Arizona Range and Livestock News March 2019

THE UNIVERSITY OF ARIZONA
Cooperative Extension

Featured Plant: Bush Muhly

Muhlenbergia porter

Jennifer Collins, Research Specialist, ACRMP

Characteristics

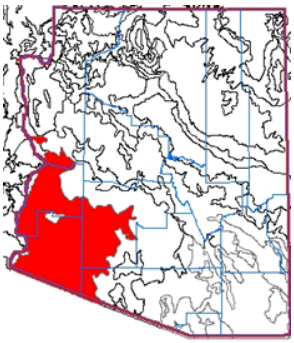
Growth Habit: Categorized as a perennial bunchgrass with weak stems that produce leaves along their entire length. These stems are branched at each internode and knotty at the base. Left ungrazed, this type of bunchgrass can grow to create a tangled leafy mass up to 3 feet tall and 3 feet wide.

Leaves and Stems: Short and fine but numerous and can remain green almost year-round.

Inflorescence: Broad and highly branched flowering system which, during ideal conditions, can intertwine and give a spider web-like appearance. Spikelets are purple to red in color.

Occurrence

Found in every county of Arizona besides Apache, Bush Muhly was once one of the most important and abundant grasses of its kind. It is now commonly found in elevations from 2,000 to 6,000 feet on dry mesas and rocky slopes as individual plants (as opposed to a stand), usually growing under the protection of shrubs. Often occurring in the same habitat and therefore in competition with Buffelgrass.



Forage Value

To all classes of livestock, Bush Muhly provides highly palatable forage every month of the year due to its unique ability to remain green when sufficient moisture is available. Most often utilized from December to July. According to the National Resource Conservation Service, the annual production is between 140 to 210 pounds of forage per acre.

Grazing Management

Deferment of grazing during the summer growing season every 2nd or 3rd year is recommended in healthy pastures to allow for a full crop of seed to set. On depleted ranges, deferment of grazing every July and August is recommended to allow for reproduction and replenishment of the vegetation.

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Image Citation: United States Department of Agriculture Natural Resources Conservation Service. (2005). *Bush Muhly Occurrence Map for Arizona.* Retrieved from https://esis.sc.egov.usda.gov/ESDReport/fsReport.aspx?approved=yes&rptLevel=all&id=R040XC318AZ

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Open Range Law in Arizona

George Ruyle and Jeff Eisenberg
Natural Resource Users Law and Policy Center, School of Extension

"Open Range Law" is an effort by the legislature in Arizona and in Western states to accommodate the historic desire to make large acreages of arid land available for livestock grazing along with other uses.. Open Range Law includes a series of statutes that have been interpreted and applied by the state courts. The basic rule reflects the spirit of settling the west: livestock roam freely except as otherwise provided by law. While some of the limitations are significant as will be noted below, the basic rule still reflects the original character of settling the state by promoting agricultural use of the land. The point of current laws is to establish priorities for the use of the land. Rules addressing livestock use of land are basically divided between those for "open range" and those for "no-fence districts".

Open Range

In general

Open range means that livestock can go where they want within the range, subject to some limitations. The need for further rules arose because of landownership patterns in the West.

Large ranches owned by one person often surround smaller parcels, inholdings, owned by another person. Under Arizona law, it is the responsibility of the owner of the inholdings to erect a fence that meets the requirements of the law (ARS, 3-1426), termed a "legal fence", to keep roaming livestock out of his or her property. This saves the rancher from having to fence all the small parcels that may exist within the boundaries of his ranch lands. Without the erection of such a fence, the inholding owner would have no recourse under the law for any damage caused to his property by the livestock. (ARS, 3-1427). "The obvious purpose and effect of [this statute] was to . . . make the owner of private premises fence his land to keep animals out, rather than to compel the owner of the animals to fence the land upon which they were grazing in order to keep them in." Garcia v. Sumrall, 58 Ariz. 526, 535 (1942).

However, the fencing-out statute does not completely immunize livestock owners from liability for damages. They are still liable for acts of willful trespass, defined as "deliberately and intentionally causing their animals to trespass upon private property." Cienega Cattle Co. v. Atkins, 59 Ariz. 287 (1942). "However, the mere knowledge or expectation that cattle will wander onto private property is insufficient to support liability, and in those cases, the statute requires that the [harmed party] erect a fence in order to recover damages." Carrow Co. v. Lusby, 167 Ariz. 18 (1990).

In Relation to Motorists on Highways

According to Arizona open range law, cattle may also lawfully enter upon the public highway. See Stuart v. Castro, 76 Ariz. 147, 151 (1953). This conclusion is implied by § 24-342, (currently § 3-1427), which makes such activity unlawful in areas designated as no-fence districts and renders livestock owners subject to civil and criminal liability for permitting their animals to run at large in those areas. Id. Nevertheless, "[a]n owner of livestock owes a duty of ordinary care to motorists traveling on a public highway in open range". Carrow Co. v. Lusby. However, "in order to establish a breach of that duty, the [injured party] must point to specific acts or omissions of [the livestock owners] that caused their damages." Id. "[T]he mere failure to prevent one's cattle from entering the highway, by erecting fences or otherwise, does not constitute conduct falling below the standard of care required of livestock owners." Id.

