Maine Farm-A-Syst

Farmstead Assessment System Fact Sheet 2

Reducing the Risk of Groundwater Contamination by Improving Pesticide Storage and Handling

We'll look at five areas of pesticide management on your farmstead:

1. Pesticide storage practices.
2. Mixing and loading practices.
3. Spill cleanup.
4. Container disposal practices.
5. Other management practices.

When handling pesticides, wear proper protective clothing at all times. Personal protection is not addressed in Farm-A-Syst because its focus is groundwater and drinking water protection. **Read each pesticide label carefully** to identify the protective clothing required when applying or loading pesticides, and when cleaning equipment.

Topics Covered:

Pesticide storage practices

If stored safely in a secure location, pesticides pose little danger to groundwater. Common sense suggests keeping them dry and out of the way of activities that might knock over a jug or rip a bag open. Short-term storage (during seasonal use) poses a lower risk than year-round storage, but any storage, regardless of length of time stored, poses a risk to groundwater.

Building a new storage facility

Building a new facility just for pesticide storage may be expensive, but generally it will be safer than trying to modify areas meant for other purposes. When building a new facility, keep in mind a few principles of safe pesticide storage:

- **Locate the building downslope at least 100 feet away** from your well. Separation from the well should be greater if the site has sandy soils or fractured bedrock near the land surface. The risk of pesticide contamination of groundwater is influenced by properties of both the pesticide and the soil on which it is spilled or applied.

- **An impermeable (waterproof) floor,** such as sealed concrete, should virtually eliminate any seepage of chemicals into the ground. Secondary containment, such as putting a curb around the floor, will prevent chemicals from spreading to

other areas. Secondary containment (Secondary containment is a method of safeguarding used to prevent unauthorized releases of toxic or hazardous gases into uncontrolled work areas) areas provide additional safety when storing bulk liquid pesticide containers.

- **In the event of a fire**, contaminated surface water should be contained on site.
- **The mixing and loading area** should be close to your storage facility, to minimize the distance that chemicals are carried.
- **The building foundation or secondary containment floor** should be well drained and as high above the water table as possible. The finished grade should be 3 inches below the floor and sloped to provide surface drainage away from the building. Also, tiles or gutters should be used to prevent roof runoff from entering the building. Avoid building the foundation on top of or next to a ledge outcrop.
- **Provide pallets to keep large drums or bags off the floor**. Shelves for smaller containers should have a lip to keep the containers from sliding off. Steel shelves are easier to clean than wood if a spill occurs. Store dry products above liquids to prevent wetting from spills.
- **Keep spill clean-up materials** – shovel, broom, sealable container – and an adequate amount of absorbent such as wood shavings or cat litter on hand to quickly clean up any small spills.
- **If you plan to store large bulk tanks**, provide a secondary containment area large enough to contain 110 percent of the contents of the largest bulk container (determined by a new federal rule), plus the displaced volume of any other storage tanks in the area.
- **Provide adequate road access for deliveries and emergency equipment**.
- **For information on other factors to consider** in the design of a storage facility – such as ventilation, temperature control and worker safety – contact your county Natural Resource Conservation Service (NRCS) office, your county Extension office or the Maine Board of Pesticides Control at (207)287-2731.

A locked storage cabinet or building provides security and is a rule required by the Board of Pesticide Control. Refer to Chapter 20, Section 3 (A) of the Boards rules. Preventing unauthorized use of pesticides reduces the chance of accidental spills or theft. Provide signs or labels identifying the cabinet or building as a pesticide storage area and warning unauthorized persons to “Keep Out”. Complying with Maine’s emergency planning requirements (see “Emergency Response and Community Right-to-Know Planning,” below) or posting labels on the outside of the building gives fire fighters information about pesticides during an emergency response for fire or a spill.

Modifying an existing storage facility

Even if you decide to improve your current storage building, applying the above principles can be expensive. Compared to the cost of a major accident or a lawsuit, however, storage improvements are a bargain.

The cheapest alternative you may have is to cut back on the amounts and types of pesticides stored. If that's not practical, consider how you can protect the pesticides you keep in storage. Sound containers are your first defense against a spill or leak. If a container is accidentally ripped open or knocked off a shelf, the spill should be confined to the immediate area and cleaned up promptly. The building should have a solid floor and, for liquid pesticides, secondary containment like a curb.

