

Crop*A*Syst for Field Crop and Vegetable Producers



Some field-based agricultural practices can result in high risk of contamination to ground-water and surface water resources — including your drinking water supply. Others present low risk or virtually no risk at all. Your water supply is least likely to be contaminated if you follow appropriate management practices and dispose of hazardous and toxic wastes off the farm at a properly managed site.

The Crop Assessment System (Crop*A*Syst) will provide you with accurate information about how your management practices might be affecting water resources. When higher risk practices are being used, alternative lower risk practices are identified that you can use on your farm. Your agricultural representatives can assist you in implementing lower risk management practices and maintain profitable production.



Cropping System Improvement Action Plan

Risk question	List high-risk practice(s) from Crop*A*Syst and medium-risk practices that do not meet MAEAP requirements	Required for MAEAP verification?	Management practice to reduce risk. (Include potential sources of technical and financial assistance)	Action plan	
				Planned completion date	Indicate date when completed
1.04	(example) Realistic yield goals not calculated for all fields.	Yes	Summarize yield histories by field to establish realistic yield goals for corn, soybeans and wheat.	Feb. 2012	(✓) Completed Jan. 20, 2012

(continued after work sheets)

I understand that this cropping system assessment (Crop*A*Syst) and corresponding Cropping System Improvement Action Plan were developed on the basis that I have disclosed, to the best of my knowledge, all information pertaining to my cropping operations.

Farmstead address:
 Street _____
 City _____ MI, Zip code _____
 Watershed name: _____

Producer's signature _____ Date _____

Crop*A*Syst conducted by:
 Name _____
 Title _____ Date _____

Introduction

Crop*A*Syst will assist you to develop and implement a management plan that prevents contamination of groundwater and surface water resources and maintains economic crop production. Your plan will be in conformance with applicable Michigan-Right-to-Farm guidelines and applicable state and federal environmental regulations.

Nutrients used in agricultural production come from chemical fertilizers and natural sources such as manure, legumes and biosolids (sewage sludge). All nutrients, whether synthetic or naturally occurring, can become mixed with surface water or groundwater by natural processes such as runoff and leaching. Nitrate contamination of groundwater and phosphorus contamination of surface water can be problems in Michigan. Crop*A*Syst will assess your current nutrient management practices and identify alternative management practices that, when implemented, will reduce nutrient losses to the environment.

Virtually all crops produced in Michigan may be threatened by serious pest problems—weeds, insects and disease-producing organisms. Producers are encouraged to adopt pest management practices that achieve the desired commodity quality and yield while minimizing any adverse effects on non-target organisms, humans, and soil and water resources. Crop*A*Syst will assess your current pest management practices and identify alternative management practices that, when implemented, will reduce negative impacts to the environment.

Crop*A*Syst is designed to coordinate the pollution prevention efforts of the Michigan Water Stewardship Program and the Cropping System of the Michigan Agriculture Environmental Assurance Program (MAEAP). Crop*A*Syst focuses on management practice in the field, whereas Farm*A*Syst focuses on activities at the farm headquarters, such as agricultural chemical storage, mixing and loading; water well construction and management, and other activities.

The Michigan Agriculture Environmental

Assurance Program is a comprehensive, proactive and voluntary agricultural pollution prevention program. It takes a systems approach to assist producers in evaluating their farms for environmental risks. The three systems are Livestock, Farmstead and Cropping. The on-farm risk evaluation uses specific tools for

each system — the comprehensive nutrient management plan (CNMP) or Livestock*A*Syst for the livestock system, the Farm*A*Syst for the farmstead system and the Crop*A*Syst for the cropping system. Environmentally assured systems are eligible for various incentives and recognitions.

The Michigan Right-to-Farm Act, P.A. 93, was enacted in 1981 to provide farmers with protection from nuisance lawsuits. This state statute authorized the Michigan Commission of Agriculture to develop and adopt generally accepted agricultural and management practices (GAAMPs) for farms and farm operations in Michigan. These voluntary practices are based on available technology and scientific research to promote sound environmental stewardship and help maintain a farmer's right to farm. The current Right-to-Farm GAAMPs are posted on the Michigan Department of Agriculture and Rural Development Web site: <<http://www.michigan.gov/mda>>

Producers who complete the Crop*A*Syst assessment will be able to determine what management and record-keeping changes (if any) will be needed for their cropping system to be environmentally assured through MAEAP. Once a producer develops and implements a plan to address the risks indicated by the Crop*A*Syst assessment, he/she can contact the Michigan Department of Agriculture and Rural Development (MDARD) to request Cropping System verification. An MDARD inspector will schedule a site visit to complete the verification process.

P.A. 451, Part 82, ensures the confidentiality of the producer information you provide to the MDARD for system verification. Any information connected with the development, implementation or verification of a conservation plan or conservation practice is confidential.

As the owner of a MAEAP-verified cropping system, you will be eligible for various incentives and can enjoy “good-faith-effort” environmental liability protection, if an agricultural pollution emergency ever occurs in your fields.

Similar incentives are available for producers who have environmentally assured their Livestock and Farmstead Systems. Contact your local Conservation District, MSU Extension or NRCS representative for a list of currently available incentives and information on how to get started.

What is the Crop Assessment System?

The Crop Assessment System (Crop*A*Syst) is a series of risk questions that will help you assess how effectively your crop management practices protect groundwater and surface water resources. The risk questions are grouped in the following sections:

1	Nutrient Management Practices
2	Soil and Water Conservation Practices
3	Pest Management Practices
4	Water Use Reporting
5	Crop-specific Management Practices
6	Pasture Management Practices
7	Irrigation Management Practices
8	Other Environmental Risks
9	Cropping System Improvement Action Plan

Each risk question assesses the impact of your cropping practice on groundwater and surface water resources. The risk question answers indicate whether management practices have a low, medium or high risk of contamination. Producers are generally recommended to adopt the low-risk management practice.

Risk questions that address management practices that are regulated by state or federal law indicate **illegal practices with black bold print**. The numbered footnotes indicate what regulation(s) is violated (refer to Table 2, page 31).

Risk questions that address management practices covered by the Michigan Right-to-Farm Act indicate the **risk level required for protection from nuisance lawsuits with blue bold italic print**.

Finally, a blue box indicates the management level(s) required for MAEAP verification.

MAEAP management requirements are aligned with state and federal environmental regulations, the Michigan-Right-to-Farm Act and environmentally based agronomic management practices that are supported by research. The records and/or plans that indicate the approved management practices have been implemented on the farm are listed in the far right column. This evidence will provide the basis for awarding environmental assurance through MAEAP.

Your agricultural representatives (both public and private) can assist you to make the appropriate management changes to become environmentally assured through MAEAP.

