

Agricultural Operation Strategy or Plan Development (AOSPD) Certificate Core Competencies

Who needs an AOSPD certificate?

You need an Agricultural Operation Strategy or Plan Development certificate if you are preparing a nutrient management strategy or plan for a phased-in agricultural operation that you do not own, operate or work for.

What laws apply to operating a business that applies prescribed materials?

The laws that relate to this activity are:

- The Nutrient Management Act, 2002 (NMA)
- Ontario Regulation 267/03 (O. Reg. 267/03)
- 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 Strategy or Plan Development certificate. The competencies are organized into four main categories:

1. General Information
2. Nutrient Management Strategy and Plan Preparation, Non-Agricultural Source Material (NASM) Plans
3. Soil Fertility and Management
4. Management of Prescribed Materials

Getting Your Certificate

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
3. How to Prepare a Nutrient Management Strategy/Plan using NMAN

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

If you are applying for this certificate, you should have the basic knowledge and skills needed to offer consulting services in agronomic practices. 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?

After you complete the courses, you will be tested on your knowledge of the provincial laws and the core competencies. Questions will also test your knowledge of the agronomic principles required to implement the nutrient management legislation. You will be given a copy of the *Nutrient Management Act, 2002*, O. Reg. 267/03, the associated Protocols, Nutrient Management Tables as a reference when you write the exam.

Do I receive my AOSPD certificate automatically when I pass the exam?

In addition to passing the exam (a mark of 75% or higher), you will need to successfully complete two fictitious scenario assignments before you are eligible to apply for certification.

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 for the authoritative text of the act and regulation. To stay current, please check the "News" page at: 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

Visit: ontario.ca/nma

Category 1: General Information

1. Identify the purpose and the goals of the *Nutrient Management Act, 2002*.
2. Describe how the NMA and O. Reg. 267/03 impact agricultural and non-agricultural operations, businesses and activities.
3. Describe the roles and responsibilities of the following people, and identify when their services are required:
 - Consultant with an Agricultural Operation Strategy or Plan Development Certificate
 - Professional engineer
 - Professional geoscientist
 - Farm operator or owner
 - Farm operator or employee with an Agricultural Operation Planning Certificate
 - Broker
 - Prescribed Materials Application Business Licence holder
 - Nutrient Application Technician
 - NASM Plan Development Certificate holder
4. Describe the roles of the Director (under the NMA) and Reviewer during the review of a Nutrient Management Strategy (NMS) or Nutrient Management Plan (NMP), annual update and the renewal of an NMS and NMP.
5. Describe the consultant's obligations to clearly communicate the details of the NMS and NMP with his or her client (e.g. legal implications of an NMS/P, the farmer's legal obligations, content of the NMS/P, timeline requirements for development and submission of NMS/P).
6. Identify the different categories of farms affected under O. Reg. 267/03 and the requirements for each.
7. Describe the importance of verifying that the NMS/P is an accurate description of the agricultural operation, and identify how this can be done.
8. Determine which legislation applies to a farm in a particular nutrient management related situation. (e.g. *Environmental Protection Act, Nutrient Management Act, 2002*, O. Reg. 267/03 and Protocols, Disposal of Dead Farm Animals (O. Reg. 106/09), municipal bylaws).
9. Describe and use key terms used in the *Nutrient Management Act, 2002* and O. Reg. 267/03.
10. Identify the requirements in O. Reg. 267/03 that apply to all farms regardless of the type or size of the operation.
11. Identify materials that are defined as nutrients.
12. Identify materials that are defined as agricultural source materials.
13. Identify materials that are defined as non-agricultural source materials.
14. Identify materials that meet the Compost Standards as defined in the regulation (Ontario Compost Quality Standards, July 25, 2012).
15. Identify the records that are required to be kept and the purpose of those records.
16. Identify the importance of addressing possible adverse effects in an NMS and NMP.
17. Identify the triggers of cessation that will require the renewal of an NMS and NMP.
18. List the certificate requirements of an AOSPD Certificate and the renewal timeline.

19. Identify the types of actions that would jeopardize the status of a certificate (i.e. amendment, suspension or revocation).
20. Describe the various compliance and enforcement tools available to Ministry of the Environment and Climate Change (MOECC) personnel under the NMA.