The secondary containment space should be large enough to hold 110 percent of the contents of the largest full container, plus the displaced volume of any other storage tanks in the area.

Remodeling existing facilities that serve other uses may be less expensive than building a new facility, but remodeling can be complicated. When existing buildings must accommodate other activities, using them also to store pesticides could compromise the safety of people and the environment. Storing chemicals in a separate facility reduces the risk associated with fire or accidental spills.

Never store pesticides inside a well house or a facility containing an abandoned well.

- **You can reduce damages by anticipating emergencies**. Fires in a storage area present a special hazard to people and the environment. If containers are damaged, the stored chemicals may be carried away by water and spread over a large area.

- **Windows and doors can be labeled to alert fire fighters** to the presence of pesticides and other products stored in the structure. It's a good idea to keep a separate list of the chemicals and amounts stored. Keep a copy of the list in the house or away from the storage area.

- **If a fire should occur**, consider where the surface runoff water will go and where it might collect. For example, a curb around a floor can help confine contaminated water.

- **In making the storage area secure**, also make it accessible, to allow getting chemicals out in a hurry.

Emergency Planning and Community Right-to-Know

In 1989, the legislature enacted the Maine Emergency Planning and Community Right to-Know Act (37 MRSA, Chapter 13), to assist local emergency responders with spill emergencies and fires involving hazardous materials.

- This law requires, in part, most growers and farm owners who store more than designated amounts of individual hazardous materials to alert local, county, and state emergency response officials to the presence, types, and amounts of pesticides, fuels, and coolants on their agricultural establishment.

- The Designated amounts vary based on the chemicals. Refer to these two sites:
  1. http://www.ehrs.columbia.edu/HazardousChemicalList.html
  2. http://www.ehrs.columbia.edu/HazardousChemicalList.html

- This pre-notification allows responders to prepare for an emergency.

Mixing and loading practices

Groundwater contamination can result even from small spills in the mixing and loading area. Small quantities spilled regularly in the same place can go unnoticed, but the chemicals can build up in the soil and eventually reach groundwater. By mixing and loading on an impermeable surface, such as sealed concrete, you can contain and reuse most spilled pesticides.

A mixing and loading pad

A mixing and loading pad containing pesticide spills and leaks requires an impermeable (waterproof) surface for mixing and loading. The pad should be large enough to contain leaks from bulk tanks, wash water from cleaning equipment, and spills from transferring chemicals to the sprayer or spreader. (See Figure 1.)

The size of the pad depends also on the equipment you use. It should provide space around the parked equipment for washing and rinsing. Having several separate rinsate (rinse water) storage tanks allows you to keep rinsate from different chemicals separate. That way, it can be used as mixing water on subsequent loads.

Locate the pad next to the storage area. Make sure that any water from the pad moves away from the well. At sites where runoff water could reach the well, construct a diversion so runoff is directed to another area.

If you are considering constructing a mixing and loading pad, contact the Maine Board of Pesticides Control at (207)287-2731, The Alliance for a Clean Rural Environment (ACRE) at (800)545-5410 or your local NRCS office for more information.

