

Getting Started

Water and nutrient management is fundamentally important to the profitable production of greenhouse floriculture crops. Best management practices (BMPs) can help you improve production efficiency and protect our environment by making best use of water and nutrient resources.

BMPs are voluntary tools that can help you:

- Evaluate the current use of water and fertilizer at your production facility
- Identify possible improvements to current usage patterns
- Record ongoing improvements to measure progress over time

Greenhouses commonly generate three types of water: process water (which includes greenhouse nutrient feedwater and other non-production wastewater), stormwater, and sanitary sewage. This document deals with process water and stormwater. Wastewater loss directly from greenhouses or from the stormwater pond can have levels of phosphorus and nitrate that exceed the Provincial Water Quality Objectives. These nutrients can negatively impact the lakes and streams that receive the discharges by promoting the growth of algae and cyanobacteria (blue-green algae).

Implementation of the BMPs provided in this document helps to reduce the risk of nutrient loss to the environment, but does not remove the operator's responsibility to ensure compliance with applicable legislation, including municipal, provincial and federal requirements. Greenhouse floriculture operations must be managed in accordance with applicable legislation such as the *Conservation Authorities Act*, *Environmental Protection Act*, *Lakes and Rivers Improvement Act*, *Nutrient Management Act*, *Ontario Water Resources Act*, *Pesticides Act* and the *Building Code Act*.

To assist you in looking at water and nutrient management throughout crop production in the greenhouse, BMPs in this self-assessment guide have been organized into four categories. These categories separate the BMPs into those that are good practice in general, and those that are practiced A) before water and nutrients are applied to the crop in **Pre-production**, B) as water and nutrient are applied to the crop in **Production**, and C) after water and nutrients leave the crop in **Post-production**.

It is important to note that every BMP will not be suitable for every operation or goal. Use of both your completed Environmental Farm Plan (EFP) and this Self-Assessment can help you determine which BMPs to implement in your greenhouse production system.

Self-Assessment

The self-assessment guide is designed to help you take a comprehensive and critical overview of your production areas. The various sections of the guide are designed to assist you with:

- Knowing your water quality and quantity
- Managing water and nutrient inputs efficiently
- Maximizing collection and reuse of water
- Maximizing storage capacity and integrity to keep water contained

Through completing this self-assessment, you should be able to:

1. Map all water sources, storage and post-production water movement on and off your property.
2. Review all fertilizer and chemical storage and mixing areas to ensure proper containment.
3. Identify areas on your property where current production practices may impact surface or ground water.
4. Test all irrigation, runoff, collected and stored water.
5. Measure and record your current water and fertilizer use per unit area of production, per year or crop rotation.
6. Describe how water and fertilizer are collected and stored for reuse.
7. Develop and review contingency plans for when water availability is restricted or quality reduced.
8. Prepare a plan for managing post-production water after it can no longer be reused.
9. Implement continuous improvements to conserve water and nutrient inputs.

How it Works

For most self-assessment questions in this guide, there are four possible answers listed in separate columns. Each column has a number ranking: 4, 3, 2 or 1.

In some instances, where the answer is either Yes–4 or No–1, only two columns are listed. Check the box that most accurately describes the current situation for your operation.

Practices described under Columns 3 and 4 improve nutrient and water use by reducing the amount of water and nutrients requiring management post-production.

Practices identified in Columns 1 and 2 can be improved upon by implementing the BMPs listed under each Self-Assessment question.

After completing the Self-Assessment, review the practices you identified as candidates for improvement (ranked as 1 or 2). Document your Self-Assessment score and create a plan for improving your score.

Consider the suitable BMPs, and choose those that you can apply in the next 1–3 years. Improving the management of water and nutrients in your greenhouse should be an ongoing progress.