



MINISTRY OF AGRICULTURE, FOOD AND RURAL AFFAIRS

## Best Management Practices Series

### What is a "best management practice?"

- a practical, affordable approach to conserving a farm's soil and water resources without sacrificing productivity

### Who decides what qualifies as a best management practice?

- a team of farmers, researchers, extension staff and agribusiness professionals.

### The Best Management Practices Series is...

#### An award-winning series of innovative publications:

- presenting affordable options for protecting soil and water resources on the farm;
- supporting individual farm planning and decision-making in the short and long term;
- harmonizing productivity, business objectives and the environment;
- available in both English and French;
- each book presents a range of circumstances and options to address a particular environmental concern - use the information to assess what's appropriate for your property.

#### Cover to cover, every BMP book will help you:

- understand an environmental issue in context of your operation or property
- see options for addressing an issue that work with your circumstances
- plan and put into action farm-proven, environmentally responsible management practices
- increase efficiencies - in resource use and production
- improve property now and for future generations
- demonstrate stewardship to neighbours
- created long-term plans and sharpen day-to-day decision-making
- enrich natural areas.

Let BMP books be your best-used, ready-reference guides.

### Step into the BMP library, and see what belongs as useful guides on your shelves...

Order #	Complete Title
AF151	<a href="#">Soil Health in Ontario</a>
AF153	<a href="#">Adding Organic Amendments</a>
AF155	<a href="#">Buffer Strips</a>
AF163	<a href="#">Cropland Retirement</a>

<b>AF165</b>	<a href="#">Erosion Control Structures</a>
<b>AF167</b>	<a href="#">Field Windbreaks</a>
<b>AF173</b>	<a href="#">No-Till for Soil Health</a>
<b>AF181</b>	<a href="#">Rotation for Agronomic Crops</a>
<b>AF189</b>	<a href="#">Winter Cover Crops</a>
<b>AF191</b>	<a href="#">Soil Erosion by Water</a>
<b>BMP01E</b>	<a href="#">Farm Forestry and Habitat Management</a>
<b>BMP02E</b>	<a href="#">Field Crop Production</a>
<b>BMP06E</b>	<a href="#">Soil Management</a>
<b>BMP07E</b>	<a href="#">Water Management</a>
<b>BMP08E</b>	<a href="#">Irrigation Management</a>
<b>BMP09E</b>	<a href="#">Integrated Pest Management</a>
<b>BMP10E</b>	<a href="#">Fish and Wildlife Habitat Management</a>
<b>BMP11E</b>	<a href="#">No-Till: Making It Work</a>
<b>BMP12E</b>	<a href="#">Water Wells</a>
<b>011063</b>	Keeping Your Well Water Safe to Drink (An Information Kit to Help You Care for Your Well)
<b>BMP13E</b>	<a href="#">Pesticide Storage, Handling and Application</a>
<b>BMP14E</b>	<a href="#">Nutrient Management Planning</a> (revised edition 2006)
<b>BMP15E</b>	<a href="#">Buffer Strips</a>
<b>BMP16E</b>	<a href="#">Manure Management</a>
<b>BMP17E</b>	<a href="#">Greenhouse Gas Reduction in Livestock Production Systems</a>
<b>BMP18E</b>	<a href="#">Agroforestry Series Volume 1 - Woodlot Management</a>
<b>BMP19E</b>	<a href="#">Streamside Grazing</a>
<b>BMP20E</b>	<a href="#">Managing Crop Nutrients</a>
<b>BMP 21E</b>	<a href="#">Agroforestry Series Volume 2 - Establishing Tree Cover</a>
<b>BMP 22E</b>	<a href="#">Deadstock Disposal</a> - PDF (2 MB)
<b>BMP 23E</b>	<a href="#">Application of Municipal Sewage Biosolids to Cropland</a>
<b>BMP 24E</b>	<a href="#">A Phosphorus Primer</a>

<b>BMP25E</b>	<a href="#">Cropland Drainage</a>
<b>BMP26E</b>	<a href="#">Controlling Soil Erosion on the Farm</a>
<b>AF150</b>	<a href="#">Best Management Practices for Phosphorus</a>
<b>BMP27E</b>	<a href="#">On-Farm Energy: A Primer</a>
<b>BMP28E</b>	<a href="#">Best Management Practices and Self-Assessment - Water and Fertilizer Use for Outdoor Container Production</a>
<b>BMP29E</b>	<a href="#">Self-Assessment and Best Management Practices for Water and Fertilizer Use In Greenhouse Vegetable Production</a>

