

10-1-2006

Animal Feeding Operations and Water Quality--Resources and Livestock in Balance

Tipton D. Hudson

Washington State University Extension, hudsont@wsu.edu

Joe H. Harrison

Washington State University Extension, jhharrison@wsu.edu



This work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

Recommended Citation

Hudson, T. D., & Harrison, J. H. (2006). Animal Feeding Operations and Water Quality--Resources and Livestock in Balance. *The Journal of Extension*, 44(5), Article 23. <https://tigerprints.clemson.edu/joe/vol44/iss5/23>

This Ideas at Work is brought to you for free and open access by the Conferences at TigerPrints. It has been accepted for inclusion in The Journal of Extension by an authorized editor of TigerPrints. For more information, please contact kokeefe@clemson.edu.



October 2006 // Volume 44 // Number 5 // Ideas at Work // 5IAW7



PREVIOUS ARTICLE



ISSUE CONTENTS



NEXT ARTICLE



Animal Feeding Operations and Water Quality--Resources and Livestock in Balance

Abstract

This article describes an education program that was developed to provide conservation district staff an understanding of state and federal water quality rules and guidance on when to recommend specific best management practices to livestock producers to protect water quality. Real farm case studies were used to teach site-specific conditions that would place a livestock owner at risk of having a significant negative impact on surface or ground water quality. Specific outcomes were case studies in PowerPoint presentations, best management fact sheets, and a livestock-influenced water quality risk assessment tool.

Tipton D. Hudson

Rangeland & Livestock Management Educator
Ellensburg, Washington
HUDSONT@WSU.EDU

Joe H. Harrison

Nutrient Management Specialist
Washington State University Extension
Puyallup, Washington
JHARRISON@WSU.EDU

Washington State University Extension

Introduction

The U.S. Environmental Protection Agency (EPA) released new guidelines for Concentrated Animal Feeding Operations and Animal Feeding Operations (CAFO/AFO) in 2003. Under the new guidelines, affected CAFOs will be required to develop a nutrient management plan, implement practices to manage manure in an environmentally safe manner, conduct soil and manure testing, and keep a variety of records. The changes in the federal rule resulted in a need in Washington to provide livestock producers with a common message about state and federal water quality rules.

This article describes an education program developed as a partnership including the Washington State Department of Agriculture, Washington State Department of Ecology, U.S. Environmental Protection Agency, Washington State conservation districts, Washington State Natural Resources Conservation Service (NRCS), Washington State University (WSU) Extension, Washington Cattlemen's Association, and Washington State Dairy Federation. A primary goal of the education program was to provide conservation district staff with an understanding of state and federal water quality rules and guidance toward recommending specific best management practices to livestock producers to protect water quality based on identified risk factors.

Educational Methods

The education partners were convened by WSU in the fall of 2004 to begin the design of the Livestock Nutrient Management Education program. Over the course of 2 days a structure evolved that included four working subcommittees to develop a 3-day water quality conference for conservation district regulatory agency staff, Animal Feeding Operations and Water Quality--Resources and Livestock in Balance.

Workshop Design

It was decided that the water quality training conference for conservation and regulatory agency staff should include multiple types of education materials and be conducted in a 3-day format. The use of real-farm case studies served as the core for describing conditions under which management of livestock might result in a risk of negatively impacting the quality of surface or ground water. These case studies also functioned to discuss the types of best management practices (BMPs) that would be most effective in protecting water quality. In addition to the case studies, presentations were made on topics of:

1. Changing People's Behavior: It's Not All About Education by William Hallman of Rutgers University (www.foodpolicyinstitute.org)--keynote presentation intended to persuade attendees to actively engage with agricultural producers rather than serve as information brokers;
2. Holistic Farm Management--considering nutrient management from a whole-farm perspective;
3. Grazing Management--management of grazing activity influences water quality criteria such as sediment, bacteria, and temperature;
4. Winter Management and Animal Health--animal health during a critical life stage is highly affected by winter manure management;
5. Phosphorus Index--new research indicates phosphorus may not always remained adsorbed to soil particles;
6. Washington NRCS Technical Note No. 1--Water Quality Indicator Tools --a technical approach to calculating manure loading for larger confinement operations; and
7. Livestock-Influenced Water Quality Risk Assessment Tool--a tool to assist livestock producers in evaluating their own risk of pollution and consider practical, targeted management solutions.

