



## Environmental Management Systems (EMS) and Agriculture and Agribusiness Related Initiatives

as of March 2001

The following is a list of initiatives related to agriculture and agribusiness around the topic of environmental management systems (EMS). EMS means a continuous cycle of planning, implementing, reviewing and improving the actions a facility or organization takes to meet its environmental obligations under federal, state and local requirements, and to improve environmental performance. Many organizations or projects below use the international voluntary standard ISO 14001 as a model for an EMS. ISO 14001 contains 17 required elements an organization must implement to be in conformance to the standard. However, some projects listed below address only portions of an EMS such as through Best Management Practices (BMPs) and other methods. Various states and organizations are looking at these systems to accomplish a number of tasks, including complying with standards, reducing expenditures, improving safety, providing product integrity and protecting the environment.

Agricultural interests worldwide are beginning to adopt ISO 14001. According to "The ISO Survey of ISO 9000 and ISO 14000 Certificates" up to and including December 31, 2000, 16 certifications were issued in 1998 and 85 certificates issued in 1999 worldwide under the category "Agriculture, fishing."

Members of the Multi-State Working Group (MSWG) compiled this list of activities based on knowledge of its members and sources listed at the end of this document. Inclusion on this list does not imply endorsement. If you would like to be added to this list or have any corrections, please contact Al Innes at (651) 296-7330 or [alister.innes@pca.state.mn.us](mailto:alister.innes@pca.state.mn.us).

### **NATIONAL INITIATIVES**

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**American Crystal Sugar (ACS)** – Since 1980, this 2,500-member grower cooperative has operated a program basing increased payments to growers on sugar per ton of beets delivered as an incentive to implement best management practices. University of Minnesota research indicated 30-percent lower-than typical application of nitrogen optimized sugar content in beets and produced less residual nitrogen in soil. Other BMPs include Integrated Pest Management practices such as disease prediction model, field scouting and weather monitoring, and also soil testing. ACS staff are trained as Certified Crop Advisors. Website: <http://www.crystalsugar.com/index.asp>

**FARM\*A\*SYST** - Farm\*A\*Syst is a cooperative effort between federal, state and local agencies and organizations. Pollution risk assessment materials aid producers in identifying risks on their properties and in developing voluntary action plans to reduce or eliminate them. Elements of this program have been developed in 46 states.

Farmers and ranchers can complete the program on their own or seek assistance and further information from local and state agencies or the private sector. Risk assessments are available on:

- Drinking Water Wells
- Fertilizer Storage and Handling
- Pesticide Storage and Handling
- Petroleum Storage and Handling

- Hazardous Waste Mangement
- Household Wastewater Management
- Livestock Waste Storage
- Livestock Yard Management
- Silage Storage
- Milkhouse Wastewater
- Cropland Nutrient Management
- Cropland Pest Management
- Pasture and Rangeland Management
- Wildlife
- Woodland Management
- Wetlands and Riparian Areas and
- Other Stewardship Concerns.

Contact: (608) 262-0024 Website: [www.uwex.edu/farmasyst](http://www.uwex.edu/farmasyst)

***Iowa Soybean Association*** - Certified Environmental Management Systems for Agriculture (CEMSA) is an initiative currently being designed for the Environmental Services Program of the Iowa Soybean Association (8,000 grower members statewide). The CEMSA initiative will assist producers with integrating environmental performance objectives into the business of farming. The CEMSA framework will be built upon producers' use of resource management systems, promoting a continuous improvement process and providing a credible certification system. Producers that use CEMSA will gain value by using high performing production technologies, achieving increases in management efficiency, lowering their risk liabilities and capturing new knowledge through data sharing and research integration. Contact: Roger Wolf, Director of Environmental Programs, Iowa Soybean Association, 4554 NW 114<sup>th</sup> St., Urbandale, Iowa 50322, (515) 251-8640 Website: [rwolf@iasoybeans.com](mailto:rwolf@iasoybeans.com)

***Iowa State University Extension*** - Eight Iowa farmers have attained ISO 9002 certification, looking at the quality of their agricultural products from seed to shelf to prevent the co-mingling of biotech and traditional grain. They are part of an Iowa State University Extension pilot project conducted in partnership with the Iowa Department of Economic Development, the Southeast Iowa Agricultural Advisory Council and the Colusa Elevator Company, Wever, which was certified in Feb. 2000. As part of ISO 9000, seed corn lot numbers, where the commodity was in the bin, when the truck was cleaned and other activities must be documented. Each farmer developed a quality manual and procedures, which were specific to their operation and provided the basis for the certification audit. A third-party auditor conducted certification audits. The pilot project will continue in 2001 with the training of ten producers. Certified packing plants, seed companies, grain-handling facilities and flour mills can be found in Argentina, Australia, Denmark, Mexico and the Netherlands. Contact: Stan Johnson, Iowa State Extension, (515) 294-6192  
Website: <http://www.iasoybeans.com/whatnew/isudec06.htm>

***Milk and Dairy Beef Quality Assurance Program*** – The FIVE-STAR Program for Milk & Dairy Beef Quality Assurance is a national voluntary quality assurance program for the dairy industry.

