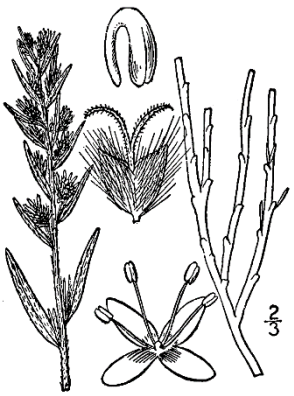
Southeastern Arizona Range and Livestock News December 2016

THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
COOPERATIVE EXTENSION

Serving Cochise, Graham, Greenlee, Pima, and Santa Cruz Counties

Featured Plant: Winterfat

Krascheninnikovia lanata



Winterfat is a member of the large Goosefoot plant family. Some other plants in this family include sugar and garden beets, spinach, salt bushes, and Russian thistle. Winterfat occurs from 2,000 to 7,000 feet in elevation, mainly in grasslands. A small shrub, from 1 to 3 feet tall, winterfat has a woody base with numerous herbaceous branches. The leaves and stems have white hairs that give the plants a silvery appearance. The leaves are alternate, with the margins being entire and rolled under. The flowers have no petals and are clustered in the leaf axils. They are wooly and white, giving a cottony appearance. Both male and female flowers occur on the same plant.

Winterfat is one of the most valuable native forage plants, especially as winter feed. It is considered as excellent to good browse for cattle, sheep, and goats and fair for horses. It is valuable for maintaining the weight of adult animals during winter due to the high (>10%) crude protein content. Winterfat is also considered good forage for pronghorn, elk, mule deer, and many small mammals and birds.
It is reported as valuable for controlling erosion. This is because it has both a deep taproot and an extensive fibrous root system near the soil surface which helps stabilize soils. Winterfat can be effectively used in reclamation efforts because it establishes easily on poorly developed soils.

Winterfat has a high tolerance to grazing during the winter, but no more that 50% of the annual growth should be removed during the dormant season. During the active growing season, recommendations call for no more than 25% (spring) to 35% (summer) of the forage be removed.

Native Americans had several uses for winterfat. Medicinally, they applied the powdered root to burns and treated fever with a decoction of the leaves. Some are reported to have soaked the leaves in warm water to make a hair wash.

Line Drawing Credit: USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. An illustrated flora of the northern United States, Canada and the British Possessions. 3 vols. Charles Scribner's Sons, New York. Vol. 2: 20.

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You can find this as well as past newsletters in full color with live links at our website:
http://uacals.org/3xp

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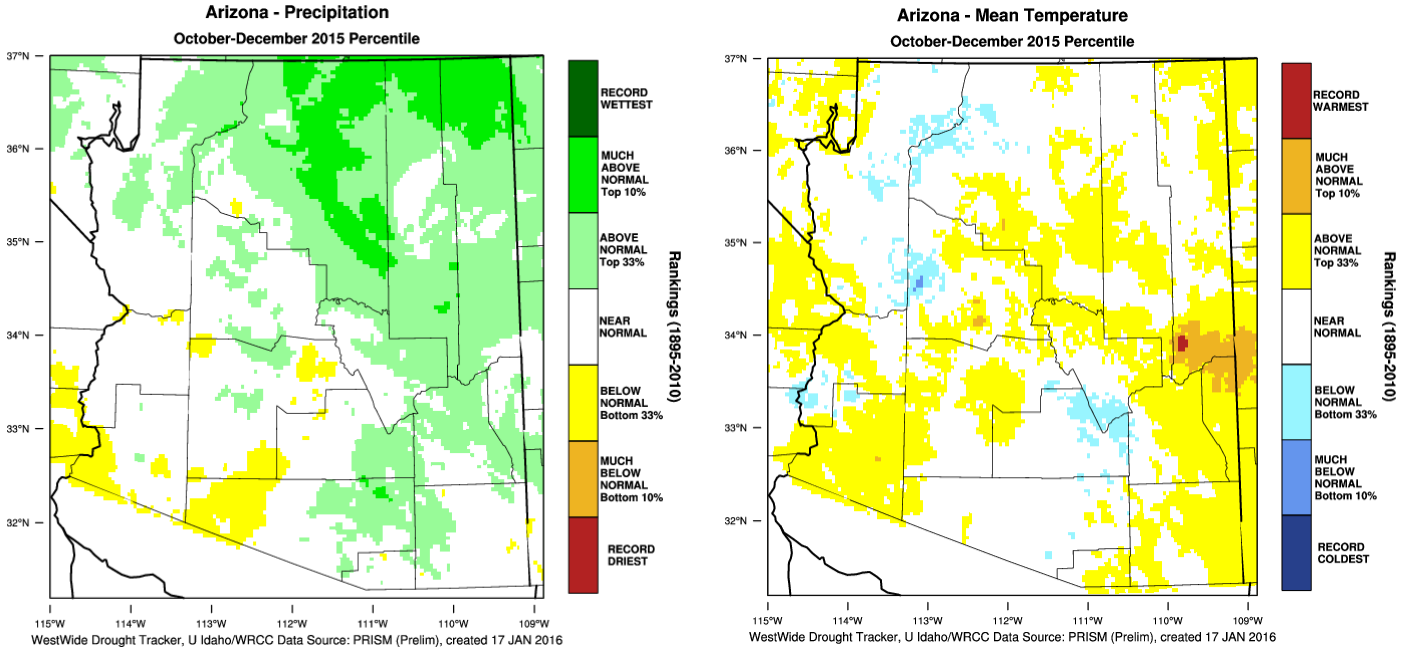
Southeast Arizona Seasonal Climate Summary: Winter 2015-16