Category 2: Nutrient Management Strategy and Plan Preparation

Nutrient Management Strategy (NMS)

1. Determine when an NMS is required.
2. Determine when an NMS is required to be submitted for approval and when it is required to be registered.
3. Identify and describe the purpose of the required components of an NMS, such as NMAN printout, Overview, Farmstead Sketches, Runoff Management Appendix, Engineering Commitment Certificate, etc.
4. Identify the allowable destinations for agricultural source material (ASM), and commercial compost in an NMS. Identify when transfer and broker agreements; and documents are required for these materials.
5. Describe a permanent nutrient storage system and the associated requirements.
6. Describe a temporary solid nutrient storage system and the associated requirements.
7. Identify what a Regulated Mixed Anaerobic Digestion Facility is, and what the requirements are for siting, construction, approval and operation of this facility under the NMA.
8. Identify the professionals who will assist with the completion of the Regulated Digestion Facility Appendix or Engineering Commitment Certificate.

Nutrient Management Plan (NMP)

9. Determine when an NMP is required.
10. Identify the required components of an NMP.
11. Specify a crop rotation.
12. Calculate the maximum application rate of ASM.
13. Determine soil testing requirements.
14. Assess agronomic and crop removal balances and determine fertilizer necessary to balance crop production nutrient requirements.

Both NMS/P

15. Recognize situations where additional documentation might be required in an NMS and an NMP.
16. Recognize what records might be helpful in nutrient management planning above and beyond records required by the regulation.
17. Identify and communicate the importance of the Farm Unit Declaration and NMS/P Sign-Off Form and what it means to the client.
18. Explain the importance to the farm operator of following the NMS/P, the need for annual updates and the NMS/P renewal process.

Identification of Land in the Farm Unit

19. Identify options when determining what constitutes a Farm Unit.
20. Calculate Nutrient Units generated on a Farm Unit.
21. Describe all of the properties in a Farm Unit.
22. Describe the physical location of the properties of the Farm Unit within a municipality.

Environmental Losses

23. Describe the term P-Index and explain how it can be used in nutrient management planning.
24. Describe the term N-Index and explain how it can be used in nutrient management planning.

Mapping Skills

25. Identify and use various sources of information to determine field characteristics.
26. Calculate slope and determine maximum sustained slope.
27. Determine the top of bank to use as the starting point to measure setback distances from watercourses.
28. Use soil survey data and maps in nutrient management planning.
29. Determine soil series and soil texture by reading and interpreting soil map symbols.
30. Determine the Hydrologic Soil Group(s) of the land included in the Farm Unit.
31. Identify elements required on a Farm Unit sketch.
32. Identify elements required on a field sketch.
33. Utilize a variety of ways to access accurate municipal tax roll numbers.

Contingency Planning

34. Explain the importance of contingency planning.
35. Identify the required components of a contingency plan.
36. Recognize common situations that need to be addressed in a contingency plan.
37. Recognize how the implementation of a contingency plan can affect an NMS, an NMP, or both.
38. Identify who to call in event of a spill and how to access the Spills Action Centre.

Non-Agricultural Source Material (NASM) Plans

39. Understand when a NASM Plan is required.
40. Understand how to include NASM application in an NMP.
41. Understand how an NMS and NASM Plan Farm Unit must be the same.

Category 3: Soil Fertility and Management

Soil Physics

1. Describe the relationship between soil texture, slope, water infiltration and runoff potential.
2. Recognize soil physical characteristics and how they relate to potential soil productivity, crop suitability, soil texture, structure, drainage and timing of processes.
3. Determine 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. Select 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. Explain how soil and nutrient properties influence nutrient mobility.
9. Identify ways that nitrogen and phosphorous may be lost from the soil.
10. Explain how the cropping system influences soil fertility levels, and the method and timing of nutrient application.
11. Determine nitrogen credit from a previous crop and nutrient application.
12. Identify ways to deal with variations in field topography.
13. Identify ways to deal with variations in field soil test results.
14. Recognize how nutrient availability affects the crop response to the application of a given nutrient.
15. Describe the basic concepts of nutrient uptake by different crops.
16. Identify the effects of high soil nutrient levels on groundwater and surface water quality

Fertilizer Management

17. Recognize how fertilizer placement and timing of application affect nutrient availability.
18. Interpret and use the guaranteed nutrient analysis of commercial fertilizer materials.
19. Use fertilizer nutrient analysis to determine nutrient application rates.
20. Identify the importance of nutrient applicator calibration.
21. Describe the relationship between production inputs and crop yield.