The difficult challenge of identifying "specific acts or omissions" of livestock owners to hold them liable for damages is illustrated by the case of Brookover v. Roberts Enterprises, Inc., No. CV05-0444, Court of Appeals, State of Arizona, Division One (May 8, 2007). While driving on the Salome Highway through the Clem Allotment on open range, Brookover struck a cow with the right front of his vehicle, causing the vehicle to roll and land on its roof. Roberts leased the property with the Clem Allotment in July 2003. He did not erect any fence along the highway. This was the first reported accident involving an animal and a motor vehicle since Roberts occupied the leased premises. Brookover was aware of the presence of cattle along the highway but had never before seen cattle on the Clem Allotment.

Testimony from the ranch managers indicated they are aware of increases in the number of accidents between cows and vehicles after a highway is paved. This was the case with the Salome Highway. The rancher argued that knowledge of other accidents is not relevant to the conditions on the highway through the Clem Allotment which led to the accident at issue. Moreover, this was the first reported cow-motorist accident on that portion of the highway running through the Allotment. The jury did not find that the rancher had notice of any specific dangerous conditions created by its cattle at any particular point on the highway.

The ranch manager also testified that cows will wander two to five miles from their water source. The evidence showed there was a dirt reservoir about a mile from the highway which provided water for the cattle. The jury found the rancher not responsible for placing water near the highway, thereby causing cattle to be present on the road.

The court ruled that Brookover failed to carry his burden of showing "specific acts or omissions" that caused the accident. The decision demonstrates that accidents arising from ordinary ranching operations in open range country will not likely support a claim for damages against the owner of livestock.

Other Open Range Rules

- If livestock are killed in an open range area, whether it is an accident or not, a person may be liable to the owner for damages.

No-Fence District

- County Boards of Supervisors are authorized to designate no-fence districts. ARS 3-1421.
- Most Arizonans do not live in a no-fence district. Contact County Board of Supervisors to determine whether you do. Counties with designated no-fence districts include Maricopa and Pima. A check with the Mohave County office indicates one district was designated in 1965 and is still in effect.
- Livestock owners are guilty of a class 2 misdemeanor if they "recklessly" allow or permit livestock to run at large within a no-fence district. The owners are also liable for damages for trespass on land enclosed within lawful fences, ARS, 3-1424, as well as for damages caused on unfenced land in no-fence districts. ARS, 3-1427.

Potential Springtime Problems

Ashley Wright

Spring is almost here, and with the widespread winter moisture Arizona has received thus far, it's important to be on the lookout for potential problems that could come along with springtime. Here are four concerns that Arizona cattle producers should be aware of this spring:

Grass Tetany. While not a widespread problem in Arizona, there are a few regions around the state that regularly experience bouts of grass tetany in the spring. With the extra rains this year, it's likely that grass tetany will be more prevalent normal. Grass tetany, also called grass staggers, develops from an imbalance of magnesium and potassium. Lush, rapidly growing grasses rapidly uptake potassium and other nutrients from the soil. If the balance of potassium to

magnesium becomes too great (high potassium and low magnesium), and cattle are unable to mobilize magnesium stores from their skeletal system they may develop grass tetany. In many cases, cattle are simply found dead with signs of convulsions. Less severely affected animals may become ill over two to three days, exhibiting decreased milk and appearing uncomfortable and nervous. They may stop grazing, stagger, and develop twitches in the face, ears, and flank. Cattle may act more flighty than normal and get up and down frequently. If startled or stimulated, they act erratically, and run with an altered (staggered) gait. Eventually, these animals will collapse and suffer convulsions, facial twitching, foreleg paddling, and chewing that increase if the animal is handled. Death from this point usually occurs in a few hours. Older animals, especially those in early lactation, are most susceptible although any animal can be affected. If caught early, cattle can be treated with an injection of calcium and magnesium. There is a risk of causing heart failure if this treatment is administered incorrectly, it is best performed by a veterinarian. Grass tetany can usually be prevented by supplementing cattle with extra magnesium during potential danger periods. This is most often accomplished through a providing high magnesium lick or switching temporarily to a high magnesium mineral supplement. Magnesium boluses are available, although they are more labor intensive. Magnesium in some forms is somewhat bitter and unpalatable, so make sure that the form you are using is being consumed by the cattle.

Spring Pastures – Grass Tetany and Bloat
http://www.ansc.purdue.edu/beef/articles/GrassTetanyBloat.pdf

Nitrate Toxicity. There are several plant species in Arizona known to accumulate high levels of nitrate under stressed conditions. These species include Johnsongrass, Pigweed, Kochia, Lambsquarters, and some crop species such as sudangrass. Alfalfa can even accumulate nitrate under the right conditions. Plants naturally uptake nitrogen from the soil and utilize it during photosynthesis. Anything that disrupts that normal cycle puts plants at risk for accumulating high levels of nitrate. Young, growing plants are most likely to accumulate nitrates, especially if subjected to a stress event such as a late frost. When consumed by cattle, nitrates (NO_3) are converted to toxic nitrites (NO_2) in the rumen. These nitrites are absorbed into the bloodstream where they bind hemoglobin (the compound in the blood that binds and carries oxygen), turning it into methemoglobin. As a result, cattle are unable to get adequate oxygen to their tissues or organs and essentially suffocate. Common signs of nitrate toxicity include blue tinged membranes, excessive salivation, urination, and difficulty breathing as well as the characteristic chocolate colored blood. As the poisoning progresses, cattle become weak. Moving cattle around may exacerbate symptoms or cause death: movement of muscle requires oxygen. Pregnant cattle may abort even at low, non-lethal doses of nitrate. Poisoning from nitrate can happen very quickly, often cattle are simply found dead. Horses, as hind gut fermenters rather than ruminants, are less susceptible than cattle to nitrate toxicity. If cattle are found early, they may be treated with methylene blue. Post-mortem diagnosis can be made through testing the ocular fluid in the eye of a deceased animal. Plants or forage suspected of being high in nitrate can be tested, as can water sources. Labs may report nitrate levels in different ways, as nitrate (NO_3), nitrate-nitrogen (NO_3-N), or potassium nitrate (KNO_3). Be sure to look at the correct recommendation of safe levels for your lab's reporting method.