January 20, 2016 - The October-December period was relatively active weather-wise in concert with the ongoing strong El Niño event underway in the Pacific Ocean. Several cut-off low pressure systems (including one that crossed the Southwest twice!) drew subtropical moisture into southeast Arizona throughout the month of October producing several rain events. Beginning in November the weather pattern transitioned into a more typical winter time storm track with storm systems originating in the Gulf of Alaska periodically diving south across Arizona and New Mexico. These storms brought periodic cool downs, but often lacked much in the way of moisture. Two events, one in mid and late November tapped into some moisture bring precipitation and snow to the region.

This pattern continued through December with only one mid-month event bringing much in the way of additional precipitation. Overall, the October-December period was near to slightly above-average due mostly to precipitation picked up in October. Temperatures were also near to slightly above average as well due largely to the balance of cool overnight temperatures and several warm spells in October and again in November and December.

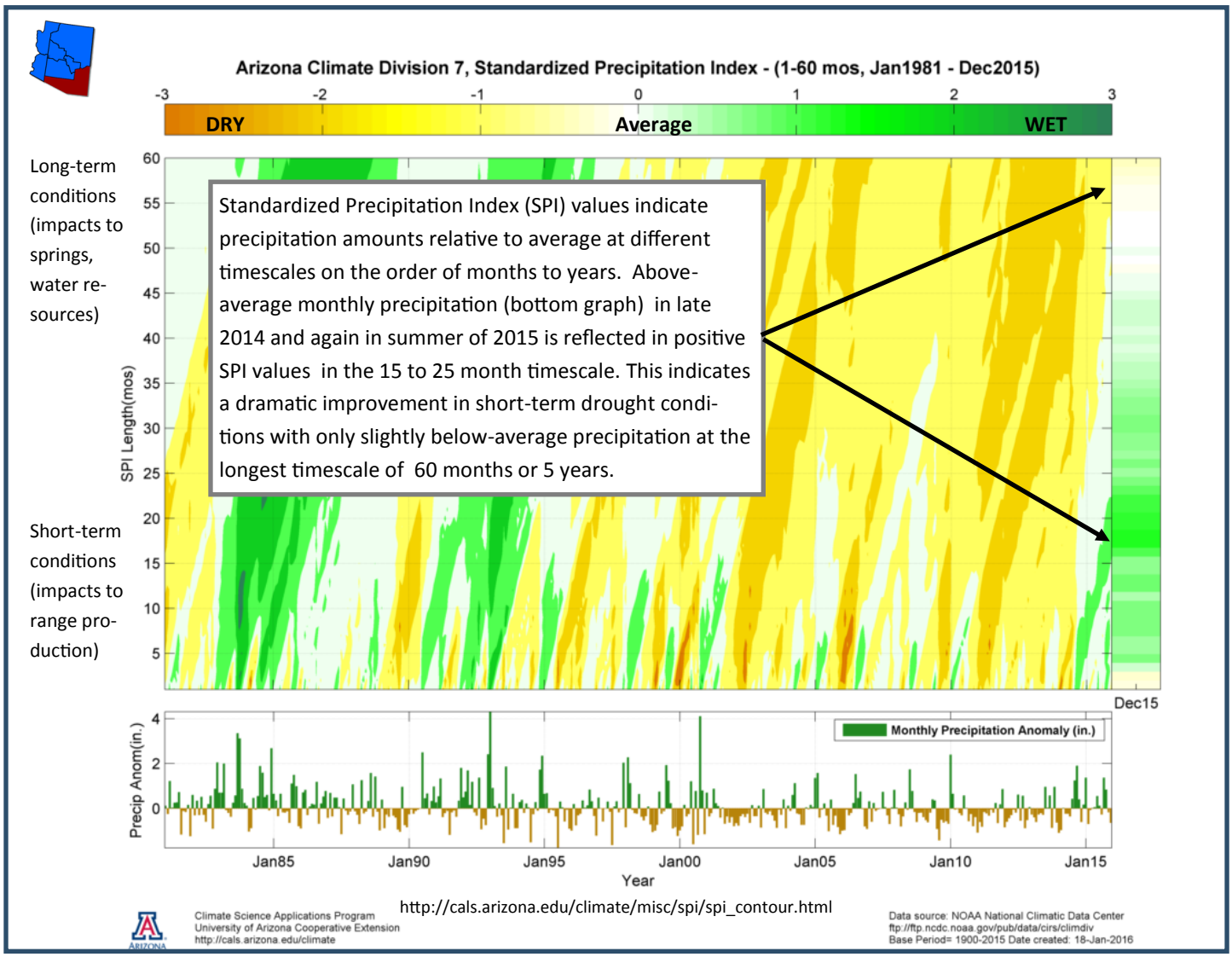
The strong El Niño event underway is expected to persist through late spring and should continue to raise our chances of observing above-average precipitation for the January through April period. Several more wet periods like the one in early January should continue to emerge over the next several months helping to continue to alleviate any remaining short-term drought conditions.



