Applying knowledge to improve water quality
Pacific Northwest
Regional Water Program
A Partnership of USDA NIFA
& Land Grant Colleges and Universities

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PNWWATER 095

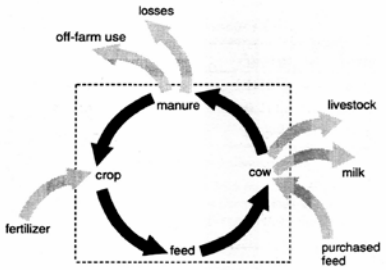
Feed Management for Fine Tuning Water Quality Near Animal Feeding Operations

Nutrition consultants in the first Feed Management training session at the Pacific Northwest Animal Nutrition Conference in Vancouver, British Columbia.

Extension animal scientists in the Pacific Northwest have crafted a successful program to help animal feeding operations protect water quality. Adequate manure handling structures and budgeting manure nutrients for better crop protection have been the focus for ten years. Extension Services are now working to limit the nutrients that are imported on larger livestock operations.

The US Environmental Protection Agency (EPA) released new guidelines for Concentrated Animal Feeding Operations and Animal Feeding Operations (CAFO/AFO) in 2003. Under the new guidelines, permitted CAFO/AFOs will be required to develop a Nutrient Management Plan (NMP). One form of a NMP is a Comprehensive Nutrient Management Plan (CNMP) as defined by the Natural Resources Conservation Service (NRCS). There are six core elements of a CNMP: 1) feed management; 2) manure and wastewater handling and storage; 3) nutrient management; 4) land treatment; 5) record keeping; and 6) other manure and wastewater utilization options. Livestock and poultry operations defined as permitted CAFOs are required to have a NMP by December 2006. For those that choose to develop a CNMP, there will be an immediate need for an understanding of the Feeding Management element of the CNMP.

Feed represents the largest import of nutrients to the farm, followed by commercial fertilizer (CAST Issue Paper # 21; Animal Diet Modification to Decrease the Potential for Nitrogen and Phosphorus Pollution; http://www.cast-science.org/). Feed Management opportunities currently exist to reduce imports of nutrients, particularly nitrogen and phosphorus, to most animal and livestock operations. The technologies and approaches to achieve these reductions vary in their degree of economic feasibility and environmental impact. It is important that agricultural professionals understand the degree of success that can be expected both from an economic and an environmental standpoint.



Nutrient flow through a dairy.

The goal of the overall project is to increase the understanding of agricultural professionals about the area of Feed Management, with an emphasis on environmental and financial sustainability of livestock and poultry operations. The primary audiences for the education program are animal nutritionists and NRCS staff, as well as other Technical Service Providers (TSPs) and advisors.

The first part of the project started in 2004 and was designed to create awareness of phosphorus over-feeding practices and the need to reduce imported nutrients. Meetings in Oregon, Washington, and Idaho were sponsored for nutrition consultants and feed industry personnel. Due to the success of this regional program, 20 reference fact

Pacific Northwest Regional Water Quality Coordination Project Partners

Land Grant Universities

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University Publications:
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Water Resource Research Institutes
Water and Environmental Research Center (Alaska)
http://www.uaf.edu/water/

Idaho Water Resources Research Institute
http://www.boise.uidaho.edu/

Institute for Water and Watersheds (Oregon)
http://water.oregonstate.edu/

State of Washington Water Research Center
http://www.swwrc.wsu.edu/

Environmental Protection Agency
EPA, Region 10
The Pacific Northwest
http://www.epa.gov/r10earth/

Office of Research and Development, Corvallis Laboratory
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The Project
Land Grant Universities, Water Research Institutes, and EPA Region 10 have formed a partnership to provide research and education to communities about protecting or restoring the quality of water resources. This partnership is being supported in part by the USDA's National Institute of Food and Agriculture (NIFA).

Our Goal and Approach
The goal of this Project is to provide leadership for water resources research, education, and outreach to help people, industry, and governments to prevent and solve current and emerging water quality and quantity problems. The approach to achieving this goal is for the Partners to develop a coordinated water quality effort based on, and strengthening, indivudual state programs.

Our Strengths
The Project promotes regional collaboration by acknowledging existing programs and successful efforts; assisting program gaps; identifying potential issues for cross-agency and private sector collaboration; and developing a clearinghouse of expertise and programs. In addition, the Project establishes or enhances partnerships with federal, state, and local environmental and water resource management agencies, such as by placing a University Liaison within the offices of EPA Region 10.

sheets were distributed. The NRCS through their Conservation Innovation Grant Program has awarded a larger, national project team $425,000 for two years to develop and implement a Feed Management Education Program for NRCS personnel.

This national education project will provide needed training for staff of NRCS, Soil and Water Conservation Districts, Nutrient Management Consultants (TSPs), Nutrition-Management Consultants, and designated Nutrient Management Specialists of large animal operations. In addition, a systematic approach has been developed to assess Feed Management on a livestock operation and develop an individualized Feed Management Plan.

The team has developed computer tools and checklists to help advisors determine if feed management can help water quality protection on the farm and to select practices that will improve manure management and nutrient use. More reference fact sheets are being developed on different practices that may be helpful.

An advisory team has been identified to provide evaluation and feedback on the content of curriculum and field assessment tools. The advisory team consists of representatives of livestock associations, the NRCS Animal Ag Water Quality Team, and 19 consulting animal nutritionists. The curriculum and tools have been tested and the first training was delivered at the Pacific Northwest Animal Nutrition Conference held in November in Vancouver, British Columbia. A second training has been schedule for January in Iowa. Eventually, all NRCS personnel will receive training and will use the tools in preparing CNMPs.

The project will continue through 2007 throughout the US. Materials will become part of the NRCS Technical Services Guidebook.

National Water Quality Program Areas

The four land grant universities in the Pacific Northwest have aligned our water resource Extension and research efforts with eight themes of the USDA's National Institute of Food and Agriculture.

1. Animal Waste Management
2. Drinking Water and Human Health
3. Environmental Restoration
4. Nutrient and Pesticide Management
5. Pollution Assessment and Prevention
6. Watershed Management
7. Water Conservation and Management
8. Water Policy and Economics

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