How does Crop*A*Syst Work?

- 1) Select all relevant risk question sections for your farm.
- 2) Answer the risk questions by selecting the answer that best describes management practices used on your farm. Indicate your risk level in the column to the right. Skip any questions that don't apply to your cropping system.

*Note: For MAEAP verification, complete the risk questions with a Crop*A*Syst trained individual. Your water stewardship technician is located in the Conservation District or the MSU Extension county office.*

- 3) After completing each section of risk questions, list the practices that present a high risk of contaminating groundwater and surface water resources in the

Cropping System Improvement Action Plan (printed inside the front cover of the bulletin). Also include any medium-risk practices that do not meet MAEAP verification requirements.

- 4) In the Cropping System Improvement Action Plan, list:
 - Management practice(s) that you plan to implement that will reduce the identified risk.
 - Sources of technical and financial assistance.
 - Target dates for accomplishing the changes.
 - Target date for MAEAP verification of your Cropping System.

A Few Final Words

The key to Crop*A*Syst is that, once you have identified the risks to groundwater and surface water resources, you implement *your* plan to reduce the risk(s). Some of the stewardship practices that will reduce risks may cost very little and take very little time to implement. Other practices may involve additional

cost and may not be implemented for a few years. It is important, however, to have a plan to follow.

Once you have developed a plan and have implemented changes to address the risks, you are ready for MAEAP verification of your Cropping System.

Nutrient Management Practices – General

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
1.01) How often are fields tested for nutrient levels (P, K, Ca, Mg) and pH?	<i>All fields are sampled and tested on a regular basis,</i> at 1 to 4 years, depending on crops being grown, and the cropping system.	Most fields are sampled and tested every 1 to 4 years. Producer plans to bring all field soil tests up to date. Manure is not applied to fields without a current soil test.	Fields have not been tested within the past 4 years.		Field names or map. Acres in the cropped portions of the field. Up-to-date soil test reports, or schedule to bring all tests up to date.
1.02) Do soil sampling procedures adequately represent field conditions?	One composite sample is taken from uniform field areas of 15 to 20 acres or from uniform management areas.	One composite sample is taken from uniform field areas of 20 to 40 acres.	One composite sample is taken from areas greater than 40 acres.		Predominant soil types/soil maps. Cropping histories. Proper soil sampling procedure.
1.03) Do you maintain the soil pH in the desirable range for the crop(s) being grown?	When crops with different target pHs are being grown in rotation, soil pH is maintained for the crop with the highest target pH. Or, for perennial crops, soil pH is maintained in desirable range.	The soil pH is adjusted for the current crop. Rotational crops are not considered.	Soil pH is not maintained in the desirable range.		
1.04) How are crop yield goals established?	Realistic yield goals (achieved 50% of the time) are established based on soil potential and level of crop management.	No yield goals are established.	Excessively high yield goals that have never been achieved.		Previous crops grown over the past 3 to 5 years. Actual harvest yields or estimated yields. Running average yield for each of the crops commonly grown in the field. Realistic yield goals for each crop.
1.05) How are all sources of nutrients considered when making fertilization decisions?	<i>Credit taken for nutrients supplied by organic matter, legumes and manure or other biological materials</i> (biosolids). Fertilizer rates are reduced accordingly.	When organic matter, legumes manure or other biological materials (biosolids) are used, fertilizer rates are sometimes reduced.	When organic matter, legumes, manure or other biological materials (biosolids) are used, rates are not reduced.		Written records indicate nutrient credits utilized.

A boxed risk level indicates the level required for environmental assurance verification.

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Nutrient Management Practices – General (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
1.06) How are fertilizer application rates determined?	<i>Consistent with Michigan State University (MSU) recommendations.</i> When MSU recommendations are not available, other land-grant university recommendations developed for the region may be used.	Fertilizer rates are based on soil testing lab recommendations but not consistent with MSU recommendations.	Fertilizer application rates not based on soil testing. Application rates often or always exceed MSU recommendations or crop removal rates.		Applications consistent with MSU recommendations (MSU soil test printout or calculated MSU recommendations on file). When MSU recommendations are not available, other land-grant university recommendations developed for the region may be used.
1.07) How are nutrient management plans for each field annually developed and followed?	Annual nutrient plan is developed for each field that meets crop nutrient needs and minimizes loss of nutrients to the environment.	A nutrient plan is developed each year for each crop species with like yield goal and crop rotation. Soil tests are up to date.	Nutrient plan is not developed, or the same plan is used for more than 4 years.		Annual nutrient plan by field or by crop grown.
1.08) Is fertilizer application equipment checked for proper adjustment?	<i>Application equipment is checked for rate of application and placement.</i> Over, and under applications are monitored and corrected.		Application equipment is not checked.		Name of person responsible for fertilizer applicator adjustments and the dates of adjustments.
1.09) What soil nutrient management records are kept?	<i>Records of soil test reports and quantities of nutrients applied to individual fields are maintained.</i> Also crop yields are recorded for evaluating performance and setting future yield goals.	Partial nutrient management records are kept. Complete nutrient management records will be kept in the future, for review at time of reverification.	Minimal or no nutrient management records kept.		Three years of records — or 5 years, if applying manure — or plans to begin keeping records. Soil fertility tests and/or plant analysis results. Previous crop grown and yield harvested. Date(s) of application(s). Nutrient composition of fertilizer or other material used. Amount of nutrient-supplying material applied per acre. Method of application and placement of applied nutrients. Vegetative growth and cropping history of perennial crops.

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Nutrient Management Practices – General (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
1.10) When not in use, where are loaded planting and spray supply vehicles (trailers and trucks) parked to protect water resources from accidental fertilizer and pesticide spills and mischievous activities?	Supply vehicle is returned to a secure location when not in use. Fertilizer and pesticides (including treated seed) are properly stored more than 150 feet down gradient from any well.		Fertilizer and pesticide (including treated seed) supply vehicle is left in an unsecured location. Or, Fertilizer and pesticides are stored less than 150 feet from any well. ¹		Map showing where vehicle should not be parked adjacent to any well. No evidence vehicles left in an unsecured location.
1.11) Are poly tanks used as intended?	Yes. Vertical (upright) tanks are used for stationary fertilizer storage, and horizontal tanks with tie-down features are used for stationary storage and/or transportation applications.		Vertical tanks are used as mobile nurse tanks or other transportation applications. Vertical tanks are designed for stationary storage.		
Nitrogen Management Practices					
1.12) How do you match nitrogen fertilizer applications to the demand of the crop and the conditions of the soil?	Split or multiple nitrogen fertilizer applications are based on presidedress nitrate tests (PSNT) or N credits for manure, legumes and other biological materials.	Split or multiple nitrogen fertilizer applications are based on past practices.	Single application is made where leaching or runoff potential is high.		
1.13) What nitrogen fertilizers are used?	Ammonium sources (anhydrous ammonia, urea and ammonium sulfate).	Nitrate sources (calcium nitrate, ammonium nitrate, nitrate N solutions, including 28%) where leaching and runoff potentials are limited.	Nitrate sources where leaching and runoff potentials are high.		

