CLEAN WATER FACT SHEET

Fertilizers & Pesticides

CITY OF WICHITA FALLS—WATER POLLUTION DIVISION

In many ways, vegetation helps to keep our creeks and lakes clean. It filters out pollutants from stormwater runoff and allows stormwater to seep into the soil rather than directly into our waterways. Vegetation also reduces summer temperatures, helps prevent erosion, minimizes dust, and helps clean the air. Unfortunately, millions of pounds of pesticides and fertilizers are used in the United States every year to maintain landscape. Homeowners, landscapers, plant nurseries, golf courses, as well as the food and agriculture industry use various forms of chemicals to maintain lawns, trees, and shrubs, and to control the growth of unwanted plant or animal pests. However, pesticides and fertilizers are often misused, creating the potential for discharges of pollutants to valuable water resources.

The City of Wichita Falls' Water Pollution Division is responsible for preventing the discharge of pollutants to the City's storm sewer system and waterways as mandated by the City's permit to discharge under the Texas Pollutant Discharge Elimination System (TPDES) under provisions of Section 402 of the Clean Water Act and Chapter 26 of the Texas Water Code.

This fact sheet, which has been adopted from the City of Abilene, provides information on fertilizer and pesticide application methods which reduce the potential for environmental pollution.

The Problem:

Misuse of fertilizers.
Many people over-apply fertilizers, in an effort to have perfect landscapes. This wastes fertilizer and can damage plants. Water soluble fertilizers applied before a rainfall easily washes into our creek and lakes. Furthermore, careless use of fertilizers can result in application on sidewalks and other paved areas where they are easily washed off to a storm sewer drain.

Fertilizers, as well as leaves and grass clippings, contain nitrogen and phosphorus - primary nutrients for plant growth. These nutrients, when washed into our creeks and lakes by rain or lawn watering, result in a rapid growth of algae and aquatic weeds commonly referred to as a "bloom". As these plants die and decay, they use up oxygen in the water, create foul taste and odors in drinking water, as well as clog pipes and water intakes. A bloom can kill fish and other aquatic life. Excessive vegetation is also dangerous to swimmers and boaters and requires costly mechanical removal. Some nitrogen fertilizers also release ammonia, which is toxic to fish.

Improper use of pesticides.
Pesticides (herbicides, fungicides, rodenticides, insecticides) used for landscape maintenance are a major source of toxic pollutants. Some people believe that more is better. But, while designed to destroy pests, pesticides can also poison birds, and other wildlife, especially if designated application rates are exceeded. Just five tiny granules of diazinon can kill a house sparrow. Pesticides can also seep into groundwater and contaminate drinking water, and destroy soil by killing essential organisms from microbes to earthworms.

Did you know . . .

Just five tiny granules of diazinon can kill a house sparrow.

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Application in and along creeks and lakes can kill aquatic life, and pose a health threat to children who play there. Like fertilizers, applying pesticides just before a rainfall event or in un-needed areas increases their chance of being washed to a storm sewer.

Additionally, some toxic pesticides accumulate in the environment and migrate up the food chain, as larger organisms eat many smaller contaminated organisms. Often times the long term health and environmental effects of pesticides may not be known.

Use of fuels as weed killer. Using gasoline, diesel, kerosene and other petroleum products to destroy unwanted vegetation has a significant impact on the environment. These substances are toxic. Some are cancer-causing and can persist in soil for many years. In areas with very porous soil, toxins can seep into our groundwater supply.

Careless storage of lawn and garden chemicals. Storing chemicals improperly can cause pollution. Fertilizers and pesticides stored in areas exposed to weather, especially those in cardboard boxes and papers sacks, will deteriorate, then leak or spill. Extreme temperatures or dampness can reduce the effectiveness of pesticides, and degrade the packaging. This also increases the chances for over applications or a spill. For example, pellet fertilizer stored outside in bags hardens if exposed to moisture; it is then unusable. Outdoors, product labels become unreadable or peel from their containers, thus separating the chemical from very important information regarding material use, storage, and disposal. Open, uncovered, or damaged chemical containers will overflow if filled with rain water. Chances for an illegal discharge are greatly increased when chemicals are stored in areas close to storm drains leading to our local waterways.

Mishandling of spills. Accidents will happen. However, if spills from leaking or damaged containers are neglected or rinsed away with water, the contamination spreads and toxins are carried to the storm sewer. Pesticides washed into a waterway have an enormous impact on water quality, even in very small quantities. For example, Dursban, a common pesticide, is lethal to fish in concentrations of less than 4 parts per billion. This is equivalent to less than 2 tablespoons in an Olympic size swimming pool.

Did you know . . .

Each year, Texans apply about 5 million pounds of fertilizer, and 4 million pounds of pesticides on lawns. It is estimated that almost 1/3 of that usage is wasted because we use too much or it's mixed incorrectly.