This program includes best management practices such as:

- provide approved animal care;
- manage nutrients to protect the soil, water and animals;
- utilize family and hired labor correctly;
- provide safe and high quality milk;
- implement pathogen management to protect the public.

Following self-audits and education, a Quality Assurance Program-certified auditor inspects dairy facilities (stalls and pens, milk parlors, feed and forage, manure handling, etc.), personnel and practices, and audits various standard test results including:

- milk tests (MUN, bacteria, etc.);
- feed purchased tests;
- TMR tests;
- soil tests;
- manure tests;
- water tests;
- other indicators of quality.

Following audits, dairies may be awarded three, four or five stars.

The FIVE-STAR program appears to be a management system integrating environmental farm aspects with more narrowly scoped risk prevention management systems Dairy Quality Assurance (DQA) has had in place for some time. These also intersect with a Hazard Analysis Critical Control Points (HACCP) management system approach is being implemented across the country in response to 1996 federal food safety rules.

Interestingly, DQA quality program are leveraging the marketplace, and vice versa. There are large amounts of milk being destroyed due to antibiotic contamination. Through liability policies, the dairy insurance industry is bearing the brunt of the cost of lost milk. Since 1992, Old Guard Insurance Group (Pennsylvania) has offered dairy producers who voluntarily complete the DQA Drug Residue Prevention Protocol a 5% reduction in their total farm insurance premium. In an effort to cut down on claims, the Wisconsin Reinsurance Corporation has instituted a program to encourage dairies to participate in a quality control program. Insured dairy farmers with what is commonly a \$1,000 deductible when a milk contamination occurs will have the deductible waived if the farmer has completed the dairy quality assurance program. Website:

<http://www.dqacenter.org/fivestar.htm>

***On Farm Assessment & Environmental Review Project (OFAER)*** - America's Clean Water Foundation (ACWF) received a directed appropriation from the U.S. Congress to implement a program designed to improve the overall environmental stewardship of pork producers and protect surface and ground water quality. ACWF's On-Farm Assessment and Environmental Review (OFAER) project uses techniques based in part on an On Farm Odor/Environmental Assistance Program that was developed by the National Pork Producers Council through use of "Checkoff" funds. Participation in OFAER is voluntary and at no charge to the pork producer. A pork producer is provided a written assessment report following completion of an assessment. The assessment report provides recommendations to reduce an operation's actual or potential impact on surface or ground water quality, and ways to minimize the generation of odor from an operation. State pork trade associations may have information on this national program. Website:

<http://www.acwf.org/projects/index.cfm>

***Partnerships for Livestock Environmental Management Assessment Systems*** – This program is funded by the U.S. Department of Agriculture under its Initiative for Future Agriculture and Food Systems (IFAFS) grant program. The four-year project will:

- seek stakeholder input through roundtable discussions;
- work with three commodity organizations to develop, pilot test and evaluate environmental management assessment system materials and delivery approaches in nine states;
- evaluate feedback and results; and
- conclude with a forum that facilitates stakeholder and policy maker review and evaluation of results. The final forum will focus on identifying future roles for agricultural environmental management systems and support needed for future efforts.

The three commodity areas are beef, poultry, and dairy. Montana is the lead for beef, Georgia for poultry, and New York for dairy. Contact: Dr. Gary Jackson, University of Wisconsin - Madison,

Soil Science Department and Director, National Farm\*A\*Syst/Home\*A\*Syst Program, (608) 265-2773; Website: <http://www.uwex.edu/farmasyst/>. It began in Fall 2000 and will go for four years.

***Smithfield Foods, Inc. and Premium Standard, NC.*** These two pork producers located in North Carolina and their subsidiaries signed a legally binding agreement to develop and implement new technology that will protect the environment and the economy including the adoption and certification to ISO 14001. Violations of the agreement will be enforceable through the courts. Contact: Ryke Longest, N.C. Attorney General's Office, (919) 716-6942.

