

Appendix D

Public Education Materials

Stormwater Management Plan Update

Wolcott, CT

Clean Waters

Starting in Your Home and Yard



Clean Waters is a collaboration of the Connecticut Sea Grant Extension Program and the University of Connecticut Cooperative Extension System's NEMO Project, educating individuals about the impacts of everyday activities on water quality and simple techniques that help protect water resources from the home well to Long Island Sound.

Animal Waste and Water Quality

It's first thing in the morning and the dog wants to go out right NOW, the cats are standing by their litter box waiting for some fresh kitty litter, and your toddler is demanding a trip to the park to feed the ducks. While none of these activities may sound like a major threat to the environment, animal waste is one of the many little sources of pollution that can add up to big problems for water quality and may cause human health problems as well. While most people connect animal waste problems to agriculture, studies have shown that pets, waterfowl and other urban wildlife waste can cause significant water pollution problems.

Animal waste contains several types of pollutants that contribute to water quality problems: nutrients, pathogens and a naturally toxic material, ammonia. When animal waste ends up in a lake, stream, or Long Island Sound, it decomposes, using up oxygen and releasing its pollutant load. During summer months when the water is warm, the combination of low oxygen levels and ammonia can kill fish and other aquatic organisms. The nutrients cause excessive growth of aquatic weeds and algae. When these conditions make the water murky green and smelly, or when the surface of the water is completely covered with a thick mat of vegetation, the area becomes unattractive or unusable for swimming, boating or fishing.

Pathogens, the disease-causing bacteria and viruses associated with animal waste, can also make water unsafe for human use. If pathogens or the indicator bacteria associated with animal waste are found during water testing, shellfish beds may be closed to harvest, beaches may be closed to swimming and drinking water supplies may require expensive filtration or disinfection.

Fortunately, there are some simple practices everyone can do to help prevent pollution by keep-

ing animal waste out of the water. While it may seem easier to ignore the problem of animal waste, remember that you are protecting not only the environment but also your own health.

Keeping Animal Waste Out of the Water

1. Pick up after your pet. Preventing water pollution can be as simple as remembering to take along a plastic bag or pooper scooper when you walk your dog. For both "quality of life" and public health reasons, many communities actually have laws requiring anyone taking their animal off of their property to immediately clean up the waste after the pet relieves itself. Your choices once you have picked up the waste include:

- Flush it down the toilet so the septic system or sewage treatment plant will treat it in the same manner as human waste.
- Put it in the trash. This is less effective, as waste that ends up in a landfill may still cause pollution problems. Putting animal waste in the trash is actually against the law in some communities.

• Bury it in your yard. The microorganisms in the soil will break down the waste and release the nutrients to nearby plants. Make sure the hole is at least five inches deep and located away from vegetable gardens, children's play areas, or any lake, stream, wetland, well or ditch. **CAUTION:** Don't bury waste in your compost pile. The pile does not get hot

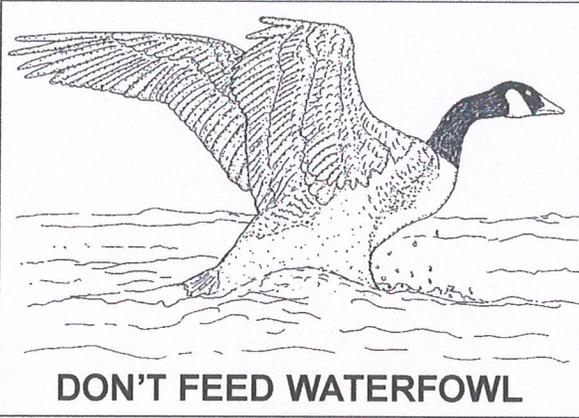


**PLEASE
CLEAN UP
AFTER
YOUR PET**

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enough to kill the pathogens and using the compost could cause illness.

- Install an underground pet waste digester. These function like small septic tanks. Before buying one, check for local laws that

may restrict their use or location.

2. Keep your yard clean. While there are no laws requiring you to clean up animal waste on your own property, there are good reasons to be careful where you leave it to decay. Some diseases can be transmitted from pet waste to humans through soil contact. Children who play outside and adults that garden are most at risk for infection, so cleaning up waste from play and garden areas is especially important. Washing hands with anti-bacterial soap and water after working or playing in the dirt is the best protection from disease.

Some of the more common waste-borne diseases and their symptoms are the following. *Campylobacteriosis* causes diarrhea in humans. *Salmonellosis* has symptoms including fever, headache, vomiting and diarrhea. *Toxocariasis* is a roundworm that may cause a rash, fever, and cough or vision loss. *Toxoplasmosis*, a protozoan parasite that can cause severe birth defects if a woman becomes infected during pregnancy, is the reason pregnant women are told to avoid handling used kitty litter. This parasite can also cause problems for people with weak immune systems. Symptoms include headache, muscle aches and lymph node enlargement.

3. Don't feed waterfowl. While one of the pleasures of a trip to the park has always been taking stale bread to feed the ducks, the environmental and health impacts of this activity for both humans and birds can be serious. While ducks, geese and swans all love bread, it lacks in the nutrients and roughage of their natural diet. Feeding these birds bread is similar to feeding a small child a diet of candy and soda; they may love it, but it

does them no good and may cause long-term health problems.

Feeding waterfowl also tends to cause the birds to concentrate in numbers higher than can be supported by the natural food supplies. This can cause problems in the winter months when fewer people come to the park or shore with food. There have been cases along the Connecticut shoreline where swans were so used to being fed at a particular location that they remained in the area long after the feeding stopped, became too weak to fly someplace with a better food supply, and eventually died of starvation. These large flocks of birds also create large quantities of waste and the serious water pollution problems described earlier in this fact sheet.

4. Dispose of kitty litter properly. When cleaning out the litter box, a two-step approach is most effective. Cat waste may be scooped out and flushed down the toilet, and the used litter should be bagged, sealed and placed in the trash. Dumping the entire contents of the litter box down your toilet will cause plumbing problems and prematurely fill up your septic tank or sewer system with indigestible material, but sending untreated cat waste to the landfill can cause pollution problems.

While it may not seem like a big deal if one more dog, cat or bird "contributes" some waste to the neighborhood environment, think about how many animals there are out there. Animal waste may not be the biggest or most toxic pollutant going into your local waters, but it is one of those little problems that, when all the pieces are added together, leads to serious environmental and health problems. So please think twice about your pet's bathroom habits and do your part to help keep our waters and environment clean.

Reference: J.A. Hill and C.D. Johnson. *Pet Waste and Water Quality*. Wisconsin Nonpoint Source Water Pollution Abatement Program. January 1992.

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Managing Your Household Chemicals

Your Home Contains Hazardous Chemicals

Household products are potentially hazardous if they pose risks to people, animals or the environment. Many of the chemicals that are used in everyday activities can be poisonous when they enter aquatic systems (lakes, ponds, streams or estuaries such as Long Island Sound) and can also contaminate area drinking water supplies. The U.S. Environmental Protection Agency estimates that the average household in America generates 20 pounds of hazardous household wastes annually. The typical home also stores 100 pounds of hazardous wastes.