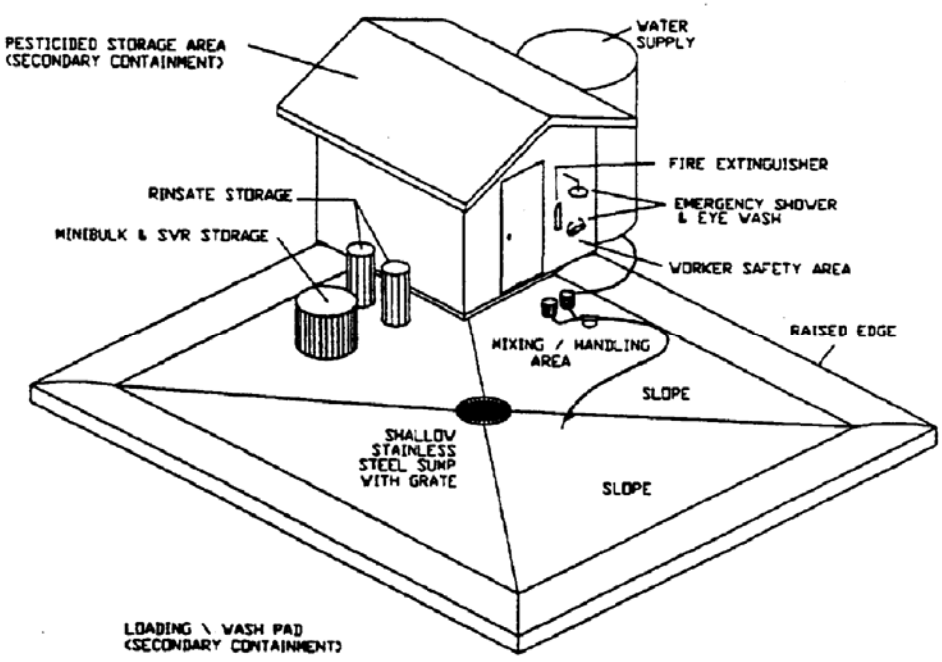

Figure 1: Components of a farm-sized pesticide facility. *Source: Farm-Sized Mizing/Loading* Pad and Agri-chemical Storage Facility, by D.W. Kammell and D. O'Neil, presented at Summer Meeting of the American Society of Agricultural Engineers, June 24-27, 1990.

Better management on your existing mixing and loading site

Spills and leaks are bound to occur from time to time. Even if you don't have an impermeable mixing and loading pad, you can minimize contamination by following some basic guidelines:

- **Avoid mixing and loading pesticides near your well**. One way to do this is to use a nurse tank to transport water to the mixing and loading site. Ideally, the mixing site should be moved each year within the field of application.

- **Avoid mixing and loading on gravel driveways**, ledge outcrops or other surfaces that allow spills to sink quickly through the soil to groundwater. An impermeable surface is best.

- **In the absence of a mixing loading pad**, it's a good idea to mix and load pesticides in a different location every time. Avoid mixing and loading pesticides in the same location repeatedly. This can lead to a buildup of pesticide residues in the soil and exceed the capacity of natural processes in breaking those residues down.

- **Install a backsiphon prevention device** on the well or hydrants to prevent reverse flow of liquids into the water supply. Never put the hose in the sprayer tank. Provide an air gap of 6 inches between the hose and the top of the sprayer tank.

- **Always supervise sprayer filling**. For restricted-use pesticides, a trained and certified applicator must supervise operations.

- **Consider a closed handling system**, which transfers the pesticide directly from storage container to applicator equipment (through a hose, for example). Humans and the environment are less likely to be exposed to the pesticide.

- **Use rinsate** for mixing subsequent loads. Spray the last rinsate load on the labeled crop.

- **All spills should be picked up immediately** and small spills should be reused or land spread on the target crop in a low risk area while trying to disperse the spill over the broadest area possible.

- **A low risk mixing and loading area is a sunny, well drained** location with adequate organic content to the soil away from wells and surface waters such as brooks, streams, ponds and lakes.

Spill cleanup procedures

For dry spills, promptly sweep up and reuse the pesticide as it was intended. Dry spills are usually very easy to clean up.

For liquid spills, recover as much of the spill as possible and reuse it.
It may be necessary to remove and field apply some contaminated soil.

Maine state law requires that all spills of pesticide concentrate and any significant spill of use dilutions be reported to:

- Maine Hazardous Matter Spill Reporting Number (State Police) (800) 452-4664
- Maine Board of Pesticide Control (207) 287-2731

Some pesticide spills also require reporting under the Maine Emergency Planning and Community Right-to-Know Act. The Board of Pesticides Control urges growers and farm owners to also report pesticide spills to:

- Your local fire department or public safety agency,
- The Maine State Police (800)452-4664 (the Maine State police will notify the Department of Environmental Protection for you), and
- Your County Emergency Management Agency or planning committee.

Remove the spilled material and contaminated soil no matter what the quantity and dispose of it according to recommendations you receive when you report the spill.

Have an emergency response plan for the site. Know where the runoff water will go and how to handle your particular chemicals and whom to call for help.

Container disposal practices

Unwashed and improperly stored containers are considered hazardous waste and can lead to groundwater contamination by allowing chemical residues to leak onto the ground. Some basic guidelines can help avoid these problems:

- As often as possible, use soluble packets and minibulks that can be returned to the dealer.
- Pressure-rinse or triple-rinse plastic containers immediately after use, since residue can be difficult to remove after it dries. Pour rinse water into the spray tank. Puncture containers and store under cover until they can be picked up by your agricultural chemical supplier for recycling, or, if recycling is not an option, dispose of them at your local solid waste disposal facility.