***Southern Minnesota Beet Sugar Cooperative (SMBSC)*** - SMBSC is a farmer-owned cooperative whose producer members grow sugar beets in southwestern Minnesota and send them for processing to a factory in Renville, MN. Several actions in 1999 were related to the Renville factory's planned expansion that would increase its output of sugar products by up to 40 percent. The expansion resulted in a new discharge to a tributary of the Minnesota River. Because the Minnesota River is considered seriously polluted, the new discharge will have restrictive limits and be offset through phosphorus "trading."

The wastewater permit issued by the Minnesota Pollution Control Agency to SMBSC in April 1999 specifies BMPs that SMBSC can implement to achieve the offsets in phosphorus, including cattle exclusions, buffer strips, constructed wetlands, set-asides, alternative surface-tile inlets and cover cropping. SMBSC will contract with land-owners to implement the BMPs in the lower two-thirds of the Minnesota River Basin. A voluntary Memorandum of Understanding (MOU) is helping achieve further improvements in water quality through the voluntary participation of the SMBSC farmer shareholders in efforts to reduce water pollution from row-crop agriculture.

Finally, a linked stipulation agreement resolving historic violations in several media includes spending \$40,000 for the design and implementation of an environmental management system which will help the company monitor its environmental condition and work to improve it. Contact: Al Innes at (651) 296-7330 or [alister.innes@pca.state.mn.us](mailto:alister.innes@pca.state.mn.us) Website: <http://www.pca.state.mn.us/programs/p2-s/#innovations>

***Wisconsin Agricultural Stewardship Initiative (WASI)*** - This initiative is driven by the state's movement toward a non-point source pollution control program that will require agricultural producer participation. This is an effort with many different layers, with the goal being to increase producer profitability and environmental stewardship. The major layers consist of basic agricultural research at the University of Wisconsin-Madison. Promising basic agricultural research can then be moved to applied agricultural research at the UW-Platteville's "Pioneer Prairie Farm," with a focus on "systems" approaches to agricultural and environmental issues. Following work in Platteville, research will be transferred to a series of Discovery Farms around the state (under the umbrella of the University of Wisconsin-Extension [UWEX]). When fully implemented, there will be 20 - 30 Discovery Farms in varying physiographic regions of the state, of various sizes, varying types of production, etc. The Discovery Farms will be open for inspection by regional farmers so that they can see how well new, systems-oriented techniques can be applied. The initial focus will be on dairy agriculture, but it will necessarily expand to the rest of Wisconsin agriculture.

In addition to the above research capabilities, another significant dimension of WASI is education and communication. The hope is that the Pioneer Prairie Farm will have significant communication

and education capabilities so that it can link with producers and researchers around the world, as well as provided hands-on training for producers.

This concept is based on a similar model that is being employed in The Netherlands (the DeMarke Farm and its satellites). There is a potentially similar effort being developed in Iowa, in consortium with Iowa State University, Northeast Iowa Community College and regional agribusiness, as the Northeast Iowa Community-Based Dairy Initiative. Contact: Jennifer Heaton, Wisconsin Department of Agriculture, Trade and Consumer Protection, (608) 224-5033, [heatoj@datcp.state.wi.us](mailto:heatoj@datcp.state.wi.us)

**Wisconsin Green Tier** - The proposed Wisconsin Green Tier System will use charters, contracts and environmental management systems as voluntary tools to achieve superior environmental performance. Designed initially to relate to regulated industry, the program will provide for clusters of farms to join with local citizens and others to form Chartered Agricultural Landscape Systems. These CALS theoretically would allow large and small operators to apply practices recommended by the Agricultural Stewardship Initiative in a fashion that pursued agreed upon superior performance goals that could include ecosystem protection, watershed management and carbon sequestration. Through the EMS, due diligence would be demonstrated. The proposal was recommended by a committee of business (including agri-business), environmental and municipal officials and is pending in the Wisconsin Legislature. Contact: Jeff Smoller, WI DNR, (608) 266-2747, [smollj@dnr.state.wi.us](mailto:smollj@dnr.state.wi.us)

## US EPA

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**Draft Concentrated Animal Feeding Operations (CAFO) Rule** –The Federal Register notice on January 12, 2001 “National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations” generally describes this program. One section “5. Co-permitting Entities That Exert Substantial Operational Control Over a CAFO” includes “Environmental Management System as Alternative to Co-Permitting.” Under this alternative, EPA would not require a processor to be co-permitted with their producers if the processor has developed, in conjunction with its contract producers, an EMS program that is approved by the permit authority and EPA. Website: <http://www.epa.gov/EPA-WATER/2001/January/Day-12/w01d.htm>

**Environmental Management Systems (EMS) for Pork Producers.** The N.C. Division of Pollution Prevention and Environmental Assistance (DPPEA) received an EPA Office of Water grant to fund development of EMS tools for pork producers and fund work with pilot farms. DPPEA will work with the North Carolina Cooperative Extension Service on the grant project. Contact: Jim Horne, EPA Office of Water, (202) 260-5802; Beth Graves, NC DPPEA, (919) 715-6506. Website: <http://www.p2pays.org/iso>. Scheduled to begin May 2001 for two years.

