

10-DCR-075

BMP Summary – Livestock Stream Exclusion

Technical Summary: Economic Advantages of Livestock Stream Exclusion

Abstract

Fencing livestock out of streams reduces nonpoint source pollution by reducing streambank erosion and eliminating the bacteria associated with livestock waste. Farmers and landowners may hesitate to participate in livestock stream exclusion best management practices because fencing and alternative watering systems are relatively expensive to install and maintain. Producers who qualify for state and federal cost-share programs can reduce installation costs, and many have found that better herd health and improved productivity help regain capital costs and offset maintenance costs.

Qualifying Practices

Farmers and landowners can qualify for funds through the Virginia Agricultural Best Management Practices Cost-Share Program when they adopt these stream exclusion BMPs, which are described in detail in the *Virginia Agricultural BMP Manual*:

- SL-6, Grazing Land Protection
- WP-2, Stream Protection
- LE-2, Livestock Exclusion (Southern Rivers only)

Production Benefits

Virginia farmers have observed measurable increases in the productivity of cattle and dairy operations when their livestock drink clean water, namely:

- beef cattle gain more weight, and
- dairy cows produce more milk, with a higher butterfat content.

Numerous studies have demonstrated that beef cattle gain more weight, more quickly, when farmers exclude them from streams and provide alternate watering sources; for example, cows, 0.2-0.4 lb/day; steers, 1 lb/day; heifers, 0.6-1.8 lb/day; heifer calves, 0.1 lb/day, calves – 0.2-0.3 lb/day. Increases in milk production and butterfat content have been reported by Virginia farmers (Zeckoski et al., 2007).

Economic Benefits

The economics of livestock stream exclusion vary from one farm operation to another. In general, they are affected by the type of operation (dairy, various phases of beef production), length and type of fencing, number and type of watering systems, and the operation and maintenance costs for the fencing and watering systems (Faulkner, 2000).

Improved herd health, and a corresponding decrease in veterinary bills, are definite economic benefits of stream exclusion. Fencing cattle out of streams removes them from contact with a wide range of bacteria and viruses, including those responsible for foot rot,

bovine virus diarrhea, fever, tuberculosis, and environmental mastitis. Faulkner (2000) estimated that one Virginia dairy farmer saved nearly \$4000/year on foot care once his cows were fenced out of streams. Eliminating mastitis can save approximately \$171 in veterinary costs and lost productivity per cow (Jones, 1998).

Stream exclusion also prevents leg injuries that cattle may suffer on muddy banks, and eliminates the possibility that cows will calve by the water, where newborns are more likely to suffer hypothermia and death (Nordstrom, 2008).

The economic pros and cons of livestock stream exclusion are summarized in Table 1.

Table 1: Typical Economic Effects of Livestock Stream Exclusion

Positive economic effects	Negative economic effects
Increased beef cattle weight gain Increased dairy cow milk and butterfat production Lower veterinary bills (fewer infections and injuries) Cost-share funding Potential tax benefits Cleaner water	Installation costs Operating and maintenance costs Replacement costs (flood damage) Buffer width requirements of cost-share programs

Adapted from Faulkner, 2000, and Zeckoski et al., 2007

Case Study. A watershed plan in Virginia’s Big Otter River basin (Big Otter IP Steering Committee, 2006) estimated that an average stream exclusion system, consisting of fencing and alternative waterers, cost \$12,400. The actual cost to the farmer, after 75 percent Cost-Share reimbursement and a 25 percent tax credit, was \$2,325.

Making a conservative assumption of the increased weight gain that cattle experience when they drink clean water, 5 percent, a typical 500-pound calf would gain another 25 pounds. At a sale price of \$0.60/pound, the producer would realize an additional \$15 per calf (Surber et al., 2005). This means the producer would recover the installation costs after selling 155 calves (Zeckoski et al., 2007).

Suggested Approach to Farmers and Landowners

It is important to note that in all of the examples cited in this paper, economic benefits were achieved over time. So, while stream exclusion practices are clearly a worthwhile investment, they may not be financially feasible for producers who lack the cash flow to support operations until returns are realized (Faulkner, 2000).

Participation in the Virginia Cost-Share Program can help, as can Virginia BMP tax credits. Under the Virginia Environmental Quality Incentives Program administered by the Natural Resources Conservation Service, some producers also may qualify for funding to cover the costs of cross-fencing and watering systems.

Acknowledgements

Valuable technical assistance was provided by David Faulkner, Virginia state economist for the Natural Resources Conservation Service.

Bibliography

Big Otter IP Steering Committee, 2006. *Big Otter Watershed TMDL Implementation Plan Summary*. Virginia Department of Environmental Quality, Virginia Department of Conservation and Recreation. Available online at www.deq.virginia.gov/export/sites/default/tmdl/implans/otterip.pdf

Faulkner, David, 2000. Economics Section, pp. 1-54, in *Virginia Forage and Grassland Council Grazing Handbook*.

Jones, G.M., 1998. *Understanding the Basics of Mastitis*. Virginia Cooperative Extension Publication No. 404-233. Available online at www.ext.vt.edu/pubs/dairy/404-233/404-233.html#L6

Nordstrom, Scott T., 2008. Personal communication. Bovine veterinarian, Middlebrook, VA.

Surber, G., et al., 2005. *Drinking water quality for beef cattle: an environmentally friendly and production management enhancement technique*. Animal and Range Sciences, Extension Service, Montana State University. Available online at www.animalrangeextension.montana.edu/articles/NatResourc/Drinking%20Water%20Quality%20for%20Beef%20Cattle.pdf

Zeckoski, R., Benham, B., and Lunsford, C., 2007. *Streamside Livestock Exclusion: A tool for increasing farm income and improving water quality*. Virginia Cooperative Extension Publication No. 442-766. Available online at www.ext.vt.edu/pubs/bse/442-766/442-766.html