



## SECTION TWO

# GETTING STARTED: UNDERSTANDING YOUR HOBBY FARM SITE

Sections 2 and 3 provide tools to plan a new hobby farm or improve an existing one, so your farm's activities will have a minimum impact on nearby water resources. Here we provide information to help you understand your existing site. In the next section, we will discuss forming a Hobby Farm Plan.

"Stormwater-friendly" farming requires you to identify the water resources that might be affected by your farm and how stormwater drains from your particular hobby farm site. It also requires you to understand some municipal and state requirements that apply to the farming activities you propose. The Fact Sheets in this section will assist you to understand your farm site and its environment so that you can plan your activities to result in little or no impact on the water resources to which your hobby farm drains.

The following Fact Sheets are intended to assist you in answering the following questions:

- How hobby farms generate pollution, why they are a concern, and offer ideas for addressing pollution.
- What farm activities are you planning and what do you need to make sure they work with your site?
- What features of your farm site affect how you use it, while managing stormwater runoff?
- Are there important water resources on or near your hobby farm?
- What local and state regulations do you need to consider in planning your farm activities?

**THE DEVELOPMENT OF A NEW HOBBY FARM OR IMPROVEMENT OF AN EXISTING ONE CAN RANGE FROM BEING VERY SIMPLE TO COMPLEX, SIMILAR TO THE DIFFERENCE BETWEEN USING A SHOVEL OR A SMALL TRACTOR.**

**THIS HANDBOOK FOCUSES ON HOW TO INCORPORATE IDEAS AND PRACTICES TO MANAGE STORMWATER RUNOFF AND MINIMIZE POLLUTANTS FROM YOUR HOBBY FARM. YOU SHOULD USE INFORMATION IN THIS HANDBOOK WITH OTHER HELPFUL RESOURCES YOU RELY ON TO PLAN YOUR HOBBY FARMING ACTIVITIES.**

If you are just converting part of your lawn to vegetable garden and you are not too close to a wetland, stream, or pond, the planning and implementation of stormwater protection measures will be relatively simple. Your “stormwater management plan” may consist of some basic measures to control erosion, avoid excessive irrigation runoff, and carefully apply fertilizers and other agricultural compounds needed to cultivate a healthy crop. You may be able to undertake this conversion to hobby farming by consulting your local Conservation Commission or searching a few online resources on raising the vegetables you select and implementing some simple measures from this handbook.

On the other hand, if you own several acres and will engage in a variety of farming activities ranging from cultivating vegetables, to raising animals, to growing forage crops for your livestock, your site evaluation, site planning, and hobby farm operations planning will become more complicated and require additional effort. Also, if your property has wetlands or surface water within or near it, your activities may be subject to regulation and will require a greater planning effort.



With this range of hobby farming activity in mind, we provide the following Fact Sheets to guide you to the information you need to start a new environmentally friendly hobby farm or improve an existing one.

The remainder of this handbook provides tools and practices that the hobby farmer can use to ensure that hobby farm operations have a minimum of impact on nearby water resources.

### HELPFUL LINKS

U.S. Environmental Protection Agency: [www.epa.gov/nps/what-nonpoint-source](http://www.epa.gov/nps/what-nonpoint-source)

Massachusetts Department of Environmental Protection: [www.mass.gov/eea/agencies/massdep/water/watersheds/nonpoint-source-pollution.html](http://www.mass.gov/eea/agencies/massdep/water/watersheds/nonpoint-source-pollution.html)

University of Massachusetts Amherst - The Center for Agriculture, Food and The Environment: [www.ag.umass.edu](http://www.ag.umass.edu)

University of New Hampshire Cooperative Extension: [www.extension.unh.edu](http://www.extension.unh.edu)





## FACT SHEET 2.1

# HOW CAN HOBBY FARMS BE SOURCES OF STORMWATER POLLUTION?

You may be surprised to learn that hobby farming is a potential source of water pollution. It is easy to assume that stormwater pollution is more likely associated with highly developed urban and industrialized areas, where extensive roof and pavement result in more stormwater runoff than in rural landscapes.

However, human activities including agriculture (sometimes no matter how small) can generate pollutants and create conditions that allow these pollutants to come into contact with stormwater. Because of this, the hobby farm can become a significant source of nonpoint source pollution. In this section, we will take a look at some of the farming activities that can result in the generation of pollutants, and why these pollutants are a concern.

