



AGRI-ENVIRONMENTAL SUPPORT PLAN  
*Bringing you solutions*  

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**DEVELOPMENT GUIDE**

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This document, the appendices and the PAA form can be found on the MAPAQ Internet site at [www.mapaq.gouv.qc.ca](http://www.mapaq.gouv.qc.ca)

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**The Agri-environmental Support Plan is consistent with the National Model for Agricultural Planning for Environmental Action of the Agricultural Policy Framework:**

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# INTRODUCTION

Growing concerns within Quebec society for protection of the environment present major challenges for farmers and their agri-environmental advisors, all of whom are working on the development of sustainable agriculture.

For several years now, the agri-environmental advisory sector has been establishing itself in Quebec and a number of farms have implemented practices that promote environmental protection and harmony between farmers and their surroundings.

This guide explains the farm-by-farm agri-environmental support approach proposed by the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ) and by Agriculture and Agri-Food Canada (AAFC). This approach is consistent with the National Model for Agricultural Planning for Environmental Action of the Agricultural Policy Framework and represents Quebec's contribution to this national initiative. The approach is designed to provide concrete assistance for farms working to comply with agri-environmental regulations and to promote the implementation of new agricultural practices that are better for our water, air and soil resources and that help maintain biodiversity.

## The support approach

The support approach facilitates the development of solutions adapted to the specific circumstances of each farm. It includes four steps:

1. Farm evaluation;
2. Development of an Agri-Environmental Support Plan (PAA<sup>1</sup>);
3. Implementation of the PAA;
4. Evaluation of results obtained.

All registered farm operations may participate in the agri-environmental support process proposed by MAPAQ and AAFC. However, certain farms will be targeted on the basis of previous regional planning regarding environmental challenges. MAPAQ advisors are available to help the farm undertake the various steps of the approach, in collaboration with the farm's agrologist<sup>2</sup>. It is helpful for

MAPAQ's regional advisors to participate from the beginning of the process to develop solutions for farms in difficult agri-environmental circumstances.

The agrologists in each region may also receive technical support from MAPAQ's expert advisors to counsel them about spray bars and spreading equipment, protection of watercourses, shelterbelts, animal feed, storage structures, fertilization, buildings, herd management and technical and economic management.

A number of resource persons may be called to contribute to the farm's PAA. For example, an animal nutrition advisor may develop a feed report and a management advisor may participate in the economic assessment of potential solutions.

Regarding the PAA itself, the farm evaluation assesses the status of the phosphorus report, respect for other priority agri-environmental practices under the Agricultural Operations Regulation (AOR) and best agri-environmental practices. As each farm's circumstances vary from one another, the scope of the action taken on each of these three elements may also vary.

Special effort was made to integrate various regulatory, administrative, technical and economic concerns to facilitate the farms' progress throughout this process. The elements required for the Agri-Environmental Scan and development of the Action Plan were chosen to ensure compliance with regulatory requirements, as well as the requirements of the financial assistance program, while using, as much as possible, the data and computer tools already used by agrologists.