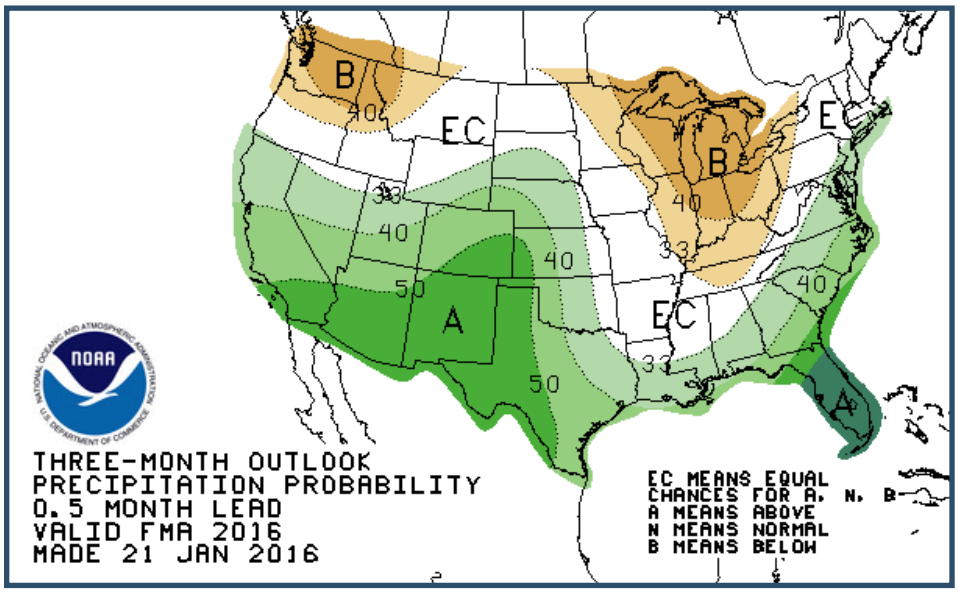
October– December precipitation and temperature rankings from the WestWide Drought Tracker

(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



The February-March-April seasonal precipitation outlook issued by the NOAA Climate Prediction Center on January 21st, 2016 depicts an increased chance of seeing above-average total precipitation over the upcoming 3-month period. This is a relatively high confidence forecast due to the strong El Niño event underway in the Pacific Ocean. The late winter/early spring storm track is typically pushed south and can bring a parade of storms to the Southwest during this period. Past El Niño strong events like the winter of 1982 and 1998 brought heavy precipitation to southern Arizona in February and March. In February of 1998 Willcox recorded precipitation on 12 days during the month totaling over 3 inches. El Niño is expected to gradually diminish through the spring and early summer. Forecast models don't appear to have any insight on the upcoming monsoon season but do hint at a possible La Niño event developing later this summer.