Interpretation of Laboratory Results

Form of Nitrate Reported			Recommendations for Feeding
KNO_3	NO_3-N	NO3	
0 - 1% 0-10,000ppm	0 - 0.15% 0-1500ppm	0 - 0.65% 0-6500ppm	Generally considered safe for livestock.
1 - 1.6% 10,400-16000 ppm	0.15 - 0.23% 1495-2300 ppm	0.65 - 1% 6500-10,000 ppm	Caution: Potentially toxic at this level. Mix, dilute, limit feed forages at this level.
>1.6% >16,000 ppm	>0.23% >2300 ppm	>1% >10,000 ppm	DANGER, DO NOT FEED: Potential for toxicity high.

Figure 1http://www.iowabeefcenter.org/information/IBC50.pdf

Further Reading:
Forage Facts: Nitrate Toxicity
https://www.asi.k-state.edu/doc/forage/fora13.pdf

Nitrate Toxicity
http://www.iowabeefcenter.org/information/IBC50.pdf

Prussic Acid. Also known as hydrocyanic acid (HCN), is similar to nitrate poisoning in that it is usually preceded by some sort of plant stressor, such as a frost or drought, and it affects the cattle's ability to utilize oxygen. Rather than preventing hemoglobin from binding oxygen (as is the case with nitrites), HCN acts to prevent the cattle's tissues from utilizing oxygen. Cattle are often have difficulty breathing, foam at the mouth, and become progressively weakened, or are simply found dead. Rather than the chocolate colored blood characteristic of nitrate toxicity, the blood of affected cattle is a bright cherry red color. Treatment is possible with methylene blue or sodium nitrate, however a veterinarian should be consulted to ensure a differential diagnosis from nitrate toxicity. Johnsongrass and other sorghums are the most likely plants in Arizona to produce HCN under stressed conditions.

Prussic Acid Poisoning in Livestock
https://aces.nmsu.edu/pubs/_b/B808/

Locoweeds. Wet winters in Arizona are often followed by significant blooms of locoweed in the spring. Not all locoweeds are toxic, and those that are can be divided into three categories: Selenium poisoning, nitrotoxin poisoning, and swainsonine poisonin (aka locoism). Of these, swainsonine poisoning is of the most concern in Arizona. The toxic compound swainsonine is synthesized by an endophyte fungus that inhabits the locoweed plant. The compound impairs several cellular processes which ultimately disrupt organ systems, including the nervous system and reproductive organs. Poisoning from locoweeds is a chronic process, animals must consume the plant regularly over a period of weeks. Signs of toxicity include odd or erratic behavior, a slow, staggering gait, staring, weight loss, and lack of coordination. Animals that are severely affected may never recover fully with residual behavior patterns that do not disappear even when removed from locoweed for several weeks. Locoweed poisoning also negatively affects both the female reproductive processes and spermatogenesis (the formation of sperm), causing bulls to be temporarily infertile for up to 90 days after consuming locoweed. The most effective means of control are to restrict access to locoweed by moving to another less infested pasture if able, prevent overgrazing on locoweed infested areas so that animals are not forced to consume it, remove animals that are known locoweed consumers from the herd (they may influence other animals to begin consuming it), and remove or treat locoweed with herbicide where and when possible. It is important to note that horses are especially sensitive to locoweed poisoning, and affected horses may develop dangerous and violent behavior patterns that make them unsafe to handle or ride. It is not advised to allow horses to graze any pasture infested with locoweed.

Locoweed Poisoning in Livestock
https://journals.uair.arizona.edu/index.php/rangelands/article/viewFile/18880/18648