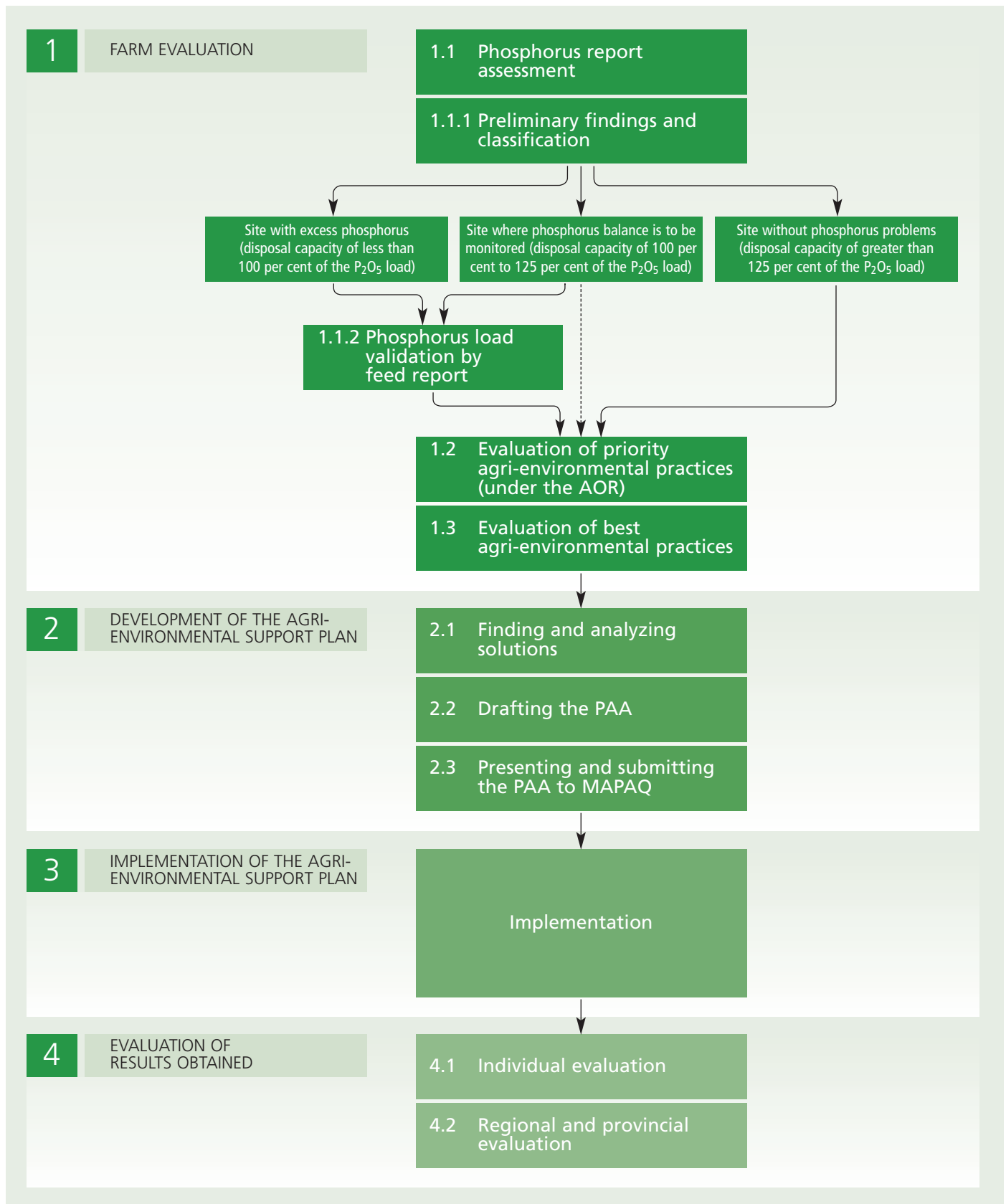
Appendix A contains the list of MAPAQ representatives responsible for the PAA process for each administrative region and their contact information.

The following outline summarizes the agrologist's role in the development and monitoring of a PAA.

<sup>1</sup> Plan d'accompagnement agroenvironnemental

<sup>2</sup> In this document, the word "agrologist" refers to the professional hired by the farm to develop the PAA; the agrologist coordinates the action taken by the various resource persons, plans steps to be taken, makes appropriate recommendations and signs the report submitted to the farm. Preferably, this agrologist is the one who signed the farm's Agro-Environmental Fertilization Plan (Plan agroenvironnemental de fertilisation – PAEF) and/or phosphorus report.

# OUTLINE OF THE AGRI-ENVIRONMENTAL SUPPORT PROCESS



The farm evaluation takes three major priorities into account. The first is the assessment of the phosphorus report by animal production site or spreading site; the second deals with the evaluation of the farm's agri-environmental practices identified as priority under the AOR; the third is the evaluation of other best agri-environmental practices.

Part A—**Agri-Environmental Scan**—of the PAA form must be completed. This is the first part of the PAA to be submitted to the farm operator and MAPAQ.

The scan is based on information drawn from various documents and sources according to the farm's specific circumstances, including:

### 1 Phosphorus report assessment

- Operating rights (Ministère du Développement durable, de l'Environnement et des Parcs [MDDEP]);
- Phosphorus report (MDDEP);
- Agro-Environmental Fertilization Plan (PAEF);
- Feed report.

### 2 Evaluation of priority agri-environmental practices

- Operating rights (MDDEP);
- Information on the Requirements of the Agricultural Operations Regulation (AOR) (MDDEP deadline information — Appendix D);
- Registration Form (MAPAQ);
- Information from La Financière agricole du Québec [Quebec agricultural financial corporation] (FADQ).