Mangement Factors to Improve Range Cow Reproduction

Of the factors that influence the growth and reproductive performance of beef cows, proper nutrition is probably the most critical. Because feed costs (including range) represent over half the total cost in a cow-calf production system, it is very important to keep feed costs low while meeting your animals' nutritional needs. Developing feeding, supplementation and management programs to improve pregnancy rate and reduce the variation in pregnancy rate can have significant benefits. Vital nutrients in beef cattle diets include water, energy, protein, calcium, phosphorus, potassium, sodium, trace minerals, and vitamins.

Depending on your circumstances, you may choose from a number of feeding approaches for your herd. The traditional approach is to allow the cattle unlimited access to range. If the forage is not sufficiently high in protein, energy and other nutrients, the cows may be malnourished even though they have all they can eat. In general, forages are high in quality when they are vegetative and green. As they mature the forage quality goes down and when the go dormant quality declines even more. Poor quality range (mature or dormant) has a high proportion of fiber to protein and takes longer for cows to digest. Consequently, cows can eat only about one and a half percent of their body weight per day of low-quality forage. It may be necessary to supplement a low-quality forage diet with some type of protein supplement (i.e. blocks, range cubes, tubs). With supplementation, cows can actually digest more low-quality forage and increase their intake up to two percent of their body weight.

Mineral supplementation is also important. Phosphorus supplementation may be needed particularly from calving to breeding, but it is expensive. Micro minerals should also be in your supplement, particularly Zn, Cu and Se. All of these minerals are important for good immune function. Zinc is also very important for good bone strength and hoof health. In adequate Se can also result in white muscle disease, retained placenta, and poor reproduction. Vitamin supplementation should include vitamin A (particularly with dry weathered forage), and vitamin E (which helps with Se deficiency). Changing management can also have an influence on cow reproductive rate.

In Arizona we typically get good forage in the spring and again in the summer because of rainfall patterns. This results in 2 short periods of good quality forage during the year. The rest of the year the cattle are grazing mature dry forage that is poor quality and does not meet the young cow's nutrient needs. One way to reduce the cows nutrient needs is to early weaning the calves off the two year olds prior to breeding. This will allow them to get bred earlier and gain body condition prior to calving as three year olds. This is because we remove the lactation stress and lower the nutrient requirements of the heifers. Overall when you look at feed costs for the calves, additional weight of the calves, calving earlier in the breeding season, and improvement in reproduction, early weaning the first calf heifer's calves is a good way to improve reproduction for the entire herd. When we have drought conditions (poor range conditions) it can be beneficial to early wean the calves from the entire cow herd to improve reproduction and reduce consumption of range.

Some producers have improved reproduction by changing their calving season to summer so that they calve and breed when range conditions are of high quality due to summer rains. This change can reduce feeding and supplementation costs and it can be combined with early weaning if it creates the most economical system.

The information in this publication comes from a ranch with a good herd health program. It is important to work with your veterinarian to develop a vaccination and testing program to ensure that reproductive diseases like Trick, BVD or venereal diseases are not a problem.

Every ranch has unique labor and range resources. It is important to develop a nutrition and management program that is well matched to each individual ranch. Doing this can dramatically improve reproduction and ultimately the economic return to the ranch.

Adapted from: Management Factors to Improve Range Cow Reproduction (Dan B. Faulkner)

View the entire publication here:
https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1693-2016.pdf

Plant Communities: Succession & States and Transition

Frederic Clements was a plant ecologist and pioneer in the study of vegetation succession during the early 1900's. His field studies led to one of the more important concepts used today by rangeland managers in understanding plant communities and the changes that they undergo by natural and human caused influences.

Vegetation succession is the progression of replacing plant communities with less complex soils and plant mixes on the land with more well developed soils and complex plant communities over time. Succession ultimately results in a stable plant community. This is the "climax" plant community. This process from bare soil or rock to a stable well developed plant community is called Primary Succession. Disturbance of this plant community for any reason causes it to retrogress to an earlier stage of development. The plant community then continues over time to reach the stable climax community once more. This process is referred to as Secondary Succession.