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Nutrient Management Practices – General (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
Phosphorus Management Practices					
1.14) How are phosphorus fertilization rates determined?	<i>Based on soil tests or plant tissue analysis using Michigan State University recommended rates.</i> If soil phosphorus test is over 75 ppm Bray P1, applied P does not exceed crop removal and is discontinued if the soil test reaches 150 ppm Bray P1.	Phosphorus fertilization is based on past practices, without regard to soil test P levels. Application is discontinued if the soil test reaches 150 ppm Bray P1.	Phosphorus fertilization is based on applying as much as is affordable to ensure the best possible yields.		P management consistent with nutrient management GAAMPs, or applied P used according to low risk answer.
1.15) If there are instances where dilute wastewater (≤1% solids) is applied to fields testing over 150 ppm P soil test, can the farmer document appropriate conditions for application?	<i>-Growing plants in the application area.</i> <i>-Wastewater application rate supplies ≤ 75% of P crop removal.</i> <i>-Annual sampling of wastewater P content.</i> <i>-Soil P test levels decline over time.</i> <i>-No other P applied to field.</i> <i>-Tile drained fields monitored for manure flow.</i>	Appropriate conditions are partially met.	Appropriate conditions for dilute wastewater application are not present.		Appropriate dilute wastewater management demonstrated. The CNMP guidelines and NRCS Nutrient Management Practice standard (590) require the use of the Michigan Phosphorus Index (PI) when wastewater is applied to fields testing over 150 ppm P soil test. A PI of 17 or lower is needed.
1.16) Where is the phosphorus fertilizer placed?	For row crops, all P is banded as a starter fertilizer at planting time. For other crops, P is surface broadcast but incorporated when possible to prevent runoff.	P fertilizer is surface applied and not incorporated where runoff potentials are limited.	P fertilizer is surface applied and not incorporated where runoff potentials are high.		
1.17) How often is commercial phosphorus fertilizer applied on frozen or snow-covered fields?	Phosphorus fertilizer is never broadcast on frozen or snow-covered fields.	<i>Broadcast applications are avoided on frozen or snow-covered fields</i> and are not part of the nutrient management plan.	Phosphorus fertilizer is often broadcast on frozen or snow-covered fields.		Date(s) of application(s) of P fertilizers.

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Nutrient Management Practices – General (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
Manure Management Practices (If you do not use manure, skip this section.)					
1.18) What manure management records are maintained?	Complete application <i>records of manure analysis, soil test results and rates of manure application for individual fields are maintained.</i>	Partial manure application records have been kept. Complete manure application records will be kept in the future, for review at the time of re-verification.	Minimal or no records are maintained.		Additional nutrient management records that are needed if manure is used in the cropping system: - Date(s) of manure incorporation - Weather conditions during application of manure (e.g., sunny, 70°F). - Field conditions during application of manure (wet, dry, frozen, etc.). - Manure/wastewater quantities produced and nutrient analysis results. - Records of rental agreements or other agreements for application of manure/wastewater on land not owned by the producer. - Record of manure/wastewater sold or given away to other landowners.
1.19) How is the nutrient content of manure determined?	<i>Laboratory analysis for percent dry matter (solids), ammonium N, and total N, P and K.</i>	Book values or standard nutrient content values used.	Manure nutrient content is unknown or not considered.		All manure analyses or book values on file.
1.20) How are desired manure application rates achieved?	Manure analysis (book value, manure test or mass balance) and <i>field application rates are known.</i>		Manure application rate is not known.		Rate of manure applied known for all spreaders. Records indicate date of calibration.

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Nutrient Management Practices – General (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
1.21) How is manure generally applied to fields?	<i>Manure is incorporated within 48 hours or injected into the soil, and/or conservation practices (residue management, rough tillage, cover crops, etc.) are used to protect against runoff and erosion losses to surface waters.</i>	Manure is generally surface applied and conservation practices are employed to reduce the risk of runoff.	Manure is applied in a manner that results in ponding, soil erosion losses, or manure runoff to adjacent property, drainage ditches discharges directly to surface water. ⁴		Manure application records.
1.22) How are streams, wetlands, farm ditches and other water bodies protected from manure runoff?	<i>Manure is injected or immediately incorporated. Or, surface applications are not done within 150 feet of surface water. Or, filter strips, riparian buffer strips, grassed waterways and other conservation practices are maintained between fields and surface waters on the farm and around surface water inlets.</i>	Conservation practices are maintained on some fields.	Manure is applied within 150 feet of surface waters and not incorporated without conservation practices. And/or manure occasionally reaches neighbor's property.		Field maps with setbacks and conservation practices identified. Records of manure incorporation.
1.23) How is manure temporarily stacked in relation to surface water?	<i>Manure stockpiles are kept at least 150 feet from surface waters or areas subject to flooding unless conservation practices are used to protect against runoff and erosion losses to surface waters.</i>		Manure stockpiles are closer than 150 feet to surface waters or areas subject to flooding, and conservation practices are not used to protect against runoff and erosion losses to surface waters. ⁴		Appropriate temporarily manure stacking demonstrated for surface water protection.
1.24) What management practices are used to reduce odors and pests from manure stockpiled in the field?	<i>Stockpiled manure is at least 150 feet away from non-farm homes and stockpiled manure is covered with a tarp, straw or other materials or additives are used to reduce odors and pests.</i>	<i>Stockpiled manure is at least 150 feet away from non-farm homes.</i>	Stockpiled manure is closer than 150 feet to non-farm homes.		Appropriate manure stacking demonstrated for odor and pest control.

