MINNESOTA DEPARTMENT OF AGRICULTURE

Livestock Environmental Quality Assurance Program

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Pursuant to Minn. Stat. § 3.197, the cost of preparing this report was approximately $1,000.00

Executive Summary

The Minnesota Department of Agriculture (MDA) has contracted the services of Ag Resource Strategies, LLC and Tim Gieseke to provide assessment and water quality assurance framework to farming operations across Minnesota. The program is being funded through the 2009 Clean Water Fund as approved by the Minnesota legislature and signed into law by Governor Pawlenty.

An amount, $150,000 each year is for grants to the livestock environmental quality assurance to

1) *develop resource management plans,*
2) *provide resource management analysis and assistance,*
3) *provide an implementation plan, and*
4) *provide for annual reporting on water quality assessment and reasonable assurance of the water quality effects for the purposes of TMDL plans, including an assurance walk-through for farms enrolled in the program.*

By December 15, 2010, the commissioner of agriculture shall submit a report to the chairs and ranking minority members of the legislative committees and divisions with jurisdiction over agriculture and environment policy and finance on the activities of the livestock environmental quality assurance program. The report shall include:
(1) The number of farms enrolled;
(2) An analysis of the estimated water quality improvements to enrolled farms; and
(3) An analysis of the ability to provide reasonable assurance of the water quality effects.

This interim report will address the above mentioned requirements to the greatest possible extent considering that the program activities and timeline are mid-term. The contract between the MDA and Ag Resource Strategies, LLC initiated the program activities on February 18, 2010 with a completion of June 30, 2011. Program activities and final report are on schedule to be completed by June 30, 2011. A broader "conservation delivery" framework was needed for the LEQA program to successfully deliver on the legislative directive to "provide reasonable assurance of the water quality effects for the purposes of TMDL plans." It required an approach that would yield a two-tiered outcome; one for the farm operation and one for the watershed. To meet this new challenge, the LEQA program relies on an On-Farm Assessment and a Water Quality Assurance component that acts as a conservation "starting line" and a "finish line" for livestock producers. Each farm management unit (farmstead, livestock, facilities, and fields) is provided a water quality score that is applicable to both the farm and the watershed.

The On-Farm Assessment helps both farmer and government staff to better target conservation dollars. The Water Quality Assurance component indicates to both farmer and government staff when state water quality goals are met. Since the assessment and the assurance components are numerically rated, these scores can be compiled to produce a so-called "watershed intelligence" – which is information that shows how the watersheds are progressively being managed for water quality. The farm score and watershed score are novel approaches that account for and align all the farm conservation efforts of government, non-profits, producers and agricultural professionals. Fortunately, implementing this broader framework does not disrupt the traditional "conservation delivery system" of the local, state and federal conservation agencies, but it does frame their efforts within the context of farm operation and state water quality goals.

The key to motivate voluntary participation in the LEQA program is for local, state and federal agencies to identify the values that LEQA brings to their efforts and in turn, express that value in either monetary or non-monetary terms.

Introduction and Background

Brief History of LEQA Program

The 2010-2011 LEQA program is based upon the Environmental Quality Assurance program that was developed by livestock organizations (Livestock Environmental Assurance Consortium (LEAC), government staff and non-profit organizations beginning with the leadership of the Minnesota Milk Producers Association in 2001. In 2007, Ag Resource Strategies, LLC (AgRS) was contracted by the LEAC to develop and administer the 2007-2009 LEQA program that included all bovine species. In February 2010, AgRS was awarded the LEQA contract by the Minnesota Department of Agriculture to include *all* livestock species.