Locoweed Poisoning of Horses
https://aces.nmsu.edu/pubs/_b/B713/welcome.html

ALIRT ARIZONA LIVESTOCK INCIDENT RESPONSE TEAM

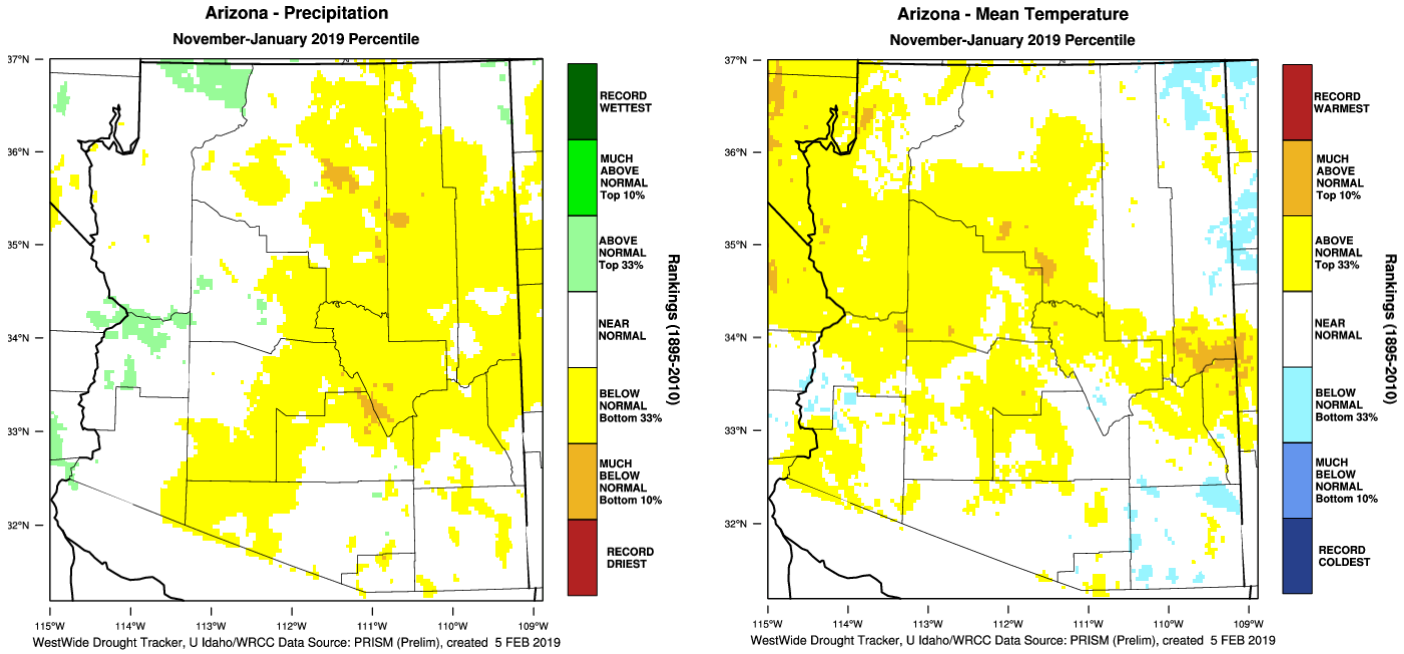
If you suspect a toxicity issue, contact your veterinarian, an ALIRT Veterinarian or local county Cooperative Extension staff. The Veterinarian will complete a preliminary exam to determine if an ALIRT response is necessary.
ALIRT Telephone Numbers:
Office of the Arizona State Veterinarian 1-888-742-5334 option 5
Arizona Veterinary Diagnostic Laboratory 1-520-621-2356

Additional information can be found at
https://acbs.cals.arizona.edu/alirt/ https://acbs.cals.arizona.edu/alirt/contactinfo.html

Arizona Seasonal Climate Summary: Winter 2018-2019

February 6, 2019 - The November through January period was much cooler and wetter than this same period last year and has helped to beat back drought short-term drought conditions across the region. After a very wet October for most of Arizona, November was a bit quieter with only a handful of light precipitation events occurring over the northern half of the state. Near to slightly below-average temperatures were beneficial in slowing the loss of soil moisture from the October rains even though the month was below-average precipitation-wise. The weather pattern became more active in December, especially towards the end of the month as several strong and cold storm systems brought widespread rain and snow to Arizona. The storm systems favored southern Arizona where December precipitation totals were above-average for the month. The active weather pattern continued through the beginning of January with several more cold and wet storm systems bringing widespread precipitation to the region and helping to boost most of Arizona to average to above-average precipitation.

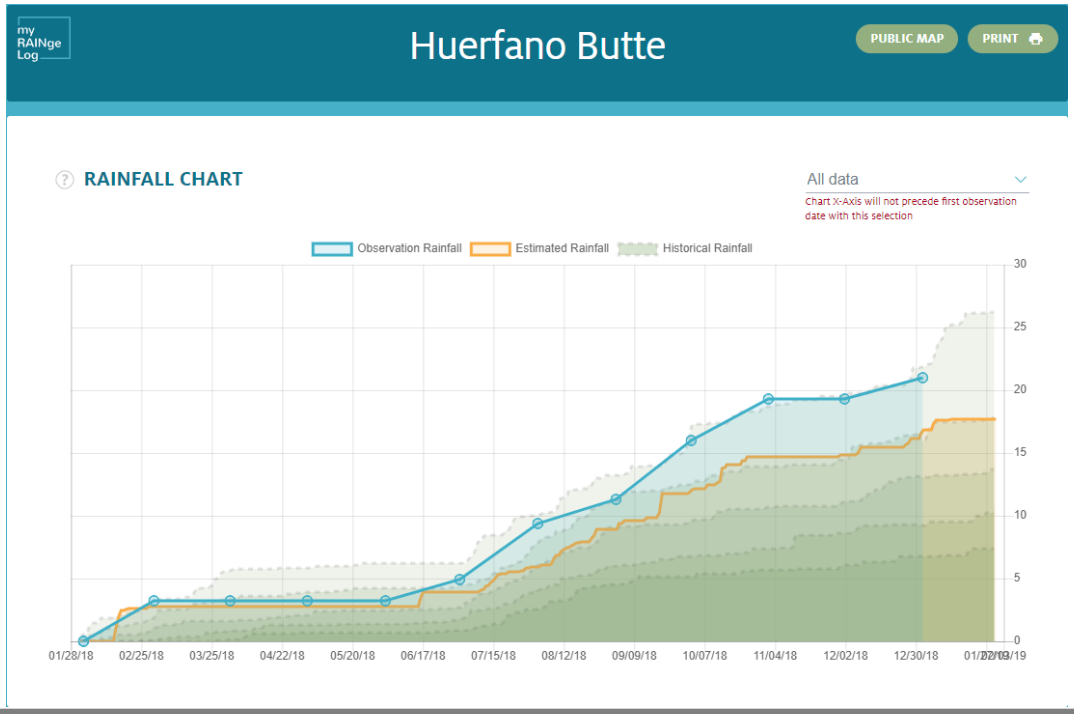
Overall Arizona observed near-average temperatures and precipitation levels over the Nov. through Jan. period and continued to see improvements in short-term drought conditions. The record to near-record wet conditions in October brought major improvements in lingering drought conditions that developed over a year ago, but the recent wet conditions have promoted improvements observed on the U.S. Drought Monitor (USDM) over this period. Currently over half of Arizona is observing 'Abnormally Dry' or no drought conditions on the latest USDM. 'Severe' to 'Extreme' drought conditions persist over northeast Arizona where precipitation amounts have been substantially less.