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Nutrient Management Practices – General (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
1.25) How long is manure stockpiled in the field?	<i>Manure is spread as soon as field and weather conditions allow, and does not exceed six months; or if covered with an impermeable cover, twelve months.</i>		Manure stockpiled for more than six months without a cover, or more than twelve months with an impermeable cover.		Manure not stacked for more than 365 days.
1.26) How are manure nitrogen application rates managed?	<i>Manure and N fertilizer are applied at rates that do not exceed the N requirements of the crop</i> and are credited toward fertilizer needs. Presidedress nitrate test (PSNT) may be part of the program.	Manure nitrogen credits are considered but not to their full extent.	Commercial nitrogen is not reduced to account for manure nitrogen credits.		Manure rates do not exceed crop N needs, consistent with GAAMPs.
1.27) How are manure phosphorus application rates managed?	<i>High testing fields (>150 ppm Bray P1) do not receive manure, and fields between 75 and 150 ppm P receive no more than 4 years, crop P205 removal per year, if one-year application, is impractical.</i>	High testing fields (>150 ppm Bray P1) removed from spreading plan, but crop removal rates are not followed.	Manure application rates are not based on soil tests and/or crop removal rates.		Manure rates do not exceed crop P needs.
1.28) How are fields selected for spreading on frozen and snow-covered ground?	No winter applications.	Manure application risks index (MARI) is completed for each field receiving winter manure application. Fields receiving winter manure applications have met MARI criteria for Low or Very Low <i>and no liquid manure is applied on slopes greater than 3%, and no solid manure is applied to slopes over 6%.</i>	Applications are made to fields where runoff to water resources may occur.		MARI completed for each field receiving winter manure application, or spreading plan does not include winter spreading.

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Nutrient Management Practices – General (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
1.29) How are field tiles managed to prevent manure discharge?	<i>Liquid manure is prevented from reaching tile lines.</i> Management practices are in place to prevent runoff to surface inlets. Tile lines outlets are monitored.		Tile outlets are not monitored for manure discharge.		Tiled fields identified on map. Record of tile flow before and after application (flow, rate, color and odor).
1.30) Do you have an odor management plan?	Cropping operation is managed in a way that minimizes odors.		Manure odors are not minimized.		
Biosolids Management Practices (If you do not use biosolids, skip this section.)					
1.31) Has nutrient content information on the biosolids applied to the farm been received?	Received laboratory analysis for percent dry matter (solids), ammonium N (NH ₄ -N), and total N, P and K, and utilize nutrient credits when planning nutrient program.		Have not received any biosolids analysis information.		Biosolids analyses on file.
1.32) How are the rates of biosolids (in gallons or dry tons per acre) and applied biosolids nutrients known?	Received actual biosolids application rates from the biosolids generator or its land application contractor. Nutrient rates are consistent with MSU recommendations.		Have not received any biosolids rate or nutrient application information.		Biosolids application rates on file.

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Soil and Water Conservation Practices

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
<p>2.01) Have environmentally sensitive areas been identified (land near surface water, highly erodible land, soils with high leaching or runoff potentials, wells and surface drains and inlets) that require additional management when applying nutrients and pesticides?</p>	<p>Environmentally sensitive areas are identified. Family members, employees and contractors are aware of and understand the management practices to protect these areas.</p>	<p>Some environmentally sensitive areas are identified.</p>	<p>Environmentally sensitive areas are not considered.</p>		<p>Areas identified on field maps with appropriate management or setbacks.</p> <ul style="list-style-type: none"> - Areas next to surface waters. - Fields with shallow groundwater. - Fields with water wells. - Areas near surface water inlets. - Fields with highly erodible soils. - Fields with highly leachable soils. - Fields with high runoff potential. <p>Training/communications plan to inform workers and contractors of appropriate management or setbacks.</p>
<p>2.02) Is soil erosion under control on the farm fields?</p>	<p>Soil erosion losses are within tolerances as documented by the revised universal soil loss equation (RUSLE2) and the wind erosion prediction system (WEPS). Minimal evidence of erosion and no evidence of erosion of concentrated water flows. Cover crop may be in place.</p>	<p>RUSLE2 and WEPS are run on fields that are not:</p> <ul style="list-style-type: none"> In pasture or hay ground, or no-till planting systems. Receiving fall tillage, with >30% residue on less than 12% slopes. Receiving more than one pass fall tillage that leaves fields rough with >40% residue and less than 8% slopes. And regardless of fall tillage, spring tillage leaves >20% residue. And for all of the above there is no evidence of sheet, rill or gully erosion. 	<p>Excessive soil erosion is occurring on the farm.</p>		<p>RUSLE2 and WEQ calculations completed and on file.</p>

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Soil and Water Conservation Practices (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
2.03) Do you protect all streams, wetlands, farm ditches and other water bodies on your farm from polluted runoff and sediment with conservation practices?	Filter strips, riparian buffer strips, grassed waterways and other conservation practices are maintained between fields and all surface waters on the farm.	Conservation practices are maintained on some fields.	No conservation practices are maintained. Farm is immediately next to surface waters, drainage ditches and roads.		
2.04) Do you plant cover crops to prevent soil erosion, trap nutrients and pesticides, and improve soil quality?	Cover crops are included in the crop rotation to protect soil and water resources and control erosion.	Cover crops are used occasionally.	Cover crops are not used.		
2.05) Are soil quality indicators evaluated?	Soil quality indicators (e.g., earthworm populations, water infiltration rates, soil compaction, percent plant and residue cover, pH, cation exchange capacity [CEC] and percent organic matter) are evaluated on all fields.	Some soil quality indicators are evaluated.	No soil quality indicators are evaluated.		
2.06) Are conservation and management practices routinely inspected and evaluated?	Owner or trained individual routinely inspects and evaluates conservation and management practices.	Conservation and management practices are informally evaluated during field operations.	Practices are not inspected nor evaluated.		

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Pest Management Practices

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
3.01) Do you use integrated pest management (IPM) on your farm?	Pest identification, scouting information and thresholds are always used to manage pests and protect beneficial organisms.	The primary pests are known, but scouting information is not routinely utilized for control decisions.	Pesticides are utilized to control pests; thresholds are not considered.		
3.02) How do you control weeds on your farm?	Herbicide selection and rates are based on weed species present; scouting and thresholds are utilized. Where appropriate, cultural and mechanical practices are used to suppress weeds and minimize weed seed survival (cultivation, crop rotation, certified seed, cover crops, mulch, etc.).	Preemergence and post-emergence herbicides are selected on the basis of past performance, weed history, cost or ease of application.	Herbicides are selected primarily on the basis of price or ease of application. Little consideration is given to weed species present.		
3.03) How do you control insects on your farm?	Treatment is always based on monitoring and economic thresholds. Where available, biological pesticides (e.g., Bt), pheromones, cultural methods (resistant varieties, field border management, etc.), transgenic seed or selective insecticides are used to protect beneficial organisms.	Insecticide treatments are sometimes based on monitoring and economic thresholds.	Insecticides are used as insurance or on a calendar schedule regardless of insect pressure or treatment thresholds.		
3.04) How do you control plant diseases on your farm?	Fungicide use is based on disease prediction and scouting information. Diseases are managed through cultural methods where available (resistant varieties, field and equipment sanitation, planting disease-free seed, etc.).	Fungicides are the primary method used to manage diseases. Spraying is done at the first sign of disease.	Crop is not monitored for disease. Spraying is based on the stage of plant development or calendar date.		

