



January 2024

Featured Plant: Spicebush, Wright's Beebrush

Aloysia wrightii

Spicebush is a native, perennial aromatic shrub. It has slender stems that are white to yellow in color and the plant is as wide as it is tall. The flowers are small, located along a spike and bloom from August to October. The leaves are gray-green with round toothed margins. Spicebush grows from the Grand Canyon to northern Mohave County and south to Greenlee, Cochise, Pima and Yuma counties. At elevations from 1,500 – 6,000 feet, it is common on dry, rocky slopes. It has been reported as growing only on northern slopes at lower elevations and only on southern slopes at higher elevations.



Spicebush is said to yield good honey, therefore the name Beebrush. The fragrant leaves are reported to be edible and used in salads and cooking. A close relative, *Aloysia gratissima* is available commercially and used in gardens as a wildlife attractant for pollinators.

Dormant Season Grazing Considerations

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Plant cells can be divided into two groups: cell solubles and cell wall material. Cell solubles (nutrients) are contained within the boundaries of the cell wall and are easily digested. Whereas the cell wall contains slowly digestible material hemicellulose and cellulose (lignin). Leaves of a plant contain more crude protein than stems and the plant. Leaves typically have less lignin than stem and the plant as a whole.

The quality of forage available to livestock changes throughout the growing season, with soil type, climate, and percentage of utilization. Nutrients available for cattle are at the highest in actively growing tissue and decline as plant matures and goes dormant. The graphs below show how phosphorus changes throughout the year in three different species compared to the required amount

(Figure 1. Meen, 2001). Phosphorus is critical for vital functions of livestock, including building bones/teeth, metabolizing fat, producing milk, increasing feed intake, etc.

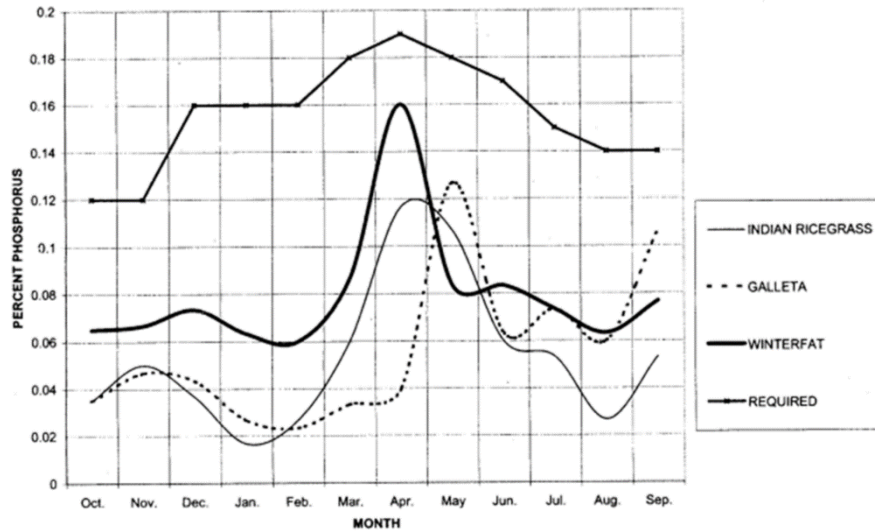


Figure 1. Phosphorus content of key species on a gypsum upland (average of three years)

The declines in nutrients are due to several reasons. First, fiber increases as plants go dormant which decreases digestibility. As the plant goes into dormant season nutrients will also move from the upper part of the plant down into the stems and roots for storage until spring. In areas that experience frost and snow nutrients can be leached out of the plants. When plant cells freeze, they rupture, releasing the readily digestible cell solubles. When exposed to rain they will dissolve and are released out of the plant.

During the dormant season grazing it's important to consider what a cow eating and how nutritious is it? Is the forage meeting the cow's needs? There can be a big difference in quantity versus quality. The quantity and quality needs depend on the physiological stage of an animal—is she a dry cow, pregnant, lactating, etc. You may have a lot of forage but maybe if it has more lignin, it will be less palatable and much harder to digest. What about quality? It really does benefit livestock producers to have some knowledge of what is growing on your ranch. For example, grama grasses, especially black grama, tend to hold nutrient value during the dormant season compared to others. What about Cane Beardgrass? It has very thick, coarse, stems that contain a lot of lignin. Cattle lack the enzymes needed to break down lignin and depend on microbial fermentation to break those down and make nutrients available to the animal. When cows aren't getting enough protein microbial activity decreases, which in turn decreases digestion. With decreased digestion less nutrients are available for absorption by livestock. Supplementing with protein is often crucial during the dormant season.