It is illegal bury or burn pesticide containers or bags on the farm.

- Recycle plastic and metal containers whenever possible. Most Maine agricultural suppliers will collect your triple rinsed containers from you when making deliveries in your area. Containers must be free of visible residues, and caps and label sleeves should be removed. Contact the Board of Pesticides Control or visit their website at http://maine.gov/agriculture/pesticides/ for more information on container recycling.
- Shake out bags, bind or wrap them to minimize dust, and take them to your local solid waste disposal facility.

- Refer to the Agriculture Container Recycling Counsel on proper procedure for recycling containers http://www.acrecycle.org/How_to.html and/or for general information on pesticide container recycling go The Board of Pesticide Control through in the Department of Agriculture. http://www.maine.gov/agriculture/pesticides/cert/container_recycling.htm

- Pesticide Residue Section 19(f) (page 82) of the federal Insecticide, Fungicide, and Rodenticide Act. http://agriculture.senate.gov/Legislation/Compilations/Fifra/FIFRA.pdf

- Overview of the Pesticide Container/Containment Rule: http://www.epa.gov/pesticides/regulating/containers.htm

Your drinking water is least likely to be contaminated if you follow **appropriate** management procedures or dispose of wastes in locations that are off the farmstead. However, proper off-site disposal practices are essential to avoid risking contamination that could affect the water supplies and health of others.

For more detailed information about proper disposal of pesticide containers, refer to Worksheet and Fact Sheet #5, Hazardous Waste Management. Fact Sheet #5 also discusses the risks of burning these containers. Remember, according to ME DEP's laws it is illegal to burn empty pesticide containers.

Pesticide Storage and Wellheads Should Not Mix…

Because they mix so well. An Aroostook County grower learned this lesson while assisting an ongoing groundwater survey sponsored by Temik (aldicarb) manufacturer, Rhone-Poulenc. Upon discovering the insecticide at nearly five times the level allowed by health authorities, Rhone-Poulenc offered- and the grower accepted- a wellhead filtration system. Labeled use of the product was presumed the cause of contamination. However, on subsequent visits to take samples, Rhone-Poulenc and Board of Pesticides Control officials discovered Temik granules surrounding a tattered pasteboard box containing a weathered bag of Temik. The evidence suggested storm water had flooded the structure, washing loose granules of the insecticide directly into the well.

In a letter acknowledging these findings, a Rhone-Poulenc representative wrote the grower: "Please help us in stewarding the use of our products in the future and carefully follow all label directions. Storing pesticides immediately next to a wellhead and allowing spilled pesticides to remain uncollected on the floor surface are not recommended practices."

Other management practices

Reducing pesticide waste makes financial as well as environmental sense, but it means more than just reducing spills. It also means not buying more than you need to apply, keeping records of what you have on hand, and using older products first.

- **Buying only what you need** makes long-term storage unnecessary. In addition, you avoid cold weather problems, which can make some pesticides useless.

- **Record keeping** may seem like a task unrelated to groundwater contamination, but knowing what you've used in the past and what you have on hand allows you to make better purchasing decisions.

- **Along with field records** that are required of commercial farmers under Chapter 50 of the Maine Board of Pesticide Control, you can add information such as the manufacturer's name and address, chemical types and handling precautions. This information can be important if you must respond quickly to an accident.

- **Using older products first** keeps your inventory current and effective. Before using chemicals that have been stored for several years, check with the Maine Board of Pesticides about possible restrictions on their use. They also run an obsolete pesticide disposal program and information on this can be found on their website at http://www.maine.gov/agriculture/pesticides/public/obsolete.htm (Worksheet and Fact Sheet #5, Hazardous Waste Management, provide information on how to safely and legally dispose of unwanted and banned pesticides.)

Source Water Protection/Wellhead Protection Area

Almost half of Maine's population depends on groundwater for its drinking water supply from either private or public wells. We are lucky to have some of the best water supplies in the world, and it is our job to keep them safe. Being aware of potential problems on your property that might pollute drinking water sources is important. You may not even know that there is a potential threat. Taking the time to read and fill out the applicable Farm-A-Syst sections is a great first step. From there you will sit down with a district employee or someone trained in Farm-A-Syst to discuss some possible solutions such as best management practices (BMP) that can be applied. BMPs are a method, measure, or practice that, when correctly installed or performed, will prevent, reduce, or minimize water pollution. In this case, the focus is on drinking water supplies and the areas that provide them with water.

