

Improving Pond or Stock Dam Water Quality

by Troy Smith

Whether cattle are grazing native range, fescue, Bermuda grass or any other kind of pasture, its value as a grazing resource is dependent upon the availability of livestock water. For the grazer, an ample supply of stock water is a blessing, while a shortage presents a serious challenge.

According to grazing specialist Maurice Davis, water consumption by cattle is related

to their consumption of feed, on a dry-matter basis. A mature cow will drink 3.5 pounds [lb. (or pints)] to 5.5 lb. of water for each 1 lb. of dry matter consumed. Consequently, a 1,200-lb. cow consuming 24 lb. of dry matter daily, at maintenance, will require about 10.5 gallons (gal.) of water. At peak lactation, however, she might drink 30 gal. or more per day.

The cow's calf will drink 5 lb.-7 lb. of water per 1 lb. of dry matter consumed.

Of course, environmental conditions influence water requirements, and intake will increase when summer temperatures are high.

An ample supply of water is important, but so is water quality, states Davis, a Natural Resource Conservation Service (NRCS) state grassland conservationist (retired). He is one of several specialists who provide practical instruction during grazing management workshops at the University of Missouri (MU) Forage Systems Research Center (FSRC), near Linneus, Mo. Davis emphasizes the important role a reliable water supply plays in any grazing system.

Many producers rely on ponds or stock dams as sources of water for cattle on pasture. However, allowing animals free access to loaf in the standing water is detrimental to water quality due to the addition of urine and manure. The traffic muddies the water and may degrade pond

banks. Water quality is easily reduced to the point that it may affect animal performance — particularly that of nursing calves. Cows often wade further into a pond to access better-quality water, but calves tend to drink from near the shore where water quality is poorest.

“It's been demonstrated that stock water development with pipelines and tanks (rather than reliance on ponds) can result in improved calf performance — up to 50-lb. increases in average weaning weight of calves,” Davis says. “Calves drink more water when it is cleaner than when they only have access to ponds muddied by the cows.”

Of course, installing pipelines from new or existing wells isn't always practical. But even when utilizing pond water makes the most economic sense, producers may want to consider steps to improve water quality.

Davis suggests erecting electric fence to limit cattle access to a controlled watering area rather than allowing them to wade out into the pond at will. Hauling in rock to create an approach to the access area usually helps stabilize the ground surface and keeps it from becoming deep with mud.

Another option might be to completely eliminate animal access to the pond. In many situations, an economical watering site can be developed whereby water feeds through a pipe, via gravity flow, to a stock tank placed below the dam side of the pond. A float valve can be installed to regulate water flow into the tank.

In situations where this may not be possible, pumping pond water to a tank may be an alternative. “Solar-powered pumps can work in these cases, to pump from ponds or wells, and they can be moved from one pasture to another if necessary,” Davis adds.

47



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►“It's been demonstrated that stock water development with pipelines and tanks can result in improved calf performance — up to 50-lb. increases in average weaning weight of calves,” Maurice Davis says.



PHOTOS COURTESY MAURICE DAVIS

►This concrete water tank and a steel tank for supplemental supply are located below the dam side of a pasture pond that is completely fenced to keep out cattle. Pond water is piped to the tanks via gravity flow. This watering site also features a concrete pad to keep the area from becoming muddy.



►Cattle access to this fenced pasture pond is limited to a specific area. The electric fence preventing cattle from going beyond the watering site is kept afloat by an apparatus made from PVC pipe.

Editor's Note: The most recent workshop on management-intensive grazing for economic and environmental stability was Sept. 26-28, 2010, and sponsored by MU FSRC, Missouri Forage & Grassland Council, and Green Hills Farm Project.