Primary and secondary succession are both linear pathways for plant communities to progress along. Primary succession might look something like this in the eastern US:

Lichens → annual grasses/forbs → perennial forbs/grasses → shrubs → trees

In the drier rangelands of the western US, this model does not work as well as the States and Transition model for vegetation community change. A "state" is a general description of the characteristics of an ecological site. As changes occur as a result of fire, climate, grazing, or other land uses, the site may transition to another state for that ecological site. Every site will have a Historic Climax Plant Community (HCPC). These are based on past historic conditions, soils, plants, and climate. From that HCPC, other state may occur. One good example is the introduction and spread of Lehmann lovegrass. Many sites have moved from their historic warm season native perennial grass community to a plant community dominated by the non-native grass. This would represent a transition to a new state.

Knowing the potential states that can occur on an ecological site can help range managers determine what the best desired state and plant community to manage for to meet land management and production goals. Grazing and land treatment decisions can be made to drive a plant community toward a different state in some instances. In other instances, once a site has crossed a threshold, it may be impossible to transition back to another state. While that may not be desirable, it is still good information to have in making management decisions.

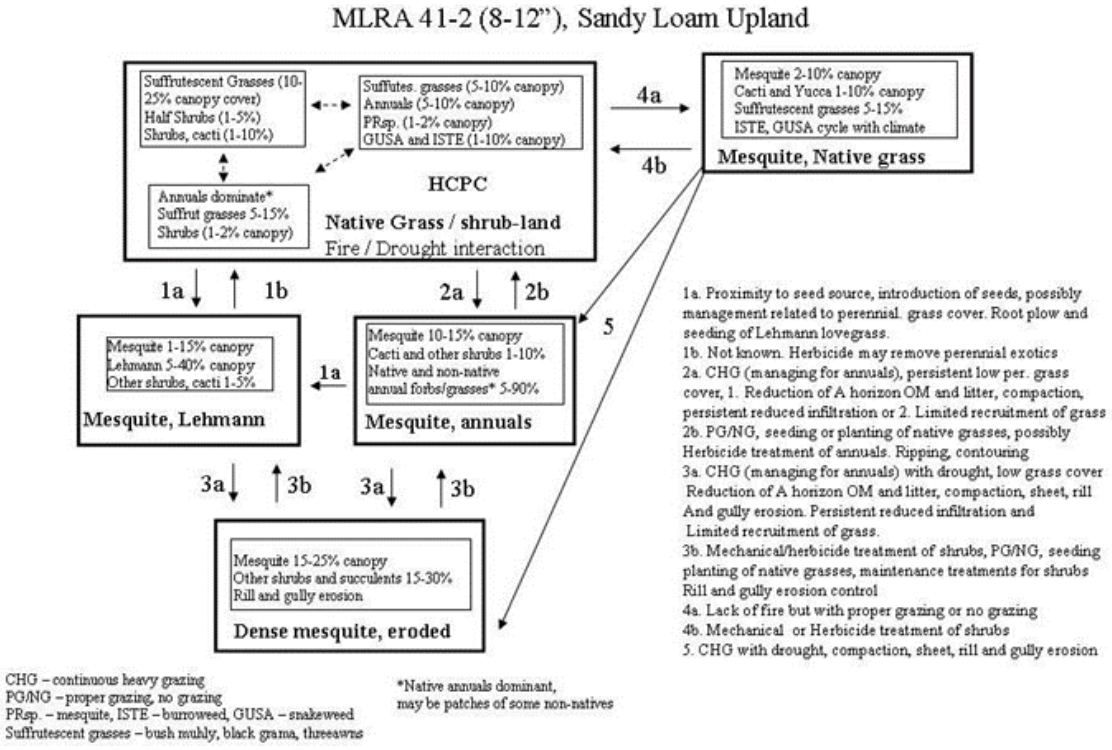


Figure 1. States and Transitions example. From USDA NRCS Ecological Site Description.

Sources:
Holechek, J, R. Pieper, and C. Herbel. 1998. Range Management Principles and Practices. Third Edition. Prentice-Hall, Inc., New Jersey.
USDA NRCS. 1997. National Range and Pasture Handbook. Pp.3.1-2 – 3.1-3.

Nutritional Characteristics of Arizona Browse

Browse Utilization by Ruminant Animals

When the occurrence of grass and forbs declines in a particular pasture, cattle will include a larger portion of browse in the diet, reducing the amount of total forage consumed (Stuth and Lyons, 1999). The reduction in intake is directly attributable to a lack of physical adaptations to handle a high browse diet. Negative nutritional effects for cattle consuming browse will vary depending upon the total amount consumed, the stage of plant growth, and the presence or absence of harmful secondary compounds in the browse species.