There are some laws that pertain to areas within a source water protection zone that don't apply to other landowners. Be sure to check with your local water district and municipality for local ordinances or if you are unsure if you live in a source water protection area.

It is the landowner's responsibility to know local and state laws pertaining to their land, although it is hard to navigate sites and wade through the legal jargon of written laws.

If you are living or operating in a source water protection area (the surface and subsurface areas surrounding a drinking water supply for a public water system where activities can contaminate the supply) or wellhead protection area (an area used to protect groundwater, a form of source water) you should pay extra special attention. We have tried to find pertinent information pertaining to this section. You can find links to these laws along with helpful information in the following Contact & Reference section as well as in appendices A: Law and Regulations & B: Resources.

The following, authored by Maine Drinking water program, is excerpted from the document "Best Management practices for Groundwater Protection". This manual is intended for the use of local officials, public water suppliers and landowners in Maine. It is intended to encourage educated decisions, informed practice, and directed planning in regard to groundwater protection, particularly in the vicinity of public drinking water supply wells. http://www.maine.gov/dhhs/eng/water/forms/Sections/BMPv2%200A.htm

A. Chemical Storage

2. Store all chemicals under cover, and on impervious working surfaces, without floor drains. Design storage space so that failures, emergencies, extreme storm events or routine site clearing will not cause material or wash water to run on bare ground.
5. All containers shall be clearly labeled with name of chemical, and date of purchase (or generation of waste).

B. Chemical Use

Zoning or land use recommendation:

Zone 1: Prohibit, except for those used by Public Water System
includes land areas immediately surrounding the well. These areas must receive the greatest levels of protection, namely ownership or control by the public water supplier or community.

Zone 2: Use BMPs. Limit amount of use as much as possible.
Surrounds Zone 1, and should receive some measure of protection by land use controls imposed by local officials working cooperatively with the public water supplier and landowner.

BMPs for chemical use (in Zone 2):

1. Require the use of non-hazardous alternatives to hazardous chemicals whenever possible. If hazardous chemicals must be used, provide justification for why they cannot be replaced by non-hazardous chemicals.
2. Design chemical feed lines and temporary storage containers to prevent spillage by collision and corrosion.
3. Clearly label all storage vessels and chemical feed lines with chemical name.
4. Check for spillage and leaks at least weekly. Leaking containers must be removed or placed in secure containers that are larger than the leaking container.
5. Prepare the Spill Prevention, Control, and Countermeasure (SPCC) Plan. This plan shall include provisions for cleaning up small spills and containing large spills in an emergency. Keep emergency cleanup materials on hand. Information on developing an SPCC plan may be obtained from the Maine DEP.
6. All spills must be promptly reported to the Maine DEP, the Town (CEO and Fire Department) and the Water System.

C. Chemical Spreading or Spraying

Some agricultural chemicals are very soluble. If they are applied during a seasonal period of groundwater recharge (principally during the rainy spring season), much of the chemical applied will contaminate groundwater rather than being agriculturally useful.

BMPs for spreading of agricultural chemicals (in Zone 2):

1. Pesticide and herbicide application should be the option of last resort. Any activity requiring the use of herbicides or pesticides should develop an Integrated Pest Management Plan that details the conditions under which agricultural chemicals are to be used. All pesticides shall be applied in accordance with label directions and the regulations of the Maine Board of Pesticides Control http://maine.gov/agriculture/pesticides/ .
3. Herbicides and Pesticides must be applied only by trained personnel, i.e. by certified applicators, who must be informed regarding the delineated area of source water protection.

5. Irrigation schedules shall be coordinated with pesticide and nutrient application to minimize the possibility of leaching. Do not apply the frozen ground, or immediately before storm events.

CONTACTS AND REFERENCES

Who to call about...

General pesticide information

National Pesticide Network 1 (800) 858-PEST (-7378)
Answered weekdays during regular business hours. Provides information on recognizing and treating pesticide poisoning; pesticide products, cleanup and disposal; contacts for animal poison centers; certification and training programs; and pesticide laws.