### 3 Evaluation of best agri-environmental practices

- Registration Form (MAPAQ);
- Survey on Agri-Environmental Practices (MAPAQ-AAFC-UPA<sup>3</sup>);
- Data from agri-environmental advisory clubs (CCAEs<sup>4</sup>) or manure surplus management groups (OGF<sup>5</sup>).

Information regarding the boxed-text documents and sources is provided in Appendix B. All these documents are available from the organizations or from agrologists with **the permission of the farm operator**.

## 1.1 Assessment of the phosphorus report for animal production sites or spreading sites

### 1.1.1 Preliminary findings and classification

On the basis of the phosphorus report submitted to the MDDEP, all the farm's animal production sites are classified according to the ratio between P<sub>2</sub>O<sub>5</sub> inputs (in the form of inorganic or organic fertilizers) and the disposal capacity allowed by the AOR chart, which is based on the standard that will be applicable in 2010.

- **Site with excess phosphorus:** disposal capacity is less than 100 per cent of the P<sub>2</sub>O<sub>5</sub> load.
- **Site where the phosphorus balance is to be monitored:** disposal capacity is 100 per cent to 125 per cent of the P<sub>2</sub>O<sub>5</sub> load.
- **Site without phosphorus problems:** disposal capacity of greater than 125 per cent of the P<sub>2</sub>O<sub>5</sub> load

This classification indicates, among other things, whether there is a need to validate the preliminary findings and facilitates a better assessment of the scope of the steps the farm will need to take.

<sup>3</sup> Union des producteurs agricoles

<sup>4</sup> Clubs-conseils en agroenvironnement

<sup>5</sup> Organismes de gestion des fumiers

### 1.1.2 Phosphorus load validation for animal production sites with excess phosphorus or maintaining a phosphorus balance

According to the AOR, the phosphorus load produced by the livestock at the production site must be determined through analysis of the manure and volume produced by the farm. This information is vital to planning the use of manure in fields. If the farm has no data of its own, the livestock's phosphorus load may also be calculated using reference values from the *Centre de référence en agriculture et agroalimentaire du Québec* [Quebec Agriculture and Agri-Food Reference Centre] (CRAAQ) or from other sources of information on livestock production that are not documented in CRAAQ data. However, in the case of sites with excess phosphorus or maintaining a phosphorus balance, the agrologist may need to perform an in-depth validation of the phosphorus load produced by the farm's livestock.

#### Animal production site with excess P<sub>2</sub>O<sub>5</sub>

It is strongly recommended that the actual phosphorus load be assessed using the feed report<sup>6</sup> in order to determine the potential to reduce production at the source and, if possible, create the flexibility needed to maintain sustainable production. The feed report can be used to validate the phosphorus load, but it is also an excellent planning tool to improve feed and herd management. Appendix C provides a summary of information on the feed report.

#### Production site where phosphorus balance is to be monitored

In this case, the best approach is to establish the farm's actual phosphorus load using the feed report, which in turn will make it possible to determine the potential to reduce production at the source and create the flexibility needed to prevent the farm from having excess phosphorus in the medium or long term. The farm can then function within a sustainable development framework.

Part A—**Agri-Environmental Scan**—of the PAA form includes a section on the phosphorus report to be completed for each of the farm's animal production or spreading sites. Upon request from MAPAQ, the phosphorus report must be attached to the PAA.

## 1.2 Evaluation of priority agri-environmental practices under the AOR

This evaluation reveals the status of **each** animal production or spreading site as they relate to priority agri-environmental practices identified in regulatory requirements (other than the phosphorus report). It also facilitates the establishment of priorities for action according to the deadlines set out in the AOR and other regulations<sup>7</sup>. The form “Information on the Requirements of the Agricultural Operations Regulation<sup>8</sup>”, contained in Appendix D, may be very useful in answering these questions. In order to help agrologists assess the farm's compliance with provincial regulations, Appendix E—**Additional Information on Agriculture-Related Regulations**—summarizes the main provincial regulatory elements with which farms must comply.

## 1.3 Evaluation of best agri-environmental practices

Part A—**Agri-Environmental Scan**—of the PAA form also includes questions that situate the farm according to its other agri-environmental practices. The *survey on agri-environmental practices by MAPAQ, AAFC and the UPA* (Appendix F), to which some farms responded as part of the registration procedure, can be used to complete this section of the analysis.

A number of other documents (listed in Appendix G—**Reference Documents**) can be used to assist the agrologist and farm operator in the evaluation of best agri-environmental practices.

