

# Agricultural Operation Planning Certificate (AOPC) Core Competencies

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## Who needs an AOPC?

You need an Agricultural Operation Planning Certificate if you are preparing a Nutrient Management Strategy (NMS) or Nutrient Management Plan (NMP) for a phased-in agricultural operation that you own, operate or are an employee of.

## What laws apply to the preparation of nutrient management strategies and plans?

The laws that relate to this activity are:

- the Nutrient Management Act, 2002 (NMA)
- Ontario Regulation 267/03 (O. Reg. 267/03), and
- the associated Protocols.

These laws outline the requirements dealing with developing nutrient management strategies and plans.

## What are Core Competencies?

Core Competencies are the skills and knowledge that you need for the Agricultural Operation Planning certificate. The competencies are organized into four main categories:

1. General Information
2. Nutrient Management Strategy and Plan Preparation
3. Soil Fertility and Management
4. Management of Manure and Other Prescribed Materials

## Getting Your Licence

### What do I need to do to be certified to prepare a Nutrient Management Strategy or Plan?

The University of Guelph Ridgetown Campus offers training that will help you understand the provincial laws related to strategy or plan development and meet the competencies in this document. The required training courses for this certificate are:

1. Introduction to Nutrient Management
2. Regulations and Protocols

Both courses are available either in a classroom or on-line.

This training and these competencies focus on the rules that apply under O. Reg. 267/03.

Although not a requirement, it is recommended that you attend the “How to Prepare a NMS/P Using NMAN3” course to help you learn the software you will use to create your NMS or NMP.

If you are applying for this certificate, you should also have the basic knowledge and skills needed to understand the agronomic principles of nutrient management planning. You may

need to further develop your knowledge through additional education and training or practical experience. You can contact OMAFRA if you would like copies of their technical publications to help you learn more.

### **Is there an exam?**

There is no exam required for the Agricultural Operation Planning certificate. Once you have completed the courses, you can apply for your certificate. The application form can be found at [www.nutrientmanagement.ca](http://www.nutrientmanagement.ca).

Your certificate is valid for 5 years but it can be subject to conditions, amended, suspended or cancelled before it expires if you contravene the laws or if, in the opinion of the OMAFRA Director, you demonstrate incompetence or bad faith in preparing nutrient management strategies or plans.

It is your responsibility to keep up-to-date with current provincial laws after you are certified and to conduct business in good faith and in a competent manner.

## **Terms and Definitions**

Please carefully review all terms and definitions used in these core competencies. If you do not understand something, review the course material or refer to the *Nutrient Management Act, 2002*, O. Reg. 267/03 or the Nutrient Management Protocol.

### **Notice to Reader**

The information contained in this document is derived from the *Nutrient Management Act, 2002* and O. Reg. 267/03. Every effort was made to make it as accurate as possible, but it is not authoritative. Please refer to [www.e-laws.gov.on.ca](http://www.e-laws.gov.on.ca) for the authoritative text of the act and regulation. To stay current, please check the “News” page at: [www.nutrientmanagement.ca](http://www.nutrientmanagement.ca).

For further details about nutrient management legislation, contact the Ministry of Agriculture, Food and Rural Affairs:

Toll Free: 1-877-424-1300

Email: [nman.omafra@ontario.ca](mailto:nman.omafra@ontario.ca)

Visit: [ontario.ca/nma](http://ontario.ca/nma)