How Do You Know if a Product is Hazardous?

Hazardous chemicals fit into one of the following categories:

CORROSIVE – able to eat through other materials;

FLAMMABLE – can ignite or burn readily;

REACTIVE – will undergo rapid chemical change such as bubbling or explosion if improperly used;

TOXIC – poisonous, can cause severe illness or death if inhaled or swallowed.

Many household products have cautionary labeling. The purpose of cautionary labeling is to alert consumers to potential human health hazards resulting from improper use. The Federal Hazardous Substance Act requires household cleaning products to be labeled by manufacturers as follows:

CAUTION or WARNING – Risk is minor; permanent damage not likely to result with first aid treatment

DANGER – Risk is substantial; typical for flam-

mable, corrosive or toxic products
POISON – Extremely risky; a severe hazard; (uncommon on household products).

Cautionary labeling does not apply to environmental hazards resulting from improper use. Some products with no or low-level cautionary labeling may cause significantly more harm to the environment than they would to human health.

Protect Yourself, Your Family, Your Community

You can prevent human health and environmental problems, and save some time and money by making wise choices in the purchase and use of hazardous household products.

At the Store:

- Read labels thoroughly.
- Select products with the least cautionary labeling.
- Compare products.
- Seek the least hazardous products to accomplish the job.
- Products mixed with water are better for the environment.
- Select the right products.
- Buy products with safety closures.
- Choose products with environmental friendly packaging (i.e., recyclable symbols).
- Look for concentrates, which use less packaging.
- Purchase the smallest amounts needed.

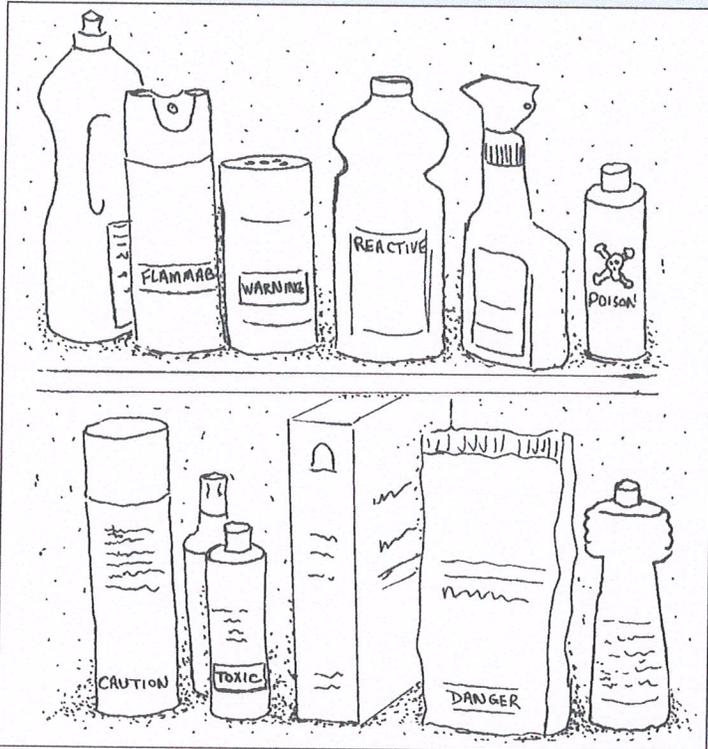
At home:

- Follow directions on products.
- Consider using all-purpose products to accomplish multiple tasks.
- Discover safe, tested, alternative products that may also save you money.
- Store cleaning chemicals safely in locked cabinets in the kitchen, garage and hobby areas, away from children, the sun, heat, and ignitable sources.

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- Store pressurized containers away from heat sources and moisture to prevent explosion and rusting.
- Use products in well-ventilated areas.
- Store products only in original containers.
- Dispose of containers when empty; don't reuse.
- Do not mix commercial chemicals.
- Use appropriate landscaping techniques to reduce chemical applications.
- Do not use septic system additives. Some may actually damage your system.
- Wear protective clothing – long pants, long sleeved shirts, gloves, goggles, closed shoes and hats (in some cases) as recommended on the label.
- Dispose of cleaning rags in a safe manner to avoid spontaneous combustion.
- Keep fire extinguishers handy throughout your home. (Check with your fire department for recommended type.)
- Do not burn or bury leftover oil, chemicals, paints, pesticides or containers.
- Do not pour leftover products down storm drains or on the ground.
- Do not wash chemicals down impervious

- surfaces (paved driveways and sidewalks).
- Never pour chemicals down the sink or storm drain .
- Do not apply pesticides on windy days.

If chemical spills do occur, clean up with an absorbent material like kitty litter or sawdust to avoid dispersion.

You can reduce the amount of cleaners used by following some practical household tips:

- Clean up messes when they occur. Stronger cleaning products may be required to remove stains once they set.
- Use water or a dampened cloth whenever possible to polish or eliminate spills.
- Reduce mildew in bathrooms by installing an exhaust fan. Squeegee shower walls after bathing.
- Pour fat/grease in metal containers, not down the drain.
- Wipe up oven spills promptly after cooking.
- Vacuum rugs frequently to reduce the necessity of shampooing.
- Regularly bathe pets and comb with a flea comb.

In Your Community:

- Follow your community recycling guidelines.
- Share unused products with others (in a clearly labeled container).
- Participate in community hazardous chemical collection days.
- Think about how your actions could affect others.
- Be a neighborhood advocate for safe home management and product practices.

Make Your Own Non/Low Toxic Household Cleaners

By making your own cleaning products, you can: promote a healthy environment, reduce chemicals going to landfills or incinerators, save money, eliminate cluttered cabinets, and easily prepare the right amount of cleaner for any job.

Follow these safety tips when making and using homemade cleaners:

- Ventilate the area.
- Wear gloves.
- Wear protective clothing and shoes.
- Avoid contact with skin and eyes.
- Store cleaners in labeled, non-food containers.
- Lock cleaners in a cabinet out of children's reach.
- Rinse surfaces thoroughly with water before applying a different product.
- Do not mix different products.
- Keep products away from heat, cigarettes, and flammable sources.
- Keep the telephone number of the nearest poison control center handy.
- Dispose of empty containers by following recycling instructions in your community.

Cleaning Supply List

These items can be purchased at most supermarkets and discount or hardware stores.

Products

- Baking Soda
- Chlorine Bleach*
- Lemon Oil
- Mineral Oil
- Salt
- Soap Flakes
- White Vinegar
- Whiting**

Supplies

- Aluminum Foil
- Bucket
- Cleaning Cloths
- Gloves
- Measuring Cups
- Measuring Spoons
- Non-food Containers

* Chlorine bleach compounds are toxic to aquatic organisms in **very** low concentrations but are **less** toxic than many other cleaning products. Consider using chlorine as a cleaning agent only when necessary for heavy cleaning jobs.