The U. of ME Cooperative Extension Pest Management Office 1-800-287-0279

Health effects of pesticides in water

The Maine Board of Pesticides Control, weekdays, 10:00-4:00 P.M., (207)287-2731
The Board of Pesticides Control employs a toxicologist who can answer many of your questions about the health effects of pesticides in drinking water.

Drinking water quality and treatment and Health Advisories

EPA Safe Drinking Water Hotline, Monday through Friday, 8:30-5:00 P.M. Eastern Standard Time. Call 1(800) 426-4791
Maine CDC Drinking Water Program, weekdays, (207)287-3041

Health and safety information on chemicals

CHEMTREC
sponsored by the Chemical Manufacturers Association. Call 1(800) CMA-8200
The CHEMTREC does not answer questions but does serve as a central contact point in non-emergency situations.

Plans and recommendations for pesticide mixing and loading pads

The Alliance for a Clean Rural Environment (ACRE), P.O. Box 413708, Kansas City, MO 64179-0386. For further information Call 1(800)545-5410

Pesticide spills

Your local fire department of public safety agency

Hazardous matter Spill Reporting Number (207) 452-4664

Your county emergency management agency or planning committee

Maine Board of Pesticides Control (207)287-2731

Proper disposal of soil contaminated by a pesticide spill

Contact the Maine Board of Pesticides Control for information on proper disposal procedures. Call (207)287-2731

What to read about…

Water Quality Protection: Frank Answers to the 20 Most Frequently Asked Question Date unknown. The Alliance for a Clean Rural Environment (ACRE). (4)

Health effects

The product label. Read your product labels carefully for specific information on pesticide effects.

Pesticides and Groundwater: A Health Concern for the Midwest. 1986. Freshwater Foundation. (5)

Pesticide in Drinking-Water Wells. 1989. U.S. Environmental Protection Agency.(6)

Pesticide handling and management

Fertilizer and Pesticide Containment Facilities Handbook. 1991. MWPS-37. (7)

Publications available from…

(1) Maine Board of Pesticides Control, Station #28, Augusta, ME 04333-0028.
(2) University of Maine Cooperation Extension, Pest Management Office, 491 College Avenue, Orono ME 04473. 1-800-287-0279
(3) Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver CO 80225
(4) The Alliance for a Clean Rural Environment (ACRE), P.O. Box 413708, Kansas City, MO 64179-0386. 1-800-545-5410
(5) Freshwater Foundation, 2500 Shady Road, Box 90, Navarre, MN 55392.
(6) U.S. Environmental Protection Agency, Office of Pesticide Programs (TS-766C), 401 M Street SW, Washington, D.C. 20460.
(7) Midwest Plan Service Secretary, Agricultural Engineering Department, 460 Henry Mall, University of Wisconsin, Madison, Wisconsin 53706. (608)262-3310

Websites:

This link will take you to the Natural Resources Conservation Service (NRCS) Conservation Practice Standards. Here you can find technical guides that are the primary scientific references for NRCS. They contain technical information about the conservation of soil, water, air, and related plant and animal resources.
http://efotg.nrcs.usda.gov/treemenuFS.aspx

Below is a link to "Manual of Best Management Practices for Maine Agriculture" put out by the Maine Department of Agriculture, Food & Rural Resources Division of Animal Health & Industry. January 2007. This resource has links to many different BMPs that apply to a farm.
http://mainegov-images.informe.org/agriculture/narr/documents/BMPManual2007.pdf
This manual doesn't have any of the actual BMPs written out. It is literally a guide that will lead you to other links. To make things a little easier you will find direct links to BMPs suggested by the manual that pertain to this specific section.

