

## Workshop focuses on water, fencing as drought intensifies

With exceptional drought conditions crippling 60 percent of Kansas and the rest of the state not much better, water is on a lot of minds lately, notably livestock producers and farmers. But it wasn't just graziers discussing water at the Kansas Rural Center's Livestock Water and Fencing Workshop in Courtland on Sept. 11—a pair of BBC reporters were also there interviewing attendees for an upcoming documentary on water issues.

“People are concerned about drought and water,” said Johnny Dymond, BBC reporter. “How to use it, how to get it, how to save it. It's a global issue, and we're in Kansas to see how people on the Great Plains are coping.”

Mark Green, regional coordinator for the SW Missouri Regional Management Intensive Grazing Schools and Missouri NRCS district conservationist, responded with a one-word assessment: “Flexibility.”

If there's one thing the weather has taught us, Green said, it's that no two years are alike. Producers must find solutions in an ever-changing environment, requiring systems that are flexible, practical and dependable. His two-prong approach incorporates water distribution and electronic fencing for intense rotational grazing, and of the two of them, water takes precedence.

“Water is the most limiting factor in maintaining flexibility,” he said. “It's the most important nutrient for cattle, but you have to deliver adequate amounts of water at the right location.”

The key is to determine how much water is needed and to understand cattle behavior, he said. Cattle require eight to 12 gallons of water per day, and double that during hot weather. While the moisture content of feed should be considered, equally determining is the travel distance. Cattle within 600 feet of their food source drink 15 percent more water than cattle that walk more than 1,000 feet, Green said. On shorter distances cattle tend to drink individually, but at greater distances it becomes a social event. Unfortunately, only the lead cows get their fill because the herd heads back before the last cows have their turn.

“How flexible is a pond location?” Green asked. “The goal is for livestock to never travel more than 800 feet. You need water in every paddock.”

Concrete tanks, implement tire tanks, portable watering systems and even converted bathtubs are options available for water distribution in paddocks. All have their pros and cons, but they share the need for the correct type of piping to deliver the right amount of water. Whether installing

permanent, belowground pipes or laying out aboveground plastic or PVC tubing, diameter and materials play equally important roles.

Gravity-flow systems should never use less than a one-and-a-half inch pipe, he said. Below-ground pipe should be buried at least 30 inches and, in rocky soil, pea gravel added for bedding. For aboveground piping, PVC has limited durability because of a lack of UV-stabilization, often becoming brittle after as little as two years. Black polyethylene pipe works good but 150 psi is best for durability, and should be run along fences to minimize impact. “After one season you won’t even see it,” he said.

Shut-off valves and hydrants offer an extra measure of flexibility especially when isolating paddocks or making repairs. “Hydrants should be placed at every cross fence,” Green said. “They’re inexpensive and easy to install. And you can never have too many shut-offs.”

Though frost-proof tanks are popular, Green questioned their need. “They’re the most expensive part of supplying water,” he said. “It’s what breaks the bank.”

Green prefers focusing on water management for the rest of the year and using common sense measures such as site placement when available, such as locating buried concrete tanks on south-facing slopes to capture winter sunlight and shield against winter winds.

Heavy implement tires make excellent tanks, he said, though it should be noted to avoid steel-belted tires. If it can’t be helped, a Sawzall is the best resort for cutting through the treads.

Pads should be placed around the tanks to prevent erosion and to ensure that cattle stay long enough to drink but not to socialize. “You want it uncomfortable for them to stand around,” he said. “I want them to get in and get out.”

Keeping cattle from wandering across the top of buried tanks, limiting pond access or dividing paddocks requires the right kind of fence, something he described as “any fence that keeps livestock where you want them to be.” There are two types of fences, he explained—barrier fences and psychological fences. The latter require electricity, and enough to “buckle their knees and water their eyes,” as he put it. “You want a charger that’ll get their attention.”

Electric fencing has three components: chargers, fencing and grounding. Chargers should be low impedance with a minimum of 5,000 volts output, and with as high a joule rating as possible. “Buy bigger than you think you need,” Green cautioned. “I guarantee you’re going to want to add some fence down the road.”

A minimum of three six-foot ground rods tied together should be used, and should match the type of wire. Mixing types of metals such as copper to galvanized steel can lead to electrolysis, or corrosion, and should be avoided. Lightning protection is a must and requires the same number of

ground rods plus one. For instance, if three ground rods are used, four rods are needed for lightning protection, and should be placed at least 65 feet from ground rods. And even then it's only an educated guess. "There are no guarantees for lightning," he said.

For fencing, 12.5 gauge high tensile wire is best but requires a spinning jenny to unroll without having the bale explode into an instant Slinky. "Beg, borrow or steal one, but don't do it without one," Green said. Barbed wire isn't a substitute because of the spiral threading and the barbs themselves, both of which toss off electrical current.

Portable fencing needs at least 90-strand braided wire and quality posts, preferably with long metal spikes and adequate bases for pushing into the ground. Fiberglass poles tend to splinter and unravel, he said, but the new composite-material posts look promising as long as a pilot hole is used.

"Like with all things," he said, "quality varies. Get the right tool for the job."

Connectors, insulators, testers and tighteners also play pivotal roles. Green explained at length the various features and foibles of each type of gadget, and said that a more detailed explanation of fencing types can be downloaded at:

[www.mo.nrcs.usda.gov/news/pubs\\_download/out/MO%20NRCS%20Electric%20Fencing\\_low.pdf](http://www.mo.nrcs.usda.gov/news/pubs_download/out/MO%20NRCS%20Electric%20Fencing_low.pdf)  
or on the home page at the KRC website at [www.kansasruralcenter.org](http://www.kansasruralcenter.org).

Following the meeting, participants convoyed to the farm of Dale Strickler, where Green demonstrating installing a 45-degree angle corner post. "This was exactly what graziers were asking for for years," said Mary Howell, Kansas Rural Center Field Organizer, Frankfort. "The number one thing graziers have requested is information on livestock fencing and water systems."

The workshop was sponsored by the Kansas Rural Center, Kansas SARE, Kansas Center for Sustainable Agriculture and Alternate Crops, and the Kansas Farmers Union, with funding from the USDA Risk Management Agency.