**Whiting (calcium carbonate) is available at hardware and paint stores.

Air Fresheners

- Open windows
- Circulate air with a fan or air conditioner
- Place cut lemons or baking soda in a dish
- Boil cinnamon and cloves in water

All Purpose Cleaners

- Mix 1/4 cup baking soda and 1 quart warm water. Wipe surface with sponge, then dry.
- **Soap Jelly** can be made by adding 1 cup of shaved soap flakes or leftover soap pieces to 1 quart of boiling water. Stir until dissolved. Pour into jar and let cool. Mix with water as needed.

Aluminum Cleaners

- Soak in a solution of 1/4 cup white vinegar to 1 quart water; boil if necessary.
- Soak in a solution of 2 teaspoons cream of tartar in 1 quart of water; boil if necessary.

Bathroom Cleaners

- Mix 1/2 cup chlorine bleach and 1 cup water. Spray on tile to remove mildew. Let stand for ten minutes. Rinse with water.
- Mix 1/4 cup baking soda and 1 quart water. Wash with sponge, wipe dry.
- Remove tub stains by scrubbing with a paste of cream of tartar and hydrogen peroxide.
- Remove copper stains (green) by using salt and vinegar or salt and lemon juice.
- Remove lime deposits with vinegar.

Brass and Copper Cleaner

- Mix 2 tablespoons salt, 1 tablespoon lemon juice and 1 tablespoon vinegar. Rub with sponge and let dry. Rinse with hot water, then dry with soft cloth.

Chrome Cleaner

- Mix 1/4 cup baking soda with enough water to make a paste. Rub on, rinse with water, then dry.
- Apply whiting on a damp cloth.

Disinfectants

- Mix 1/4 cup bleach to 1 quart water
- Mix 1/2 cup borax to 1 gallon hot water.

Drain Cleaners

- Use drain traps.
- Pour boiling water down the drain.
- Use a plunger or plumber's snake.
- Mix 1/2 cup baking soda, 1/2 cup vinegar and 1/2 cup boiling water. Pour into drain. Let stand.



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Floor Wax Remover

- Mix 3/4 cup dry detergent, 1 gallon hot water and 1/3 cup ammonia. Spread solution on a small area and let stand a few minutes. Scrub to remove wax. Rinse floor thoroughly. Let dry.

Furniture Polish

- Mix 1 teaspoon lemon oil and 1 pint mineral oil. Spray on furniture; wipe clean with soft cloth.
- Mix 1/4 cup linseed oil, 1/4 cup vinegar and 1/2 cup lemon juice. Rub into wood with soft cloth.

Household Insecticides (For Plants)

- Mix 1/2 teaspoon shaved soap flakes and 1 quart water. Wash leaves with soap solution, rinse with water. Large plants can be rinsed in the shower. (Do not use on plants located in low light.)

Household Pests

- Contact the UConn Home and Garden Center (toll free) @ 1-877-486-6271.

Marble

- Mix 1 tablespoon baking soda and 1 quart water. Wash with sponge, wipe dry.

Mothballs

- Store clean clothing in airtight chests or containers.

Oven Cleaner

- Make a paste of equal parts of salt, baking soda and water. Apply to walls of oven. Let stand for five minutes, wipe clean with a damp cloth. (Use a brush on heavy spills). Do not allow baking soda to touch wiring or heating elements.

Paint Brushes

- Place hardened paintbrushes in a bowl of hot vinegar for ten minutes. Rinse thoroughly.

Painted Surfaces

- Dust and vacuum surface before applying liquid solutions. Use a well-wrung cloth dipped in the cleaning solution. Starting from the baseboard, work upwards toward the ceiling to prevent streaking. Clean small areas at a time. Rinse with water, then dry.

- Mix 1/4 cup soap jelly (see **all-purpose cleaners**) and 1 gallon hot water. Wash walls with cloth dipped in this mixture.
- Mix four parts whiting to one part soap jelly to clean heavily soiled areas. Rub carefully on soiled areas. Rinse with water and let dry.

Refrigerator

- Mix 1/2 cup bleach and 1 gallon water. Wash refrigerator interior, wipe dry.

Silver Cleaners

- Line an aluminum pan with a piece of aluminum foil.
- Mix 1 teaspoon baking soda, 1 teaspoon salt and 1 quart hot water. Add silver and boil for three minutes. Remove silver, wash with detergent, rinse and dry. (Do not use on silver jewelry).

Toilet Bowl Cleaner

- Add 1/2 cup bleach to toilet. Let stand for a half-hour. Scrub bowl with brush and flush.

Upholstery Shampoo

- Mix 2 teaspoons mild detergent, 1 teaspoon water softener and 1 pint warm water. Whip into a foam with electric beater. Vacuum furniture. Test foam for color fastness in an inconspicuous area. Apply foam gently with a sponge or soft brush in a circular motion. Rub until foam disappears. Do not saturate fabric. Dry rapidly with fans.

Whiting

- Sprinkle whiting on surface. Rub with soft damp cloth to polish chrome or porcelain and remove metal marks on stoneware.

Window Cleaner

- Add 2 tablespoons vinegar to 1 quart warm water. Spray on windows and wipe dry.

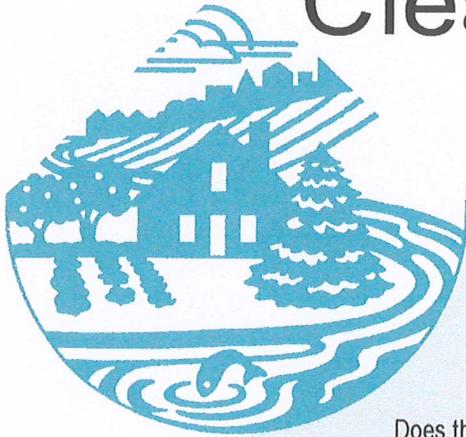
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Integrated Pest Management and Biological Controls for the Homeowner

Does the word "pest" bring to mind your little sister or a nosy neighbor? A pest, by definition, is any unwanted organism. In garden, landscape or lawn management, insects, animals, bacteria, fungi, viruses and weeds may all be pests. Integrated pest management, or IPM, is a pest management strategy that has received increased attention in recent years. As a homeowner, you can practice IPM on your own property, whether you are growing and maintaining trees and shrubs, turfgrass, herbaceous perennials, flowering annuals, or a fruit and vegetable garden.

What is IPM?

IPM is a decision-making process that uses biological, chemical and cultural practices to manage pest problems in the production and maintenance of plants, in a way that minimizes risks to human health, society and the environment.

- **Biological control** is the use of naturally occurring predators, parasites and pathogens to manage pests. A common example is using lady beetles to reduce aphid populations before they cause plant damage.
- **Chemical control** is the use of commercially available pesticides to protect plant material.
- **Cultural control** involves selecting the appropriate plant material for the growing conditions on your property, and then maintaining the plant's health through proper fertilization, irrigation and pruning practices. Healthy plants are less susceptible to insect and disease attack.

The most common misconception about IPM is that it does not include chemical pesticides, which would be an "organic" approach. This is not true. IPM may involve the use of chemical pesticides, but in a way that minimizes the overall reliance on them

as the only pest control method. A more intelligent use of these products reduces their negative impacts on the applicator and the overall environment. An example of the IPM approach is to spot spray only the problem plants, rather than treating the entire area.