Once all the information has been gathered, the agrologist must analyze the situation to identify priority areas for improvement on the farm.

<sup>6</sup> The feed report may be produced by an industry professional or a consultant. Department agrologists may also be available, depending on the region's priorities.

<sup>7</sup> In addition to complying with the AOR, agricultural operations must also comply with the *Groundwater Catchment Regulation*, the *Pesticides Management Code*, and the *Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains*, as well as any applicable federal legislation, such as the *Canadian Environmental Assessment Act*, the *Fisheries Act*, and the *Species at Risk Act*.

<sup>8</sup> An operator who has been visited by an MDDEP representative should have this document containing information on certain regulatory items.

At this stage of the support process, the farm's circumstances are known and action priorities have been set. **The next step is to analyze potential solutions, select the ones to be implemented, and establish an action plan with a time frame that takes into account short- and medium-term solutions**, according to the farm's circumstances and regulatory requirements. Analysis results are included in Part B—**Action Plan**—of the PAA, which the farm operator will use as a reference document.

## 2.1 Finding and analyzing solutions

Solutions are presented in response to three major challenges that farms may face:

- excess phosphorus;
- non-compliance with other regulatory requirements (priority agri-environmental practices such as manure storage facilities, livestock access to watercourses, spreading methods, dairy wastewater management, exercise yard development, etc.);
- deficiencies in unregulated agri-environmental practices.

Note that only solutions to the problem of excess phosphorus are dealt with in detail in this section of the guide. Solutions to regulatory and agri-environmental problems are available in other documents, several of which are listed in Appendix G—**Reference Documents**.

### Solutions to excess phosphorus

Three levels of solutions to excess phosphorus are listed below, according to accessibility, ease of application and capital cost.

#### *Level 1 — Reduce load*

- (a) Comply with operating rights
- (b) Reduce mineral phosphate fertilization
- (c) Reduce imports of organic fertilizers (manure, liquid manure and other fertilizing substances)
- (d) Reduce waste at the source
  - feed
  - herd management

#### *Level 2 — Increase disposal capacity*

- (e) Optimize available farmland
- (f) Make crop adjustments (choice of crop, diversification of rotation, etc.)
- (g) Increase exports of manure/liquid manure through spreading agreements
- (h) Rent land

#### *Level 3 — Structural changes<sup>9</sup>*

- (i) Herd genetics
- (j) Land purchase
- (k) Partial or complete treatment on the farm
- (l) Partial or complete treatment by regional facilities
- (m) Facilities relocation
- (n) Herd reduction
- (o) Diversification of sources of income

### Brief description of first and second-level solutions

#### *(a) Comply with operating rights*

The farm operator should be reminded of the number of livestock allowed under the operating rights, by category of animal. If this number is exceeded, it should be proposed that the farm operator reduce the herd to the authorized number, while quantifying this adjustment in terms of P<sub>2</sub>O<sub>5</sub> load (kg). The costs of the reduction must also be considered and evaluated. Although rarely economically justifiable, there are some situations in which this step is appropriate (building capacity, liquid manure storage, precarious financial situation, etc.). Furthermore, from a legal standpoint, compliance with the operating rights is a top priority in analyzing solutions. In some cases, it is possible to regularize a situation in which phos-

<sup>9</sup> Since these solutions may require more in-depth analyze and expertise, we suggest you consult specialists, such as those at MAPAQ, if the first- and second-level solutions do not solve the phosphorus problem.

phorus slightly exceeds that prescribed under the operating rights by submitting a project notice or a request for a Certificate of Authorization (CA) to the MDDEP.

**(b) Reduce mineral phosphate fertilization**

Sometimes farmers prefer to use mineral fertilizers rather than manure or liquid manure on remote farmland because they cost less to transport than organic fertilizer. However, it is appropriate to urge the farm operator to re-examine the situation because, in addition to reducing the excess phosphorus, using manure or liquid manure to fertilize remote farmland with low phosphorus levels would improve the physical characteristics of the soil more than mineral fertilizers would.

In some cases, the use of P<sub>2</sub>O<sub>5</sub> in starter fertilizers may be decreased or even eliminated. For example, for a corn crop with a soil analysis that reveals a high level of saturation, P<sub>2</sub>O<sub>5</sub> in mineral form in the starter fertilizers may be eliminated. Consult the trials and research on the subject in the FERTILIZATION section of Appendix G—**Reference Documents**—for further information.