LEQA Conservation Delivery Components

LEQA Stakeholder Organizations

The following organizations have provided various levels of input into the development of the LEQA program:

Minnesota Farm Bureau Federation
Minnesota Farmers Union
Minnesota Milk Producers Association
Broiler and Egg Association of Minnesota
Minnesota Crop Production Retailers
Minnesota Ag Water Resource Coalition
Minnesota Pollution Control Agency
Minnesota Association of Soil and Water Conservation Districts
Minnesota Department of Agriculture
USDA Natural Resources Conservation Services
Minnesota State Cattlemen's Association
Minnesota Turkey Growers Association
Minnesota Pork Producers Association
Minnesota Agri-Growth Council
Board of Water & Soil Resources
Minnesota Department of Natural Resources
Minnesota Citizens League

LEQA Program Objectives Outline

There are six primary activities scheduled for the LEQA program.

1. Develop an On-Farm Assessment Template and Assurance Process

The On-Farm Assessment Template was developed by using the Environmental Quality Assessment that was produced by the Minnesota Milk Producers Association in consultation with local, state and federal conservation and regulatory agencies in 2001 and is based upon several farm assessments respected by university and government entities. The LEQA program is for all types of livestock operations and assesses the farm by management units using 100 questions. The Water Quality Assurance process condenses these 100 questions into four (4) numerical scores for:

- Farm water bodies
- Farmstead
- Livestock facilities
- Fields and pastures
- Forests and wooded Area

The assurance process is accompanied by a certification walk-through and an annual confirmation.

2. Identify technicians for on-farm assessments and develop training curriculum

LEQA technicians are trained to conduct the on-farm assessment, to provide certification assistance and the certification walk-through. The technicians are from both the public and private sectors and have agriculture and conservation experience. A total of 12 LEQA technicians were trained in 2010.

3. Develop marketing strategy and recruit livestock producers

Livestock producers are recruited through multiple avenues including news releases developed and distributed by the MDA, and activities by Ag Resource Strategies such as speaking at organizational meetings, conferences, advertisements and, most effectively, through one-on-one correspondence by the LEQA technician to the agricultural producers.

4. Conduct 100 Assessments and Develop Resource Management Plans

Assessments are conducted by trained LEQA technicians. The assessment combined with professional judgment lends itself to create a Resource Management Plan. This plan is specific to each farm management unit, it states the potential source of technical and financial assistance, and it states the outcome desired. The intention is not to recreate the extensive USDA Natural Resources Conservation Service (NRCS) Conservation Plan, but to provide the producer, their advisor and any other agricultural or conservation professional with a streamlined plan to meet the LEQA Standards and state water quality goals.

5. Implementation and Assurance of best management practices

Producers are eligible for up to 20 hours of assistance from the LEQA technician to help them implement the conservation practices identified in the action plan. This assistance can be in the form of direct assistance such as writing a nutrient management plan, or by assisting the producer to enroll in government programs. After the producer has used the 20 hours of assistance, further effort must be made on the part of the producer or come from other sources. Since each livestock operation is unique in its circumstances, some operations may already meet the LEQA standards while others may take months or years before receiving Water Quality Assurance documentation.

6. Quarterly and Final Reports

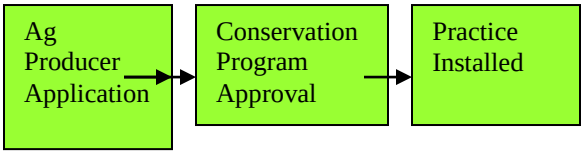
Ag Resource Strategies provides six quarterly reports and a final report to the Minnesota Department of Agriculture to identify the program progress.

