



## SECTION ONE

# INTRODUCTION TO HOBBY FARMING AND WATER QUALITY

This is a handbook for owners of “Hobby Farms” - small scale farms operated primarily as a residential lifestyle - to provide their owners with the tools to develop and operate an environmentally friendly farm and promote responsible stewardship of both land and the environment.

Agricultural activities on hobby farms can result in the generation of materials that are potentially harmful to the environment. Since hobby farm activities occur largely outdoors, many activities can be exposed to rainfall. When sufficient rainfall occurs, materials associated with hobby farming can be picked up by stormwater runoff and become “pollutants” that eventually reach other lands and water bodies nearby. Pollutants can include excess nutrients from fertilizer, chemicals from pesticides, bacteria from manure, sediment from unvegetated areas, and many more.

### YOU MIGHT BE A HOBBY FARMER IF YOU:

- Plant a backyard vegetable garden
- Keep chickens
- Have a horse or two
- Care for one or more farm animals
- Maintain a small fruit orchard
- And many more...

There are a number of common-sense activities and well-established Best Management Practices (BMPs) and good housekeeping techniques that hobby farmers can use to make sure their farming activities have a minimum of impact on the environment, particularly water quality of nearby surface waters. In addition to helping to ensure nearby wetlands and water resources are protected, these practices can often result in better farm management, save money and help keep your animals and crops healthy and safe.

The purpose of this handbook is to guide and serve as a reference for the hobby farmer about activities that can generate pollution and how to protect nearby surface waters. This manual will help hobby farmers develop a practical farm management plan to minimize water quality impacts and result in a successful hobby farm, no matter how big or small.

## WHAT IS A HOBBY FARM?

A hobby farm is a small-scale farm operated as a residential life-style, involving the raising of produce or care of livestock for personal use and enjoyment, but not typically generating \$1,000 or more of annual sales of agricultural products. A hobby farm can be small or large and located in an urban, rural or suburban area.

According to the United States Department of Agriculture (USDA) Economic Research Service:

“A farm is defined as any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the year.”

**ALTHOUGH THIS IS A CLEAR DEFINITION FOR WHAT DEFINES A “FARM” (BASED ON SALES OF AGRICULTURAL PRODUCTS), THERE ARE VERY FEW REFERENCES THAT DEFINE THE “HOBBY FARM.”**

The common view of the hobby farm is that it consists of a small-scale farm operated for pleasure or as a residential life-style, rather than as a business. The owner of a hobby farm typically depends on a primary income from some other source than farming – your “day job”. Although a hobby farm may generate some income from the sale of products raised on-site, its owners do not generally need to make a profit from their farming activities.

A hobby farmer may be your neighbor who raises chickens in the backyard for fresh organic eggs, the person down the street who provides you with a year’s worth of tomatoes and zucchini from their gardens in July or August, your friend across town who raises a few alpacas for their distinctive wool, or a relative who has one horse for the occasional leisure ride. These examples encompass the millions of Americans, thousands residing in Massachusetts, who like to garden or farm, but do not meet the USDA’s definition of farming.



According to the USDA 2012 Census of Agriculture, there are 7,755 farms in Massachusetts totaling over 500,000 acres in associated land. About 31% of these farms produced less than \$1,000 in agricultural sales in 2012, meaning that roughly a third of the state’s farms are very small. It is not clear that these census figures encompass the numerous households that raise sizable plots of vegetables in their backyards or maintain a few livestock animals or horses for personal use and enjoyment, but it’s clear that there are lots of small-scale properties, both rural and urban, distributed across Massachusetts that could be considered “hobby farms”.



## WHAT IS STORMWATER RUNOFF?

Among Massachusetts' most valuable resources are its many wetlands, streams, rivers, lakes, ponds, and coastal areas. These water bodies are highly susceptible to damage from substances that can impact water quality, harm wildlife, and affect human health and well-being.

Pollution of these water bodies includes both point sources (often piped discharges of industrial and sewage treatment systems) and nonpoint sources (pollution that comes from many different sources across the landscape). Nonpoint Source (NPS) pollution occurs through stormwater runoff associated with precipitation and snow melt.

Whenever rain falls (or snow and ice melts) on the surface of the land, it can follow various routes in the water cycle including:

- Be intercepted by trees, plants and leaves where it will either evaporate or soak into the ground and be taken up and used by the root system. This combined process is called evapotranspiration.
- Infiltrate or soak deeper into the ground and recharge groundwater aquifers.
- Land on impervious surfaces such as pavement and bare ground where it may evaporate.
- Flow over the surface of the ground, particularly where there are a lot of impervious or hard surfaces – this is called stormwater runoff. Stormwater runoff can enter catch basin structures designed to collect and discharge stormwater directly to water bodies such as streams, wetlands, ponds, lakes, and coastal waters or can enter these water bodies directly.

As stormwater runoff travels over the surface of the ground, it picks up material along the way such as loose particles of soil, debris, fertilizer, animal waste, chemicals and other pollutants. These materials can be carried by stormwater runoff into nearby water bodies. This water can damage natural habitats, the plants and creatures living in those areas, and the living organisms (including people) that drink or come into contact with polluted water. In some cases, the runoff flows into the ground where some contaminants can also affect groundwater quality - including groundwater sources of drinking water.