### How Do I Obtain a Book?

Hardcopies of publications can be ordered through ServiceOntario

Online at [ServiceOntario Publications <https://www.publications.serviceontario.ca/pubont/servlet/ecom/>](https://www.publications.serviceontario.ca/pubont/servlet/ecom/)

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Order in person through a public access terminal available at [ServiceOntario Centres](#)

[<https://www.services.gov.on.ca/locations/start.do>](https://www.services.gov.on.ca/locations/start.do) located across the province

### AF151 - Soil Health in Ontario (PDF)

This publication provides a visual overview of the many best management practices that build back and safeguard soil health, along with soil health basics and challenges to soil quality.

### AF153 - Adding Organic Amendments (PDF)



Increasing the level of your organic matter in your soil will improve soil health, resilience to degradation and productivity. This factsheet describes the nature and benefits of soil organic matter, sources of organic matter and best management practices (BMPs) for adding organic amendments to the soil.

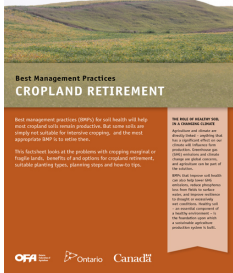
### AF155 - Buffer Strips

This factsheet explains the benefits of buffer strips, considerations for design and planning, and tips for establishment and maintenance.

### AF163 - Cropland Retirement (PDF)



Some agricultural soils are so inherently unproductive or challenged from past degradation that they are not suitable for intensive cropping. This factsheet looks at the problems with cropping marginal or fragile lands, the benefits of and options for cropland retirement, suitable planting types, planning steps and how-to tips.

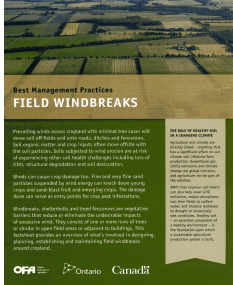


**AF165 - Erosion Control Structures**



Erosion control structures are designed to manage runoff from cropland during intense storm events. This factsheet explains their unique role in soil management, different types and their specific functions, how to get started, and design, management and maintenance considerations.

**AF167 - Field Windbreaks (PDF)**



Field windbreaks and shelterbelts are vegetative barriers that reduce wind and water erosion, while improving crop yields and protecting sensitive crops from wind damage. This factsheet provides an overview for designing, planting and maintaining field windbreaks around croplands.

**AF173 - No-Till for Soil Health**

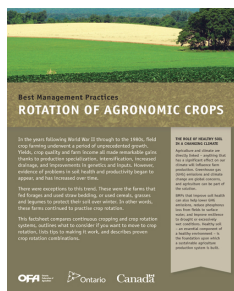
This factsheet describes types of no-till systems, their benefits and challenges, and tips for successful implementation.

**AF181 - Rotation of Agronomic Crops**



This factsheet compares continuous cropping and crop rotation systems, outlines what to consider if you want to move to crop rotation, lists tips to making it work, and describes proven crop rotation combinations.

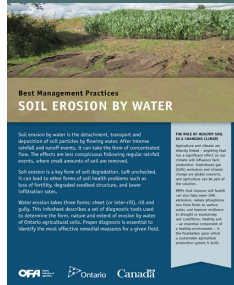
**AF189 - Winter Cover Crops**



This factsheet describes the benefits, challenges, types and opportunities for growing cover crops in post-harvest conditions in Ontario.



## AF191 - Soil Erosion by Water ([PDF](#))



Field slope gradient and length, rainfall, surface water runoff, tillage and cropping practices and soil type all play a role in a field's risk for erosion by water. This publication offers best practices and tips for keeping soil where it should be.

## BMP 01 - Farm Forestry and Habitat Management (1992)

This early book in the BMP Series introduces a range of practical measures to sustainably manage farm woodlands for off-farm sales, on-farm use, woodlot health, and wildlife habitat protection and enhancement. A useful overview, the book's general content is explored in-depth in several subsequent BMP titles.

## BMP 02 - Field Crop Production (Reprinted 2012)

A detailed, broad-ranging view of crop production systems and how to improve their sustainability, yield, and economic viability is presented. The book lays out the basics of soil, nutrient and pest management, tillage systems, and conservation cropping and structures.