Good grazing management techniques should not end when grass is dormant and should be a year-round practice. Think about rest-rotation practices, is your pasture mostly cool or warm-season grasses? Always consider the percentage of utilization in both warm and cool season. Even if plants are dormant, they can still be over utilized. Leaving sufficient plant material to allow for photosynthesis in spring is imperative. Managing grasses for leaf production and long-term health provides a higher quality diet for livestock.

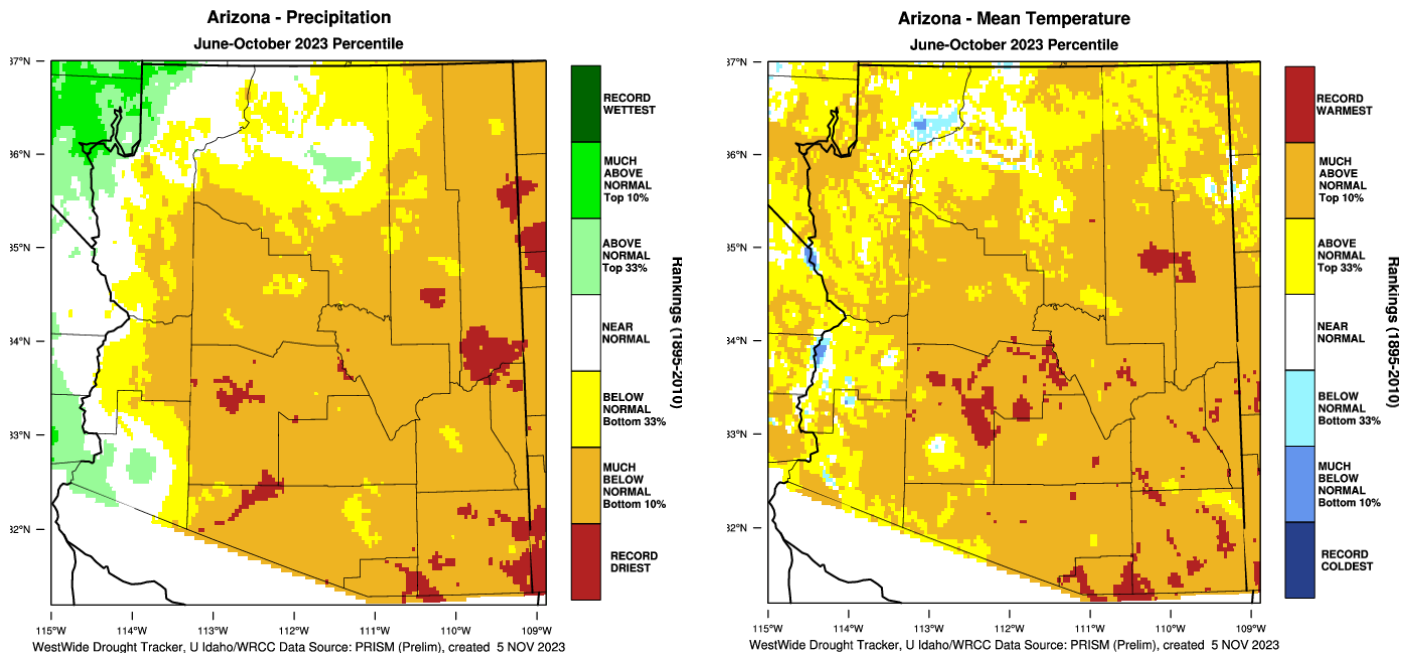


Arizona Seasonal Climate Summary: Summer/Fall 2023

November 7, 2023 - The unusually cool weather in early June gradually gave way to hot temperatures by the end of the month as the monsoon struggled to get underway in Arizona. Climate models hinted that the monsoon weather pattern might struggle to push north and strengthen in July and were largely right. The mid-level, subtropical ridge parked over southern Arizona in July instead of moving north to its ideal position over the Four Corners. With the high pressure overhead, temperatures soared to record levels and thunderstorm activity was limited. Overall, July was very dry and hot across Arizona with many local high temperature records falling during the month.