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Pest Management Practices (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
Pesticide Application					
3.05) Do you consider soil characteristics and field conditions when making pesticide applications?	Soil characteristics (texture and organic matter) and field conditions (slope and moisture) are assessed when deciding on pesticide application practices. Site-specific or variable-rate technology may be used.	Whole-field application rates are based on the most vulnerable soil type in the field.	Pesticides are applied at full labeled rates without regard to vulnerable soil characteristics or field conditions.		
3.06) How are surface and groundwater protected in and near fields from pesticide contamination?	Pesticide labels with groundwater and surface water advisory statements are followed.		Labeled directions are not followed. ¹⁷ Spray is applied adjacent to or over the top of surface water, tile drain inlet or well. Field restrictions for shallow groundwater are ignored.		Field maps indicating pesticide label setbacks (2.1) and shallow groundwater restrictions are followed.
3.07) Are leaching/runoff and toxicity potentials considered when making pesticide decisions?	Pesticides with the lowest potentials for leaching, runoff and non-target toxicity are always selected for use in fields.	Leaching/runoff and toxicity potentials are occasionally considered when selecting soil-applied pesticides.	Pesticide choice is not based on leaching/runoff and toxicity potentials. Only cost and effectiveness are considered.		
3.08) Are the purchasers and applicators of restricted-use pesticides (RUP) certified applicators?	<i>The purchaser and applicator of RUP comply with the certification requirements.</i>		Non-certified and unsupervised applicators use RUP. ⁶		RUP certification confirmed.

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Pest Management Practices (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
3.09) Do you protect workers and pesticide handlers from exposure to pesticides?	<i>Workers and handlers:</i> - <i>Follow specific label requirements.</i> - <i>Are provided decontamination supplies.</i> - <i>Are trained or certified applicators.</i> - <i>Are informed of pesticide applications.</i> - <i>Are provided personal protective equipment.</i> - <i>Are provided emergency assistance, if needed.</i>	Worker Protection Standard requirements are partially met. ¹⁹	Worker Protection Standard requirements are ignored. ¹⁹		
3.10) If pesticides are mixed and loaded in the field, how are they handled?	A mixing and loading pad is used. Mixing and loading are done more than 150 feet from any well and more than 50 feet from surface waters.	Mixing and loading are done in different locations in the field, more than 150 feet from a private well, more than 800 feet from a public well* and more than 50 feet from surface waters. A mixing and loading pad is not used.	Pesticides are mixed and loaded at the same spot in the field year after year without a mixing and loading pad.		Proper pesticide mixing and loading demonstrated.
3.11) How are empty pesticide containers rinsed and disposed?	<i>Containers are triple-rinsed or power rinsed, punctured and returned to dealer, recycled, or taken to licensed landfill. Bags are returned to dealer or taken to licensed landfill.</i>	Disposal of empty containers and bags on the farm property. ^{8,17}	Disposal of partially filled containers. Burning of containers on the farm property. ^{8,17}		Evidence of containers being recycled or properly disposed.
3.12) Do pesticide applicators read and follow the label instructions?	<i>Everyone using pesticides follows label and labeling instructions.</i>		Label and labeling instructions are not always followed. ¹⁷		Evidence that labels are followed for environmental concerns.

* See groundwater technician for additional information on criteria for reduced isolation distances.

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Pest Management Practices (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
3.13) What management practices are used to prevent the development of pest resistance to certain pesticides?	Pesticides with different modes of action are rotated within a season or from one season to the next or used in tank mixes where permitted. Pesticides at highest risk of resistance are not used when alternatives are available. Refuge requirements for transgenic seed are followed.	Some but not all pesticide modes of action are rotated or tank mixed. Pesticides at highest risk of resistance are used sparingly.	Pest resistance is not considered when selecting pesticides. Refuge requirements for transgenic seed are ignored.		
3.14) Is a spill kit immediately available to pesticide applicators in the field?	<i>A spill kit</i> containing a shovel, absorbent material, PPE and a container <i>is immediately available.</i>		No spill kit is available⁶ or no plan is in place to contain spills.		Adequate spill kit present.
3.15) How is excess spray mixture disposed?	<i>Spray mixture is applied to labeled site at or below labeled rate of application.</i>		Spray mixture dumped at farmstead or in nearby field or pond.⁴		Satisfactory explanation of procedures for excess spray mixtures.
3.16) How is the sprayer system rinsed?	<i>Sprayer system rinsed on pad or in field. Rinse water applied to labeled site at or below labeled rate of application.</i>		Sprayer rinsed out at farmstead. Rinse water dumped at farmstead or in nearby field or pond.⁴		Satisfactory expansion of procedures for rinsing sprayer system.
3.17) How is the proper and safe operation of pesticide application equipment ensured?	<i>Equipment is correctly calibrated at least annually and leaks are minimized to apply intended rate and distribution pattern.</i>		Pesticide application equipment is not properly calibrated.⁶		Date equipment calibrated annually.
3.18) How are pesticide applications assured to remain on-target and minimize off-target pesticide spray drift?	<i>A written drift management plan is utilized that minimizes off-target drift.</i>	Pesticide applications follow labeled instructions for target pests, but no drift management plan is utilized.	Spraying operations are completed regardless of weather conditions or forecast, and regardless of the potential of off-target drift.⁷		Written draft management plan on file.

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Pest Management Practices (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
3.19) What pesticide application records are kept?	<i>Accurate records are maintained of all agricultural crop applications of pesticides for at least three years.</i>	Partial pesticide records are kept. Complete pesticide application records will be kept in the future, for review at the time of reverification.	No record is kept. Chemicals used are known by memory or invoices only.		Pesticide records for the past 3 years on file (or plans for records). <ul style="list-style-type: none"> - Date of application. - Time of application. - Pesticide brand/product name. - Pesticide formulation. - EPA registration number. - Active ingredient(s). - Restricted-entry interval (REI). - Rate per acre or unit. - Crop, commodity, stored product or site that received the application. - Total amount of pesticide applied. - Size of area treated. - Applicator's name. - Applicator's certification number. - Location of the application. - Method of application. - Target pest. - Carrier volume per acre.
3.20) How do you encourage beneficial insect populations?	Field borders and boundaries are managed to encourage beneficial insects. Refuge requirements are followed.		Beneficial insect management is not considered.		
3.21) How are agricultural pollution emergencies handled?	Call 911, sheriff, fire or emergency services department for personal safety issues. <i>All uncontained spills or releases should be reported to the MDARD Agriculture Pollution Emergency Hotline: 1-800-405-0101</i> , or the MDEQ Pollution Emergency Alerting System: 1-800-292-4706.		No contact to state or local authorities. Spill discharges directly to surface water. ⁴		Farm emergency plan on file, or local emergency telephone numbers immediately available.