Applying the LEQA Framework

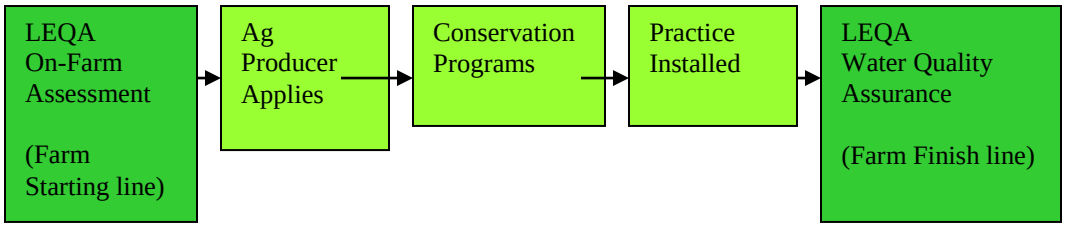
A challenge in implementing the LEQA framework is integrating it with the state's existing "conservation delivery system" without duplicating the efforts of state, local and federal agency programs or adding a burden to staff workload. This LEQA framework must also reduce the current complexity of water issues for livestock producers. The following three flowchart diagrams illustrate the current "conservation delivery system" and how the LEQA framework is integrated at the farm level and then at the watershed level.

Integrating Public and Private Activities at the Local and Farm Levels

The existing "conservation delivery system" consists of local, state and federal conservation programs that provide technical and financial assistance to implement conservation practices. Agricultural producers have relied on these programs for decades for assistance in addressing on-farm concerns. In general, the producer submits an application to a particular program for the needed conservation practice and when their application is approved, they commence to implement the conservation practice. This process is illustrated by the flowchart. While this process has served agricultural producers in implementing practices, it has not identified the off-farm outcomes of the farm management.



The LEQA program adds an On-Farm Assessment and a Water Quality Assurance component to frame the "conservation delivery system" for the producer and to institute a process for determining off-farm outcomes. This gives the producers a "starting line" and a "finish line" based upon LEQA standards and state water quality goals.

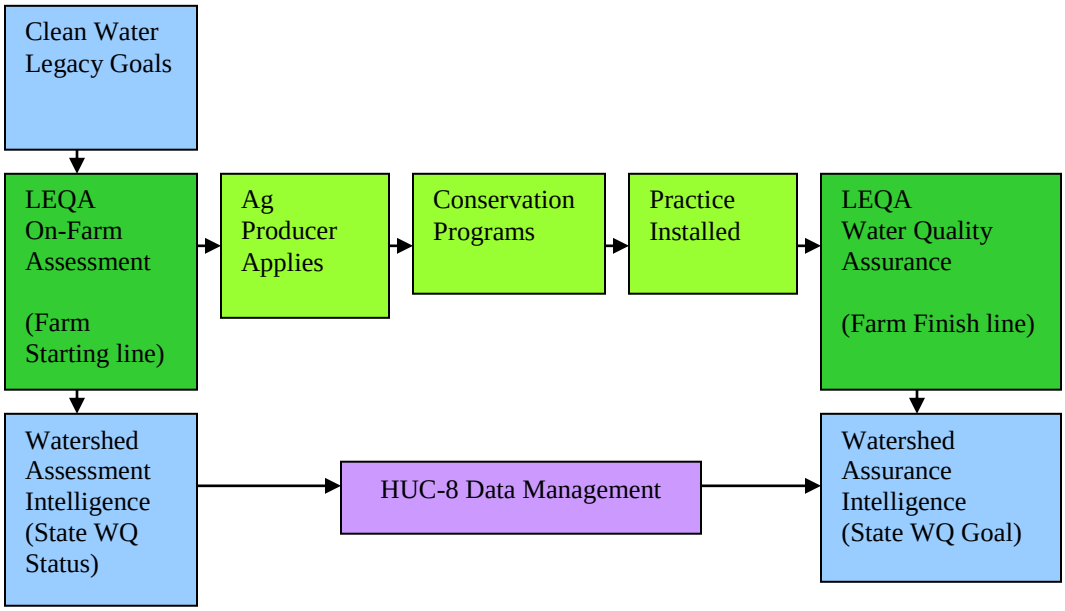


The potential values associated with this include:

- The ag producer is aware of all the resource concerns of the farm.
- The SWCD/NRCS staff can assist in applying for all the producers needs at once (increases producers' ranking and staff efficiency).
- The ag producer knows when they have reached the finish line.
- The conservation staff knows when the producer has reached the finish line.
- An Annual Confirmation keeps the Water Quality Assurance up-to-date.