## Category 1: General Information

1. Identify the purpose and the goals of the Nutrient Management Act, 2002.
2. Describe the roles and responsibilities of the following people and identify when their services are required:
  - Farm Operator or owner with an AOPC
  - Professional Engineer
  - Professional Geoscientist
  - Broker
  - Prescribed Material Application Business Licence holder
  - Nutrient Application Technician
  - Non-Agricultural Source Material (NASM) Plan Developer
  - Agricultural Operation Strategy or Plan Developer
3. Describe the roles of the OMAFRA Director and Reviewer during the development and review of a NMS/P.
4. Describe the importance of making sure that the NMS/P is an accurate description of the agricultural operation.
5. Determine which regulatory framework is appropriate to a given situation (e.g., Environmental Protection Act, Nutrient Management Act, 2002, O. Reg. 267/03 and Protocols, municipal bylaws, etc.).
6. Describe and use key terms used in the Nutrient Management Act, 2002 and O. Reg. 267/03.
7. Identify the requirements in O. Reg. 267/03 that apply to all farms.
8. Identify items that are defined as nutrients.
9. Identify items that are defined as agricultural source materials (ASM).
10. Identify items that are defined as non-agricultural source materials (NASM).
11. Identify materials that meet the Compost Standards as defined in the regulation.
12. Identify the importance of addressing possible adverse effects in a NMS and NMP.
13. List the certificate requirements of an AOP Certificate and the renewal timeline.
14. Identify the types of actions that would jeopardize the status of a certificate (i.e., amendment, suspension or revocation).
15. Describe the various compliance tools available to Ministry of the Environment and Climate Change (MOECC) enforcement personnel under the NMA.
16. Identify the records that are required to be kept and the purpose of those records.
17. Identify the triggers of cessation that will require the renewal of a NMS and a NMP.

## **Category 2: Nutrient Management Strategy and Plan Preparation**

### **Nutrient Management Strategy (NMS)**

1. Determine when a NMS is required.
2. Determine when a NMS is required to be submitted for approval and when it is required to be registered.
3. Identify the required components of a NMS.
4. Identify the allowable destinations for agricultural source material, mixed AD output and compost in a NMS.
5. Accurately describe a permanent nutrient storage system.
6. Accurately describe a temporary solid nutrient storage system.
7. Recognize the requirements for on-farm storage of NASM.
8. Identify what is a Regulated Mixed Anaerobic Digestion Facility and what the requirements are for siting, construction, approval and operation of this facility.
9. Identify the professionals who will assist with the completion of the Regulated Digestion Facility Appendix and Engineering Commitment Certificate.

### **Nutrient Management Plan (NMP)**

10. Determine when a NMP is required.
11. Identify the required components of a NMP.
12. Understand when a NASM Plan is required.

### **Both NMS/P**

13. Recognize situations where additional documentation might be required in a NMS and a NMP.

### **Identification of Land in the Farm Unit**

14. Identify options when determining what constitutes a farm unit.
15. Calculate Nutrient Units generated on a farm unit.
16. Accurately and completely describe all of the properties in a farm unit.
17. Accurately describe the physical location of the properties of the farm unit within a municipality.

### **Mapping Skills**

18. Identify and use various sources of information to determine field characteristics.
19. Calculate slope; determine maximum sustained slope.
20. Determine the starting point to measure setback distances from watercourses.
21. Use soil survey data and maps in nutrient management planning.
22. Determine soil series and soil texture by reading and interpreting soil map symbols.

23. Determine the Hydrologic Soil Group(s) of the land included in the farm unit.
24. Identify elements required on a farm unit sketch.
25. Identify elements required on a field sketch.

### **Contingency Planning**

26. Recognize regulatory requirements that need to be addressed in a Contingency Plan.
27. Recognize how the implementation of a contingency plan can affect a NMS, a NMP, or both.
28. Identify who must be called in event of a spill.

## **Category 3: Soil Fertility and Management**

### **Soil Physics**

1. Describe the relationship between soil texture, slope, water infiltration and runoff.
2. Recognize the physical characteristics of soil and how they relate to potential soil productivity, crop suitability, soil texture, structure, drainage, and timing of processes.
3. Identify which soil series to use in a field where two or more soil series are found.
4. Use the Hydrologic Soil Group to determine the runoff potential, maximum application rate and other restrictions for application of NASM.

### **Soil Sampling and Analysis**

5. Identify the OMAFRA accredited soil analysis methodologies.
6. Identify appropriate soil sampling methodologies for a given situation, as per the Sampling and Analysis Protocol.

### **Soil Fertility**

7. Interpret an OMAFRA accredited soil test.
8. Recognize how the cropping system influences soil fertility levels and the method and timing of nutrient application.
9. Determine N-credit from previous crop and nutrient application.
10. Identify ways to deal with variations in topography within the field.
11. Identify ways to deal with variations in soil test results within the field.
12. Recognize the basic concepts of nutrient uptake by different species of crops.
13. Identify ways that nitrogen (N) could be lost from a field.
14. Identify ways that phosphorous (P) could be lost from a field.