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Water Use Reporting

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
4.01) If the groundwater and surface water pumps have a combined capacity to pump more than 100,000 gallons per day (70 gallons per minute) for agricultural purposes, have you registered and reported water use to the State of Michigan?	Pump capacity is less than 100,000 gallons per day (70 gallons per minute). Or, Register and report annual water use to Michigan Department of Agriculture and Rural Development.		Pump capacity is greater than 100,000 gallons per day (70 gallons per minute) and water use is not reported to the State of Michigan.¹³		Farm records indicate compliance.
4.02) Is there an unused well located in the cropping area?	No unused well, or abandoned well properly sealed.		Unused, unsealed well in cropping area.¹		Unused well(s) properly sealed.
4.03) Have you registered new or increased large quantity water withdrawals (capacity greater than 70 gpm or 100,000 gallons per day) for systems established after February 27, 2006?	Yes.		No.¹³		

Crop-specific Management Practices

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
Corn Management Practices					
5.01) Is commercial nitrogen applied in the fall for spring-planted corn?	Nitrogen fertilizer is not applied in the fall.		Nitrogen fertilizer is applied in the fall that may be leached from the soil profile.		
5.02) Are label-required setbacks maintained for herbicides with surface water protection advisory statements?	The label-required setbacks from perennial and intermittent streams and rivers are maintained.		The required setbacks are not maintained on all fields.¹⁷		Field maps (2.1) indicating areas requiring setbacks.
5.03) Do you rotate corn with other crops for rootworm control?	Corn is rotated annually without the use of rootworm insecticides.	Corn is rotated annually without overuse of rootworm insecticides.	Continuous corn is grown with the use of a rootworm insecticide.		

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Crop-specific Management Practices (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
Soybean and Alfalfa Management Practices					
5.04) Do you apply commercial nitrogen when planting soybeans or alfalfa?	No nitrogen is applied because soybeans and alfalfa use nitrogen fixed from the air by soil bacteria.	Nitrogen fertilizer is applied to soybeans or alfalfa.			
Wheat Management Practices					
5.05) Are more than 25 pounds of nitrogen per acre applied when planting fall-seeded wheat?	No more than 25 pounds of N fertilizer are applied in the fall.	A nitrogen stabilizer is used when more than 25 pounds of N fertilizer are applied in the fall.			
Potato Management Practices					
5.06) Do you plant a cover crop after harvest?	Cover crop is established to take up any residual nitrogen and to protect against wind erosion.	No cover crop is established.			
Sugar Beet Management Practices					
5.07) Is commercial nitrogen applied in the fall for spring-planted sugar beets?	No nitrogen fertilizer is applied in the fall.		Nitrogen fertilizer is applied in the fall that may be leached from the soil profile.		
Vegetable Crop Management Practices					
5.08) How are manure applications managed to prevent any food safety risk?	Manure applied more than 4 months (120 days) before crop is harvested. Applied manure is composted or held in storage for 60 to 90 days before application.*	Manure applied more than 4 months (120 days) before crop is harvested.	Manure applied less than 4 months (120 days) before crop is harvested.		
5.09) Does the farm business have a food safety program that is followed to reduce the risk of food borne illness?	A written food safety manual exists and is being implemented.	Food safety practices are generally followed, but not documented in a written plan.	A food safety program is not available.		Note: This is a GAP (Good Agricultural Practices) requirement. USDA will not certify the farm without a documented food safety designee.

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*Rangarajan, A., E.A. Bihn, R. Gravani, D. Scott and M. Pritts. 2000. Food Safety Begins on the Farm: A Grower's Guide. Available from Cornell Good Agricultural Practices Program: www.gaps.cornell.edu.

Crop-specific Management Practices (continued)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
5.10) Does the farm business have a person designated to implement and oversee a food safety program?	The designated food safety person is documented in the food safety manual.		There is no designated food safety person.		Note: This is a GAP requirement. USDA will not certify the farm without a documented food safety designee.

Pasture Management Practices (if you do not have pasture, skip this section.)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
6.01) Are there current soil tests on the pastures?	<i>All fields are sampled and tested on a regular basis,</i> at 1 to 4 years, depending on crops being grown and the cropping system.	Most fields are sampled and tested every 1 to 4 years. Producer plans to bring all field soil tests up to date within the next 3 years. (See also 1.01).	Fields have not been tested within the past 4 years.		Field names or map. Acres in the cropped portions of the field. Up-to-date soil test reports, or schedule to bring all tests up to date.
6.02) Is the area managed as a pasture?	Pasture plants are the only significant feed source. Area is covered with pasture plant species. Manure nutrients are removed by growing vegetation and animal grazing.	Pasture plants are the major feed source. Area is covered with predominantly pasture plant species. Manure nutrients are removed by animal grazing and some scrape and haul from areas where pasture plants do not exist.	Significant sources of additional feed are brought to the area. Area is not covered with predominantly pasture plant species. Manure nutrients are not removed by animal grazing or some scrape and haul from areas where pasture plants do not exist. (These areas are not considered pasture and should be managed as dirt lots. See Farm*A*Syst yard management.)		

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Pasture Management Practices (if you do not have pasture, skip this section.)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
6.03) How is the pasture managed to protect surface water?	<i>Livestock are excluded from actual contact with streams or watercourses except for controlled crossings and accesses</i> or pasture management measures are in place to protect neighboring land areas and prevent direct discharges to surface water or groundwater.		Runoff results in direct discharge to surface waters. ⁴ Livestock have free access to streams or watercourses, causing erosion.		Adequate protection of surface waters.
6.04) How far is the pasture from surface water?	<i>Livestock is excluded from actual contact with streams or watercourses except for controlled crossings and accesses.</i> Or, pasture management measures are in place to protect neighboring land areas and prevent direct discharges to surface water and discharges to groundwater.		Runoff flow to surface water is evident. Livestock have free access to streams or watercourses. ⁴		Adequate protection of surface waters.
6.05) What is the condition of pasture vegetation?	Pasture is well-managed with all areas vegetated. <i>Runoff from pasture feeding and watering areas travels through a vegetated filter area to protect surface and groundwater.</i> Or, no contaminated runoff is noted.	Pasture is well-managed and vegetated except in small feeding and watering areas, which are scraped. <i>Runoff from pasture feeding and watering areas travels through a vegetated filter area to protect surface and groundwater.</i> Or, no contaminated runoff is noted.	Pasture is overgrazed with bare spots and weedy areas. Erosion may be present. Runoff from pastures is carrying sediment and nutrients to surface waters ⁴ or neighboring property.		Proper lot management demonstrated.