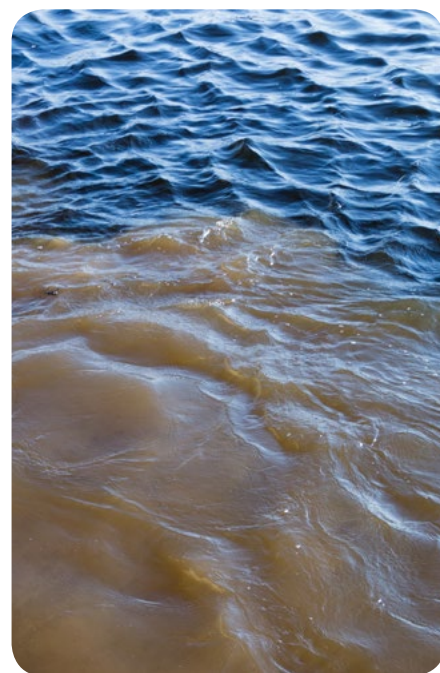
## FARMING ACTIVITIES AND THE GENERATION OF “POLLUTANTS”

FARMING ACTIVITY	POLLUTANTS	HOW IT GENERATES POLLUTANTS
LAND DISTURBANCE SUCH AS TILLING AND LIVESTOCK GRAZING	Sediments	Land disturbance activities expose soils to erosion by both water and wind. These exposed soils can be carried by water flowing over the surface of the ground or by the wind and deposited into waterways as sediments.
EXCESSIVE IRRIGATION	Sediments	Excessive irrigation can result in increased erosion by simulating similar conditions to heavy rainfall events.
APPLICATION OF FERTILIZERS	Nutrients	When nutrients applied through fertilizers, manure, soil amendments and composted materials, exceed plant needs or when applied just before significant rainfall, the nutrients can be carried away by stormwater and discharged into nearby water bodies.
APPLICATION OF OTHER AGRICULTURAL CHEMICALS	Toxic Chemicals	When pesticides, fungicides, and herbicides, containing toxic chemicals, are applied, they can adhere to soil particles or readily be dissolved by stormwater runoff and carried into waterways.
INCIDENTAL AND ACCIDENTAL SPILLS	Toxic Chemicals	Equipment operation may require the use of fuel, lubricants and hydraulic fluids. Other activities, such as the application of paints and stains, or the use of cleaning compounds can generate solvents and other chemicals. These substances can drip or spill onto the ground surface in the course of normal operation. When exposed to rain or snow melt, they can be carried by stormwater runoff into nearby water bodies.
MANAGEMENT OF ANIMAL WASTE	Nutrients, Bacteria, Viruses	Animal manure contains bacteria and viruses that when left or spread on the ground in excess amounts, can be carried to nearby water resources.
MANAGEMENT OF OTHER WASTE	Debris	Wastes such as plant clippings from gardening, maintenance and construction waste, trash, and other solid waste from hobby farming activities, can be washed into waterways if not properly managed and disposed of.



## WHY ARE THESE POLLUTANTS A CONCERN?

POLLUTANT	CONCERNS	AGRICULTURAL SOURCES
<b>SEDIMENTS</b>	<ul style="list-style-type: none"> <li>Clouds surface water</li> <li>Smothers fish larvae and benthic organisms that live in the aquatic environment, can also clog the gills of fish</li> <li>Carries pollutants such as nutrients and toxic chemicals attached to the sediments from fertilizer and pesticide applications</li> </ul>	Tilling, livestock grazing, excessive irrigation
<b>NUTRIENTS</b>	<ul style="list-style-type: none"> <li>Nutrients, such as phosphorus and nitrogen, are a food source for plants and algae. Excess amounts in a surface water can result in algae blooms that can degrade water quality, result in fish kills, make waters unfit for swimming or fishing, and create foul odor and taste in water used for drinking</li> <li>High concentrations of nitrate (a compound of nitrogen) in drinking water can cause methemoglobinemia, a potentially fatal disease in infants – nitrates are very soluble and can easily travel to groundwater as stormwater runoff infiltrates through soils</li> </ul>	Application of fertilizers, manure and composted materials to enhance the nutrient content of soils or animal manure left on the ground surface
<b>TOXIC CHEMICALS</b>	<ul style="list-style-type: none"> <li>Poison fish and other wildlife (as well as people), contaminate food sources, destroy habitat, and render potential surface water and groundwater supplies unfit for consumption</li> <li>Some toxic chemicals have an immediate adverse effect on living organisms, others have effects that manifest over time as the chemicals accumulate in the tissues of living organisms and in their habitats</li> </ul>	Application of pesticides and herbicides and incidental spills from operation and maintenance of farm equipment or infrastructure
<b>PATHOGENS, BACTERIA</b>	<ul style="list-style-type: none"> <li>Make swimming areas unusable</li> <li>Render drinking water unfit for consumption</li> <li>In coastal areas, prohibit the harvesting of shellfish</li> </ul>	Animal manure
<b>DEBRIS</b>	<ul style="list-style-type: none"> <li>Plastic bags and other packaging materials, bottles, construction waste, and other debris can degrade habitat and choke, suffocate, or disable aquatic wildlife, such as waterfowl, fish, and amphibians</li> <li>Leaves/brush/grass clippings can lead to low dissolved oxygen levels as the materials break down, affecting fish and other aquatic organisms</li> </ul>	Organic wastes, such as plant clippings from gardening, maintenance and construction debris and trash, from farming activities