Browse species can generally be characterized for animal preference and palatability according to the amount of secondary plant compounds (such as tannins) they contain. Shrubs like fourwing saltbush and winterfat containing low amounts of harmful secondary compounds and few physical barriers to browsing (such as spines) are highly preferred (Holechek et al., 1990). As mentioned previously, most browse species containing large concentrations of tannins such as creosote, mesquite, and one-seed juniper are largely avoided, although mesquite beans are often sought after and consumed by domestic livestock.

Arizona Browse Rangelands

In Arizona, large sections of rangeland are dominated by shrubs. For example, the Arizona Interior Chaparral range type occupies approximately 3.2 million acres and is dominated by several browse species, among which turbinella oak is most prominent. Other important browse species in Arizona, depending upon location, are desert ceanothus, mountain mahogany, cliffrose, Wright's silktassel, hollyleaf buckthorn, winterfat, fourwing saltbush, squawberry, and jojoba.

Highly palatable browse species in Arizona include fourwing saltbush, winterfat, and cliffrose. Moderately palatable shrubs include jojoba, ceanothus, mountain mahogany, turbinella oak, hollyleaf buckthorn, and Wright's silktassel. Mostly unpalatable browse species include manzanita, blackbrush, mesquite leaves, and creosote bush. Large fluctuations in browse consumption can and does occur, depending upon climatic conditions, growth form and availability of different browse species, and the presence of other forage classes such as winter annuals.

Given a choice, cattle will consume more perennial grasses and cool season annual grasses and forbs when they are actively growing and available. However, the shortage of herbaceous vegetation on browse dominated rangelands in Arizona necessitates the consumption of large amounts of shrubs for most of the year.

Management

Since energy and protein content of browse decreases with advancing maturity and the advent of winter, cattle grazing browse dominated pastures are good candidates for winter protein supplementation (as are cattle in grass dominated ranges). If good quality browse species such as fourwing saltbush and winterfat are prevalent and are lightly (less than 40% utilization) grazed, cattle may be able to winter with minimal supplement provided. However, for ranges consisting of large percentages of oak species, protein supplementation during the winter is critically important.

Some recommendations for protein supplements used on browse rangelands are that they contain at least 22% crude protein and that they be derived from natural protein sources (no urea). There are two reasons urea based supplements should not be used on browse rangelands: 1) The University of Arizona Cooperative Extension 9 for rumen microbes to effectively process urea they need an easily digestible source of energy (which many browse species are not); and 2) to break down the urea molecule and process the excess nitrogen requires additional energy input from the ruminant animal. For more information on protein supplementation see Arizona Cooperative Extension Publication # AZ1186 Protein Supplementation (Sprinkle, 2011).

It is a good idea to look at the forage quality and quantity curve for your ranch and try to match calving season to fit the curve. Forage samples can be obtained to help determine when forage quality is at its best. For chaparral dominated ranges, a juggling act must be done to try to prevent calving or having early lactation cows in pastures dominated by oak brush. Not only is the chance for oak poisoning higher in early spring but the browse dominated pastures also provide more cover for predators. Having a few open pastures available for cows when they calve will enhance nutritional quality and aid in preventing weight loss prior to breeding.

To determine how well you are doing in meeting the cow's nutritional requirements with your management system, closely monitor cow body condition prior to and after calving. By combining protein supplementation with body condition score monitoring on the cowherd and matching calving with the forage curve, some of the challenges of ranching in browse rangelands can be overcome. For more details on body condition scoring and supplementation, see Arizona Cooperative Extension Publication az9523 (Sprinkle, 2011).

Adapted from: Nutritional Characteristics of Arizona Browse (Jim Sprinkle, Rob Grumbles, and Art Meen)
Full Publication:
https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1273-2015.pdf

What's Happening

January 4-6, 2017 – Arizona Section, Society for Range Management Meeting Double Tree Hotel, Tucson Airport – For more information contact James Heithold, jheitholt@fs.fed.us

January 17, 2017 – Graham County Rancher Round Table Workshop, Safford – 4-6pm awright134@email.arizona.edu

January 28, 2017 – Southern Arizona Equine Health Care Symposium awright134@email.arizona.edu

January 29-February 2, 2017 – 70th Annual Society for Range Management Meeting St. George, Utah – For more information: http://rangelands.org/srm17

February 1, 2017 – Southeastern Arizona Ag Day & Trade Show, Willcox Community Center 8-2pm

February 8, 2017 – Graham County Rancher Round Table Workshop, Safford awright134@email.arizona.edu

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