**Project XL: United Egg Producers (UEP).** This agreement provides, on a voluntary basis, for states to issue a general permit to participating members of the UEP who implement a multi-media EMS, complete third-party auditing and on-farm management practices. Contact: Jim Horne, EPA Office of Water, (202) 260-5802; Lisa Reiter, EPA Project XL, (202) 260-9041; John Thorne, Project Sponsor, (202) 872-3865. Website: [http://www.epa.gov/ooaujeag/project\\_xl/uep/index.htm](http://www.epa.gov/ooaujeag/project_xl/uep/index.htm). Signed in October 2000.

***Sustainable Industry Program - Meat and Poultry Processing Sector Project*** – The Sustainable Industry Program's Meat and Poultry Processing Sector Project provides an alternative approach to developing environmental policies that impact meat processing. Initially, The Meat & Poultry Processing Sector Team has been working with the American Meat Institute (AMI), a national trade association, that represents packers and processors of the nation's beef, pork, lamb, veal and turkey products. Together, the EPA and AMI member companies, have established a cooperative effort to identify factors that drive or are barriers to environmental performance in the Meat and Poultry Processing Sector. The Industry Sector Policy Division (ISPD) which sponsors this program is located in the Office of Policy Development, within EPA's Office of Policy. Contact: Roger Holtorf (202) 260-7563, Shana Harbor (202) 260-6191 or Janice Bryant (202) 260-2730  
<http://www.epa.gov/opispdwb/foodpro.htm>

## **INTERNATIONAL**

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***Cotton Australia Best Management Practices, Australia*** - Cotton Australia and other industry partners have developed a BMP Manual which allows self-assessment of farm practices against BMPs, most importantly those having to do with application of chemicals. Then a series of two audits can lead to certification to industry standards, followed by periodic surveillance audits looking for continuous improvement. Using the completed self-assessment, the initial compliance audit checks compliance against BMPs and identifies strengths and weaknesses. The auditor's report is reviewed by a centralized industry authority for the sake of consistency. The second "Industry Certification" audit (within 14 months) checks compliance against BMPs, and also progress on action plans and areas of improvement identified in the initial audit. Surveillance audits occur thereafter at roughly 18-month intervals. The cost of audits is \$500 plus costs which may be reduced by grant money available in some areas. Cotton Australia lists the following as longer-term benefits resulting from the BMP process:

- access to chemicals;
- access to water;
- reduced input costs;
- lower insurance premiums;
- better access to finance;
- tax concessions;
- government grants for BMP works on farm;
- suppliers/consultants that are BMP accredited;
- premium price for BMP cotton;
- license to continue to grow cotton;
- access to new markets.

Contact: Gavin Inglis, BMP Implementation Coordinator, [inglis@bigpond.com](mailto:inglis@bigpond.com) Website:  
<http://www.cottonaustralia.com.au/>

***The Atlantic Environmental Farm Plan (EFP) Initiative, Canada*** – This initiative is a joint project of the four federations of agriculture in the Atlantic Provinces and the Atlantic Farmers' Council. The objective of the EFP Initiative is to help farm families develop a practical plan for operating the farm in an environmentally responsible manner. Much like the five-year farm plan most producers work with, the Environmental Farm Plan acts as a guide which enables farm families to incorporate sound environmental practices into their operations. Farmers have taken the lead role in the development of the Environmental Farm Plan. Certificates will be given to farm

families who participate in the EFP Initiative to show the farm has completed an environmental farm assessment and has incorporated an Environmental Farm Plan into their operations.