November-January precipitation and temperature rankings from the WestWide Drought Tracker

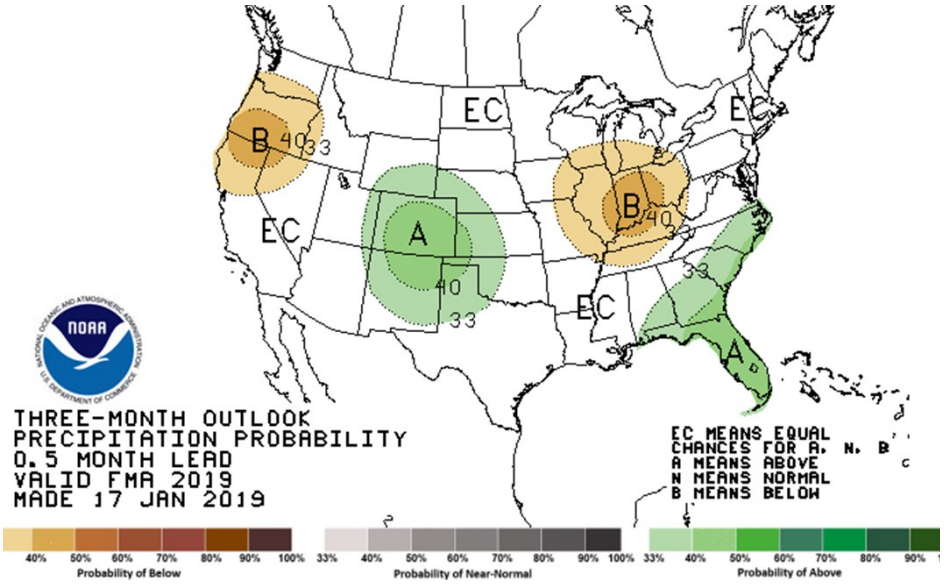
(http://www.wrcc.dri.edu/wwdt/)

More information available at :
http://cals.arizona.edu/climate
http://www.climas.arizona.edu
Questions /comments? Contact Mike Crimmins, crimmins@email.arizona.edu



This chart from the online tool called myRAINge Log (https://myraingelog.arizona.edu) shows the cumulative precipitation observed at the Huerfano Butte site located on the University of Arizona Santa Rita Experimental Range. The blue circles indicate the actual cumulative, monthly precipitation observations collected at the site while the orange and green lines indicate the gridded estimates of current and historical precipitation variability respectively from the PRISM Climate dataset (same as used on the maps on page 1). The chart shows the discrepancy between the PRISM estimates (orange line) and the observed precipitation amounts (blue line) at the site. This illustrates the importance of collecting actual precipitation data at key monitoring sites rather than relying on nearby stations or gridded estimates. The myRAINge Log tool is designed to manage and visualize cumulative precipitation data collected at remote, rangeland monitoring sites. Visit https://info.myraingelog.arizona.edu/ for more information on how the site works or https://myraingelog.arizona.edu/signup to create a free account.

The February-March-April seasonal precipitation outlook issued by the NOAA Climate Prediction Center in late January depicts equal chances of either above, below or near-average precipitation for almost all of Arizona over the next three months. This outlook indicates there is not a strong forecasting signal to suggest a lean towards any of these categories. A weak El Niño event present all winter failed to connect with the atmospheric circulation pattern over the northern hemisphere and did little to influence the weather over the southwest U.S.. El Nino events can enhance the winter storm track across the Southwest and bring above-average amounts of winter season precipitation, even as late as February and March. The fact that this El Nino event has been weak, not much of a factor in December and January weather patterns, and is expected to weaken further is causing forecasters to lose faith that it will be much of player over the next three months. Temperature outlooks suggest an increased chance of above-average temps over Feb-April consistent with long-term trends of warming spring temperatures (More info at http://www.cpc.ncep.noaa.gov/products/predictions/long_range/)



Arizona Cattle Growers' Association Update

Jay Whetten
President, Arizona Cattle Growers' Association

Looks like most folks are headed into the best spring we have seen in years! A lot of rain and snow certainly makes ranchers look like success. I believe ranchers are the first to recognize God for the blessings we receive. We are a grateful community today. We thank thee God!!

Our Winter Meeting was a huge success, with outstanding support from our State Government folks: Commissioner Lisa Atkins, Mark Killian and Hunter Moore from the Governor's office. We also had Dan McCarty and our very good friend Ethan Lane from PLC. David Brown was also present to update us on DCP and other water issues around the State. We are fortunate to have such an authority on water with us. Kevin Heuser from Tyson Foods was one of our featured presenters along with Ross Wilson, President and CEO of Texas Cattle Feeders, and Matt Teagarden CEO of the Kansas Livestock Association. Traceability and the demands of the beef market in today's world was the discussion.

