

to Safeguard Livestock and Waterways



Alternative Watering Systems:

Elegant Problem-Solving or Just Efficient Management?

There's no question in anybody's mind – to be a farmer, you must also be a problem-solver. Solving problems on a day-to-day basis is what keeps many in the business. It helps motivate Gene Schriefer of Rolling Hills Sheep Farm in Dodgeville Township (Iowa County), whose problem-solving skills licked a common obstacle found on many farms.

“We have streams running through the whole farm, but we didn't like getting the animals to the streams. We needed to get the water to where it needed to be,” Schriefer explains. As noted, it is a straight-forward problem – water

needed to be brought to the sheep. As an added bonus, solving the problem would also have immediate water quality benefits. Less trampling of stream banks means less erosion and sedimentation in the water.

The alternative watering system that Schriefer eventually adopted was, in fact, an evolution starting with a 12-volt pump with battery. In 1996, Schriefer started pumping water from the stream into tanks set in the pastures to keep sheep off the stream banks. The way to do it, he says, is to put (continued on page 2)



Schriefer's 1-inch watering pipe is not buried, but grass tends to grow over it.

Gravel Stream Crossing:

Sure Footing for Cattle, Less Sedimentation in Stream

Leaving the land in better condition than you find it is a credo many farmers believe in. Dick and Kim Cates not only believe this, they take every opportunity to put it into action.

With 800 head of cattle grazing in rotational pastures on three farms in Iowa County, stream banks are bound to erode under the impact. Knowing this, the Cates did not delay.

Since taking over the family farm in 1987, they have installed alternative watering systems in many of the pastures and installed 10 cattle crossings on various streams – two with the help of cost-sharing and technical

assistance. Using breaker rock and gravel, the “barge” crossings work really well, according to Dick.

“We take stewardship of our streams very seriously,” Dick said. “The stream banks were really lousy when we took over.” The Cates' 950 acres host several trout streams.

For the first gravel stream crossing, he simply watched where his cattle were crossing and put gravel paths there, figuring he would be solving two problems by (continued on page 3)



UW-Extension Basin Educator Peggy Compton at a gravel cattle crossing.

Elegant Problem-Solving (continued from front page)

the suction end of the pipe downstream in a deep section of the stream (check with local Department of Natural Resources staff for any applicable permits.) Pumping for about 20 minutes will fill a 100-gallon stock tank. He uses about 300 gals. a day for his 260 head of sheep. The centrifugal-type pump can pump almost 1,000 gals. before the battery needs to be recharged.

The obvious advantage? The sheep do not have to be moved to the water and the stream banks stay intact. There are some disadvantages, however. Stream siltation can wear on the pump, although Schriefer has minimized this problem by adding a filter on the suction end. Another

disadvantage is that you are relying on the stream's water quality to be adequate.

The second option he tried is using a portable 200 gal. tank. In the last year, Schriefer has

hauled well water to remote and infrequently used pastures. This method doesn't depend on stream access or the quality of water in the stream. Another advantage is that medication can be added to the tank. The disadvantage is the labor involved in filling and moving tanks.

Finally, a third option is pumping water from a well in the house through an above-ground piping system using 1-inch and ¾-inch plastic pipe. The 2,000 feet of pipe provides water to nearby pastures and has allowed more flexibility in grazing. A flotation device monitors the water level in the tanks. Although this system is about \$400, the significant advantage of using clean well water over stream water outweighs the higher price, he says.

"Among the non-grazing folks, there's doubt that cows or sheep [drinking from] streams is really harmful, but we saw a very clear benefit when we started using pumped well water versus surface water. Lambs weren't getting infected with parasites such as coccidia, and they were a few pounds heavier," he said. With a lower number of infected lambs, money was also saved on medication.

Although Schriefer's three projects were constructed and paid for without help, there is cost-sharing available under certain conditions. Check with your local Land Conservation Department to learn more about programs in your area.



Dick Cates shows the float (above) used to activate a pump submersed in the stream (top photo). The pump is powered with a nearby battery (right) protected from the weather.





This cattle crossing is fenced, so the cattle only have access to the crossing area.

Sure Footing for Cattle (continued from front page)

providing a more solid footing for the cows and stabilizing the stream banks. He has noticed less turbidity in the streams, and of course less mud on the cattle. Fences are also used to help keep cattle traffic on the crossings. He uses single and double high-tensile fencing.

The other two gravel stream crossings, installed in the early 1990s, were graded to USDA Natural Resources Conservation Service standards, and were cost-shared at 75% which included grading, breaker rock and gravel. Dick did the seeding and finishing work himself, which saved a little bit of money.

Watering systems he uses to keep cattle off the streambanks include a bilge pump that pumps water from a stream to the corral area, using a 12-volt battery for a 150-gallon tank. A float switch in the tank keeps the pump operating when water levels drop to a certain

level and turns the pump off when the tank is full (see photos on facing page). Other watering systems involve 3,300 feet of underground 1-inch pipe, and 22,000 feet of 1-inch and 1½-inch pipe from two wells on the other pasture systems. Although he hasn't had any problems, underground pipe may be harder to maintain than above-ground pipe.

The Cates' efforts have not gone unnoticed: they received the Iowa County Tree Farmer of Year award in 1996, the Conservation Achievement award from the Wisconsin Chapter of the Soil and Water Conservation Society in 1998, and the Iowa County Water Quality Achievement award in 1999.

EQIP Demonstration:

Safeguard Riparian Areas and Your Livestock

Many farmers in the Driftless Region in southwestern Wisconsin use streams as a watering source for their cattle. Dovetailing their needs, many of whom are management intensive graziers, with riparian management needs seemed a natural topic for a demonstration. Indeed, the Multi-Agency Land and Water Education Grant Program thought so too – they awarded a grant in 2000



Cattle crossing installation at the Lancaster Agricultural Research Station.

to set up a stream crossing demonstration site at the Lancaster Agricultural Research Station.

Rolling hills and valleys dominate the 530 acres on the research station, causing many of the same

challenges as those faced by producers. Keeping this in mind, a rock stream crossing designed by NRCS and Land Conservation

Cost of materials? Variable.
Land stewardship value? Priceless.

Department staff was installed in a spring-fed “marshy” pasture. This demonstration site also uses portable fences to manage the grazing. The Ag. Research Station also utilizes a variety of pasture watering systems similar to those described in this factsheet.

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Funding for this factsheet was provided by USDA Natural Resources Conservation Service and The Grazing Lands Conservation Initiative. MALWEG Grant #00-61 “Riparian Pasture Management Demonstration Site”

Layout design/production by Jeffrey Strobel, and editorial assistance by Christine Javid, University of Wisconsin–Extension Environmental Resources Center.

Installation prices:

1. Stream Crossing/Installation

rock @ \$8/cu. yd. = \$176
(base material)
(rock cost is higher in other parts of the state)

surface rock @ \$6.50/yd. = \$65.

geotextile + install = \$150

excavation, grading, etc.
@ \$85/hr. = \$289

TOTAL: \$680

2. Gravel for maintaining crossing: \$120 for 20 cu. yards (doesn't include loader time)

3. Plastic water pipe (160 psi recommended for very hilly terrain)

$\frac{3}{4}$ " 100 psi 10 cents/ft.

$\frac{3}{4}$ " 160 psi 14 cents/ft.

1" 100 psi 13 cents/ft.

1" 160 psi 27 cents/ft.

Valve/4 clamps \$4 (3/4" line)

4. Pump and battery

pump \$50-\$100

battery \$60

float switch \$45

5. Tank plus miscellaneous fittings: \$110-\$300