## FACT SHEET 2.2

# HOW CAN HOBBY FARMERS PROTECT WATER RESOURCES?

Hobby farmers can plan how they use their property and then conduct their farming activities in ways that protect water resources. This involves preventing the release of the pollutants, as well as capturing and treating contaminants that may find their way into stormwater.

Protecting water resources from stormwater pollution on a hobby farm should follow this three-step process common to all forms of environmental protection:

### Step 1: Avoid Impacts

**The best way to address pollution is to avoid it in the first place. If the hobby farmer can avoid generating a pollutant or keep it from coming into contact with stormwater, then there is no need to do anything further.**

An example of “avoidance” is to store all fertilizers in a secure, enclosed area to avoid contact with rainfall or stormwater and contain any spills. Another would be to use compost or planting techniques that may not require the use of traditional fertilizers. Both of these methods would help avoid impacts to nearby surface waters.

### Step 2: Minimize Impacts

**If potential impacts cannot be completely avoided, the second step is to keep the potential impacts to a minimum.**

An example of “minimization” is to complete a soil test to determine exactly what nutrients your soil and crops need and to tightly control the type, method, rate, and timing of fertilizer application. This will help avoid overfertilization and reduce the amount of chemicals conveyed in stormwater.

### Step 3: Mitigate Remaining Impacts

**Some impacts might still be expected after taking Steps 1 and 2. In this case, the hobby farmer can correct for (or mitigate) stormwater pollution that results from farm activities. This generally requires a specific management practice to treat stormwater or otherwise address the potential impact.**

An example of “mitigation” is to intercept stormwater runoff from a disturbed area, such as a garden, using a vegetated buffer strip. This measure involves planting and maintaining a permanent strip of vegetation next to the garden to help filter out sediment and contaminants and intercept erosion before ultimately discharging into a nearby stream.



#### DID YOU KNOW?

Agricultural activities that cause Nonpoint Source Pollution most generally occur in the absence of a conservation plan - EPA





**THIS HANDBOOK PROVIDES GUIDANCE TO YOU, THE HOBBY FARMER, ON HOW TO INCORPORATE THESE THREE STEPS INTO THE PLANNING AND MANAGEMENT OF YOUR FARM IN A WAY THAT AVOIDS, MINIMIZES, AND CORRECTS STORMWATER IMPACTS. TO DO THIS, WE RECOMMEND DOING THE FOLLOWING STEPS:**

### **Understand your site and how to work with it**

This includes deciding which hobby farm activities you wish to pursue, learning about any local and state regulations that may affect your plan, and compiling some information about existing conditions on your farm property.

### **Plan your “Stormwater Friendly” Hobby Farm**

In Section 3, we offer a series of Fact Sheets for planning your farm. Using the information you learn in this section, we offer guidance on developing a site plan for your hobby farm, including how you operate your farm to minimize stormwater and surface water impacts. This farming plan will depend on practices you choose from the “tool box” included in subsequent sections and will be comprised of the associated fact sheets and worksheets.

### **Employ Best Management Practices (BMPs) to minimize impacts**

The remainder of the handbook describes “Best Management Practices” that Hobby Farmers will use to “avoid-minimize-mitigate” potential stormwater impacts depending on the type of activity you are performing, as well as practices that can be applied to any site to minimize stormwater runoff and prevent pollutants from entering nearby surface waters.