Homeowners taking care of their property, whether it is the lawn, landscaping or gardens, can have a significant impact on the overall health of the landscape. Many people may not be aware of simple cultural practices that can prevent or reduce their most troublesome pest problems without using chemicals. The following information will assist with pest control, while also protecting the environment and water quality.

Accurate pest identification is needed for successful pest management, especially if you want to use biological control organisms that are host specific. First, determine if there is really a problem. Most insects have no negative effect on plants and many provide important services like pollination. Frequent inspections or scouting of valuable plants, once every one to two weeks, will enable you to catch pest problems early when they can be more easily treated. If you cannot diagnose the problem, have a sample analyzed for correct identification. For example, it is completely ineffective to treat unusual leaf spots with a fungicide if bacteria, insects, or poor environmental conditions are actually causing the problem. Your local Cooperative Extension office or Agricultural Experiment Station can help you make proper identification of your pest problems.

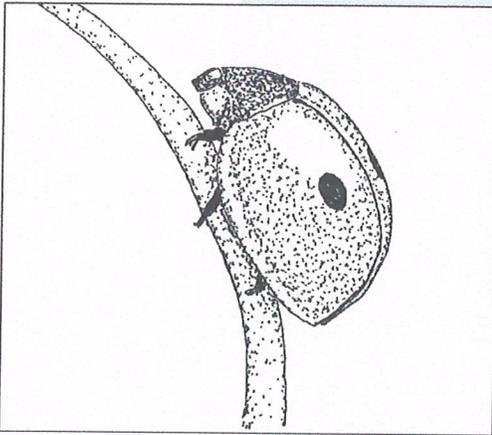
Where Do I Begin? – Cultural Practices

IPM begins with the establishment of the proper growing environment. Soil preparation and cultural practices such as proper mowing, pruning,

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fertilization and irrigation are extremely important to plant health. If a plant is not in the correct growing conditions (improper soil, too much or

too little moisture, and excessive or inadequate sunlight), it will be prone to problems. Also, try not to wound plants unnecessarily. Mow and prune correctly and avoid mower and other mechanical injury to healthy trees and shrubs. It is also necessary to recognize the fact that plants, like other living organisms, age.

Plants that are old and dying, or stressed, are more susceptible to pest problems.

Do not allow pests to become established. Purchase plant material that is free of disease or insect problems. You may never have a problem with certain insects if you do not introduce them into your landscape. Given the opportunity, use pest-resistant plant varieties to reduce pesticide usage in your landscape.

Proper sanitation will help prevent many pest problems. Many pests survive the winter among weeds or in plant debris. Remove weeds and any decaying plant material. If possible, when a plant has died due to a pest problem, replace it with a pest-resistant variety of the same species or with a different species to prevent repeating the problem. Exclusion barriers, such as plastic netting for birds and Japanese beetles, or plastic or woven landscape fabric for weeds, can also prevent or reduce pest damage. Soil solarization, the practice of covering soil with clear plastic to raise the soil temperature for two to three weeks, will kill many weed seeds.

Calling in Reinforcements – Biological Controls

Landscapes and gardens have natural populations of helpful organisms at work. These “workers” are the beneficial predators, parasites and pathogens that naturally target pest organisms in

the environment. Beneficial organisms include a wide assortment of organisms such as: bacterial and/or fungal diseases; spiders; mites; centipedes; nematodes; various lady beetles; ground beetles; rove beetles; lacewings; predatory bugs (minute pirate bugs, big-eyed bugs, damsel bugs, stink bugs); and numerous parasitic wasps. Most pest management practices are designed to manage **against** the pests; instead, manage **for** beneficial organisms that are already providing valuable pest control.

Why is biological control important? The preservation and use of common beneficial organisms ensures that the natural ecological balance is maintained and promotes a safe home landscape by reducing pesticide use. The misuse of pesticides can impact directly on beneficial organism/pest interactions. **Pesticide resistance** develops in pest organisms that were once killed by a specific application of pesticide and through genetic evolution can now survive the application. Increased rates of application may not provide greater control either, making a once reliable pest control weapon useless. **Pest resurgence** occurs when natural biological control organisms are reduced by broad-spectrum pesticides, either by one that persists in the environment for long periods of time or by numerous applications of chemicals with short residual times, to a level where they can no longer keep the pests in balance. This causes an increase in the pest populations.

A disruption of natural enemies can also lead to **secondary pest outbreaks**. Pesticides reduce the natural enemy populations and a pest insect, that was not causing the original problem, increases in population to a damaging level. Pesticides also affect non-target organisms such as wildlife, pets and humans.

One method of biological control is **augmentation**. This practice involves the purchase and release of beneficial organisms, usually insects, into the infested area. In order for this practice to be effective, the correct organism must be purchased and released at the appropriate time. Many beneficial insects choose specific hosts or prey as food sources. Anyone considering this

tactic must have the knowledge to select the proper beneficial insects.

Conservation of natural enemies present in the environment is the easiest and most cost-effective method of biological control available for gardeners. Conservation involves changing and improving management practices to either reduce harmful effects on beneficial organisms or to improve the environment to increase their populations. Reducing pesticide impacts would be the first and most important change to conserve natural enemies. Many insecticides and some fungicides directly affect natural controls by killing them at the time of application. Others have long residual activity and harm beneficial organisms that later move into the treated area. Pesticides can also indirectly harm beneficial organisms by causing lengthened development time of the immature stages, reduced prey consumption, reduced reproductive capability, and repellency, where beneficial organisms are driven away from the treated plants by the chemical pesticide. An easy and colorful method of promoting beneficial insects is to grow a wide variety of plant materials in the home landscape or garden. An herbaceous perennial border, with a variety of species that flower at different times during the growing season, will provide alternate food sources (i.e. pollen) for some beneficial insects when there are no prey insects available.

The Last Resort: Chemical Pesticides

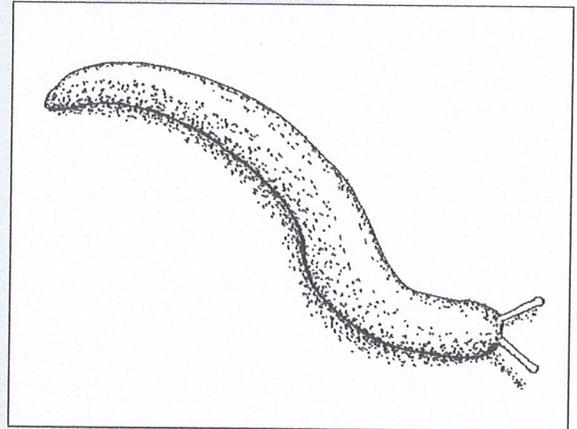
If you have a pest problem serious enough to require the use of a chemical pesticide, check the product label to be sure both the plant and pest are listed. **Read The Entire Label Carefully** and, above all, **Follow The Directions Exactly**. Remember that **The Label Is The Law**, literally, for pesticide application. By using higher application rates than the directions call for, you will only waste money and risk contaminating the environment without eliminating any more of the pests.

The following recommendations can reduce pesticide impacts.