**(c) Reduce imports of organic fertilizers (manure, liquid manure and other fertilizing substances)**

In the case of a farm with excess phosphorus that imports organic fertilizers, it may be necessary, after verifying the mineral phosphate fertilization, to modify the amount received under a spreading agreement or another type of agreement, in order to reduce or eliminate the excess phosphorus and avoid soil enrichment.

**(d) Reduce waste at the source:  
feed and herd management**

*Feed*

An examination of the farm's data on the herd's feed may be very useful in evaluating its effectiveness.

According to the type of livestock raised on the farm, a number of solutions may be considered, including a decrease in the phosphorus content in the total ration, an increase in the number of rations (phases) or the use of a feed strategy that reduces feed losses. Grouping of animals and the addition of additives that promote better feed efficiency may also be part of the solution. It is recommended that a feed advisor be invited to develop the changes and implementation procedures for a new diet. Appendix C—**Feed Report and Diet**—contains additional information on the feed report and the advantages of changes to the herd's diet.

*Herd management*

Information on the various aspects of animal production practices may indicate weaknesses in the farm operator's management plan. A proposal of specific action to correct these weaknesses may not only reduce the P<sub>2</sub>O<sub>5</sub> load, but also improve the farm's overall efficiency and profitability.

Certain indicators may help identify an animal production problem:

- Mortality rate
- Feed conversion
- Productivity
- Livestock density
- Number of productive cycles
- Slaughter weight
- Weight control (weighing) during phase changes
- Replacement rate
- Quality of the ambient environment

If the farm's performance is below the recognized criteria for one or more indicators, it is suggested that a specialist be consulted for appropriate recommendations and assessment of the impact on the P<sub>2</sub>O<sub>5</sub> load.

**(e) Optimize available farmland**

Fields that have been idle for a few years may be replanted<sup>10</sup> and fertilized with farm manure.

**(f) Make crop adjustments (choice of crop, diversification of rotation, etc.)**

Most farmers routinely make changes to their crop plan with the help of the agrologist who signed the PAEF. Changes to farm planning provide an opportunity to integrate elements into the new crop plan that will increase the capacity to eliminate excess phosphorus in soil. The PAA must take into account these excess phosphorus mitigation measures, usually included in the most recent version of the PAEF.

**Diversification of rotation:** Development of a rotation plan could bring new crops to the farm, with the potential for higher yields. This practice also makes better use of organic materials and farm fertilizers. Examples include the more frequent use of small grains in a rotation dominated by forage, or fodder corn as a new crop, among others.

<sup>10</sup> Refer to the AOR and municipal by-laws, where there may be provisions governing replanting.

**Findings of the new analyses:** Adjustments based on the findings of the new soil analyses, even if they can go both ways, must be taken into consideration.

**(g) Increase exports of manure / liquid manure through spreading agreements**

**Existing agreements:** The first step is to assess the remaining capacity, if any, of the receivers with whom the farm with excess phosphorus already has an agreement. If it is possible without overloading the receiver's soil, new agreements may be negotiated to increase the exported load.

**New agreements:** Another option to consider is finding new receivers. Large areas of land receive only mineral fertilizers. In areas of major crops, for example, it would be good to promote exchanges and inform farm operators of the benefits of replacing mineral fertilizers with organic fertilizers.

**(h) Rent land**

In certain regions, this solution may be easily accessible and economically justifiable. The possibility of signing new rental agreements should be explored.

**Third-level solutions**

If the first- and second-level solutions are not enough to solve the problem of excess phosphorus, **contact MAPAQ advisors, who will help develop a solution.**

## 2.2 Drafting the Agri-Environmental Support Plan

A complete PAA must include the following elements:

### PART A Agri-Environmental Scan

- Description of the farm (identification, livestock and farm acreage)
- Diagnosis:
  - Phosphorus report for each site
  - Priority agri-environmental practices under the AOR for each site
  - Best agri-environmental practices

### PART B Action Plan

- Proposed steps to
  - eliminate excess phosphorus;
  - adopt practices that comply with regulations;
  - adopt or improve best agri-environmental practices within a short- and medium term time frame that complies with the requirements of the AOR (until 2010).
- The Action Plan must be signed by the principal owner of the farm or his or her representative.
 

Note: Appendix H—Possible Action—was designed to simplify development of the Action Plan. It contains a list of the main steps to be taken and appropriate indicators that may be used by the agrologist.

### PART C Declaration by agrologist

The agrologist must sign the plan and certify that his or her recommendations were produced according to standard practice.

