‘Healthy Herds, Happier Farmers’ Through Good Water Management

FAYETTEVILLE, ARK.

Water is a crucial aspect of any cattle operation, and with last year’s drought still fresh in their memories, producers should be prepared if history repeats itself, said Dirk Philipp, assistant professor-forages for the University of Arkansas System Division of Agriculture.

“Competition over water is increasing through demand by urban users and attempts to further commercialize water,” he said. “Whether your operation is purely rain-fed or relies on irrigation, it’s possible to increase the water efficiency of your beef cattle operation.”

Water-use efficiency is basically a measure of how much dry matter per unit of water is generated by plants. For example, bermudagrass is very water-use efficient: for an additional ton of dry matter, only 2.3 inches of water need to be added. On the opposite end, alfalfa is much less efficient, needing about 7.5 more inches of water for every ton of dry matter.

In general, warm-season grasses like bermudagrass, sudangrass, bahiagrass and corn are twice as water-use efficient than cool-season grasses like tall fescue, orchardgrass and wheat.

RAINFALL MANAGEMENT MATTERS

Farms with no access to irrigation must rely on rainfall, with the exception of water retrieved from wells for farm and household use, said Philipp.

“Producers should still be able to indirectly avoid drought stress in both plants and animals,” he said. “A thoroughly planned and executed grazing management plan goes a long way towards avoiding drought stress on pastures and adverse health effects on cattle.”

The goal is to maintain adequate soil quality, including soil fertility, so these factors do not become a limitation when adequate soil moisture is unavailable for plant growth. In addition, avoiding soil compaction is imperative to maintain high infiltration rates and reduce runoff. “Overgrazing is the main reason for exposed soils and compacted upper soil layers,” said Philipp.

Maintaining or even increasing soil organic matter will help to hold soil moisture and maintain tilth, improving both water- and nutrient-use efficiency, he said. “As a result, the best grazing practices are those that result in a high degree of forage utilization,” said Philipp. “This is especially important this time of year, when forage growth is abundant.”

Studies have shown that grazing can help conserve water. In one case, heavy grazing of a warm-season grass resulted in relatively less leaf area to transpire moisture, helping save plant water and soil moisture. Decreased canopy leaf areas may conserve soil water by decreasing plant transpiration, but pastures should not be overgrazed to the point of bare soil – this increases soil evaporation, increases soil temperature and weakens plants, resulting in poor re-growth.

WATER IN DROUGHT CONDITIONS

Providing water for cattle under drought and high-temperature conditions is always challenging.

Steps can be taken to avoid this problem, said Philipp. “First, calculate how much water is needed for your animals,” he said. “Daily water requirements on a 90-degree day can be as high as 40 gallons per animal. In those not-uncommon 100-degree days, cattle will be severely affected and may even die from water stress if drinking water is not accessible for 24 to 48 hours.”

Cattle cool themselves by sweating and panting, and the water lost needs to be replenished. In addition to adequate water, provide shade to help lower body temperature. “There is, of course, the valid argument that cattle will loaf under the shade, or even destroy soil cover,” said Philipp. “But this can be avoided by providing portable shade structures or leaving large trees in place. Those areas can be temporarily or permanently sacrificed to provide the same benefits.”

Consider investing in modern watering structures that provide cool, clean drinking water, while at the same time reducing evaporation. To avoid animal traffic – and soil disturbance – animals can be offered water through devices that draw and temporarily store water from creeks or ponds, said Philipp. “Tire tanks are good options, as well as the MiraFount system,” he said. MiraFount covers a water access area permanently and is “operated” by cattle themselves.

IRRIGATION AND GOOD MANAGEMENT

Irrigation systems can be complicated, but get worse if not maintained, said Philipp.

“For irrigated pastures, the best way to improve water-use efficiency is to keep your equipment up-to-date,” he said. “Irrigation systems are complicated and expensive, and should be approached with the same care as any other farm equipment.”

Make a checklist of all the parts that need maintenance and a check-up on a regular basis. Improperly working nozzles, hoses, drive motors or gear boxes not only reduce water-use efficiency, but make the system work harder, which increases fuel and electric bills.

Overall, applying the best management practices possible, whether for grazing strategies, animal care or equipment maintenance will help increase water-use efficiency. “That means a healthier herd and a happier farmer,” said Philipp. Δ