

USDA Regional Hubs: Building Resilience to Climate Variability

Grazing management and drought

Drought conditions require increased management and monitoring to insure that grazing does not degrade the pastures and rangelands.

Central tenets:

1. Increase flexibility in enterprise structure (cow-calf, yearlings, mixed cow-calf and yearling) and grazing management for adaptation to increasing weather variability.
2. Proactive strategies embrace:
 - i. reserve forage supply
 - ii. varying stocking rate with forage supply

Proactive strategies include grassbanking (resting pastures for >1 year to accumulate standing biomass), incorporating yearling livestock into the enterprise, and using seasonal weather predictions to adjust stocking rate (see Figure)
3. Reactive strategies address:
 - i. reducing forage demand
 - ii. increasing forage supply
 - iii. increasing income, often from off-ranch sources or governmental drought declaration financial assistance
4. Matching forage availability and forage demand by animals is difficult given the high within- and between-year variability in precipitation amounts and seasonal distribution. For dealing with the temporal variability of forage production for livestock grazing, managers can implement adaptive management to:
 - i. manage for reserve forage through conservative stocking rates and grassbanking
 - ii. match cattle numbers to forage availability by proactively developing enterprise capacity to quickly remove/add grazing animals, or add forage quickly through leasing land, purchasing feed or implementing regional risk reduction strategies such as cooperative arrangements with managers in other regions of the US to move cattle
 - iii. understand sources and scales of variability at the ranch/landscape/regional levels due to soils, topography and rainfall
5. Grazing managers need to have a drought management plan with key trigger dates for decision-making (for example see, <http://igrow.org/livestock/beef/developing-trigger-dates-for-drought-contingencies/>), as well as monitoring of key indicators (for examples, see the National Drought Mitigation Center, <http://drought.unl.edu/Planning.aspx>)

Resource links:

- US Drought Monitor, <http://droughtmonitor.unl.edu/>
- US Seasonal Drought Outlook (3 months), http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png
- Climate Prediction Center (1 and 2 week outlooks for temperature and precipitation, also 1 and 3 month outlooks), <http://www.cpc.ncep.noaa.gov/>
- South Dakota Drought tool, <http://www.sd.nrcs.usda.gov> (plans are to expand this to other Northern Plains states)

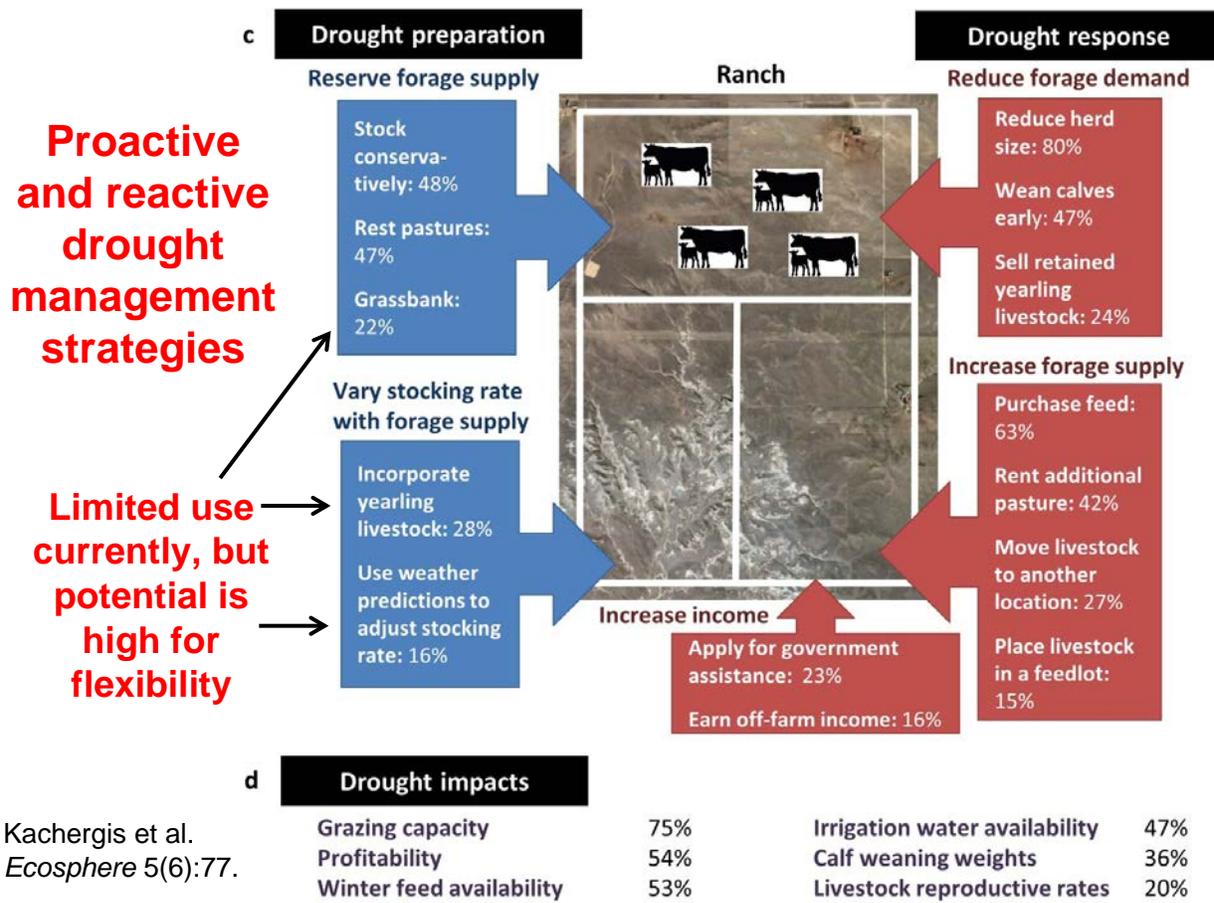


Figure 1: Proactive and reactive drought management strategies employed by Wyoming ranchers (from Kachergis et al. 2014).

Literature Cited:

Kachergis, E., J. D. Derner, B. B. Cutts, L. M. Roche, V. T. Eviner, M. N. Lubell, and K. W. Tate. 2014. [Increasing flexibility in rangeland management during drought](#). *Ecosphere* 5:1-14.