

Agriculture Environmental Management  
Systems (EMS)

# An Intro to EMS:

Farm and Ranch Management to  
Improve your Environmental and  
Economic Bottom Line



Developed by the **Partners for Livestock EMS Project**

### **Financial Support**

This publication was produced as part of the "Partnerships for Livestock Environmental Management Assessment Systems" (EMS) Project. The project was funded by USDA-CSREES Initiative for Future Agriculture and Food Systems grant, award #00-52103-9650. Principal investigators for this project include Gary Jackson, University of Wisconsin, 608-265-2773; Rick Koelsch, University of Nebraska, 402-472-4051; Elizabeth Bird, now at Montana State University, 406-994-2520; Bill Bland, University of Wisconsin, 608-262-0221; and Mark Risse, University of Georgia, 706-542-9067.

### **Disclaimer**

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

*Copyright © 2005 by MidWest Plan Service.  
Iowa State University, Ames, Iowa 50011-3080.*

For copyright permission, contact MidWest Plan Service (MWPS) at 515-294-4337. Organizations may reproduce this publication for non-commercial use, provided they acknowledge MWPS as the copyright owner and include the following credit statement:

Reprinted from Partners for Livestock Environmental Management Systems Agriculture Environmental Management Systems Intro to EMS, authored by Gary Jackson, University of Wisconsin, and Rick Koelsch, University of Nebraska, courtesy of MWPS, Iowa State University, Ames, Iowa 50011-3080  
*Copyright © 2005.*

### **Acknowledgments**

This educational material was adapted from a publication originally prepared as part of the Partners for Livestock Environmental Management Systems (EMS) project, Gary Jackson and Rick Koelsch, co-principal investigators. The material was technically reviewed by producers, cooperating states, and agency staff. For more information on this project and agriculture EMS, please visit the project website (see below) or contact the office listed below.

Farm and Home Environmental Management Programs  
Room 303 Hiram Smith Hall  
1545 Observatory Drive  
Madison, WI 53706  
Phone: 608-262-0024  
Website: [www.uwex.edu/AgEMS](http://www.uwex.edu/AgEMS)

## **EMS Benefits**

- *Improve environmental performance*
- *Facilitate regulatory compliance*
- *Protect property value*
- *Protect health and well being of family and employees*
- *Improve neighbor and community relations*
- *Reduce animal health risks*
- *Document your stewardship efforts*
- *Enhance management*
- *Capitalize on public and private environmental programs.*

**I**mproving your operation is an ongoing process. New technologies offer ways to be more efficient. Changes in farm policies and markets influence management decisions and profitability. Changing environmental regulations can require management adjustments. Making decisions in response to all these changes is a challenge that an Environmental Management System (EMS) can address.

## **What is an EMS?**

An EMS assists producers operating in a world full of change. It is a business management process that helps you develop your own strategy for integrating environmental considerations into production decisions. It is a voluntary, flexible process that evolves from your knowledge and sense of how to best manage your operation. Whether you run a small or a large operation, produce animals or crops, the EMS process has something to offer. An EMS efficiently integrates environmental considerations and requirements into day-to-day and long-term planning.

This management approach helps you examine your production system from start to finish. It provides a framework for making continual improvements, meeting regulatory requirements, and demonstrating good environmental stewardship. For producers who currently incorporate environmental considerations into management decisions, an EMS is a way to document positive practices.

You probably incorporate many elements of the EMS process into your existing daily activities. Do you have plans for managing manure, pests, and nutrients? Do you have records on soil testing, chemical applications, feeding requirements, or worker training? The EMS provides a way to better organize these efforts and ensures that you have a concrete, useful plan for addressing environmental concerns while improving your overall management.



Photo courtesy of USDA NRCS.



Photo courtesy of USDA ARS.