- **Maine Board of Pesticides Control Website – Certification and Training.** www.maine.gov/agriculture/pesticides

- **Chem Search.** Section 1, NRCS electronic Field Office Technical Guide. http://efotg.nrcs.usda.gov/toc.aspx?CatID=6560

- **Pesticide Education Manual, "Core Manual".** University of Maine Cooperative Extension. www.umext.maine.edu

- **Managing Large-Scale Applications of Pesticides to Prevent Contamination of Drinking Water.** United States Environmental Protection Agency, Office of Water, Pub. EPA 916-F-01-030. www.epa.gov/safewater/protect

- **Poultry Pest Management.** (extensive information – see website) Ohio State University, Bulletin 853. http://ohioline.osu.edu/b853/

- **Controlling Flies on Dairy Farms.** Purdue University Cooperative Extension Service, Bulletin E-10-W. http://www.entm.purdue.edu/entomology/ext/targets/e-series/EseriesPDF/E-10.pdf

- **Maine Board of Pesticide Control's Laws and Regulations page.** http://www.state.me.us/agriculture/pesticides/laws/index.htm

- **WIN-PST (Windows Pesticide Screening Tool).** National Water and Climate Center, USDA, NRCS. www.wcc.nrcs.usda.gov/pestmgt/winpst.html

- **Calibration of Granular Applicators... for Mixed Fertilizer Applications.** University of Maine Cooperative Extension, Wild Blueberry Fact Sheet 234, Bulletin # 2434. http://wildblueberries.maine.edu/FactSheets/234.htm

- **Timing and Intensity of Cultivation and Effects on Weed Control in Sweet Corn.** University of Maine Cooperative Extension. http://www.umaine.edu/waterquality/Agriculture/int_cult_99.htm

- **Vegetable Farmers and their Weed Control Machines.** (video) University of Vermont Center for Sustainable Agriculture. http://www.uvm.edu/~susagctr/

- **Restricted- Use Pesticide Recordkeeping Inspection.** USDA/AMS Pesticide Records Branch. http://www.ams.usda.gov/science/prb/prbqa.htm

- **50 Ways Farmers Can Protect Their Groundwater.** University of Illinois Extension, North Central Regional Extension publication 522. www.thisland.uiuc.edu

- **Recommended Storage Practices for Pesticide Applicators.** Maine Board of Pesticides Control. www.thinkfirstspraylast.org

- **On-Farm Agrichemical Handling Facilities.** Northeast Regional Agricultural Engineering Service, NRAES – 78. www.nraes.org

- **Pesticide Applicator Training.** University of Maine Cooperative Extension. http://pmo.umext.maine.edu/patrain/prices.htm

Alphabetical List of Pesticide Fact Sheets.
http://www.epa.gov/pesticides/factsheets/alpha_fs.htm

Federal Insecticide, Fungicide, and Rodenticide Act.
http://agriculture.senate.gov/Legislation/Compilations/Fifra/FIFRA.pdf

This site put together by the EPA has some great information on pest management operations and timing; application practices; potential environmental problems and best management practices.
http://www.epa.gov/oecaagct/ag101/croppestmgt.html#bmps

Both portable containment and portable hazardous materials storage buildings are now available and may be a better option than building new ones. See
http://web1.msue.msu.edu/imp/modad/23359601.html

Links for the Maine Board of Pesticides Control
Main page: http://www.maine.gov/agriculture/pesticides/index.htm
Water Quality Program: www.maine.gov/agriculture/pesticides/water/index.htm
Old, Unusable Pesticide Collection Program:
http://www.maine.gov/agriculture/pesticides/public/obsolete.htm
Pesticide Container Recycling:
http://www.maine.gov/agriculture/pesticides/cert/container_recycling.htm

Best management Practices for Groundwater Protection
http://www.maine.gov/dhhs/eng/water/forms/Sections/BMPv2%200A.htm

Check Before You Choose a Pesticide
http://www.mgsp.msu.edu/Marketing_and_Outreach/CBYC%20Pesticide.pdf

For the best information of pesticides contaminating wells is now at the USGS and their National Water-Quality Assessment (NAWQA) survey:
http://water.usgs.gov/nawqa/studies/praq/

Managing Small-Scale Application of Pesticides to Prevent Contamination of Drinking Water
http://www.epa.gov/safewater/sourcewater/pubs/fs_swpp_sspesticides.pdf

Managing Large-Scale Application of Pesticides to Prevent Contamination of Drinking Water
http://www.epa.gov/safewater/sourcewater/pubs/fs_swpp_lspesticides.pdf

Article on pesticide use and the effect of buffers in protecting surface water quality. Read about the results from the USGS National Water-Quality Assessment Program along with information on Maine's surface water data.
http://mainegov-images.informe.org/agriculture/pesticides/pdf/board/agenda_documents/jan07/07MemoBuffers.pdf

See "Appendix A: Laws and Regulations" and "Appendix B: Resources" for additional links.

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