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Pasture Management Practices (if you do not have pasture, skip this section.)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
<p>6.06) What is being done to reduce manure concentration around watering tanks/feeders in pasture areas?</p>	<p>Water tank/feeding areas are rotated to different areas of pasture. Or, watering/feeding areas are permanent, but manure is removed frequently to prevent concentration of nutrients.</p> <p><i>Runoff from pasture feeding and watering areas should travel through a vegetated filter area to protect surface and groundwater.</i></p>	<p>Watering and/or feeding areas are permanent, but manure is removed frequently to prevent concentration of nutrients.</p> <p><i>Runoff from pasture feeding and watering areas should travel through a vegetated filter area to protect surface and groundwater.</i></p>	<p>Watering/feeding areas are permanent with infrequent or no manure removal.</p> <p>There is evidence of direct discharge to surface water⁴ or ponding in low areas.</p>		<p>Proper manure management around water and feed demonstrated.</p>

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Irrigation Management Practices (if you do not use irrigation, skip this section.)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
System Management					
7.01) Have all irrigation systems been evaluated for application uniformity?	<i>All irrigation systems have been evaluated for uniformity.</i> Corrections are made to the system to improve uniformity.	Some irrigation systems have been evaluated for uniformity. Remainder of systems scheduled to be evaluated.	Irrigation system uniformity has not been evaluated.		Uniformity tests on file. Schedule for evaluating systems that have not been evaluated.
7.02) How is the amount of irrigation water delivered accurately determined?	<i>All water applications are accurately determined—</i> -by knowing actual flow delivered (GPM) and time of application. -or, by using a flow meter. -or, by average output caught with system evaluation.	Water applications are estimated.	Water application amounts not determined. Excess application occurs.		Irrigation water delivered is accurately determined.
7.03) Are all sprinkler systems operated to minimize drift and off-target application?	<i>All sprinkler systems are operated to minimize drift and off-target application.</i> No off-target irrigation application present.	Most sprinkler systems operated to minimize drift and off-target application. Few off-target irrigation applications occur.	Sprinkler systems are often operated under windy conditions. Water is sprayed over roads, adjacent property or structures.		No field evidence of off-target applications.
7.04) Is noise control provided when needed?	<i>Noise control is provided</i> when needed.	In most areas of concern, noise control is provided when needed.	Noise control is not provided when needed.		

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Irrigation Management Practices (if you do not use irrigation, skip this section.)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
Record Keeping					
7.05) Are proper irrigation system management records collected and retained for use in decision making and for reference in case of complaints?	Irrigation system management records are collected and retained, including: - <i>Crop type and location.</i> - <i>Source of the water used.</i> - <i>Date method and amount of each irrigation water application.</i> - <i>All system inspections and repairs that influence uniformity and leaks.</i> - <i>Calibration of fertigation and chemigation equipment, if used.</i> - <i>Records on system uniformity evaluation.</i>	Most of irrigation system management records are collected and retained. Plan to maintain complete irrigation records.	Few or no irrigation system management records are collected and retained.		Irrigation records on file, or plans to maintain records.
Irrigation Scheduling					
7.06) How is irrigation scheduling used to determine when it is necessary to irrigate and how much water should be applied during each irrigation event?	Irrigation water is scheduled on the basis of: - <i>Available soil water for each unit scheduled.</i> - <i>Depth of rooting for each crop irrigated.</i> - <i>Allowable soil moisture depletion at each stage of crop growth.</i> - <i>Measured, estimated or published evapotranspiration data to determine crop water use.</i> - <i>Measured rainfall in each field irrigated.</i>	Irrigation water is scheduled on the basis of observed soil moisture content and/or daily water crop usage.	Irrigation water is applied at a set rate per week if no precipitation is received.		Scheduling system evident by records.

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Irrigation Management Practices (if you do not use irrigation, skip this section.)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
Application practices to avoid runoff and leaching					
7.07) Is there a rain gauge in every irrigated field?	<i>Every field being managed for irrigation has a rain gauge in the field.</i>	Most fields have a rain gauge; plan to have gauge in all fields.	No rain gauges.		Rain gauges in all irrigated fields, or plan to maintain in all fields.
7.08) Is irrigation water runoff and ponding minimized?	<i>Sprinkler application rates are below the soil infiltration rate.</i> Nutrient leaching is minimized.	Most sprinkler application rates are below the soil infiltration rate. Some runoff and ponding is present.	Sprinkler application rates exceed the soil infiltration rate. Runoff and ponding is commonly visible.		No indication of significant runoff or ponding in irrigated fields.
7.09) Are split applications of nitrogen fertilizer (fertigation and land-applied) used when nitrogen is used in an irrigated field?	After planting, <i>split applications are used to ensure that N is available when plants need it most and to minimize the amount that can be leached.</i> N application does not exceed MSU recommendation.		Majority of nitrogen is applied before or at planting, increasing risk of N leaching.		
7.10) Are appropriate backflow prevention devices in place and properly maintained if fertigation or chemigation is used?	<i>Appropriate backflow prevention safety devices are used</i> and properly maintained if fertigation or chemigation is used.	Backflow prevention devices are almost always used and/or properly maintained.	Backflow prevention devices are not used and/or properly maintained.		Operational backflow devices field confirmed.
7.11) Is excess irrigation avoided?	<i>Irrigation water applications in excess of the quantity of water needed to replace the soil/substrate moisture deficit are avoided.</i>	Excess irrigation water applications may occur occasionally.	Excess irrigation water applications are common.		

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Irrigation Management Practices (if you do not use irrigation, skip this section.)

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
Wellhead Protection					
7.12) Is the irrigation well adequately protected from contamination from pesticides and fertilizers?	<i>Anti-backflow device is installed</i> , and agricultural chemical/fertilizer storage and preparation areas are at least 150 feet from the well.	<i>Anti-backflow device is installed</i> , agricultural chemical/fertilizer storage and preparation areas have secondary containment, but storage and preparation areas are less than 150 feet from the well. ¹	No anti-backflow device , no secondary containment and less than 150 feet isolation distance from irrigation well. ¹		Isolation distances field confirmed.
7.13) How far is the irrigation fuel tank from a storm drain, surface water or designated wetland?	Tank is more than 50 feet away or has some other engineering control present that would control or divert a spill from reaching a storm drain, surface water or designated wetland.		Tank is 50 feet or less. ¹⁵		Appropriate fuel storage isolation distance from surface water.