## **EMS in Industry**

*Is a rooster needed to produce an egg? No, it is not, but few people know the answer to that question. So much is not understood by those who are writing the rules and even by some who have to work with the rules. We met with the U.S. EPA and looked at how we, as producers, can be responsible for the environment. This led to our involvement in EPA's eXcellent Leadership program, a key part of which is to get egg producers to implement EMS programs. We developed the EMS together with the EPA and other groups. Involving these multiple groups in the EMS development process acknowledges that we are responsible for our community, for our farm, and for nutrient management.*

---Dave Staples, Creekwood Farms, President, United Egg Producers

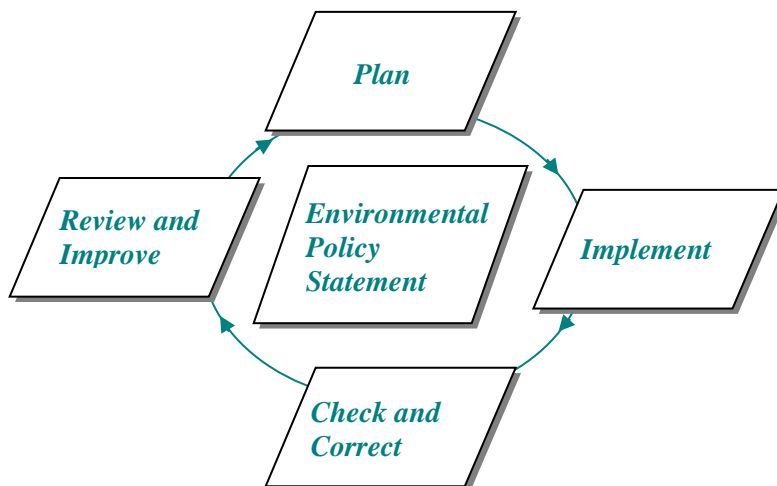


Photo courtesy of USDA ARS.

## **How an EMS Works**

The EMS process helps you clarify your environmental policy, or how you identify and address environmental concerns. This policy guides you through planning, implementing, evaluating, and reviewing farm and ranch decisions that affect the environment. With an EMS, you identify and prioritize environmental risks, and develop an action plan to address them. This process also documents the positive, proactive ways you manage your operation. To achieve a common-sense approach to improved farm and ranch management and to continually improve the environmental impact of your operation, consider using the EMS process:

1. Environmental Policy Statement
2. Plan
3. Implement
4. Check and Correct
5. Review and Improve



## **EMS in Extension**

*We are using EMS to help animal feeding operations in our state focus on continual improvement of their interactions with air, water, and land resources; pollution prevention; and effective regulatory compliance. About 85% of the environmental problems are associated with how tasks are accomplished on the operation; that is where managers have their greatest opportunity for change and improvement. The crucial point is that not all environmental problems need to be solved by installing expensive pollution control equipment.*

---John Harrison, Extension Agriculture, Waste Management Specialist, Utah State University



Photo courtesy of USDA NRCS.

## **1. Environmental Policy Statement**

A policy statement sets the foundation of the EMS process. It describes the environmental principles that are important to you and establishes your goals for managing them. Everyone who works on your operation should know and share a commitment to the policy statement. To demonstrate your environmental commitment, you can widely disseminate this statement to the public, showcasing your farm or ranch.

At a minimum, an environmental policy statement should describe your commitment to:

- Prevent pollution.
- Continually improve.
- Comply with environmental regulations.

### **▪ EXAMPLE ▪**

#### **Environmental Policy Statement**

*As operators, we intend to produce the best possible product in an environmentally responsible manner.*

- *We manage animal health to ensure the animals' well being and a high level of production and quality.*
- *We calculate feed rations and apply manure to cropland so we achieve optimum production while minimizing pollution.*
- *We are committed to complying with all pertinent environmental regulations and to continually improving the environmental performance of our operation.*
- *By regularly reviewing our actions and our goals, we sustain our operation's profitability while continually improving environmental stewardship.*

*The small producer doesn't need an elaborate EMS, and it doesn't need to take a whole lot of time.*

---Jim Home, U.S. EPA

*I was surprised at how much these conservation practices actually reduce the amount of work we do.*

---Columbus Moss, Jefferson County, Arkansas

*I don't get paid to promote EMS, but people in our organization believe it's one of the best things we've ever done. The EMS incorporates the good things you're already doing but makes it all easier to manage.*

---Don Butler, Murphy-Brown LLC

## 2. Plan

In the plan phase, you identify and prioritize environmental concerns, identify options, and set measurable objectives. You do not have to immediately address all of the environmental issues that you have identified on your farm or ranch. Beyond basic compliance with regulations, you define the scope of your EMS.