Nutrient Balances

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

Category 4: Management of Prescribed Materials

Storage

1. Identify and evaluate acceptable storage facilities with respect to the size and type of the operation.
2. Identify the minimum storage design requirements for liquid or solid ASM.
3. Determine when a professional engineer is required for construction or expansion of a nutrient storage facility.
4. Calculate the volume of a manure storage facility based on the size and type of operation.
5. Calculate the days of storage available on a farm unit and identify options to meet the 240 day minimum requirement.
6. Identify safety and risk issues associated with various manure storage types and sizes.
7. Identify the setback criteria for siting new or expanded nutrient storage facilities.
8. Identify possible exceptions to the minimum 240 day storage requirement.
9. Identify the criteria for a temporary field nutrient storage site.
10. Calculate the permitted number of days of storage in a temporary field nutrient storage.
11. Identify appropriate runoff management options for solid manure storage.
12. Identify options for on-farm disposal of dead animals and how to advise clients of the pros and cons of each option.
13. Describe the difference between a) a flowpath distance from surface water and tile inlets for new or expanded nutrient storage facilities, and b) permanently vegetative area flowpath for runoff management.
14. Identify the resources available to determine regulated flood lines, and determine if any additional requirements are needed if storages are sited in this area.
15. Recognize restrictions pertaining to livestock access to surface water in an outdoor confinement area.
16. Identify regulatory requirements for dealing with snow from an outdoor confinement area.
17. Recognize ways to manage runoff from fields, yards, storages and outdoor confinement areas.
18. Recognize how milking centre washwater and other on-farm sources of nutrients can impact the storage capacity of a nutrient storage facility.
19. Identify storage and treatment options for milking centre washwater.
20. Describe the requirements for milking centre washwater management on the farm and identify situations where farm units must comply with the regulation.

Regulated Mixed Anaerobic Digestion Facility

21. Identify the location requirements for any new regulated mixed anaerobic digestion (AD) facility.
22. Describe what material can be used in a regulated mixed AD facility.
23. Describe where the source material can be received from for a regulated mixed AD facility.

24. Outline the treatment requirements for anaerobic digestion material in a regulated mixed AD facility.

ASM Sampling and Analysis

25. Recognize the importance of sampling and analysis.
26. Describe how to obtain a representative ASM sample.
27. Identify components of ASM that may have possible negative impacts.
28. Identify factors that might cause variation in manure analysis within or between farms.
29. Interpret and use ASM analysis reports.

Land Application of Nutrients

30. Describe farming practices that could limit environmental losses of phosphorous and nitrogen at the field level.
31. Recognize situations requiring establishment of a three metre vegetated buffer zone.
32. Calculate area available for prescribed material application, given the effects of application setbacks.
33. Identify and evaluate appropriate setback distances to regulated features such as surface water, wells, tile inlets and neighbouring wells.
34. Recognize opportunities for prescribed material application, such as late summer and early fall, and discuss each opportunity's pros and cons.
35. Describe the pros and cons of different application methods of prescribed materials.
36. Calculate the nutrient contribution from nutrients in the first year following application and over time, based on a laboratory analysis report.
37. Estimate nutrient loss under different situations, such as number of days to incorporation, season of application (spring, fall, etc.), bare soil, crop residue and standing crop.
38. Recognize areas that may be environmentally sensitive to nutrient application.
39. Identify the regulatory requirements for direct flow application systems.
40. Identify the winter spreading restrictions for the application of nutrients, and recognize why winter spreading is restricted.
41. Identify the requirements for land application of AD material output from a regulated mixed anaerobic digestion facility. Identify the documents required if the material is transferred off the farm unit.
42. Identify the requirements for land application of unregulated mixed anaerobic digestion material.
43. Identify the documents required if the material is transferred off the farm unit.
44. Identify the requirements for the land application of milking centre washwater and sludge pump out.
45. Identify any specific requirements for the land application of regulated compost.

For more information about nutrient management certification:

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E-mail: mmcdonal@uoguelph.ca

www.nutrientmanagement.ca