Other Environmental Risks in the Cropping System

Risk question	Low Risk - 3 (recommended)	Medium Risk - 2 (potential hazard)	High Risk - 1 (significant hazard)	Your Risk	Records for MAEAP verification
8.01) Are there other activities, products, processes/equipment, services, byproducts and/or wastes in the cropping areas that pose contamination risks to groundwater or surface water?	No risk(s) identified.	Risk(s) identified and plan to mitigate the contamination risk(s).	No plan to mitigate contamination risk(s).		No other environmental risks found at farmstead.

Cropping System Improvement Action Plan

Develop your Cropping System improvement action plan for risks beginning on the inside cover of this bulletin. Once you have implemented your plan, you can request MAEAP verification of your cropping system.

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Table 1. Federal, state and local environmental requirements for operation of this farm business.

This table contains the typical requirements for a farm business. There may be additional environmental requirements due to the type of operation and location. Contact the local or state permitting agencies for further information: MDEQ Environmental Assistance Hotline — 1-800-662-9278, MDARD information — 1-800-292-3939.

Environmental regulatory requirements	Description	Frequency	Administering agency	Your expiration date
Private pesticide applicator certification	Any persons using or supervising the use of restricted-use pesticides (RUP) in the production of an agricultural commodity on their own or their employer's land must be a certified pesticide applicator.	3 years	MDARD/Pesticide and Plant Pest Management Division (PPPM)	
Pesticide safety training for pesticide workers	The federal Worker Protection Standard for agricultural pesticides requires employers of pesticide handlers and workers to train employees on pesticide safety. Agricultural employers must be able to verify compliance.	Each employee must be trained every 5 years	MDARD/PPPM	
NPDES permit CAFO	National Pollutant Discharge Elimination System permit for large concentrated animal feeding operations (CAFOs).	5 years or as noted on permit	MDEQ/Water Bureau	
MAEAP option	An NPDES alternative for CAFOs built and in production prior to Feb. 27, 2004. You must have applied for the MAEAP option prior to Sept. 1, 2005.	3 years	MDEQ/Water Bureau	Expires December 2007
Farm motor vehicle fuel storage tanks greater than 1,100 gallon capacity (above- and below-ground tanks)	Fuel storage tanks have to be certified (aboveground) or registered (underground); a site plan has to have been submitted to the DEQ before the installation is placed into service. Smaller tanks have other requirements to be met.	Annual	MDEQ/Waste and Hazardous Materials Division	
Air use permit	Permit to install and operate equipment or processes which may emit air contaminants (incinerators for burning animal carcasses or manure, and biodigesters and associated equipment are examples).	Before construction	MDEQ/Air	N.A.
Groundwater discharge permit	Any discharge of waste or waste effluent into or onto the ground (e.g., egg wash water and milk cooling water [over 10,000 gallons/day] that is discharged), and any livestock facility over 5,000 animal units.	5 years	MDEQ/Water Bureau	
Well permit	A person who installs a well, pump or pumping equipment shall comply with applicable laws, regulation, ordinances and codes.	Before construction	Local health department	N.A.
Septic permit (house and farm operation)	The first step in the process of determining if a piece of land that does not have municipal wastewater services available can be considered for an on-site septic system.	Before construction	Local health department	N.A.
Land and water interface construction permits	Construction activities (dredging, filling, draining, construction, structure placement) in, across, under water.	Before construction	MDEQ/Land and Water Management Division	N.A.

Table 1. (continued)

Environmental regulatory requirements	Description	Frequency	Administering agency	Your expiration date
Soil erosion and sedimentation control permit	Earth change activities within 500 feet of a lake or a stream, or that will disturb an area greater than 1 acre in size.	Before construction	County soil erosion permitting agency	
Water use reporting	Agricultural water users with the capacity to withdraw surface or groundwater that exceeds 100,000 gallons per day (70 gallons per minute) are required to report actual water withdrawals annually.	annual	MDARD	
Other environmental guidelines	Description		Administering agency	
Manure management and utilization	The Michigan Right-to-Farm Act (Act 93 of 1981) requires the establishment of generally accepted agricultural and management practices (GAAMPs). Agricultural producers who voluntarily follow these practices are provided protection from public or private nuisance litigation. The GAAMPs are reviewed annually. The latest GAAMPs can be accessed at: http://www.michigan.gov/mda .		MDARD	
Pesticide utilization and pest control				
Nutrient utilization				
Site selection and odor control for new and expanding livestock production facilities				
Irrigation water use				
MAEAP verification: livestock, farmstead, and cropping systems	MAEAP systems verification is valid (P.A. 1 & 2, 2011) for three years. MAEAP verification in good standing is dependent on following the practice specific to each system, being in conformance with the applicable GAAMPs, an annual plan review and update (livestock system) and updates as necessary as conditions change on the farm.		MDARD	

Table 2. Legal citations for environmental risks in Crop*A*Syst.

Foot note	Michigan Law	Description
1	Public Health Code, Public Act 368 of 1978	Part 127: Water Supply and Sewer Systems
2		Part 138 Medical Waste Regulatory Act
3	Safe Drinking Water Act, Public Act 399 of 1976	
4	Natural Resources and Environmental Protection Act 451 of 1994	Part 31: Water Resources Protection
5		Part 55: Air Pollution Control
6		Part 83: Pesticide Control
7		Part 111: Hazardous Waste Management
8		Part 115: Solid Waste Management
9		Part 117 Septic Waste Servicers
10		Part 121: Liquid Industrial Waste
11		Part 169: Scrap Tires
12		Part 201: Environmental Response
13		Part 327 Great Lakes Preservation
14	Bodies of Dead Animals Act, Public Act 239 of 1982 as amended	
15	Fire Prevention Code Public Act 207 of 1941	Storage and Handling of Flammable and Combustible Liquids
16	Grade A Milk Law, Public Act 266 of 2001	
	Federal Law	
17	Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)	
18	Title III of the Superfund Amendments and Reauthorization Act of 1986, also know as the Emergency Planning and Community Right-to-Know Act	
19	Worker Protection Standard for Agricultural Pesticides	
20	Clean Water Act	

Cropping System Improvement Action Plan (continued)

Risk question	List high-risk practice(s) from Crop*A*Syst and medium-risk practices that do not meet MAEAP requirements	Required for MAEAP verification?	Management practice to reduce risk. (Include potential sources of technical and financial assistance.)	Action plan	
				Planned completion date	Indicate date when completed

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MAEAP Verification Action Plan

	DATE
Target date for MAEAP verification of Cropping System	
Target date for MAEAP verification of Farmstead System	
Target date for MAEAP verification of Livestock System	

For MAEAP verification, contact MAEAP Office at the Michigan Department of Agriculture and Rural Development: 517-373-9797.

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