Many tools are available for on-farm risk assessments (see the Assessment Resources section at the end of this booklet). These tools will help you identify how your farm or ranch affects the environment, recognize where you are doing well, and prioritize and develop an action plan for the environmental risks that remain. Besides specific impacts on soil, air, and water, this process can also help you consider regulation, employee and family health, natural resources (for example, water, wildlife, or energy usage), and community relation issues.

Once you assess where you want to make improvements, you develop a plan that describes your objectives and specifies the actions that will get you there. Do you want to try a new technology, crop rotation, or feeding regime? Do you need to improve your procedures for handling emergency situations? Most importantly, the plan defines how you collect feedback and monitor your success, enabling you to know and to be able to inform others how well you are achieving your objectives.

Comprehensive nutrient management plans (CNMPs) may be an important component of your plan, but the EMS expands upon your nutrient management plan to identify what will be done, how and by whom, and how improvements will be measured. An important difference is that you assess your operation and decide where and how to make improvements.

Depending on the size, type, and goals of your operation, your EMS will look different than your neighbors' EMS. As the designer of the EMS, you define the parameters of the plan.



Photo courtesy of USDA NRCS.



Photo courtesy of USDA NRCS.

## **Planning and Implementing your EMS: Nine Key Activities**

1. *Identify short-term and long-term ways your operation affects the environment.*
2. *Determine which regulations cover your operation.*
3. *Establish objectives for environmental improvement.*
4. *Formulate management strategies to achieve objectives.*
5. *Compile and document operating procedures, including roles and responsibilities, for both daily routines and emergencies.*
6. *Create communication strategies with family members, employees, neighbors, and others outside your operation.*
7. *Highlight training needs.*
8. *Develop an implementation schedule.*
9. *Strategize how to publicize environmental improvements.*



Photo courtesy of USDA NRCS.

### **3. Implement**

The implementation of your plan requires carrying out necessary operational procedures and being sure that those charged with carrying out a task have adequate training. Two critical elements of the implementation process involve communication and documentation.

*Communication.* Whether you work mostly with family members or have ten employees, everyone needs to understand and appreciate their roles in implementing the plan and the operation's goals. To win their cooperation and to create a sense of ownership in the EMS process, all farm or ranch workers need to be involved in discussions about progress and obstacles as the plan is implemented and followed. Implementing your plan offers an opportunity to establish rules for effective communication.

*Documentation.* Documenting the processes and products of your EMS is an important part of demonstrating your environmental commitment. Many operations create their own "management manual" that documents the EMS process and provides a record-keeping system. The manual, often placed in a 3-ring binder, may include environmental assessments, CNMPs, standard operating procedures (SOPs), emergency response plans, and checklists. These records provide evidence that you are implementing practices to prevent pollution and to comply with regulations. Take advantage of existing records and SOPs. New records and procedures are not always needed, but documentation of existing procedures can often be improved.

Your plan lists actions you take that benefit the environment and reduce potential environmental impairment. You can use a paper notepad or a laptop computer to collect information. By taking measurements and recording results on a regular basis, you create a record you can use to evaluate what is and what is not working. These records also document your environmental stewardship and provide evidence of progress toward your objective.

### **The EMS in ISO**

*One of the best known models for an EMS was developed by the International Organization for Standardization (ISO). In countries around the world, consumer pressure for the development of environmental quality standards persuaded ISO to create voluntary standards for the environmental performance of your process. The resulting unified environmental standard, known as ISO 14001, applies to all types of production regardless of size, scope, or location. ISO 14000 includes a planning process for EMS and a third-party certification procedure to assist farmers and ranchers in, for example, accessing niche markets or lowering insurance costs.*



Photo courtesy of USDA NRCS.

