How many cows can 1 pasture handle?

Percent Change in 2018 Predicted ANPP Compared to 1982-2015 Mean ANPP Assuming Above Normal May-July Precipitation

Percent Change in 2018 Predicted ANPP Compared to 1982-2015 Mean ANPP Assuming Normal May-July Precipitation

Percent Change in 2018 Predicted ANPP Compared to 1982-2015 Mean ANPP Assuming Below Normal May-July Precipitation

REPORT REVIEW: The report offers a look ahead for three scenarios: above-normal precipitation (left), normal precipitation and below-normal precipitation. This is a planning tool for livestock producers.
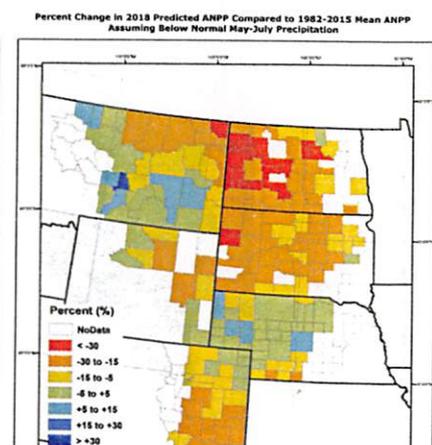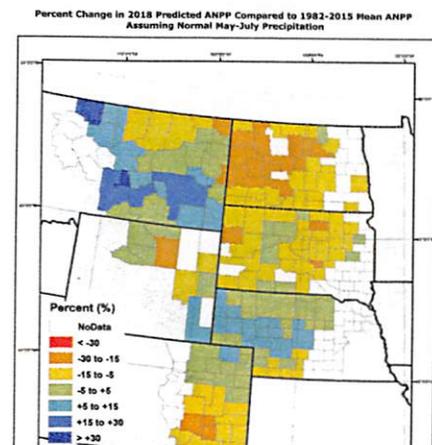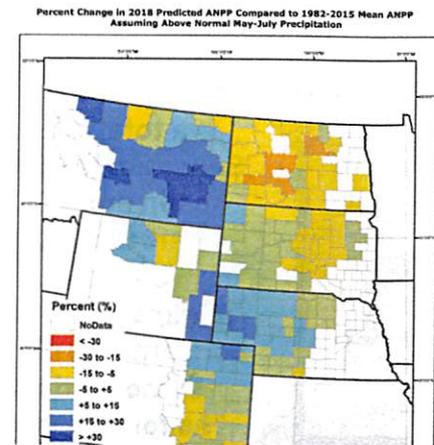
BY WILLIE VOGT

JUST HOW MUCH grass will those pastures produce this season? For livestock producers, this is a question worth asking, but finding the answer has been tough. For Northern Plains producers, a new online tool could help. Under development for the past few years, the new Grassland Productivity Forecast, or Grass-Cast, is now available.

"Our motivation for this product is livestock producers who rely on summer grazing," says Dannele Peck, director of the USDA Northern Plains Climate Hub, Fort Collins, Colo. "Ranchers face the challenge of looking around every spring, wondering how much grass might grow on their rangelands and native pastures."

Answering that question can help producers decide how much livestock to keep, whether adding or culling might be necessary, or if buying hay will be needed.

This new tool combines weather data and grassland modeling, and was built through the cooperation of university and USDA researchers in Colorado, Wyoming, Nebraska and Arizona. Grass-Cast takes known weather from past years and recent months and combines it with predicted rainfall for the growing season to develop a forecast for how well pastures should grow.

"When we created the model, we focused first on a handful of sites in the Northern Plains where there is long-term data," Peck says. "There was 40 or more years of information for two things: what the weather was like, and how much rangeland vegetation actually grew out there each year." For those long-term sites, Peck says researchers clipped rangeland vegetation and weighed it to determine production. This is a critical data set for building the Grass-Cast model.

For areas where no long-term clippings data exist, the next best substitute is satellite data for the region. Peck explains that the satellite data (known as the Normalized Difference Vegetation Index) go back about 15 years, and measures the green-ness of the landscape at the peak of the growing season. "We have satellite data for every county that Grass-Cast covers," she adds.

That satellite data for every county, when combined with the in-field long-term clippings data and historical weather information, provide solid building blocks for an effective model. The final piece needed is a decent prediction of precipitation during the growing season, which is provided by the National Oceanic and Atmospheric Administration.

MODEL CHALLENGES

But turning the Grass-Cast model into a useful map for producers wasn't easy, because weather changes quickly and the NOAA's seasonal precipitation outlook gets updated monthly. Grass-Cast will be released twice per month throughout the season, incorporating new observed weather data and NOAA's updated prediction. However, last year's rapidly emerging drought in the Northern Plains gave the pasture modelers added pause in how to present their information.

"We had to think more carefully about what maps to put out there for people to see," Peck says, "because even the most cutting-edge forecasts are sometimes wrong. So we decided to release a set of three Grass-Cast maps.

The three maps above show how well rangeland vegetation should grow if precipitation over the rest of the growing season is above-normal, near-normal or below-normal. A note appears under the maps saying if the NOAA's seasonal precipitation outlook suggests one map is more likely than another, or if they are equally likely.

Grass-Cast provides one more tool for ranchers when deciding how much livestock to put out, or which counties might have some extra forage to graze. These maps are from May 21. Updated maps can be found at *grasscast.agsci.colostate.edu.*

How does this help a rancher? This is information you didn't have before as part of your risk management plan. If you're in an area where, even with above-normal rains pastures will underperform, you know you have a couple of choices: cull cows or buy hay. For producers in areas where it looks like pasture will be lush, you may want to consider putting on a few more cows.

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