## BMP 06 - Soil Management (1994)

Soil Management is a practical guide for farm managers and professional agronomists - helping them solve every day cropland soil problems. It covers the basics on soil properties, diagnostics for soil problems and BMPs to prevent and correct problem soil conditions. A DVD version of the book is underway.

## BMP 07 - Water Management (1993)

This comprehensive introduction tours a typical farmstead (the home, the barn, natural areas, storages, and the well), identifying potential problem areas and what to do to reduce impacts and preserve quality and supply.

## BMP 08 - Irrigation Management (Revised 2004)

Irrigation shouldn't waste your time, money, or water. Get the latest on scheduling strategies, the pros and

cons of sprinkler, drip, and sub-irrigation systems, water-saving tips, and special applications. Includes extensive crop-specific charts.

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### **BMP 09 - Integrated Pest Management (1996)**

This introduction to IPM explains the basics, including pest monitoring, identification, and thresholds. Control options, as site and crop options, biological control, crop rotation, pest removal, trap crops, nutrient and water needs, and pesticide timing and application, are described.

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### **BMP 10 - Fish and Wildlife Habitat Management (1996)**

Healthy fish and wildlife habitat on rural property has many benefits, and BMPs for improving habitat are compatible with cropland BMPs. Full of info for farmlands, woodlands, wetlands and other transitional areas, and aquatic areas. Prevention and control of nuisance wildlife are also covered.

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### **BMP 11 - No-Till: Making It Work (1997)**

No-till takes know-how of soil and residue management, specialized equipment, weed, disease and pest control, and crop selection. Whether you want to strip-till, slot-plant, pre-till, or ridge-till, this book is helpful for beginners and no-till veterans.

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### **BMP 12 - Water Wells (Revised 2003)**

If you own a water well, this book can help you protect the quality of water you and your family relies on. Explains well components, maintenance, new well construction requirements, and procedures for unused wells.

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### **BMP 13 - Pesticide Storage, Handling and Application (1998)**

Growers seeking to create or refine a safe and practical system will find this a helpful overview. Structures, handling techniques, transportation, mixing and loading, spills management, and approaches to spraying, calibration, and maintenance are explored.

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### **BMP 14 - Nutrient Management Planning (2007)**

This essential companion for anyone completing a nutrient management plan explores the process in-depth. Learn how to inventory nutrient sources, interpret results, plan application, keep records, monitor and adjust.

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### **BMP 15 - Buffer Strips (2004)**

Well-managed buffer strips go a long way to filtering farmland runoff before it enters streams, wetlands, ponds and lakes. This has many benefits for water quality, erosion prevention, soil water-holding capacity, fish and habitat quality, livestock health, and drain maintenance. This book explains how to establish, maintain, and improve buffer strips according to the topography and land uses on your property.

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### **BMP 16 - Manure Management (2005)**

Make the most of this important on-farm nutrient. This book explains what's in manure, how to mitigate concerns re: storage, odours and runoff, and how best to plan, set up and time its application.

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### **BMP 17 - Greenhouse Gas Reduction in Livestock Production Systems (2006)**

The good news is that many existing BMPs for livestock production also reduce GHG emissions. This book presents BMPs for breeding, feeding, housing, quality control, grazing and manure storage to further reduce emissions.

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### **BMP 18 - Woodlot Management (2007)**

Existing farm woodlots brim with potential: for timber, fuelwood, specialty products, income in kind, as well as important environmental and wildlife benefits. But it takes planning and management to make the most of them, and this book will show you how.

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### **BMP 19 - Streamside Grazing (2007)**

Properly planned and managed, streamside grazing can benefit the environment through improved buffers and layout. This book will help you develop a workable grazing management plan for your property to balance production and environmental goals.

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### **BMP 20 - Managing Crop Nutrients (2008)**

This book will help growers determine what nutrients they have, what ones they need, when they're needed and how to apply them for maximum efficiency and minimal risk to the environment.

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### **BMP 21 - Agroforestry Series Volume 2: Establishing Tree Cover (2009)**

Whether as crop trees, as windbreaks and fencerows, within buffer strips, in pasture, or intercropped with field crops, trees offer tremendous economic and environmental value. Learn how trees and plantings grow, and what treespecies need to flourish. Look to this book for sets of BMPs for planning, planting, establishing, andmanaging tree cover for a variety of functions.