### **4. Check and Correct**

You already check your animals for disease and your crops for pests and yields, right? The EMS process asks you to monitor the progress you are making toward meeting your objectives, which in the long run determine how effectively you are preventing pollution and complying with environmental regulations. If you have not devised your own performance measures, industry or trade organizations may have developed an appropriate checklist for your type of operation. The checklist will help you monitor such items as soil, well, or surface water tests; amount of fertilizer purchased; and litter sales. Incidentally, many of these records may be required as part of a CNMP.

The check and correct phase is critical to your ultimate success. An annual audit makes sure your policy, plan, procedures, practices, and record keeping are on track and will continue to serve you well. To provide a fresh perspective and additional credibility, consider hiring a third-party expert to conduct an independent audit.

### **5. Review and Improve**

What if new environmental regulations are passed? What if your operation expands or diversifies? What if a key person retires? These and other situations could drastically affect your operation and EMS. Annually reviewing the EMS by considering past performance, current circumstances, and your vision for the future will help you make the adjustments necessary to keep your operation headed in the right direction. Using the results of this annual review provides an opportunity to begin another cycle of Plan, Implement, Check and Correct, and Review and Improve, which forms the basis of continually improving your system.



Photo courtesy of USDA NRCS.



*An EMS can assist in addressing the most important bottom line: your family and the quality of life they enjoy on your farm or ranch.*

### **Making Good Use of Your EMS**

An effective EMS provides many benefits. By integrating environmental considerations into your management decisions, you are protecting the health of your family, employees, and animals. Implementing the EMS process can help bring you into compliance with regulations. Because it improves the management of your operation, an EMS can help reduce the dollar amount you spend on fertilizers, feed, pesticides, or energy.

An EMS supports property values and can help strengthen your relationships with nearby neighbors and surrounding communities. You can confidently share information about your operation with your processors and buyers, knowing that it is accurate, and best of all, reflects positively on your farm or ranch. Your documentation of good management practices may also lower your insurance rates or reduce your legal liability.

For instance, some producers have used a certified or registered EMS to pursue special marketing labels. By implementing the more meticulous management procedures detailed in an EMS, they have simultaneously prevented pollution, reduced environmental risks, and improved their economic bottom line.

Whatever your approach, a well-designed EMS can assist you in sustaining your farm or ranch operation now and in the future. •



Photo courtesy of USDA NRCS.



Photo courtesy of USDA ARS.

## Assessment Resources

The Livestock and Poultry Environmental Stewardship Curriculum EMS series is a producer-targeted set of lessons, assessment tools, and slide presentations developed by a team of 30 land-grant university, NRCS and ARS cooperators, and EPA.

Website: <https://lpec.org/livestock-and-poultry-environmental-stewardship-curriculum/>

The Michigan Agriculture Environmental Assurance Program is an innovative, proactive program that helps farms of all sizes and all commodities voluntarily prevent or minimize agricultural pollution risks.

Website: <https://maeap.org/>

See the *AEMS Coach/Educator Supplement* “Handout 5. Potential Resources for Environmental Assessments” for a comprehensive list of assessment resources organized by environmental issue.

## Agriculture EMS Resources

Information about EMS in pork production and an agreement with North Carolina’s pork producers in implementing EMS are part of a larger site on ISO14001/EMS hosted by the NC Division of Pollution Prevention and Environmental Assistance.

Website: <http://www.p2pays.org/porktool/index.asp>

## EMS Background Resources

Contact the American National Standards Institute, a source of information on ISO 14001 and registration of your system to that standard.

Phone: 414-501-5494

Website: <https://anab.ansi.org/management-systems> then click on “Accredited Certification Bodies” and fill out the form. Leave “Certification Body” blank. For “Standard” choose ISO 14001, choose “Agriculture, forestry and fishing” for “Scope” and “Accredited” for “Status”.

U.S. EPA’s EMS web page contains links to key information about EPA’s efforts to develop policies and related materials about EMS.

Website: <https://www.epa.gov/ems/learn-about-environmental-management-systems#ISO-14001>



Photo courtesy of USDA NRCS.