Integrating Public and Private Objectives at the State and Watershed Levels

In addition to the goal of individual producers meeting a Water Quality Assurance standard, the state of Minnesota and individual watersheds also have water quality goals. The LEQA framework, along with its numerical water quality score, allows for an accounting system at the watershed level. This is made possible by compiling the On-Farm Assessment scores to begin to determine the watershed status and by using the Water Quality Assurance to identify the progress that the watersheds are making to achieve the state goals. The flow chart below illustrates that the Clean Water Legacy goals are incorporated into the LEQA On-Farm Assessment. This data, when compiled at the watershed level, identifies the current status of watershed management. The On-Farm Assessment provides both the producer and the watershed with a starting point. As the producer implements conservation, either on their own or through governmental programs, the LEQA program accounts for all these activities when Water Quality Assurance standards are met. Again, this data has dual value. First, it has value for the producer as it identifies when they reach the Water Quality Assurance goals, and secondly, for the watershed and the state to determine when they have met the watershed goals.



Water Quality Assurance Data Collection and Management – On the Farm

The Water Quality Assurance (WQA) data consists of Farm ID, # of Animal Units, # of Acres, Watershed #, and WQA scores. Approximately 100 On-Farm Assessment questions are condensed into four (4) scores that are used for WQA. The entirety of the WQA data is contained in the following spreadsheet graphic:

ID	AU	Acres	Watershed	Water Quality Assurance			
ID	**Total**	**Total**	**HUC-8 #**	**F-WB**	**FS-SG**	**Fdlt Y/N**	**FP-SWETw**
3131	116	154	7010202	3.8	3.9	Y	72

This individual farm data is comprehensive, yet much of the specific farm management and type remains confidential; an important aspect for agricultural producers. It does not provide the name or address, the type of animals, or the cropping system and other land use. This data remains private unless the producer decides otherwise, such as if they want to make their Water Quality Assurance status publicly known.

To further explain the Water Quality Assurance (WQA) scores:

1. F-WB: Farm Water bodies. It is based upon a LEQA-developed scoring system with a range from 1-4. A score of 3.5 is needed for WQA.
2. FS-SB: Farmstead Surface and Groundwater. It is based upon a LEQA-developed scoring system with a range from 1-4. A score of 3.5 is needed for WQA.
3. Fdlt Y/N: Feedlot. It is based upon the MinnFarm software and approved NRCS practices. Feedlot Officers provide the assurance by either Yes or No.
4. FP-SWETw: Fields and Pastures-Soil & Water Eligibility Tool (water). It is a NRCS spreadsheet scoring system with a range from 0-130. A score of 72 is needed for WQA.

Water Quality Assurance Data Collection and Management – In the Watershed

In addition to individual farm data, this data can also be compiled at the watershed level to begin to account for the water quality benefits that are being provided. This is illustrated by the LEQA assessments completed in the Platte-Spunk Watershed in central Minnesota. The Platte-Spunk has 1,919 farms that contain 368,800 acres of cropland, and 120,446 animal units. The table below shows that 15 farms (0.7%), 16,254 animal units (13.4%) and 8,481 acres (2.3%) have been included in the LEQA assessments. The data can be further evaluated to give the percentage of farms that meet each water quality criteria. For example, a score of 65 or greater is needed to comply with the field water quality score (SWETw). Of the 8,481 acres assessed, 6,978 (82%) meet the water quality standards. The acre-weighted average of the water quality score (SWETw) of the watershed is 71.5. All the operations (100%) meet the state regulations for feedlot compliance.