## FACT SHEET 2.3

# PLANNING YOUR HOBBY FARM

Whether you are developing a new hobby farm or improving an existing one, we recommend you seek as much information as possible to help you plan successful and rewarding farm activities.

Depending on the type and scale of hobby farm activities, the development or improvement of a hobby farm requires you to collect information to judge whether you have enough time and space. Once you do, develop a site plan, and identify the Best Management Practices needed to control impacts to stormwater runoff and nearby water resources.

For example, if you want to keep animals, you will need specific information on the types of animals you intend to keep so you can determine how large an area is required for grazing and manure management without impacting nearby surface water.

You will also need information on sheltering the animals, confining them on your property, water supply and feed requirements and any other factors that would affect how you organize your hobby farm activities.

Checklist 2A contains a series of questions designed to help you gather and document information about your current and/or proposed hobby farming activities. Bear in mind that you may need to revisit each of these questions as you learn about the water resources on or near your property, regulations affecting your activities, and the physical constraints of your property. For example, you may change your mind about the type of animals you will keep when you learn more about your town's zoning requirements.

## HELPFUL LINKS

[www.ag.umass.edu/umass-extension-your-community](http://www.ag.umass.edu/umass-extension-your-community)

[www.usda.gov/topics/rural/cooperative-research-and-extension-services](http://www.usda.gov/topics/rural/cooperative-research-and-extension-services)





## CHECKLIST 2A

# PLANNING YOUR HOBBY FARM ACTIVITIES

### **If you plan on GROWING CROPS (see Section 4)**

What crops do you plan to grow?

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What are the space requirements of your selected crops?

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What type of soils do you have?

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What is the nutrient content of the soil? Have you completed a soil test?

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What types and quantities of fertilizers are required for this crop? Where will you store it?

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What types of pests are a problem for this crop, and how will you control them?

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How will you irrigate the crops? Where will you obtain water and how much will you need?

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### **If you plan on KEEPING ANIMALS (see Section 5)**

What types of animals do you want to have on your hobby farm and how many of each animal will you raise?

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How much space is needed for grazing? Will you supplement with feed?

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How much water is needed to support the animals?

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How much manure are they expected to produce? Where will you store it?

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What do they need for shelter? Exercise?

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How do you plan to confine them? Fencing or other methods?

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### **Other OPERATIONS AND MAINTENANCE (see Sections 6 and 7)**

What equipment will you need for your hobby farm?

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What products and tools will you need to maintain equipment?

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What facilities will you need to store and provide maintenance of this equipment?

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What wastes (including animal manure and crop residues) will you need to manage within the farm or dispose off-site?

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## FACT SHEET 2.4

# STATE REGULATORY PROTECTION OF WATER RESOURCES ON OR NEAR YOUR HOBBY FARM

As a Hobby Farm owner, you need to know what water resources are on or near your property, and what your responsibilities are to protect them. You need to know this not only to be a good steward of natural resources, but also to comply with the law.

Massachusetts has strict regulations to prevent disturbance or damage to its water resources. Whenever a property is developed or altered near a wetland or surface water, it may require review and permitting under the Massachusetts Wetlands Protection Act (WPA) regulations and also under local town bylaws or city ordinances. The Massachusetts Department of Environmental Protection (MassDEP) and town or city Conservation Commissions are responsible for enforcing these regulations.

Other state regulations protective of water resources include the Massachusetts Watershed Protection Act, which regulates land use and activities including agricultural, within critical areas of the Quabbin Reservoir, Ware River and Wachusett Reservoir watershed; and MassDEP's Drinking Water Regulations, which includes restrictions on agricultural activities near surface water used as a source of drinking water.