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### **BMP 22 - Deadstock Disposal (2009)**

How livestock mortalities are disposed of has implications for the environment, animal and public health, and consumer confidence. This book will help producers compare options for pickup, incineration, in-vessel disposal, burial and composting, and implement regulation-compatible BMPs. [PDF](#) (2 MB)

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### **BMP 23 - Application of Municipal Sewage Biosolids to Cropland (2010)**

This book explains how biosolids are processed, their benefits and risks when applied to cropland, and societal

safeguards. A set of best management practices for production and application rounds out the book, which will be of interest to farmers, rural residents, spreaders and municipalities.

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### **BMP 24 - A Phosphorus Primer (2011)**

Phosphorus is an essential nutrient for crops and livestock. Unless properly managed, phosphorus can move from land to lakes, rivers and streams – harming fish habitat and water quality.

This 38-page booklet sets out all the BMPs for on-farm management to keep phosphorus in its place.

With many illustrations and photos, A Phosphorus Primer follows “P” in its various forms in soil and water and shows how it can travel in runoff, erosion, leaks and drainpipes. The BMPs are sorted for point and non-point sources of phosphorus. BMPs for point source, such as manure storages and dairy washwaters, focus on reduction, containment, and treatment. BMPs for non-point source, such as cropland runoff and erosion, include nutrient management planning, and soil, field and shoreline practices.

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### **BMP 25 - Cropland Drainage (2011)**

Many Ontario farms rely on drainage systems to remove excess water, extend field access, lengthen the growing season, conserve topsoil, and generally make best use of agricultural lands. This 64 page book provides information on the many improvements in drainage technology.

Cropland Drainage describes drainage as part of an on-farm soil management system, and many complementary BMPs for erosion control, and healthy soils, cropland, and adjacent natural areas apply. Specific BMPs for surface drainage include inlets and erosion control structures.

The book details how to diagnose subsurface drainage problems, and takes a step-by-step approach to designing a new system – including drainage coefficient, drainpipe depth, spacing, sizing and layout. The construction section includes handy checklists for landowners and contractors. Inspection, maintenance, and troubleshooting are also covered. Key legislation and a glossary round out the 64-page book.

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### **BMP 26 - Controlling Soil Erosion on the Farm**

Soil erosion hurts cropland productivity and contributes to the pollution of watercourses, wetlands and lakes. The first step to keeping soil in its place is diagnosing the problem at a particular site. This 36-page booklet is filled with photographs to match field symptoms with erosion type, and provide practical solutions. Reduced tillage, cover crops and crop rotations, diversion terraces, earthen berms, other erosion control structures, grassed waterways, and bank and outlet stabilization are among the best management practices discussed.

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### **AF150 - Best Management Practices for Phosphorus**

This 8-page brochure introduces phosphorus and its various forms in soil, manure and water. It outlines phosphorus issues and BMPs in a variety of farm settings. The key best management practice approach is the 4 Rs - Right source, Right rate, Right time, Right place - to keep "P" in the soil and out of runoff.

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### **BMP 27 - On-Farm Energy: A Primer**

This 22-page booklet is an overview of energy conservation, efficiency and generation around the farm. It begins where farmers should too: a professional energy audit. The audit identifies how much energy is being consumed in every facet of the operation, and where and how efficiencies can be made.

Different forms of on-farm energy generation are introduced: solar, wind, geothermal, micro hydropower, biomass, biofuels, and biogas. The focus is small-scale generation for on-farm use.

This introductory book is the first of three BMP titles about on-farm energy. The next two will delve more



deeply into evaluating alternative energy options and finding efficiencies in livestock facilities and field operations.

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### **BMP 28 - Best Management Practices and Self-Assessment - Water and Fertilizer Use For Outdoor Container Production**

Water and nutrient management is fundamentally important to the profitable production of container-grown woody and herbaceous crops. This [40-page booklet](#) can help you to improve production efficiency and protect our environment by making the best use of water and nutrient resources.

Every BMP will not be suitable for every operation. Your completed Self-Assessment can help you determine which BMPs to implement in your outdoor container production system.

### **BMP 29 - Self-Assessment and Best Management Practices for Water and Fertilizer Use In Greenhouse Vegetable Production**

Water and nutrient management is important to the production of greenhouse vegetable crops. The management of these resources helps protect the environment and improve production efficiency. This [30-page booklet](#) is written for Ontario's greenhouse vegetable growers. It guides the grower in developing a comprehensive assessment of their operation's water and fertilizer management practices and describes the use of key best management practices to address any challenges identified.

For more information:

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