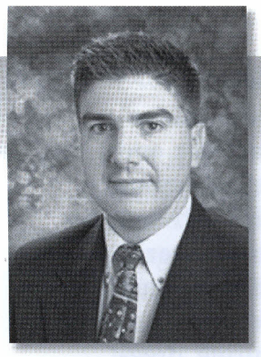

Rangeland Research Roundup

By Justin Derner & Justin Reeves

Lessons From Long-Term Cattle Weight Gain Data

Having just read The Worst Hard Time by Timothy Egan, I am awestruck by the determination, resilience, perseverance and fortitude of those who remained on the western Great Plains during the Dust Bowl years of the 1930s. While we struggle with the severe to exceptional drought conditions remaining from the 2012 growing season, envision the conversations livestock producers, natural resource professionals and bankers will be having if these current drought conditions persist through 2013.

The Rangeland Resources Research Unit has a wealth of long-term grazing studies in both the northern mixed-grass prairie and shortgrass prairie, which we are indebted to the foresight of the early scientists to establish and subsequent scientists and staff to maintain through the years. Justin Reeves, a post-doc, joined our unit in June and has been pouring through these long-term data to find the lessons learned with regards to influences of precipitation (and temperature) on beef production. Here, we will highlight key findings from northern mixed-grass prairie with respect to both yearling steers and cow-calf pairs. Subsequent columns will address findings from the shortgrass prairie.

Courtesy Photo

Yearling steer weight gain data has been collected at the USDA-ARS High Plains Grasslands Research Station in Cheyenne at light, moderate and heavy stocking rates from 1982–2012. We examined the effects of spring and summer temperature and precipitation, as well as prior year precipitation, on beef production.

At heavier stocking rates, steer weight gains were more sensitive to weather variations. A novel finding was temperature (relatively cool springs and warm summers) had a large predictive role in steer weight gains. Steer weight gains were highest during years with cool, wet springs and warm, wet summers, corresponding with optimum growth conditions for this mixed cool-season/warm-season plant community. Using three-month seasonal clusters of precipitation and temperature that are forecasted and freely available from the Climate Prediction Center of the U.S. National Oceanic and Atmospheric Administration up to a year in advance, these forecasts can provide ranchers with an increased predictive capacity to adjust stocking rates to weather variability, thereby reducing enterprise risk in advance of the grazing season.

Cow-calf weight gain data were also collected at the USDA-ARS High Plains Grasslands Research Station from 1975-2012, with Herefords used from 1975-2001 and a Red Angus x Charolais x Salers cross from 2003-2012 (cattle were not grazed in 2002). We were interested in the effects of the same weather variables as for the steer weight gain data on cow, calf and total pair beef production.

Overall, Hereford cow-calf pair beef production was more sensitive to the seasonal weather variables than cows or calves individually. For Hereford cow, calf, and cow-calf weight gains, spring temperature and precipitation were important determinants of beef production. Prior winter precipitation was also influential in subsequent weight gains of calves and cow-calf pairs during the summer grazing season. Herefords were more sensitive to seasonal weather patterns than the crossbreds, indicating that seasonal temperature and precipitation effects are lessened on these larger crossbred animals.

These findings are being incorporated into decision support tools to help ranchers optimize stocking rates and minimize enterprise risk in advance of the upcoming grazing season. Additionally, these findings will be used in a recently funded proposal through the Wyoming Agricultural Experiment Station Competitive Grants Program (lead scientist is John Ritten) to critically evaluate the economic impacts of climate change and drought on Wyoming ranchers. ●