Monsoon conditions improved slightly in August with several widespread precipitation events occurring across the state, especially with tropical storm Hilary that impacted far western Arizona in the middle of the month. Heavy rain pummeled the low desert areas of southern California and western Arizona during this event bringing those typically dry areas to above-average precipitation for the month. The rest of Arizona wasn't quite as lucky during August with below-average to record-dry conditions occurring across much of eastern and southern parts of the state.

Unusually dry and warm conditions plagued the end of the monsoon season in September and even lingered into October. Overall the June-October period was much-below average in terms of precipitation and much-above average temperature-wise. These warm and dry conditions allowed short-term drought conditions to creep back in across the state with over half of Arizona observing moderate drought or worse on the latest U.S. Drought Monitor (https://droughtmonitor.unl.edu/data/png/20231031/20231031_az_text.png)



June-October precipitation and temperature rankings from the WestWide Drought Tracker

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

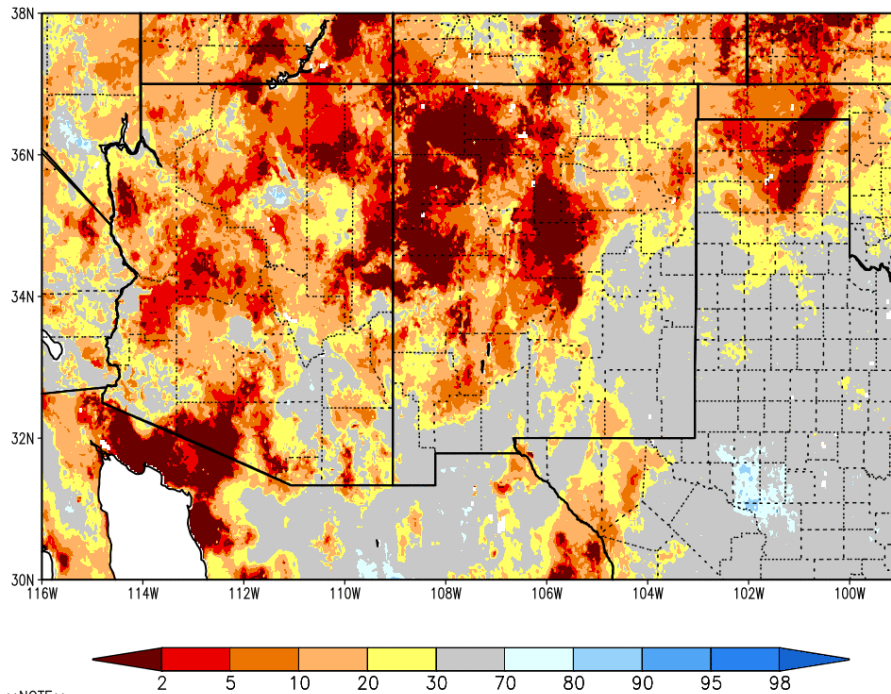


More information available at :
<http://cals.arizona.edu/climate>
<http://www.climas.arizona.edu>