Chances for an illegal discharge are greatly increased when chemicals are stored in areas close to storm drains.

Illegal disposal of chemicals. Unusable or unwanted fertilizers and pesticides are sometimes dumped down sinks, in storm drains, on the ground outside, or even in the dumpster. Sinks carry pesticides and fertilizers to municipal systems, potentially damaging plumbing and treatment equipment. Chemicals placed in dumpsters contaminate the landfill and may seep into the groundwater. They also spill inside the dumpster, posing a danger to trash haulers who empty them as well as the environment if they leak out the dumpster seams or drain hole. Disposal onto the ground creates an exposure hazard and results in expensive soil cleanups. Chemicals disposed of in storm sewers are carried by stormwater directly to our water ways where the impact on aquatic life can be devastating. Illegal disposal of chemicals has long lasting effects on the environment - many take decades to break down while others persist in the tissues of fish, birds, and other wildlife.

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The Solution:

Prevent the need for chemicals whenever possible.
Avoid regular use of herbicides by properly watering, fertilizing and mowing your lawn. A healthy and thick lawn and root system is the best defense against weeds. Fertilizing in early fall promotes deep root systems. Shallow root systems are unable to help lawns survive a drought or harsh winter. Consider removing damaged or diseased portions of plants, rather than trying to save them with chemicals. If the entire plant is diseased, consider removing it along with the roots and surrounding soil. Properly seal in garbage bags for trash removal. Afterwards, wash hands and sterilize garden tools with a mild bleach solution. Use crop rotating techniques to prevent buildup of disease-causing organisms.

Use integrated Pest Management.
Learn about Integrated Pest Management (IPM) which emphasizes prevention and natural pest control methods instead of chemicals such as manually removing weeds and larger insects from plants. Weeds can also be controlled in landscapes by using ground cover plants and mulch. Ashes, diatomaceous earth, limestone, and other natural materials applied to the landscape may act as an irritant and repel bugs. For more information, visit one of the several IPM Websites.

Landscape with native vegetation or "xeriscape" plants.
They require less water, chemical fertilizers and pesticides. Xeriscape is "quality landscaping that conserves water and protects the environment." Plant varieties adapted to this area are more resistant to pest and disease. Use a mix of plants to minimize pest infestation. Promote optimum growing conditions and eliminate conditions favorable to pests. For example, many harmful molds and fungi can be controlled by watering in the early morning rather than in the evening. Some Xeriscape plants attract beneficial insects and birds to your yard.

Avoid misuse of pesticides.
Use pesticides only as a last resort. Always follow the directions on the package label. Twice as much does not mean twice the results. Do not mix chemicals unless specifically indicated on the label. Mixing can produce explosive reactions or toxic fumes. Apply pesticides only in calm, dry weather. This reduces pesticide losses from drift and stormwater runoff. Water the chemicals in with a low intensity, controlled application rate, such that no runoff from the site occurs. Avoid regular application. Do not apply pesticides to bare ground or eroded areas. Never apply toxic pesticides near water bodies, water wells, and wildlife habitats. Cluster landscape jobs that use the same spray solution to minimize the number of times the equipment must be cleaned; this reduces waste.

Select the right fertilizer.
Whenever possible, choose natural fertilizers such as manure and compost materials. If you must use a chemical fertilizer, choose the correct type and concentration, thereby, reducing environmental risk. Read the label for the recommended application rate. The label also

Did you know…

Ironically, pesticides don't seem to be improving agricultural yield. Before their use, farmers lost about 33% of their crops to pests. Today, farmers still lose about 33%.

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provides the percentage (by weight) of the three necessary nutrients; nitrogen (listed first), phosphate (supplies phosphorus), and potash (supplies potassium). For example, a bag of 25-4-5 fertilizer contains 24 percent nitrogen, 4 percent phosphate and 5 percent potash. The remaining ingredients are usually ground limestone or sand.

Many soils already contain enough phosphorous to grow a healthy lawn. Try low-phosphorous or phosphorous-free fertilizer. They can provide necessary nutrients while minimizing the threat to water quality. Adding 1/2 inch of compost, manure, or other natural materials on top of lawns or soil is an ideal way to supply nutrients to your landscape. Most organic fertilizers contain lower concentrations of nutrients than synthetic fertilizers and release the nutrients more slowly. On sandy soils, nitrogen can quickly seep through the soil into the ground-water, thus slow release is ideal. A soil test (soil analysis for nitrogen, phosphorous, and potassium) will help determine the right fertilizer formulation to use and prevent over applications. The different nutrient requirements for gardens, trees and shrubs can vary. Consult your local nursery and garden supply or agricultural extension office for advice.

Did you know…

Dursban is lethal to fish in concentrations of less than 4 parts per billion or less than 2 tablespoons in an Olympic size swimming pool.