### PART D Farm owner's or representative's consent for transfer of information (optional)

MAPAQ would appreciate having farm's consent to the transfer of information for entry in an agri-environmental database for statistical purposes. Information contained in the database will remain strictly confidential.

*Appendix J provides an example of an PAA that has been properly completed.*

## 2.3 Presenting and submitting the PAA to MAPAQ

Once the PAA has been drafted by the agrologist and certified by the farm operator, the PAA is submitted for analysis and evaluation of eligibility for financial assistance or for statistical purposes, as the case may be.

For information on the financial assistance available, and PAA filing requirements for access to assistance, see Appendix I, **Financial Assistance Available and Means of Access**.

# 3

## IMPLEMENTATION OF THE PAA

The farm operator is responsible for implementing the recommendations made by the agrologist in Part B—**Action Plan**—according to the planned time frame.

Depending on the measures to be implemented, the role of the agrologist is to support the farm operator in the work to be performed or to direct him or her to specialized contractors.

# 4

## EVALUATION OF RESULTS OBTAINED

### 4.1 Individual evaluation

Part B—**Action Plan**—is a monitoring tool to be used by the farm operator and the agrologist to track progress on the measures set out in the PAA. The “carried out” column of this section is used for this purpose.

On request from MAPAQ, the farm operator will inform the regional MAPAQ representative of progress on implementation of the recommendations contained in the PAA.

MAPAQ may verify progress on the measures set out in the PAA and decide with the agrologist and farm operator on adjustments to be made during implementation, if necessary.

At the farm operator’s request, the agrologist will update the PAEF, the phosphorus report(s) and the PAA.

The agrologist provides support for the farm operator by overseeing the implementation of appropriate fertilization (maintaining the phosphorus balance) and the establishment or improvement of agri-environmental practices. The farm operator remains responsible at all times for compliance with regulations subject to MDDEP auditing.

### 4.2 Regional and provincial evaluation

MAPAQ regularly evaluates the progress made by farms throughout Quebec based on the information gathered throughout the PAA process.

## DEFINITION OF ACRONYMS

AAFC	Agriculture and Agri-Food Canada
CCAES	<i>Clubs-conseils en agroenvironnement</i> - Agri-environmental advisory clubs
AOR	Agricultural Operations Regulation
CA	Certificate of Authorization
CGP	<i>Code de gestion des pesticides</i> - Pesticides Management Code
CRAAQ	<i>Centre de référence en agriculture et agroalimentaire du Québec</i> - Quebec Agriculture and Agri-food Reference Centre
PAA	<i>Plan d'accompagnement agroenvironnemental</i> - Agri-Environmental Support Plan
FADQ	<i>La Financière agricole du Québec</i> - Quebec agricultural financial corporation
RCES	<i>Règlement sur le captage des eaux souterraines</i> - Groundwater Catchment Regulation
MAPAQ	<i>Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec</i> - Quebec's Agriculture, Fisheries and Food Department
MDDEP	<i>Ministère du Développement durable, de l'Environnement et des Parcs du Québec</i> - Quebec's Sustainable Development, Environment and Parks Department
OGF	<i>Organisme de gestion de fumiers</i> - Manure surplus management groups
PAEF	<i>Plan agroenvironnemental de fertilisation</i> - Agri-Environmental Fertilization Plan
PPRLPI	<i>Politique de protection des rives, du littoral et des plaines inondables</i> - Protection Policy for Lakeshores, Riverbanks, Littoral Zones and Floodplains
UPA	<i>Union des producteurs agricoles</i> - Quebec Farmers Union

## LIST OF APPENDICES

<b>APPENDIX A</b>	Regional Representatives Responsible for Agri-Environmental Support
<b>APPENDIX B</b>	Information on Sources and Documents required for Farm Evaluation Purposes
<b>APPENDIX C</b>	Feed Report and Diet
<b>APPENDIX D</b>	Information on the Requirements of the Agricultural Operations Regulation
<b>APPENDIX E</b>	Additional Information on Agriculture-Related Regulations
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<b>APPENDIX I</b>	Financial Assistance Available and Means of Access
<b>APPENDIX J</b>	Sample Agri-Environmental Support Plan

## OTHER DOCUMENTS

<b>Form</b>	Agri-Environmental Support Plan (PAA) Extra sheets for section 4 and 5 Extra sheet for the Action Plan
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Pamphlet for farm producers