Questions /comments? Contact Mike Crimmins, crimmins@email.arizona.edu



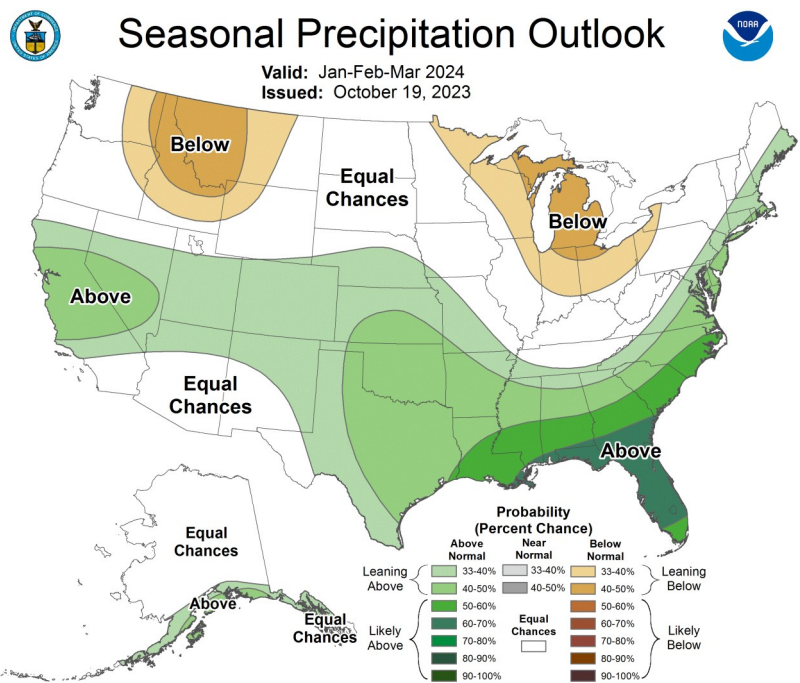
SPoRT-LIS 0–10 cm Soil Moisture percentile valid 07 Nov 2023



Soil moisture is a critical variable for monitoring changes in local drought conditions, but is very hard to come by in terms of spatial coverage. There are very few weather stations with soil moisture probes across the Southwest making it challenging to assess the status or changes in moisture conditions. Given the lack of spatial coverage in soil moisture monitoring, several efforts have been underway to model this variable over space and time. One such effort, spearheaded by NASA, is the Land Information System (LIS) which models several different soil moisture variables on a 3km grid. This high resolution model is driven by various atmospheric inputs, like wind and relative humidity, used by weather models, as well as, radar derived precipitation fields. Local soil properties and vegetation condition assessed from satellite are also used to refine soil moisture estimates at

various depths over time. Recent data for the Southwest can be accessed directly at the NASA site (https://weather.ndc.nasa.gov/sport/case_studies/lis_SWUS.html). Some of the most useful products on this page will be percentile ranks of soil moisture conditions at various depths. For example, the image above shows the most recent percentile rank of 0-10cm soil moisture conditions for this time of year. Values less than 10% indicate dry shallow soil moisture conditions that are rare for this time of year (occurring <10% of the time) relative to the 1981-2013 climatology. More information on this and other products can be found here: <https://weather.ndc.nasa.gov/sport/modeling/lis.html>

The January through February seasonal precipitation outlook issued by the NOAA Climate Prediction Center in mid-October depicts increased chances of above-average total precipitation for far northern Arizona and equal chances of above, below or average precipitation during this period for the rest of the state. Overall, the forecast for wetter than average conditions across much of the southern U.S. is consistent with the current strong El Niño persisting into next spring. Typically El Niño events bring above-average precipitation to much of the Southwest, but climate models are hinting at some uncertainty in how this event may unfold. Past strong El Niño events, like this one, haven't always delivered the expected pattern (like 2015-2016), but the odds are that at least average precipitation can still be expected. Stay tuned to seasonal precipitation outlooks which should provide more certainty on expected upcoming winter conditions: https://www.cpc.ncep.noaa.gov/products/predictions/long_range/



University of Arizona Cooperative Extension Artificial Insemination Clinics – Nate Brawley

As we close out the production year for 2023, we look forward to the New Year and what it might offer. A great opportunity in the upcoming year is to attend one of three artificial insemination clinics offered by UA Extension. There are two clinics held at the V-V Experimental Ranch (one in the spring and one in the fall). There is also a clinic held in the fall at the Santa Rita Experimental Ranch in Green Valley, AZ. These clinics offer a great opportunity for students to get great education on A.I. principles and procedures as well as getting hands-on experience passing the rod. The clinics are typically a three day course with a packed agenda and lunch is provided. Please reach out to an Extension Agent for more detail or visit <https://extension.arizona.edu/v-bar-v-az-beef-cattle-artificial-insemination-clinics>. We also would like to share our appreciation for the V-V Ranch as well as the Santa Rita Experiment Station for hosting these great events.



New University of Arizona Cooperative Extension Publication

Best Practices for Healthy Horse Keeping:

<https://extension.arizona.edu/pubs/best-practices-healthy-horsekeeping>