

Range Ruminations: How Much Grass Will I Have This Summer

Dr. Jeff Mosley

MSU Extension Range Management Specialist

Range forage growth this spring has been slow out of the chute in many parts of Montana. My optimistic nature assures me, however, that plenty of rainfall and warmer temperatures will soon combine to ease my worries. Those less optimistic souls among us might prefer to plan ahead using estimates of summer grass production.

Reliable estimates of summer grass production can be made by comparing this year's amount of precipitation to the long-term average. One method compares the amount of precipitation received in a "crop year", while another method compares the combined total precipitation received in April, May, and June.

A crop year beginning 1 September and ending 30 June is appropriate for assessing precipitation effects on rangeland plant productivity in Montana. For example, if precipitation during the crop year from 1 September 2014 to 30 June 2015 were to equal 80% of the 30-year average, then range forage production would likely be about 80% of normal in summer 2015. Similarly, if the combined total precipitation received in April, May, and June 2015 were to equal 80% of the 30-year average for April + May + June precipitation, then range forage production would likely be about 80% of normal in summer 2015.

Either the crop-year precipitation method or the April + May + June precipitation method can also be used to help manage risk. For example, if your area normally receives 4 inches of precipitation in April + May + June, and no moisture was received in April, you can examine long-term weather records to find how often your area received 4 inches in May + June alone. The percentage of times this occurred in the past 30 years indicates the chances of it happening this year and the likelihood that summer forage production will be normal following a dry April. Continuing the example, let's say you receive 2 inches of precipitation in May. You can then examine the long-term weather records to find how often your area received 2 inches in June alone. The percentage of times this occurred in the past 30 years indicates the odds that your area will receive its normal 4 inches by the end of April + May + June and the likelihood that summer forage production will be normal.

Over the years I have used one or the other of these two precipitation methods to estimate summer grass production, and both methods have proven reasonably accurate. These methods do not provide perfect estimates, of course, because they do not account for the many other factors that also affect range forage growth such as air temperature, humidity, and wind. Both methods, however, provide useful ballpark estimates that can help you adjust livestock stocking rates, adapt pasture rotations, or make other management decisions.

Recently I encountered a situation that has convinced me to use both of these precipitation methods in tandem when making future estimates of range forage production. I was reviewing the range forage growing conditions in summer 2014 on some foothill rangeland in west-central Montana. Precipitation received in the 1 September to 30 June crop year of 2013-2014 was 17.3 inches, which was 25% more than the prior 30-year mean of 13.8 inches. This figure alone might have led me to conclude that there

was about 25% more range forage last year than normal. But the combined total precipitation in April, May, and June 2014 was 6.2 inches compared with the prior 30-year mean of 7.1 inches, or 13% below average in 2014.

Overall, forage production in summer 2014 was not as great as the 25% above average crop-year precipitation indicated, but forage production was not as poor as indicated by the 13% below average April + May + June precipitation. What happened? Much of the above average precipitation in the 2013-2014 crop year was received in September 2013 and February and March 2014, and this stored soil moisture from fall, winter, and early spring helped offset the lack of rainfall during the prime late spring-early summer growing season. Taken together the two estimates averaged 12% above normal, which matched very well with the actual amount of forage available in summer 2014.

If you don't have precipitation records for your ranch, the Western Regional Climate Center has long-term data from hundreds of weather stations across Montana: <http://www.wrcc.dri.edu> For assistance accessing these data, contact the Western Regional Climate Center, your local office of MSU Extension, or send me an email: jmosley@montana.edu Happy ruminating.

Source: Montana Stockgrowers Association