

Precision Grazing Technology

Technology application can help cattlemen better understand grazing dynamics.

by Troy Smith, field editor

How much forage for grazing will your ranch produce during the next grazing season? That's a difficult question to answer because forage production can vary from year to year. Precipitation is a big factor. So is rangeland topography. Hills, valleys, slopes and swales exhibit differences in soils, moisture accumulation and plant species composition, and thus influence total forage production.

According to University of Nebraska Range Management Specialist Mitch Stephenson, there are tools available to help producers predict forage production. Likening them to the precision ag tools applied to crop production, Stephenson discussed some of the new and developing rangeland management technologies during the 26th Range Beef Cow Symposium hosted Nov. 18-20 in Mitchell, Neb.

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According to Stephenson, Grass-Cast is a freely available tool that forecasts plant production early in the growing season to help producers make management decisions for critical drought trigger dates, stocking rates and grazing rotations.

"Grass-Cast is an online platform that provides growing-season forecasts on estimated increases or decreases for the long-term mean in total plant production," he explained.


"Grass-Cast uses observed and forecasted weather, evapotranspiration, a normalized difference vegetation index (a land greenness value collected using satellite sensor data), and known relationships between historical weather data and grassland production to generate forecasts for predicted total plant biomass during the growing season at the county level."

Stephenson said another free online tool called the Rangeland Analysis Platform uses satellite imagery to measure vegetative cover as compared to bare ground. It can be used to help track rangeland health and form management strategies.

Shifting the discussion to technology that helps understand cattle grazing behavior, Stephenson said GPS tracking devices are being used to identify grazing use patterns and develop grazing strategies to either increase or decrease grazing pressure in strategic locations for specific management goals.

Ear tags are being marketed that can track movements patterns of an animal and estimate daily grazing times. Like a Fitbit® can monitor a human's movements, number of steps and other health measures, these ear tags can take estimates of the amount of time an animal spends grazing or resting and develop algorithms to assess individual animal health. Stephenson said these technologies are continually being improved to identify individual sickness, heat detection and parturition.

Stephenson said current research in western Nebraska and eastern Wyoming, conducted by the USDA Agriculture Research Service (ARS) and the University of Nebraska, is using GPS tracking and fecal DNA sequencing to better understand opportunities and challenges associated with early-season targeted grazing on cheatgrass. With the data gathered, researchers are able to make better predictive models of when cattle are grazing (or not grazing) cheatgrass. The overall goal is to further pinpoint the period when grazing is most effective based on the grazing behavior of cattle.

"These technologies add more tools to the larger grazing management toolbox," Stephenson said. 

Editor's note: Listen to and read more about Stephenson's presentation in the Newsroom at www.rangebeefcow.com. Angus Media provides online coverage of the event, courtesy of sponsorship by Leachman Cattle of Colorado.