A brief summary of these regulations is provided in the table below:

REGULATION	HOW IT MAY AFFECT YOUR FARM?	WHERE TO GET MORE INFORMATION
<b>MASSACHUSETTS WETLANDS PROTECTION ACT (WPA)</b>  <b>310 CMR 10.00</b>	If your hobby farm is located within 100 feet of a wetland or certain other water resources (distance may be greater in some communities) you may need to apply for a permit through your local Conservation Commission. You should contact the Conservation Agent or Conservation Commission before you do any work.	<ul style="list-style-type: none"> <li>• MassDEP</li> <li>• Conservation Commission</li> </ul>
<b>MASSACHUSETTS WATERSHED PROTECTION ACT</b>  <b>313 CMR 11.00</b>	This only applies to communities within the Quabbin Reservoir, Ware River and Wachusett Reservoir watersheds. It prohibits certain activities such as storage of hazardous materials and manure within 400 feet of tributaries and surface waters. Visit this link to see if your hobby farm is within one of the regulated watershed areas: <a href="http://www.mass.gov/eea/agencies/dcr/water-res-protection/watershed-mgmt/the-watershed-protection-act.html">www.mass.gov/eea/agencies/dcr/water-res-protection/watershed-mgmt/the-watershed-protection-act.html</a>	<ul style="list-style-type: none"> <li>• Department of Conservation and Recreation</li> </ul>
<b>MASSACHUSETTS DRINKING WATER REGULATIONS</b>  <b>310 CMR 22.00</b>	If you're located within 100 feet of a surface water supply or tributary to one, stabling, hitching, feeding, grazing, or other similar activities of livestock or other domestic animals are prohibited. Sites within a Zone II groundwater drinking source protection area should not store fertilizers or manure unless stored in a structure that prevents contaminated runoff from escaping.	<ul style="list-style-type: none"> <li>• MassDEP</li> </ul>



### DID YOU KNOW?

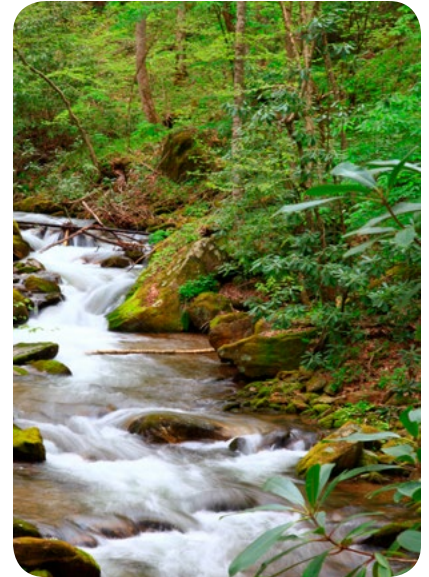
Water resource areas include wetlands, rivers, streams, lakes, ponds, coastal features, and their buffers (a protective zone around them). Hobby Farm activities within water resource areas are regulated in Massachusetts. You may need to apply for approval through your local Conservation Commission for certain activities.

## START WITH A VISIT TO YOUR LOCAL CONSERVATION COMMISSION OFFICE

While it may seem relatively straightforward to identify a stream or wetland on your property, experts in wetlands science are sometimes needed to identify the limits of these and other water resources as defined in the regulations.

Types of soil, hydrology and vegetation are some of the parameters that must be considered when delineating the extents of these water resources under the regulations. For this reason, we recommend you first consult with your local Conservation Commission or Agent who can assist you.

In some cases, the Conservation Agent may visit your site to help you identify the water resources that you should consider and provide recommendations on how to move forward before you develop or make improvements to your hobby farm. In other cases, they may recommend you hire a professional to identify where protected resources are located on and near your property and to assist you with an application, if necessary, for your proposed activities.



### If needed, contact MassDEP

After discussing your project with the local Conservation Commission, you may need to contact MassDEP for additional consultation. This may occur if you're located within certain watersheds in the state or located within a Zone II area around a drinking water well (essentially the area that supplies most of the drinking water to the well). Note that Zone II areas may be irregular in shape and can extend thousands of feet around the location of a well, so it is important to check the mapping of these areas with your Conservation Commission or MassDEP.

You will need the following information to know which of your hobby farming activities are permissible:

- ✓ Location of protected water resources on or near your property
- ✓ Distances that hobby farm activities must be kept from existing wetlands, streams, and other waterbodies
- ✓ Other local and state requirements that affect the layout of your hobby farm
- ✓ How you manage stormwater runoff

See Checklist 2B to document how regulations may impact your hobby farm.



### PLAN AHEAD

Know your resource areas and regulations that protect them prior to doing any work near them.





## FACT SHEET 2.5

# HOW DO LOCAL REGULATIONS AFFECT YOUR HOBBY FARM?

Most communities have zoning bylaws and other regulations that specify allowed and prohibited land uses, and requirements that may apply to activities you plan for your Hobby Farm.