- Use the fewest number of applications possible, and use only when necessary.
- When possible, use insecticidal soap or

horticultural oil rather than a longer residual synthetic insecticide.

- If synthetic insecticide is to be used, try to use one with a short residual activity.
- Use granular formulations or systemics (which are absorbed into the plant through the roots or leaf surfaces) instead of long-lasting foliar sprays.
- If possible, time pesticide applications for when natural enemy populations will not be harmed, such as during pupation or when they are on another host plant.
- Use reduced rates whenever possible and treat only infested plants, not entire areas. When selecting and using chemical pesticides, keep in mind that low toxicity does NOT mean non-poisonous! It means that these pesticides pose the least environmental risk, as they tend to break down rapidly into non-toxic components when exposed to air, high temperatures, and sunlight.



Judy Rickells-White

Reference List

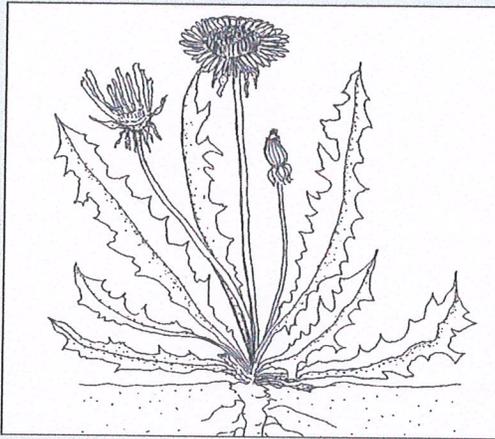
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Judy Ricketts-White



WEED MANAGEMENT

| Control Method | Target |
|-----------------------------------|-----------------|
| Soil solarization | most weed seeds |
| Hand pulling | all weeds |
| Mulch, plastic or fabric barriers | all weeds |
| Repeated cutting back | all weeds |
| Boiling water | all weeds |
| Glyphosate | all weeds |

DISEASE MANAGEMENT

| Control Method | Target |
|-------------------|---|
| Soil solarization | club root, corky root, some fusarium and verticillium wilt, crown gall |
| Bordeaux mix | brown rot, shot hole (tree fruit), some grape diseases, apple scab, apple black rot, anthracnose, early blight, and late blight |
| Fungicidal soap | brown rot, peach scab, apple scab, powdery mildew, downy mildew |
| Horticultural oil | powdery mildew |
| Lime sulfur | powdery mildew, anthracnose, apple scab, brown rot, peach leaf curl |
| Sulfur | brown rot, peach scab, apple scab, powdery mildew, and downy mildew |
| Terramycin | some bacterial diseases |

INSECT, MITE AND SLUG MANAGEMENT

| Control Method | Target |
|-------------------------------------|---|
| Physical barrier (row covers, etc.) | a wide variety of insects |
| Hard stream of water | mites |
| Hand picking | all visible insects and eggs |
| <i>Bacillus thuringiensis</i> "BT" | Colorado potato beetle, elm leaf beetle, many moth larvae, and mosquitoes |
| Diatomaceous earth | household pests, slugs, many crawling insects |
| Insecticidal soap | mites, aphids, mealy bugs, thrips, fungus |
| Horticultural oils | aphids, psylla, scale, mites, mealy bugs, leafhoppers |
| Pyrethrum | many flying insects |
| Neem | beetles, moth larvae, whiteflies, leafminers, gypsy moths, and mites |
| Rotenone | beetles, weevils, slugs, loopers, mosquitoes, thrips, flies |
| Nematodes | borers, grubs, cutworms |
| Ryania | codling moth, thrips, corn borers |
| Sabadilla | bugs, leafhoppers, striped cucumber beetles, caterpillars, thrips |

The materials listed above are registered for use on specific pests, plants, or areas of the country. Information is for educational purposes only. The recommendations on this fact sheet are based on available knowledge at the time of printing. Any reference to commercial products, trade names or brand names is for information only; no endorsement or approval is intended. Registrations change frequently.

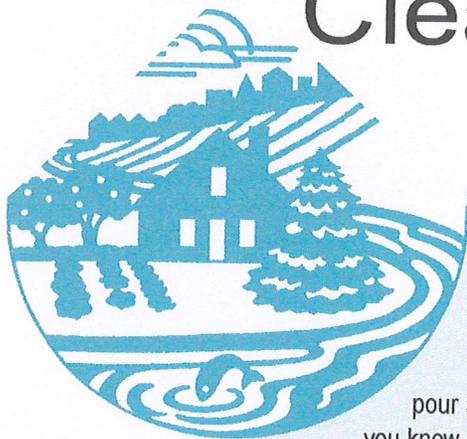
USE PESTICIDES ONLY IN ACCORDANCE WITH CURRENT FEDERAL AND STATE LAWS.

Written by –
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 Windsor CT 06095

For more information contact: Connecticut Sea Grant,
 1084 Shennecossett Rd. Groton, CT 06340
www.seagrants.uconn.edu

Clean Waters

Starting in Your Home and Yard



Clean Waters is a collaboration of the Connecticut Sea Grant Extension Program and the University of Connecticut Cooperative Extension System's NEMO Project, educating individuals about the impacts of everyday activities on water quality and simple techniques that help protect water resources from the home well to Long Island Sound.

Caring for Your Septic System

When you flush your toilet, or pour something down your drain, do you know where it goes? If your home is not on a municipal or community system, your wastewater probably goes into an on-site sewage disposal system, commonly called a septic system. A septic system is designed to collect, treat and dispose of wastewater on site so that it can percolate into the ground without clogging the soil or contaminating ground or surface waters.

In Connecticut, nearly 40% of homes use some form of on-site sewage disposal system to treat and dispose of household wastewater. When properly sited, designed, installed and maintained, a septic system can be a cost-effective method of wastewater treatment. However, since wastewater disposal is something most of us don't spend much time thinking about, many systems are out of date, not functioning properly, or clearly failing.

Domestic wastewater contains several kinds of pollutants. The major pollutant is the pathogens (disease-causing microorganisms) like the bacteria and viruses that cause dysentery, hepatitis, and typhoid fever. Fortunately, soil and soil bacteria can effectively remove most pathogens from wastewater treated by a properly functioning septic system.

When nutrients such as nitrogen and phosphorus are discharged from septic systems into the groundwater, they can contaminate drinking water supplies, and also represent a potentially important nonpoint source of pollution to ponds, streams, and estuaries such as Long Island Sound. In freshwater systems, phosphorus causes excessive aquatic weed growth that can limit the uses of ponds and lakes. In the Sound, excess nitrogen fuels massive algal blooms, which in turn die, using up oxygen as they decompose.

The improper use of septic systems has been

shown to contribute to contamination of groundwater by toxic chemicals. Contaminants that may enter groundwater through septic systems include heavy metals and toxic chemicals from small commercial establishments, toxic household products, and organic chemicals typically found in septic tank cleaning products.

How Does A Septic System Operate?

Most systems have two main components: the septic tank and the leach field. A distribution box is often found between these two components to distribute wastewater to all parts of the leach field.