The EFP Initiative promotes healthy farm families, wealthy rural communities, land stewardship, economic benefits from a rich resource base and marketing benefits tied to a green industry. Funding for the Initiative has been provided through Agriculture and Agri-foods Canada's Green Plan, Environment Canada's Action 21 and the Canadian Farm Business Management Program, with contributions of time and expertise from the Eastern Canada Soil and Water Conservation Centre and provincial departments of Agriculture and Environment in the four Atlantic provinces. Contact: EFP Initiative, Newfoundland & Labrador Federation of Agriculture, (709) 747-4874, Email: [agricult@newcomm.net](mailto:agricult@newcomm.net) Website: <http://enterprise.newcomm.net/agricult/efpi/>

***Linking Environment and Farming (LEAF, United Kingdom)*** - This program is part of the European Initiative for Integrated Farming (EIF), where an alliance of non-government organizations in seven countries have formed partnerships with stakeholders to promote the concept of integrated farm management (IFM). In 1999, 1600 farmers in the UK were participating in the LEAF program, with around 10,000 farmers in Europe involved. In some cases, completion of the LEAF audit and compliance with IFM protocols is required for product entry into supermarket sales and to qualify for various subsidies. Some of the major agri-food companies, such as Birdseye in the UK, now “strongly suggest” that their supplying farmers complete the LEAF audit.

LEAF was initially developed as an integrated crop management approach, but has been expanded to cover all aspects of farming (IFM). Presented as both a paper audit and as a CD with interactive text and eco-ratings, the audit responses are used by the farmer to develop an action plan to address issues identified. With annual and systematic use, the LEAF audit looks much like EMS and certification:

- assess existing management systems/features;
- focus on long term objectives;
- highlight potential problem areas;
- set targets to address problem areas;
- provide the basis for an annual review of progress;
- check whether legal and insurance obligations are met;
- target strengths and weaknesses;
- target resources;
- allow comparisons to be made between operations;
- identify cost saving operations;
- raise employee awareness of environmental issues;
- document environmental performance.

Contact: LEAF, The National Agricultural Centre, E-mail: [leaf@farmlife.com](mailto:leaf@farmlife.com) Website: <http://www.countrylife.org.uk/leaf/>

**Ontario Environmental Farm Plan Program (EFP), Canada** – This voluntary program has five steps, although an organization chooses what steps it wishes to complete. The steps are:

**Step 1.** Attend an EFP Workshop scheduled for the area. Attendees will be given an EFP Workbook.

**Step 2.** Complete the self-assessment, looking only what applies to the operation.

**Step 3.** Develop an Action Plan in accordance with the operation’s timetable to address identified areas of environmental concern on the farm.

**Step 4.** Submit EFP for a confidential review by a group of locally-appointed farmers. The group may be able to offer suggestions to help you achieve stated goals. Government personnel will not see your information.

**Step 5.** Begin to implement the EFP Action Plan. Apply for assistance through the EFP Incentive Program. If farms have come up with an innovative design or practice to overcome an environmental obstacle, they may consider entering the EFP Award Contest.

Website: <http://res2.agr.ca/london/gp/efp/efp3.html#Step>

**Ontario Best Management Practices, Canada** – This program is funded by Agriculture and Agri-Food Canada, draws expertise from the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), and is managed by the Ontario Federation of Agriculture. The award-winning series of innovative publications presents affordable options for protecting soil and water resources on the farm, supports individual farm planning and decision-making in the short and long term, and harmonizes productivity, business objectives and the environment. Website: <http://res2.agr.ca/london/gp/bmp/bmpmenu.html>

**Queensland Farmers Federation** - Environmental Code of Practice for Agriculture - The Queensland Environmental Protection Act encourages all businesses, including agriculture, to adopt Best Practice Environmental Management. Suggested practices included are:

- planning;
- training, monitoring, audit and review systems;
- relevant public consultation;
- product and process design;
- waste prevention, treatment and disposal.

Demonstration of general due diligence is enhanced by ensuring relevant information is available in the event of an investigation into environmental harm. Due diligence may be shown by:

- establishing a system for managing environmental matters;
- maintaining the system;
- monitoring the results.

And businesses that voluntarily develop an Environmental Management Program in partnership with the Queensland Department of Environment, and have them approved by the Department as well, gain complete legal protection, providing they comply with the strategies defined in the Program. Contact: QFF Policy Officer - Environment, Brianna Casey, [brianna@qff.org.au](mailto:brianna@qff.org.au)

Website: <http://www.qff.org.au/> or

<http://www.qff.org.au/Policies/Environment/CodeofPractice.htm>

## **SOURCES:**

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Food Production and Environmental Stewardship: Examples of How Food Companies Work With Growers, United States Environmental Protection Agency, EPA 231-R-98-001, January 1998.

Carruthers, Genevieve, Development of Environmental Management Systems (EMS) for Australian Agriculture, paper presented to the 10<sup>th</sup> World Congress on Food Science and Technology, Sydney, Australia, October 3-8, 1999.

Various websites, e-mails, and personal communications.