The drivers of today's beef market are those who shop in the grocery stores around the country. Today the majority of those shoppers are millennials who are outpacing everyone else in numbers and buying power. This demographic is really worried about the origin of the food they purchase and is very curious to know more about the ranchers behind the meats they select. Aside from the quality and price, a significant number of todays meat shoppers are more concerned about how their meat was raised and where it was raised. Our consumers want to know the entire production story from pasture to plate. They not only want to know that the animal lived a happy, healthy life, but they want to know that the end product is healthy and safe for their families. In the minds of food customers, the definition of "premium" has changed. It has moved away from fancy or gourmet associated with high prices to transparency in production, natural flavor and a local product. Because todays shopper is greatly influenced by electronic information and communication, they are now the major force in determining the type of product that we must produce.

Consequently, we at Cattle Growers' believe the time has arrived to begin to explore a volunteer traceability system that could provide the transparency to meet todays market demands. The Kansas Livestock Association and the Texas Cattle Feeders Association started different traceability programs last year. We heard about their programs at the Winter Meeting and found that they are a work in progress. They do not have all the answers but are determined to get ahead of the eight ball in trying to comply with today's market requirements. We will be forming a working group to participate in designing a program operated by AGCA for Arizona cattle. We will continue to communicate with those that have experience in this field and design the system that best fits us. Anyone who wishes to be part of this working group, please let us know.

A special thanks to all of you who participate in making our Association successful: the Ex Committee, the Chairmen of the different committees, the BOD and all of you who have continued forward determined to make this association better. A special thanks to Gaither who has stepped up with no institutional knowledge and no guidelines, protocols, or employee manuals to follow. He has done and is doing an exceptionally great job putting the different pieces together and making it work! Also, Ashlee with energetic determination has taken the Cattlelog to a new level, not without Rick Bader's advice and help. For the first time in years, the Catalog is in the black with NO subsidies. Thanks to all that have been involved in making this happen.

Precipitation Monitoring Part 2: My RAINge Log

Ashley Hall and Mike Crimmins

In Precipitation Monitoring Part 1, we discussed best management practices such as how many gauges you need and where to place them. As a reminder, the number of gauges will depend on management goals/decision such as, grazing rotation, geography, and anticipating impacts to water sources. Keep in mind time and resources related to checking gauges is also an important factor. If possible, place rain gauges at locations you drive by often, don't forget about topography when placing gauges, and at a minimum monitor rain gauges twice a year (after summer and winter rains). If you participate in rangeland monitoring it can be helpful to place a rain gauge at each key area. In this installment we will discuss how to keep track of all the precipitation you've received in this wet winter.

For years, land managers and ranchers have been using their own simple PVC gauges in order to capture the spatial variability of precipitation events and keeping track of these events in a pocket notebook. My RAINge Log is a web app that enables users to log precipitation data even if the user does not have cell service.
On the Gauge Dashboard users can view all of their gauges, gauge activity log including who logged the data (user or helpers), and gauges shared with them (Figure 1). Helpers, or community volunteers, can be invited to join a rain gauge as editors or contributors in order to assist the user in adding observations. A Contributor has access to all observations, the ability to add new observations and edit/delete observation only made by themselves and cannot modify gauge settings. An Editor has full access to add, modify, and edit observations and rain gauge settings. At any time, the user may change the role and status of a helper. If for any reason a helper needs to be removed, the user can do so without deleting observations the helper has made assuring gauge data stays safe.

