazing should wait until the plant has established and the root system developed. This is of greater importance in lighter sandy type soils where the whole plant can be easily pulled from the soil.

Finally, Teff is a feed that does not have the anti-quality compounds in it that are often a problem in other crops planted for summer feed production. To date there have not

been any reported issues with Teff for high nitrates, even when drought stressed. Also, unlike many sorghums and sudan grasses, there is not an issue with prussic acid either.

Teff is a versatile warm season annual that just may fill that niche you've been looking for. Good production, good quality in a rapid growing, drought tolerant package makes it worthy of looking in to for your future plantings. If you have any questions or would like more information on this grass, contact me at the Pueblo County Extension Office at 719-583-6566 or send me an email at Tom.Laca@colostate.edu.

Know a Noxious—Russian knapweed, (*Acroptilon repens*)

Facts:

- Russian knapweed (*Acroptilon repens*) is a non-native perennial forb.
- It has a vigorous, creeping, black, scaly root system which can penetrate up to 20 feet deep.
- Spreads from rhizomes as well as seeds.
- Slow to establish but can spread rapidly once present and is difficult to eradicate.
- An aggressive competitor that releases allelopathic chemicals inhibiting the growth of other plants.
- Contains sesquiterpene which is toxic to horses.
- Emerges in early spring with a grayish-green rosette base with dense hairs, then flowers June-August having pink to lavender thistle-like, terminal flowers with an urn shaped flower head, ¼ to ½ inch in diameter.



Photos courtesy of USDA

Control:

- Prevention and early detection are vital for controlling Russian knapweed.
- Combine several methods of control to yield the best results.

Cultural:

- Minimize seed introduction to your land as well as soil disturbances to prevent Russian knapweed from establishing.

Mechanical:

- Hand pulling can be effective for small patches. Tillage fragments the roots and can lead to more plants as they grow from these root pieces. Mowing multiple times throughout the growing season will suppress shots and flowers but not plant population.



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Newsletter Update—If you know of someone who would like to receive our quarterly newsletter, please contact Carolyn at 583-6574 or valdez@co.pueblo.co.us.

Biological:

- The Russian knapweed Gall Midge is currently available as a biological control agent. It is not recommended for eradication but can be used in an integrated pest management program especially in large infestations to reduce the competitive ability of Russian knapweed.

Chemical:

- Always read the label and follow directions when using any chemical. There are many products available, labeled for use on Russian knapweed. See table below for a list and recommendations provided by Colorado State University Extension Fact Sheet on Russian knapweed.

Table 1. Herbicide used to control Russian knapweed.

| Herbicide | Rate (Product/A) | Application timing | Comments |
|-------------|------------------|--|---|
| Tordon | 2 to 4 pints | Spring at bud to mid-flowering growth stages; or late in fall | Use higher rates for older or dense stands; late treatments in fall to dormant plants very effective |
| Milestone | 5 to 7 fl oz | Spring and summer at bud to flowering growth stages; or late in fall | Use higher rate for older stands; late treatments in fall to dormant plants very effective; Milestone may be used to edge of ponds or streams |
| Transline | 1 to 1.33 pints | Spring after all shoot have emerged, bud to mid-flower growth stages; late in or fall | Use higher rate for older or dense; late treatments in fall to dormant plants very effective |
| Curtail | 3 to 4 quarts | Spring after all shoots have emerged, bud to mid-flower growth stages; late in or fall | Use higher rate for older or dense; late treatments in fall to dormant plants very effective |
| Perspective | 5.5 oz | Spring after shoots have emerged through the fall | Late fall treatments into winter when conditions are suitable for spraying is very effective |
| Telar | 1 oz | Spring bud to flowering growth state; or late in fall | Late treatments in fall to dormant plants are very effective; temporary injury to cool season grasses may occur from fall treatments |