The septic tank receives the wastewater and provides a site for the solids to separate and settle and for some decomposition of solids and contaminants to occur. Heavy solids settle to the bottom of the tank forming a layer of sludge. Lighter solids, like grease, float to the top forming a layer of scum. The wastewater in the middle is pushed out into the leach field as more wastewater moves into the tank. Solids need time to settle to prevent them from being pushed out into the leach field and they also need to be periodically pumped from the tank. A properly sized tank will hold 2-3 days worth of wastewater to allow for proper settling. A two-chambered tank allows for more complete settling of solids because there is less turbulence in the second chamber, resulting in cleaner water leaving the tank.

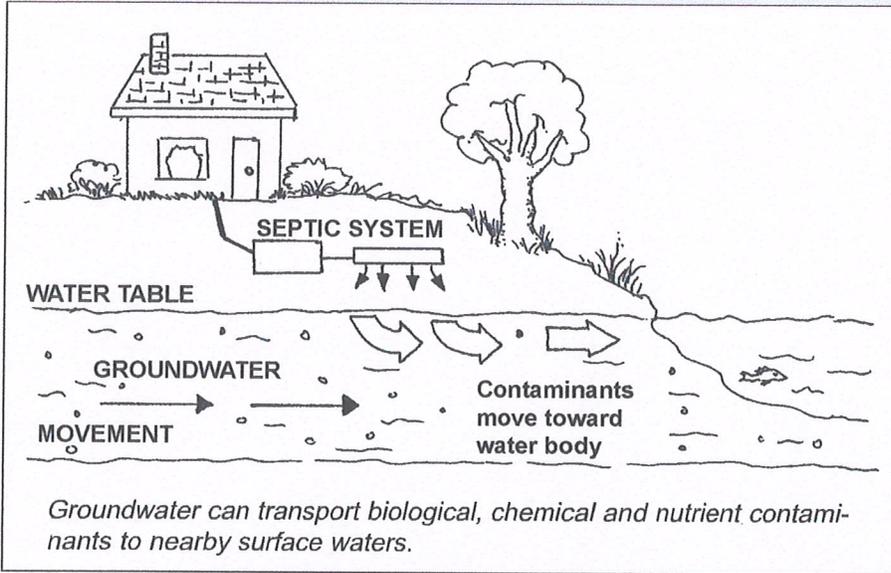
The leach field consists of trenches or a bed, often lined with gravel or coarse sand, and is buried one to three feet below the surface of the ground.

Perforated pipes or drain tiles run through the trenches. Wastewater trickles from the perforat-

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water entering the system, the less turbulence and better settling that will occur. For example, decrease the amount of water going into the tank by spreading out water-using activities (like laundry) during the course of the week. Install low-flow showerheads, use a “toilet tummy” or a half-gallon milk jug filled with water in the toilet tank and encourage short showers in the household.

Lastly, protect the leach field. Avoid compacting the soil or crushing the pipes. Don't let heavy vehicles or animals cross

the leach field; don't place heavy objects like swimming pools or storage sheds over the field. Also, avoid planting trees within the leach field as the roots can cause damage to the system. Grass is the best thing to grow over the leach field.

Maintenance means inspection and pumping of the tank. An inspection should include checking sludge and scum levels as well as checking baffles to be sure that they have not been damaged.

Care and Maintenance of the System

Proper siting, design and installation are all critical to the proper functioning and long life of a septic system. The owner/user of that system plays an equally important role. Using preventive practices, maintaining the system and watching for signs of failure are key.

Tank pumping is needed to remove the solids that cannot be broken down by bacteria and which should not enter the leach field. Frequency of pumping will depend upon the number of members in the household as well as the tank size. The state of Connecticut Department of Public Health recommends pumping every 3-5 years. Some towns in Connecticut require routine pumping. Keep maintenance records, using something like the attached record-keeping chart, to avoid the “out of sight, out of mind” problem.

Preventive practices include (a) improving the quality of wastewater; (b) reducing the amount of wastewater, and (c) protecting the leach field. Simply put, use care in what you put into the system. It was designed for one purpose and one purpose only...to treat wastewater exiting the home.

A failing system can result in the spread of disease from improperly treated wastewater/ sewage. You should be able to recognize the signs of a failed system and be prepared to act to correct problems. If you experience sewage backup in drains or toilets, slowly draining sinks, tubs and toilets, foul odors, repeated intestinal illnesses in household members, standing waste-

Do not use the wastewater disposal system as a wastebasket, household chemical disposal site, or use unnecessary additives in your system. Also, the use of a garbage disposal further taxes the system. IF you use a garbage disposal, your septic tank should be pumped more frequently.

Conserve water where possible. The less

water or soggy areas on the ground above or near the septic system, or excessive growth of lush, green plants over the leach field even during dry weather, your septic system is probably failing.

Use of Additives

There are several types of septic system additives available. Generally, additives are marketed to: digest or "liquify/gasify" the solids in a septic tank; rejuvenate stressed bacterial populations in the tank; and/or increase "settleability" of solids in the tank. Though some of the products may do what they suggest, the necessity of such additives is not proven. Others, though harmless to the system, are ineffective. Others still may actually prove damaging, particularly to the leach field and the soils.

In Connecticut, the State Department of Public Health does not recommend the use of additives. The U.S. Environmental Protection Agency also does not recommend the use of these products.

If you have questions about the location of your septic system, contact your local health department. Also, be sure to maintain records of location, pumping, maintenance or repair should you decide to sell your property. A savvy buyer will want to have confidence in the status of your home's septic system.

Use the record sheet on the back page to keep track of your septic system's location and maintenance.

| Tank size (gals.) | Household Size (number of people) | | | | | |
|----------------------|--------------------------------------|------|------|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 500 | 5.8 | 2.6 | 1.5 | 1.0 | 0.7 | 0.4 |
| 750 | 9.1 | 4.2 | 2.6 | 1.8 | 1.3 | 1.0 |
| 900 | 11.0 | 5.2 | 3.3 | 2.3 | 1.7 | 1.3 |
| 1000 | 12.4 | 5.9 | 3.7 | 2.6 | 2.0 | 1.5 |
| 1250 | 15.6 | 7.5 | 4.8 | 3.4 | 2.6 | 2.0 |
| 1500 | 18.9 | 9.1 | 5.9 | 4.2 | 3.3 | 2.6 |
| 1750 | 22.1 | 10.7 | 6.9 | 5.0 | 3.9 | 3.1 |
| 2000 | 25.4 | 12.4 | 8.0 | 5.9 | 4.5 | 3.7 |
| 2250 | 28.6 | 14.0 | 9.1 | 6.7 | 5.2 | 4.2 |
| 2500 | 31.9 | 15.6 | 10.2 | 7.5 | 5.9 | 4.8 |

*Estimated septic tank pumping frequencies in years.
These figures assume there is no garbage disposal unit in use.
(Source: Pennsylvania State University Cooperative Extension Service)*

Sources:

Long Island Sound Study, "The Impact of Septic Systems on the Environment," Fact Sheet #13, September 1991.