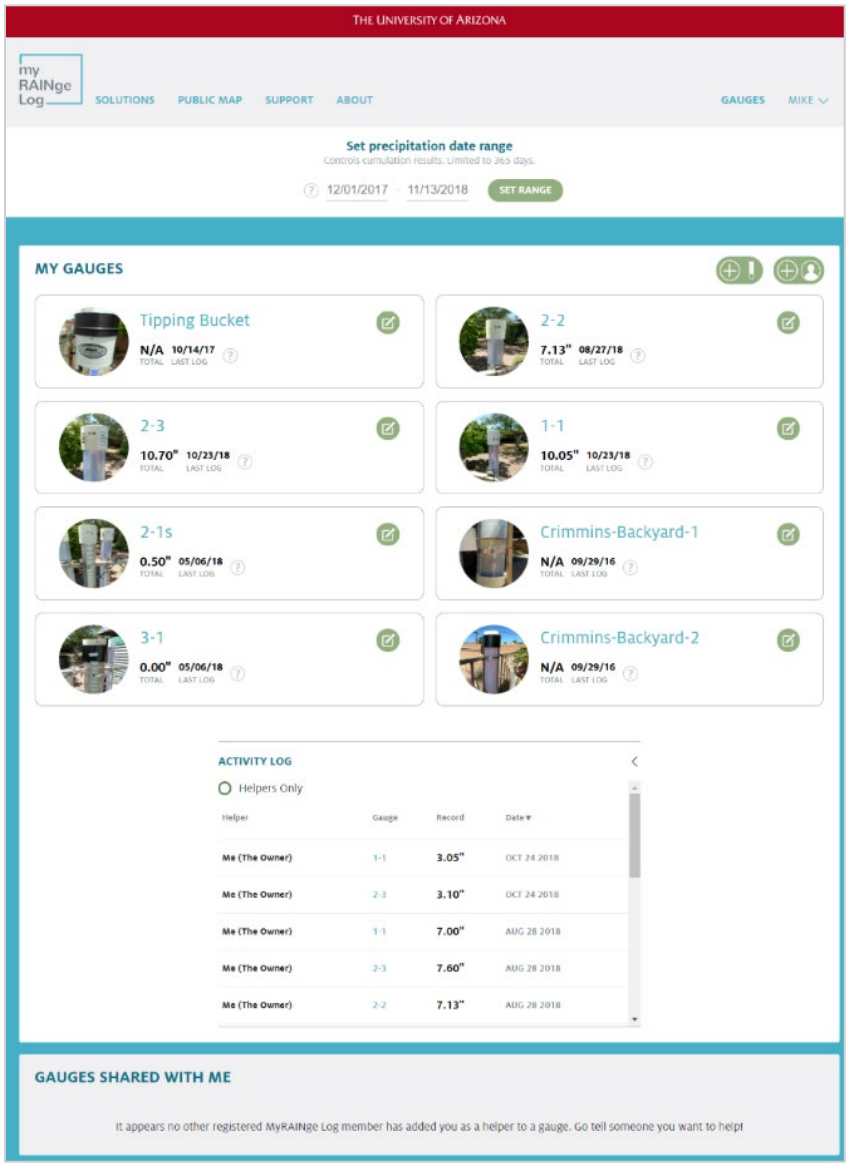


Figure 1. Rain Gauge Dashboard

On the individual gauge dashboard, users can view a rainfall chart, cumulative summary based on a date range, a log of all observations, map of the rain gauge location, rain gauge preferences, and generate a rain gauge report. Rain gauge preference is where users set if their gauge is public or private, measurement units (inches or millimeters), and view helpers for that specific gauge. For each rain gauge, multiple photos and notes can be stored along with precipitation measurements.

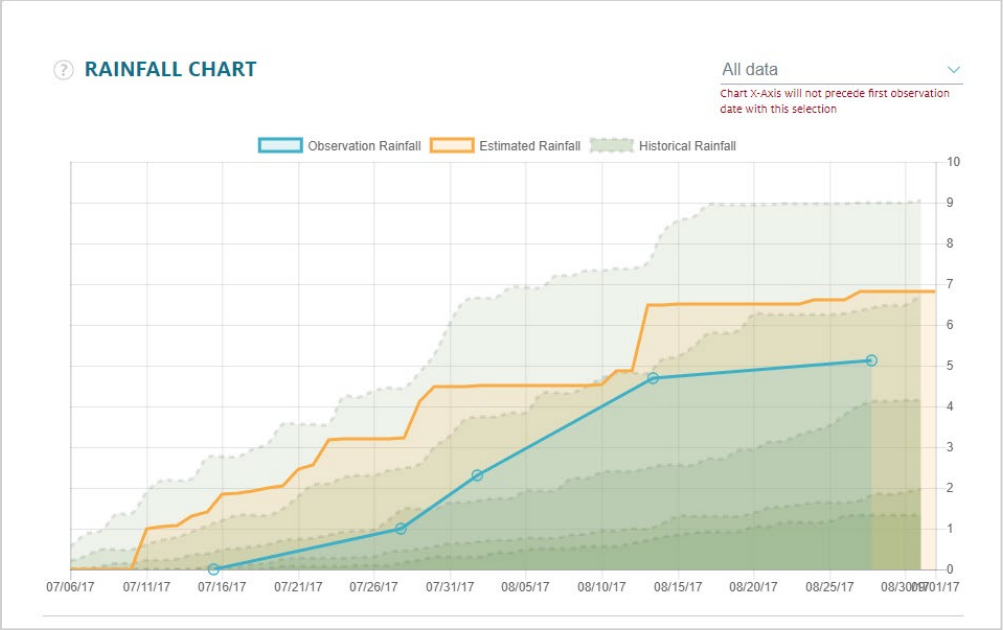


Figure 2. Historical Rainfall Comparison

My RAINge Log also offers features to help ranchers and land managers interpret observations. The rainfall chart graph tracks accumulative precipitation for a set date range. From this chart, users can generate a graph to compare their values to the historical average. This can help provide insight on whether precipitation values are considered wet or dry compared to the historical rainfall based on estimates from PRISM(Figure 2). By generating the rain gauge report, users not only get the rainfall chart but also an observation log table. This table summarizes by observation and includes the observation date, precipitation amount notes, photo, and whether each observation was very dry, dry, normal, wet, or very wet.

Visit https://myraingelog.arizona.edu to create and account, begin logging precipitation and for more information.

Livestock News

On January 11, 2019 the University of Arizona Cooperative Extension hosted the First Reproductive Diseases of Beef Cattle Workshop. Held at the Marana Stockyards in Marana AZ and sponsored by Boehringer Ingelheim, Animal Health Express, and Allflex, the workshop included local and national experts speaking on the importance of reproductive disorders in the livestock industry, especially Trichomoniasis (Trich). The workshop drew in over 70 attendees, highlighting the importance of this topic to the beef industry.

Speakers included Dr. Russ Tronstad (UA Agriculture and Resource Economics Specialist) who spoke about the economic risk and cost of Trich to Arizona beef herds and he presented a simulation model that allows producers to estimate the economic impact of Trich control management strategies. Dr. Dean Fish (Anchor F Cattle) discussed proper facility designs for safely handling cows and bulls, including a tour of the facilities at Marana Stockyards. Dan Bell (ZZ Cattle Co.), a local rancher from Nogales, talked about the importance of record keeping on his operation for herd health, and how his system has evolved over time to include the information that is most useful to him. A veterinarian from Boehringer Ingelheim, Dr. Lewis Dinges, gave participants a detailed look at the science behind Trich detection, control, and disease eradication.