## HOW IS STORMWATER RUNOFF GENERATED?

Stormwater runoff is generated from rain and snow melt events that flow over land or impervious surfaces, such as paved streets, parking lots, and building rooftops, and does not soak into the ground. The runoff picks up pollutants like trash, chemicals, oils, and dirt/sediment that can harm our rivers, streams, lakes, and coastal waters - EPA.



As part of a broad spectrum of actions to reduce the NPS pollution finding its way into Massachusetts' (and the nation's) waterways, the Massachusetts Department of Environmental Protection (MassDEP), the U.S. Environmental Protection Agency (EPA), and other partner agencies are reaching out to the owners of hobby farms to engage them in sound, "stormwater-friendly" management practices.

## HOW CAN A HOBBY FARM IMPACT STORMWATER?

**FARM ACTIVITIES CAN INTRODUCE POTENTIALLY HARMFUL MATERIALS SUCH AS FERTILIZERS, PESTICIDES AND MANURE ONTO THE LANDSCAPE, AS WELL AS EXPOSE NATURAL SOILS, MAKING THEM SUSCEPTIBLE TO EROSION WHEN IT RAINS.**

When it rains or when snow melts on a hobby farm, it produces stormwater runoff that can pick up and carry these materials and sediments across the ground surface. Eventually, the runoff deposits these contaminants on other properties or in nearby wetlands, streams, ponds, lakes, and coastal waters where it can degrade natural habitat and severely impact water quality.

Decreased water quality can:

- Have negative health effects on humans and wildlife that come into contact with it
- Help support invasive aquatic species
- Cause harmful algal blooms
- Result in beach closures and impact recreational activities
- Cause fish kills
- Reduce species diversity

Hobby farm activities that can generate substances harmful to habitat and water quality include:

- Land disturbance from land tilling and livestock grazing
- Excessive irrigation
- Application of fertilizers
- Application of other agricultural chemicals, including pesticides and herbicides
- Accidental spills of other potentially toxic materials used around the farm such as cleaning compounds, paints and thinners, and petroleum products used to operate hobby farm equipment
- Management and storage of animal waste, whether animal manure remains where it falls, is collected and disposed of, or is collected and re-applied to the land as a fertilizer
- Management of other waste, such as debris and plant clippings from gardening, left over materials from maintenance and construction activity, and other hobby farm waste material



**NO SWIMMING**  
**Beach closed due to high**  
**levels of BACTERIA in water.**



## HOW CAN THE HOBBY FARMER MANAGE STORMWATER IMPACT TO WATER QUALITY?

The hobby farmer can manage farm activities to prevent stormwater impacts often by following some combination of BMPs and good housekeeping practices. Many hobby farms are able to effectively manage stormwater impacts using common-sense management and maintenance practices, some of which you may already be doing. For example, applying fertilizers based on the soils' needs can prevent excess nutrients from reaching water resources, and keeping livestock away from streams can prevent bacteria from entering the water. In some cases, hobby farm owners may need to consider additional BMPs, such as landscape features designed to direct the flow of stormwater away from surface water, promote stormwater infiltration into underlying soils, prevent the contamination of stormwater altogether, or treat stormwater that comes into contact with potentially harmful substances.

This handbook is intended to describe a number of BMPs and good housekeeping practices that are suitable for managing stormwater impacts of hobby farming. We offer a "tool box" of management practices organized by the type of hobby farm (e.g., growing crops or raising livestock), followed by general site management and good housekeeping practices that can be applied to any hobby farm, no matter the size, to prevent, minimize and/or treat pollutants in stormwater runoff.

Much of the remainder of this handbook is devoted to describing these practices and assisting the hobby farmer in placing them into operation to maintain a healthy, stormwater-friendly farmstead.





## A ROAD MAP TO THE MANUAL:

The hobby farm owner will find the following information in this handbook to help minimize pollution sources to nearby wetlands and waterbodies:

<b>SECTION TWO</b>	Getting Started: Understanding Your Hobby Farm Site	A guide to understanding the physical conditions on your farm, state and local regulations and how those affect the selection and siting of farming activities.
<b>SECTION THREE</b>	Creating a Stormwater Management Plan for Your Hobby Farm	A guide to planning for a new hobby farm or improving an existing one to avoid, minimize, and address stormwater impacts.
<b>SECTION FOUR</b>	Nutrient Management for Water Quality	A guide to understanding soil, plant and nutrient needs to produce a healthy crop and prevent over-application that can result in contamination of water resources.
<b>SECTION FIVE</b>	Animal Management for Water Quality	A guide to managing animals to increase forage yield and quality, provide a healthy place for livestock and horses and minimize negative impacts to the environment.
<b>SECTION SIX</b>	Stormwater Runoff Site Management	BMPs for erosion and sediment control, rainwater harvesting, and reducing stormwater runoff from hobby farms.
<b>SECTION SEVEN</b>	Hobby Farm Management and Safety	Common sense practices for taking care of the farm including pest management, hazardous material safety and storage, food safety and emergency planning.

In each of the sections, basic information about the topic is provided, followed by a series of Fact Sheets that explain details about each topic. Along the way, we provide links to more information for the hobby farmer who seeks greater detail, a deeper understanding, or additional help in operating the hobby farm with a minimum of impact on stormwater and nearby water resources.

**WE INVITE THE HOBBY FARMER TO ENGAGE IN STORMWATER-FRIENDLY FARMING PRACTICES AND PROTECT THE LAND AND WATER RESOURCES ON WHICH WE ALL DEPEND.**