Whether you are starting a new hobby farm, adding activities or improving an existing hobby farm to make it “stormwater friendly,” you should learn about your community’s regulatory requirements. The following is a brief summary of local regulations that may affect your farm and where you can usually obtain more information.

REGULATION	HOW IT MAY AFFECT YOUR FARM?	WHERE TO GET MORE INFORMATION
<b>PLANNING OR ZONING BYLAW</b>	Planning or zoning bylaws may affect the number and type of animals you own, farming activities you can conduct, and whether you can carry on any commercial activities (e.g., operating a vegetable stand). Some zoning regulations may have specific restrictions and requirements on how you manage your site, especially if you are within a ‘water resources protection’ district or ‘water supply protection’ district.	Start with the Code Enforcement Office (sometimes known as the Office of the Building Inspector), or municipal Planning Department
<b>STORMWATER MANAGEMENT REGULATIONS</b>	Many communities have regulations for the management of stormwater that apply to disturbance of land above a certain threshold.	Jurisdiction varies by community - inquire at your Municipal Offices
<b>BOARD OF HEALTH</b>	<p>Many communities have a Board of Health (BOH) and/or Health Agent that administers a variety of regulations that may affect your farm and how you manage stormwater and wastewater on your property, including:</p> <ul style="list-style-type: none"> <li>• Keeping and Care of Animals – If regulated, your selection of livestock will need to meet local health regulations, which may govern the type, number, and minimum standards of care for the animals.</li> <li>• On-site Sewage Disposal (Septic Systems) – If you have an on-site sewage disposal system, the Health Agent may have records showing its location so you can take measures to protect it from damage by any proposed farm activities. Activities near your system may be restricted and there may be setback requirements for certain stormwater management facilities, such as dry wells and ditches.</li> </ul>	Local Board of Health Office
<b>LOCAL WETLAND AND WATER RESOURCES BYLAW</b>	Many communities have adopted local wetland and water resource bylaws that are more stringent than the State Wetlands Protection Act. Activities within a certain distance require approval.	Local Conservation Agent





## OTHER REGULATIONS

Other local regulations may affect your farming activities and the use of your property. This handbook highlights several regulations that relate to managing stormwater runoff from your farm. For additional information on local rules and regulations that apply to Hobby Farms, please contact your local municipal departments.

See Checklist 2B to document how regulations may impact your hobby farm.



### REGULATORY CHECK

#### Important things to learn from local rules:

- Do the rules allow the farming activities you want on your Hobby Farm?
- Are there special rules that apply to your farm because it is near a drinking water supply or other critical resource?
- Are there protected wetlands or water resources near your hobby farm (even if they are not on your property) that are regulated?





## CHECKLIST 2B

# WHAT REGULATIONS AFFECT MY HOBBY FARM?

**Use the following questions to guide your conversations with Municipal and in some cases State Offices:**

1. Do local Planning or Zoning regulations have provisions that affect the farming activities I propose?

☐ YES ☐ NO

If YES, list the provisions:

2. Are there restrictions on the number or type of animals I propose to keep?

☐ YES ☐ NO ☐ N/A

If YES, list type of animal(s) proposed/limits on number:

3. Is my farm within a wetland or water resource buffer, typically 100' (200' for perennial streams), depending on local regulations?

☐ YES ☐ NO

If YES, document conversation with local Conservation Commission or Agent:

4. Is my farm within the watershed of a surface water or groundwater well drinking water supply?

☐ YES ☐ NO

If YES, are there special regulations governing activities within the watersheds of drinking water supplies?

☐ YES ☐ NO

If YES, check those that apply and provide a brief description, list any other provisions:

- ☐ restrictions on storage tanks
- ☐ restrictions on storage of materials such as fertilizers, chemicals, animal manure and waste materials
- ☐ restrictions on stabling, hitching, standing, feeding or grazing of animals
- ☐ controls on the application of fertilizers, pesticides, and herbicides
- ☐ controls on the management of irrigation
- ☐ other applicable provisions: \_\_\_\_\_

5. Are there setback requirements for my hobby farm?

☐ YES ☐ NO

If YES, list activity and setback: \_\_\_\_\_

6. Are there any other applicable local regulations that apply to my Hobby Farm?

7. Are there any other applicable state regulations that apply to my Hobby Farm?