FOR MORE INFORMATION:https://ars.usda.gov/Improving Pasture and Rangeland Management

# IMPROVING PASTURE AND RANGELAND MANAGEMENT

The ARS pasture and rangeland management research program enhances the utility, function, and performance of rangelands, pastures, forage, and turf agroecosystems while providing ecosystem services. ARS research helps producers improve management decisions and ultimately achieve healthy and productive pastures and rangelands that support rural prosperity, food security, and healthy agroecosystems, as illustrated by the following FY 2019 accomplishments.

**Low-cost precision technology helps with peak rangeland production.** ARS scientists in Reno, Nevada, and Las Cruces, New Mexico, determined that inexpensive, land-based, plant phenology cameras can quantify changes in mixed shrub-grasslands and meadow ecosystems. These plant "phenocams" offer producers a powerful way to improve their ability to decide when grazing time is at its peak, the best time to apply herbicides, and when to reduce vegetative fuel loads that increase the risk of wildfires.

**Online decision support tool provides county-level forecasts of rangeland vegetation.** ARS scientists from Fort Collins, Colorado, the USDA Northern Plains Climate Hub, and collaborators developed the online Grassland Productivity Forecast (Grass-Cast; grasscast.unl.edu) based on recent weather patterns and 30 years of historical forage productivity. Grass-cast originally focused on the Northern Great Plains when it launched in May 2018, and its maps and projections now cover all of New Mexico and Arizona. Between May 2019 and March 2020, more than 1,800 unique visitors accessed Grass-cast nearly 3,000 times, with time spent on the home page averaging 5 minutes and 35 seconds.

**Mineral supplementation increases productivity and profitability of cattle grazing wheat.** Many producers who graze their cattle on wheat do not supplement cattle diets with mineral mixtures even though wheat herbage is calcium deficient. ARS scientists in Woodward, Oklahoma, demonstrated that providing high-calcium and trace mineral mixtures to cattle grazing in a winter-wheat pasture resulted in cattle with a 43 percent faster average daily body weight gain. At the end of the grazing period, supplemented cattle weighed as much as 6 percent more than cattle that did not receive supplements.

**New cool-season grass cultivars for the southern Great Plains.** An ARS researcher in El Reno, Oklahoma, and collaborators developed two improved grasses: 'Artillery' smooth bromegrass and 'Ammo' orchardgrass. These grasses function under hot, dry growing conditions and on lower amounts of fertilizer than existing grasses in North America or Europe. 'Artillery' was registered for sale in Canada, and ARS has applied for Plant Variety Protection for 'Ammo.'

**Building climate-resilient landscapes and communities in the Southwest.** ARS scientists at the USDA Southwest Climate Hub in Las Cruces, New Mexico, completed the launch of two online decision support tools, the AgRisk Viewer (*https://www.climatehubs.usda.gov/hubs/southwest/tools/agrisk-viewer*) and the Climate Smart Restoration Tool (*https://climaterestorationtool.org/csrt/*). These tools will help farmers, ranchers, foresters, and other land managers in the Southwest strategically adapt to the impacts of extreme weather and climate change.