An evening session was devoted to a panel of presenters on the topic of livestock access to riparian water and the implications of two Washington State rules, one guaranteeing minimum sufficient flows to ensure livestock access to surface water and the other strictly prohibiting the willful or negligent pollution of surface and ground water, no matter how insignificant. This law is easily construed to prohibit direct access of livestock and the potential "discharge" associated therewith. The panel also discussed the contentious legal issue of diverting surface water to a stock tank without a *diversionary* water right.

The Livestock-Influenced Water Quality Risk Assessment Tool was developed by the EC subcommittee and was designed to be utilized by livestock producers as a self-assessment or used in cooperation with conservation district staff to make a more technical site-specific assessment of a livestock operation. This tool is explained in greater detail in the companion Tools of the Trade article, "Livestock-Influenced Water Quality Risk Assessment Tool."

Real-Farm Case Studies

Eleven case studies were selected for the conference that encompassed livestock management styles and size from small/recreational farms to commercial livestock operations. Species included llama, horse, beef, sheep, and dairy. The case studies were presented in the following manner:

1. 15 minutes for the case study leader to generally define the operation with photos and or video and allude to water quality issues;
2. 25 minutes for breakout groups (10 individuals per group) to discuss a list of resource concerns and a list of solutions;
3. A 10-minute period for break out groups to report back to the whole group the issues and solutions they identified; and
4. 10 minutes for the case study leader to report actual implementation of BMPs implemented to prevent a negative impact of livestock on water quality.

In the breakout groups, a facilitator, recorder, and reporter were selected from within the group. The case studies were presented throughout the conference in a progressing degree of complexity and relative potential risk of negatively affecting water quality. Of the 11 case studies, three case studies were presented before any risk assessment tools were presented, three case studies utilized the Livestock-Influenced Water Quality Risk Assessment Tool as part of their discussion, and four case studies utilized the Washington NRCS Technical Note No. 1--Water Quality Indicator Tools as part of their discussion.

Web Site

Materials from the water quality conference were made available in printed and CD format. In

addition, some materials are also available at the following Web sites: <http://animalag.wsu.edu> and <http://www.puyallup.wsu.edu/dairy/joeharrison/>. A copy of the presentations and workshop materials can be obtained by contacting Joe Harrison (jhharrison@wsu.edu) or Tip Hudson (HUDSONT@wsu.edu).

Summary

The education project described here increased conservation district staff understanding of state and federal water quality rules and made them aware of when to recommend best management practices to livestock producers to protect water quality. Real farm case studies were an effective tool to provide training on methodically assessing the potential of livestock confinement facilities to negatively affect water quality and determining appropriate, cost-effective BMPs to protect water quality.

References

Electronic-Field Office Technical Guide. (n.d.) Retrieved December, 2004, from: <http://www.nrcs.usda.gov/technical/efotg/>

U.S. Environmental Protection Agency Concentrated Animal Feeding Operation - Final Rule. (February 12, 2003). Retrieved December, 2004, from <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>

Copyright © by Extension Journal, Inc. ISSN 1077-5315. Articles appearing in the Journal become the property of the Journal. Single copies of articles may be reproduced in electronic or print form for use in educational or training activities. Inclusion of articles in other publications, electronic sources, or systematic large-scale distribution may be done only with prior electronic or written permission of the *Journal Editorial Office*, joe-ed@joe.org.

If you have difficulties viewing or printing this page, please contact [JOE Technical Support](#)