The University of Rhode Island Department of Natural Resources Science, "Maintaining Your Septic System", Fact Sheet 88-2, April 1988.

"Small Flows" Newsletter, Spring 1997, Vol. 11, No. 2, 'Septic Tank Additives', page 10.

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University of Connecticut
Cooperative Extension System

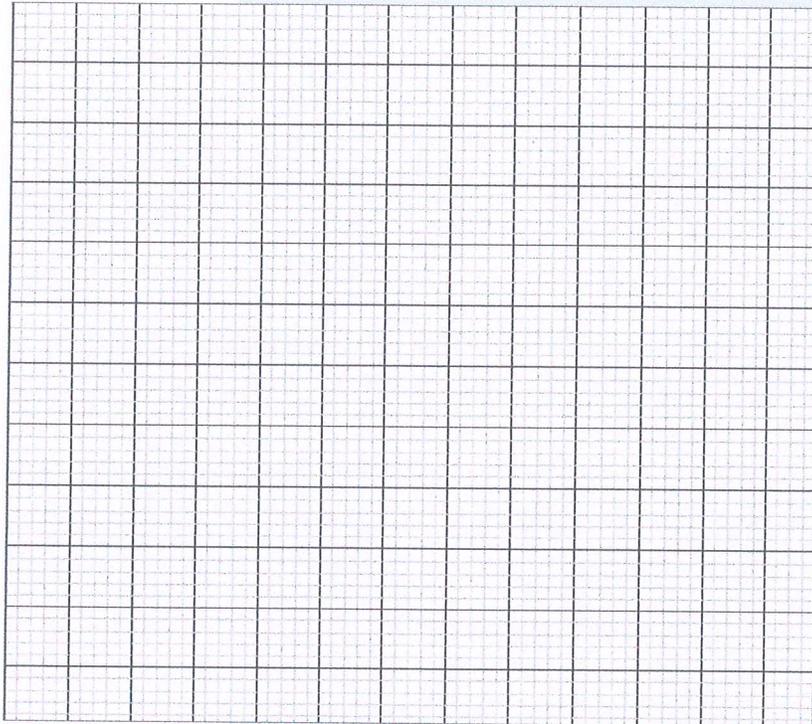


The Connecticut Sea Grant College Program, based at the University of Connecticut, is part of a national network of university-based programs sponsoring coastal and marine-related research, outreach and education.



For more information contact: Connecticut Sea Grant,
1084 Shennecossett Rd. Groton, CT 06340
www.seagrant.uconn.edu

Record Sheet



Septic System Layout

If you do not have a sketch of your septic system to place in this file, you should fill in the space provided, showing the relative location of your septic system components in relation to your house.

| Date | Work Done | Firm | Cost |
|------|-----------|------|------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
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Preventive Maintenance Record

Keeping a record of your septic system maintenance experience will help you anticipate when the next cleaning may be needed.

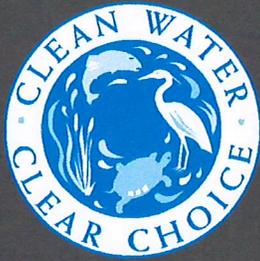
If you should move, leaving a copy of this record will help the new homeowner.

Your Septic System Pumper

Name _____
Address _____
Date Installed _____
Phone _____

Your Septic System Installer

Name _____
Address _____
Date Installed _____
Phone _____



FOR MORE INFORMATION PLEASE VISIT
www.CleanWaterways.org

Stormwater Best Management Practices

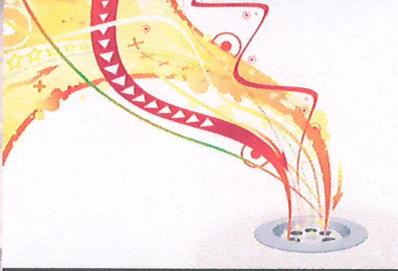


*Restaurants and
Food Service Facilities*

Good Practices for Food Establishments

Restaurant activities can harm the environment if they are not careful with disposal and cleanup procedures. With proper training and education, restaurant personnel can prevent debris from entering storm drains, thus helping to improve the water quality in neighboring waterways.

This brochure will explain steps your food establishment can take to help protect water quality by keeping debris out of the storm drain and by preventing fats, oil, and grease from blocking the sanitary sewer lines.



Storm Drains and Sanitary Sewers

Storm drains are found in parking lots and in streets. Storm drains are engineered to gather and transport stormwater to our local waterways. Storm drain systems do not remove any pollutants from stormwater before it is discharged into streams and bayous. Only unpolluted water may be discharged to a storm drain!



Sanitary Sewers collect wastewater from indoor (toilets, sinks, dishwashing machines, and floor drains) and transports it to a sewage treatment plant for removal of pollutants.



"Only unpolluted water may be discharged to a storm drain!"



Fats, Oil, and Grease (FOG)

Regular maintenance and service of your sewer lines and grease trap interceptor will help prevent sewer overflows to the storm drain system.

- Do not pour FOG into floor drains, sinks, or into parking lot inlets.
- Maintain grease traps!
- Recycle grease and oil.
- Use drying agents (kitty litter or towels to clean up spills).

Proper Cleaning

- Always empty washwater and mop buckets into the mop sink.
- Clean floor mats and garbage cans in a mop sink.
- Regularly inspect for and clean trash from the outside of the restaurant.

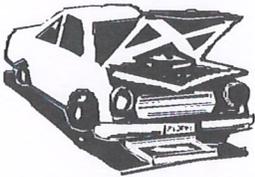


Garbage Dumpsters

- Always use garbage bags or trash cans.
- Do not rinse out dumpster! Request that your waste hauler exchange the dirty dumpster for a clean one.
- Keep dumpster lids closed and secure.
- Ensure dumpster drain plug is securely in place.
- Keep the area around the dumpster clean.
- Avoid placing of liquids and FOG in the dumpster.
- Do not overfill the dumpster.



POLLUTION PREVENTION PRACTICES for Automotive Service and Repair Shops



Best Management Practices (BMPs) for automotive service and repair shops

Stormwater pollution has many sources. One of the most common is the illegal dumping or spilling of wastes directly into storm drains, like pouring used motor oil or paint directly into a storm drain.

As part of its Stormwater Management Plan, one of the goals of STOPPP is to control pollutants discharged to the municipal storm drains from commercial and industrial businesses

Best Management Practices, or BMPs, can help minimize the discharge of pollutants from your facility.

Operate a Clean, Dry Shop

- Sweep or vacuum the shop floor frequently.
- Designate specific areas indoors for parts cleaning.
- Clean up any spill promptly.
- Keep rags, damp mops, absorbents, and other cleanup supplies readily accessible to all work areas.
- Never sweep or flush wastes into a sanitary sewer or storm drain.

Prevent Spills and Leaks

- Drain fluids from leaking or wrecked vehicles as soon as possible. Use drip pans and plastic tarps.
- Promptly transfer drained fluids to a designated

waste storage area.

- Place bulk fluids, waste fluids, and batteries in secondary containment to capture accidental spills.