Lunch included a question and answer session, where participants had an opportunity to discuss the issue of Trich with the veterinarians in attendance, as well as a local producer affected by the disease. After lunch participants took part in two different hands-on demonstrations. Dr. Peder Cuneo (University of Arizona) and Dr. Clayton Wengert (Marana Veterinary Clinic) demonstrated the anatomy of bull reproductive organs using repro tracts provided by the UA's Food Products and Safety Lab (aka the Meat Lab) as well as the proper technique for sampling bulls to detect Trich. Participants also had an opportunity to learn from Barbara Jackson (Animal Health Express) how to perform a BVD snap test, and how to use the IDEXX Pregnancy Test kits.

This workshop was possible thanks to the support of sponsors, speakers, and CE extension administration and specialists, Marana Stockyards, as well as the committee of southern Arizona ranchers, veterinarians, and industry partners who worked together with Ashley Wright (UA Cooperative Extension Livestock Assistant Agent) to put this program together.

New Livestock & Rangeland Agent for Apache, Navajo and Northern Greenlee Counties

The University of Arizona Cooperative Extension has welcomed Dr. Joshua Grace to the position of Assistant Area Agent, Livestock & Rangeland Management in northeastern Arizona. Josh has been on the job since November and is based out of Apache County, where he serves Navajo, Apache, and N. Greenlee Counties. Josh role in N.E. Arizona will include providing educational and technical assistance to livestock producers and land managers alike.

Josh has worked in rangeland management in both southeast and northern Arizona since 2016. Prior to finding his way to Arizona, he lived and worked in south Texas conducting management-based rangeland research. His interests in range and livestock sciences are broad, but include rangeland and habitat ecology and management, invasive species, grazing systems, plant nutrition, rangeland planning and monitoring, and other areas contributing to sustainable rangeland use and livestock production. Josh will be assessing the needs of producers and land managers within his work area in an effort to develop targeted educational and outreach programing. Josh can be reached at:

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Jgrace1@email.arizona.edu

Annual Southwest Noxious, Invasive Plant Short Course

Mark your calendars for July 23rd, 24th and 25th! San Juan College in Farmington New Mexico will be hosting the 25th Annual Southwest Noxious, Invasive Plant Short Course. At this workshop, you will learn about the impacts and control measures to take against Noxious and Invasive Plants. There will be 12 different knowledgeable instructors from across the Western US!

A draft agenda and registration information should be available the first week of May. If you are interested or have any questions, you can contact Larry Howery at lhowery@ag.arizona.edu.

March

5 **Range Livestock Nutrition Workshop, Willcox** – Registration: https://www.azcattlemensassoc.org/events-meetings/range-livestock-nutrition-workshop

6 **Range Livestock Nutrition Workshop, Prescott –** Registration: https://www.azcattlemensassoc.org/events-meetings/range-livestock-nutrition-workshop

7 **Range Livestock Nutrition Workshop, Holbrook** – Registration: https://www.azcattlemensassoc.org/events-meetings/range-livestock-nutrition-workshop

22 **Beginning Rancher Workshop, BBQ, & Dance, Kingman** – Cost: Free. Contact Andrew Brischke for more information: brischke@cals.arizona.edu

23 **Beginning Rancher Fundraiser Roping, Kingman** – Cost $90/Roper. Contact Ashlee Mortimer: 602-267-1129 or 928-925-6242 or Ben Menges: 928-965-2912

April

2 **AZ/UT Range Livestock Workshop and Tour, Hurricane, UT** – Cost: Free. Contact Andrew Brischke for more information: brischke@cals.arizona.edu

3 **AZ/UT Range Livestock Workshop and Tour, Orderville, UT** – Cost: Free. Contact Andrew Brischke for more information: brischke@cals.arizona.edu

4 **AZ/UT Range Livestock Workshop and Tour, Hamblin Ranch, UT** – Cost: Free. Contact Andrew Brischke for more information: brischke@cals.arizona.edu

16 **Rangeland Precipitation Monitoring Workshop, Willcox** – Cost: Free. Contact Kim McReynolds for more information: kimm@cals.arizona.edu

May

3 **Beginner Ranch Workshop Series: Soil and Water Fundamentals, Stockton Pass** (field site – off highway 266) – Contact Ashley Wright for More information: awright134@email.arizona.edu

July

23-24 **Annual Southwest Noxious, Invasive Plant Short Course, San Juan College, Farmington, NM** – Contact Larry Howery for more information: lhowery@ag.arizona.edu

August

9 **Beginning Rancher Workshop Series: Land Acquisition and Business Planning, Location TBD** – Contact Ashley Wright for More information: awright134@email.arizona.edu

September

20 **Beginning Rancher Workshop Series: Ranch Funding Programs from USDA, NRCS, FSA and Others, Location TBD** – Contact Ashley Wright for More information: awright134@email.arizona.edu

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University of Arizona - Range and Livestock Contacts:

Specialists:

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Agents:

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Mohave & Coconino Counties: brischke@cals.arizona.edu
Josh Grace – Area Assistant Agent, Livestock & Range – Apache, Navajo, & Northern Greenlee Counties: jgrace1@email.arizona.edu
Ashley Hall – Area Assistant Agent, Agriculture & Natural Resources – Gila & Pinal Counties: AshleyS3@email.arizona.edu
Kim McReynolds – Greenlee County Extension Director & Area Agent, Natural Resources
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Cochise, Pima & Santa Cruz Counties: awright134@email.arizona.edu