### **Fertilizer Management**

15. Recognize how fertilizer placement and timing of application affect nutrient availability.
16. Interpret and use the guaranteed nutrient analysis of commercial fertilizer materials.
17. Use fertilizer nutrient analysis to determine nutrient application rates.

18. Recognize the relationship between production inputs and crop yield.

### **Nutrient Balances**

19. Estimate the nutrient removal by field crops at varying yields.
20. Define and calculate the agronomic balance.
21. Define and calculate the crop removal balance.
22. Identify the circumstances in which the crop removal balance must be calculated, and the rationale for doing the calculation.

## **Category 4: Management of Manure and Other Prescribed Materials**

### **Storage**

1. Identify and evaluate acceptable storage facilities for agricultural source materials with respect to the size and type of operation
2. Identify and apply the criteria for locating nutrient storage facilities and determine when a professional engineer is required for construction or expansion of a nutrient storage facility.
3. Identify the minimum storage design requirements for agricultural source materials.
4. Calculate the volume of a manure storage facility based on the size and type of operation.
5. Identify possible exceptions to the minimum 240-day storage requirement.
6. Identify appropriate runoff management options for solid manure storage.
7. Identify the criteria for a temporary field nutrient storage site.
8. Calculate the permitted number of days of storage in a temporary field nutrient storage.
9. Recognize restrictions pertaining to livestock access to surface water in an outdoor confinement area.
10. Identify regulatory requirements for dealing with snow from an outdoor confinement area.
11. Recognize ways to manage runoff from fields, yards, storages, and outdoor confinement areas.
12. Recognize how milking centre washwater and other on farm sources can impact the storage capacity of a nutrient storage facility.
13. Identify storage and treatment options for milking centre washwater.
14. Describe the requirements for milking centre washwater management on the farm and identify situations where farm units must comply with the regulation.
15. Identify options for on farm disposal of dead animals and identify the pros and cons of each option.

## **Regulated Mixed Anaerobic Digestion Facility**

16. Identify the location requirements for any new regulated mixed anaerobic digestion facility.
17. Describe what material can be used in a regulated mixed anaerobic digestion facility.
18. Describe where the source material can be received from.
19. Outline the treatment requirements for anaerobic digestion material in a regulated mixed anaerobic digestion facility.
20. Agricultural Source Material (ASM) Sampling and Analysis
21. Recognize the importance of manure and AD output sampling/analysis.
22. Describe how to obtain a representative manure and AD output sample.
23. Identify components of manure and AD output that may have possible negative impacts.
24. Identify factors that might cause variation in manure analysis within or between farms.
25. Interpret and use a manure and AD output analysis report.

## **Land Application of Nutrients**

26. Describe farming practices that could limit environmental losses of P and N at the field level.
27. Recognize situations requiring establishment of a 3 m vegetated buffer zone.
28. Calculate usable acres for ASM application as they are affected by application setbacks.
29. Identify and evaluate appropriate setback distances to regulated features such as surface water, wells, etc.
30. Recognize opportunities for prescribed material application, such as late summer, early fall, etc., and their pros and cons
31. Calculate the nutrient contribution from prescribed material in the first year following application and over time, based on a laboratory analysis report.
32. Estimate nutrient loss under different situations, such as number of days to incorporation, season of application (spring, fall, etc.), bare soil, crop residue, standing crop, etc.
33. Identify the regulatory requirements for direct flow application systems.
34. Identify the winter spreading restrictions for the application of ASM and recognize why winter spreading is restricted.
35. Identify the requirements for land application of unregulated mixed anaerobic digestion material and identify the communication plan if this material is transferred of the farm unit.
36. Identify the requirements for the land application of milking centre washwater and sludge pump out.
37. Identify any specific requirements for the land application of Regulated Compost.

**For more information about nutrient management certification:**

Toll Free: 1-855-648-1444

E-mail: [mmcdonal@uoguelph.ca](mailto:mmcdonal@uoguelph.ca)

[www.nutrientmanagement.ca](http://www.nutrientmanagement.ca)