ID	AU	Acres	Watershed	Water Quality Assurance			
ID	Total	Total	Platte-Spunk	F-WB	FS-SG	Fdlt Y/N	FP-SWETw
3161	226	268.5		3.4	3.6	Y	65
3178	136	143.6		3.6	3.5	Y	62
3181	950	1162		3.0	3.2	Y	74
3183	327	270		3.0	3.2	Y	72
3184	1499	627		4.0	3.8	Y	60
3185	6000	177		4.0	3.6	Y	87
3186	960	97		3.0	3.5	Y	N/A
3188	1500	84		3.0	3.2	Y	N/A
3191	192	485		3.0	3.1	Y	78
3192	136	391		3.0	3.2	Y	53
3193	2500	1750		4.0	3.1	Y	82
3194	1168	2000		3.0	3.5	Y	72
3197	200	160		4.0	3.0	Y	61
3198	160	386		2.0	3.2	Y	73
3199	300	480		4.0	3.3	Y	79
Ttls	**16254**	**8481.1**	**Averages**	**3.3**	**3.3**		**71.5**

LEQA Preliminary Assessment Findings

Since this is an interim report and only about 65 of the 100 On-Farm Assessments have been completed, an analysis of the data will not be completed until the final report in June 2011. What this section will contain is the types of data that will be analyzed and a list of the general findings or expectations.

Farm

- Farm water bodies
- Habitat
- Community image

The recommendations provided by the LEQA technical staff for this section are generally related to adding buffer strips, including some additional habitat and developing a plan for addressing community complaints.

Farmstead

- Fuel, chemical and hazardous waste storage and handling
- Well and water management

The recommendations provided by the LEQA technician for this section are generally related to developing pest and petroleum spill plans, disposal plans for hazardous wastes, and well management.

Livestock Facility

- Manure storage
- Feed storage
- Wastewater
- Air and odor

The recommendations provided by the LEQA technicians for this section include constructing agricultural waste systems, manure storage management, and waste water treatment.

Fields and Pastures

- Nutrient management
- Soil management
- Surface and ground water

The recommendations provided by the LEQA technicians for this section include nutrient management plan development and updates, soil testing and erosion control measures.

Forests and Wooded Areas

- Habitat
- Shelterbelt
- Field breaks

The recommendations provided by the LEQA technicians are relatively few for this section with some dealing with livestock management.

Report Conclusions

In review of one of the state's watersheds (Platte-Spunk), it is apparent that a relatively small percentage of the farms and acreages have been assessed and that these numbers would not be statistically significant in determining if the watershed is being managed to meet state water quality goals. These same numbers and percentages are similar to the other nine watersheds where LEQA assessments have been completed. These results are not unexpected, as funding provide for only 100 assessments, action plans and water quality assurance evaluations.

But even with these small percentages, one could deduce that the processes of the LEQA model do provide value to individual producers and local technical assistance agencies such as Soil and Water Conservation Districts (SWCD) and the Natural Resources Conservation Service (NRCS). The LEQA program, acting as a water quality report card for livestock producers, also acts as a reporting system for the SWCDs. A district that has a higher percentage of livestock operations that meet the LEQA standards and state water quality goals reflects highly on that district's efforts over the decades of operation. And much like a low score would identify conservation needs for a farm, the LEQA also can guide the SWCD staff toward needed improvements on that farm operation.

In areas where watershed districts and water management organizations exist, the LEQA watershed assessments can provide the platform for policy and program development. County water plans can also adopt the scoring mechanism to be used to communicate the desired county water plan outcomes.

Essentially, the LEQA water quality assurance scoring system allows for a common process to communicate water quality outcomes regardless if the entity is private, public or non-profit. Likewise, these diverse entities can also decide if they want to express a value (monetary or non-monetary) associated with particular water quality goals.

Using the LEQA model as public-private collaboration – that is to expand the conservation delivery system to include agricultural professionals – greatly increases the capacity to assess conservation problems and implement solutions and it provides the motivation and value for individual agricultural producer to engage in the process.

Under this LEQA model, one could estimate that several thousand agricultural operations could be assessed yearly along with tens of thousands of acres, resulting in annual confirmations of the status of these operations and acres.

This process would accelerate in direct proportion to what level the LEQA was valued by local, state and federal agencies along with their non-profit partners in natural resource management.