Practice Waste Reduction and Recycling

- Recycle automotive fluids, solvents, cleaners, absorbents, and washwaters; when the useful life is finished.
- Mix only the amount of paint needed for a job.
- Use self-contained sinks and tanks when cleaning with solvents.
- Reuse water used in flushing and testing radiators.
- Automotive fluids are NOT acceptable for disposal to the sanitary sewer, storm drain, or garbage.

Properly Manage Shop Wastewaters

- Wastewaters must be collected for off-site disposal or discharged to the sanitary sewer, if permitted. Examples include wastewaters from controlling overspray or dust in the paint booth, degreaser washoff, wet sanding, radiator flushing, floor washdown, mop water, or other production uses.
- Check with the local sewer agency about disposal requirements.

Protect Outdoor Work and Storage Areas

- If work or materials storage must be done outdoors, prevent potential pollution of rain and runoff by covering and/or berming work areas.
- Check with the local building authorities about structural alterations.

Properly Manage Vehicle Washwaters

- Soapy or oily vehicle washwaters must be either collected for off-site disposal or discharged to the sanitary sewer.
- Check with the local sewer agency about washwater disposal requirements.
- A commercial car wash may be an alternative if your facility is not equipped properly.
- Soapy or oily vehicle washwaters are NOT acceptable for disposal to the storm drain.

Properly Manage Raw and Waste Materials

- Follow all hazardous materials and hazardous waste storage and disposal requirements.
- Oil or solvent-saturated absorbent must be managed as a hazardous waste.
- Make sure solid waste containers are in good condition and secured against wind, leakage, or vandalism.

Label and Inspect Storm Drain Inlets

- Label storm drain inlets on your property to alert employees and customers that no dumping of wastewaters or tainted washwater is allowed.
- Prevent accumulated pollutants from washing down storm drains on your property by inspecting drains on premises frequently.
- Sweep or vacuum work areas and parking lots regularly.
- Remove debris and dispose of it in the trash.
- Never wash down areas with hoses and avoid using blowers which only displace residues.

Notify and Train Employees to Practice Pollution Prevention

- Post notices of appropriate practices such as those in this flyer, and train employees on their use.
- Set up a system to make it easy to separate, store, and recycle wastes.



San Mateo Countywide
Stormwater Pollution
Prevention Program
(STOPPP)
555 County Center
Redwood City, CA 94063

*A program of the City/County Association of Governments
(C/CAG)*

4.2-o NURSERY FACILITY MANAGEMENT

DESCRIPTION

With careful management, plant production can be maximized while protecting soil and water resources. If properly located, designed, and constructed, the discharge of degraded runoff to storm drains, ground water, and water bodies from nursery facilities can be minimized or prevented.

APPLICABILITY

New nursery facilities should be located on high capability lands away from Stream Environment Zones (SEZs) and the backshore. Locate nursery facilities on gently sloping or flat land (5 percent slope or less) that drains away from sensitive lands, wells, or storm drains. Do not locate these facilities within 100 feet of an SEZ, in areas subject to overland flow from upslope areas, and in areas which have less than 4 feet from the soil surface to the groundwater table at any time of the year.

Advantages

- The implementation of improved management practices for nutrient and irrigation inputs can reduce production costs.
- BMP installation and good housekeeping assists nursery owners to sustain compliance with state and federal water quality standards.



Disadvantages

- Proper nursery management may require additional time and resources.

DESIGN CONSIDERATIONS

While nurseries provide many of the native plants needed for revegetation efforts, they may have an adverse impact to surface and ground water. Potential contaminants may include nutrients, hydrocarbons, pesticides, herbicides, pathogens, and/or sediment. Improper planter bed irrigation may also lead to surface erosion. In order to prevent this contamination, nursery facilities must be equipped with appropriate BMPs and staff routinely trained on good housekeeping practices.

BMP DESIGN APPROACH

Pollutant Source Control

Hydrologic Source Control

Stormwater Treatment

SCALE OF APPLICATION

All SFR and MFR < 1 acre

MFR 1-5 Acre and CICU < 5 acres

MFR and CICU > 5 acres and all WQIPs

TYPE OF APPLICATION

Temporary

Permanent

Production Areas:

- Container planting areas located in high capability land may be placed on gravel, geotextile fabrics, or weed cloth to allow infiltration and minimize erosion, even inside greenhouse structures.
- Container planting areas located on low capability land or near high groundwater should be placed on impervious surfaces and excess runoff water conveyed to a treatment and infiltration facility.
- Install drip irrigation systems and check systems routinely for distribution uniformity, leaks, etc., make corrections to ensure that plants are not being overwatered which will prevent excessive runoff and contaminate leaching.
- If overhead sprinkler systems are used to irrigate, minimize or eliminate the use of fertilizer injection. Shift to using controlled-release and slow-release fertilizers. Do not inject overhead irrigation systems with pesticides.
- Design layout and/or use windbreaks to minimize plant blow over so fertilizer does not spill from containers, to reduce water loss from container substrate due to evapotranspiration, and to reduce influence of wind on water application uniformity. Group plants with similar water and nutrient needs together.
- Provide signage, parking barriers, and/or fencing to prevent encroachment into non-production areas. All non-production areas should be restored to native conditions.

Fertilizer, Pesticide, and Herbicide Use and Storage:

- Fertilizer, pesticide, and herbicide shall be stored indoors or within secondary containment systems. All spills or leaks require immediate clean up. Refer to Section 4.2-n, Hazardous Material Management for more details.
- Refer to Chapter 5 Vegetation and Soil Management for proper use of fertilizer, pesticide, and herbicide.

Mixing and Potting Areas:

- Mixing and potting should be performed under cover.
- Watering of new transplants should occur on gravel or paved surfaces.

Roads and Paved Areas:

- Runoff from roads and paved areas should be directed to appropriate treatment and infiltration BMPs to help remove pollutants such as sediment, organic matter, and contaminants before it leaves the nursery and enters ground or surface waters. Heavily contaminated water may require on-site filtration systems.

Compost and Waste Management:

- Secure trash receptacles from precipitation, wind, and animals.

- Contain all stock and spoil piles within a perimeter barrier and an impermeable cover. Refer to Section 4.5-n, Stockpile Management BMP for more details.

INSPECTION AND MAINTENANCE

- Inspect and maintain all retention, infiltration, and filtering systems. Detention basins, treatment lagoons, vegetated swales, or other BMPs should be operated such that the design storm volume is available for storage of runoff. Solids should be removed as soon as possible following storm events to ensure that needed solids storage volume is available for subsequent storms.¹³
- Develop an operations and maintenance plan with maintenance log book to track and record BMP inspection dates and maintenance activities. Refer to Chapter 6, Inspection, Maintenance, and Monitoring for examples.
- Conduct routine employee training on good housekeeping procedures specific to the facility. Track and record training dates and participants.

EFFECTIVENESS CONSIDERATIONS

Good planning and employee training will minimize potential for stormwater contamination from commercial nurseries.

¹³ EPA, 2008, *Management Measure for Facility Wastewater and Runoff from Confined Animal Facility Management (Small Units)*. <http://www.epa.gov/OWOW/NPS/MMGI/Chapter2/ch2-2b2.html>