

# Forecasting Forage Production

10:30 a.m. session, Wednesday, Dec. 7, 2005

Presenter: Sandy Smart, South Dakota State University.

RAPID CITY, SOUTH DAKOTA (Dec. 7, 2005) — Stocking rate is probably the most important range and forage management tool applied by producers grazing cattle on the Great Plains. Stocking rate decisions are critical in determining long-range productivity and sustainability of range ecosystems and the financial success of ranches.

According to Sandy Smart, South Dakota State University (SDSU) range and forage specialist, using weather data to forecast annual forage yield will help producers adjust stocking rates to maintain or enhance plant communities. Smart told producers at the 2005 Range Beef Cow Symposium they can monitor moisture and temperature factors to estimate forage production and develop grazing plans accordingly.

“There’s no crystal ball,” Smart offered, “but there are drivers of range and forage production that they can use.”

Spring precipitation is a key driver of annual production, particularly on Great Plains rangelands dominated by cool-season grasses whose rapid growth occurs in the spring and early summer. However, research indicates a strong relationship between spring precipitation and warm-season forage yield. According to Smart, this relationship suggests that moisture is stored for use by warm-season species later in the growing season.

Another driver of forage production is temperature, Smart said. Late-spring freezes inhibit cool-season grasses that have already entered a rapid growth phase. Chill tolerance diminishes dramatically during this phase, leaving plants more susceptible to damage by cold temperatures, thus decreasing production. Warm-season grasses are not affected, since their rapid growth phase does not begin until June.

“Precipitation from previous years also influences the current year’s forage yield because of its affect on plant vigor,” Smart added.

Different types of plant communities respond differently to these key drivers. In mixed grass prairie, however, spring precipitation events, the last spring freeze and spring precipitation from the previous year are useful in forecasting current annual forage yield by July 1, allowing managers to make stocking rate adjustments for the rest of the



**SDSU’s Sandy Smart offered tips for how producers could estimate forage production based on moisture and temperature factors.. [PHOTO BY LYNN GORDON]**

growing season.

— by Troy Smith, field editor, Angus Productions Inc.  
© Copyright 2005 Angus Productions Inc.

**Editor's Note:** *This article was written under contract or by staff of Angus Productions Inc. (API), which claims copyright to this article. It may not be published or distributed without the express permission of Angus Productions Inc. To request reprint permission and guidelines, contact Shauna Rose Hermel, editor, at (816) 383-5270 or [shermel@angusjournal.com](mailto:shermel@angusjournal.com).*