Fertilize it right.
"Natural" or "organic" fertilizers can harm aquatic life also by providing nutrients prolific for plant and animal growth. So, keep them out of storm sewers and waterways. Use chemical fertilizers sparingly. Over applications can "burn" or damage plants, causing them to die. Do not spread or spray fertilizers in un-needed areas such as sidewalks, streets, or driveways. Fertilizer should be applied at the time of day and under the conditions indicated in the package directions; do not apply them in windy or rainy conditions. Water the landscape lightly after application to help fertilizers soak in.

Store lawn and garden chemicals properly.
Consult the product label for storage conditions needed to avoid product damage. All materials should be stored in a well-ventilated, easily cleaned, dry area, never exposed to weather. The storage area should be constructed such that it can contain a spill. Keep storage areas locked and identified with warning signs.

Store dry products above liquids and keep them off the floor. Consult the Material Safety Data Sheet (MSDS) for chemicals to avoid near one another. This can cause violent reactions and spills. An MSDS contains information that enables persons responsible for handling, using or encountering chemicals to estimate the likely harm, potential hazards and risks that might arise in emergency situations involving those chemicals.

Obtain an MSDS by calling the manufacturer's phone number from the label. Keep lids securely in place and bags tightly closed after opening. In case of spills, pesticides and fertilizers should not be stored near storm sewer drains or drainage ways leading to creeks and lakes. Always keep pesticides in their original containers with as much information as possible.

Regularly inspect storage areas and properly check for damaged containers.
Broken or leaking containers can be placed inside a second container of similar material (e.g. glass for corrosives, metal for flammables) until used or disposed of properly. Some pesticides are hazardous materials and require special storage. Contact the TCEQ for information on storage of hazardous pesticides.

Clean spills as they occur.
Spills must be cleaned up immediately, especially before they reach a storm drain and spread to a creek or lake. For chemical spills, use the necessary protective clothing as instructed on the product label and the MSDS. Keep other people and pets away from the spill. Dry material spills may be swept up and reused or disposed of properly. Do no flush liquid spills with a hose. Instead small chemical spills can be picked up with absorbent material (e.g. kitty litter, sawdust, or dirt). Sweep or shovel the used absorbent material or spilled dry material into several plastic bags (one placed inside the other) and seal the bag shut. Follow the same disposal protocol as with unused or unwanted chemicals.

Contain large spills with absorbent material, if it is safe to do so. Then, immediately call the Wichita Falls Fire Department by dialing 911. Once cleaned up, paved surfaces can be rinsed with water and a mild detergent and the rinse-water contained and absorbed for proper disposal.

Contaminated soil must be dug up and disposed of legally. Contact the Water Pollution Division or the TCEQ for instructions. Spills to waterways must be stopped, contained where possible (e.g. build an earthen dike in small streams), and assessed by the Water Pollution Division.

Know your drainage.
Find out where storm drains are located on or near your site so you can immediately block them in the event of a spill. Be aware that most exterior and some interior drains are connected to the City's storm sewer system. Nothing but rainwater may enter our storm sewer system according to Federal law. If you are unsure which sewer system your drains are connected to, contact the City's Engineering Department, the Water Pollution Division, or a licensed plumber for a dye trace or other verification method. Do not use fertilizers and pesticides in or immediately adjacent to a waterway.

Properly dispose of excess fertilizers and pesticides.
Try to reduce the amount of fertilizer and pesticides you dispose of by purchasing only what you need. Use the oldest material first to avoid disposal of outdated materials. Before buying chemicals, calculate how much you need and purchase only that amount.

If you have excess fertilizer or pesticides, find someone who might have immediate use for them. Wood preservatives such as creosote and some banned insecticides should not be reused. Never pour unwanted chemicals down any drain. Homeowners in the City of Wichita Falls may dispose of unusable pesticides and fertilizers through a licensed disposal company.

Triple rinse empty containers and dispose of or use the rinse water the same way you would dispose of or use the product. Containers that stored hazardous chemicals must be disposed of through a hazardous waste disposal service. Otherwise, non-hazardous chemical containers should be rinsed, wrapped in several layers of newspaper, and placed in the trash. For more information on hazardous waste disposal, contact the main line for the TCEQ Office of Waste at (512) 239-2300.

Be aware that most exterior and some interior drains are connected to the City's storm sewer system.

Chemical insecticides should be used sparingly, with extreme care, and only as the label directs.

The Bottom Line:

It all adds up! It costs time and money to implement water pollution prevention measures at your home or business. However, it takes more time and costs more money to cleanup spills after they occur. Small, seemingly insignificant discharges can accumulate into large contamination problems if steps are not taken for prevention or immediate cleanup activities. Contamination costs increase if humans, pets, wildlife and fish are harmed. In addition, fines from City, State or Federal agencies add thousands of dollars to the overall costs of a polluting spill. Furthermore, careless application of fertilizers and pesticides is a waste of your money. Using IPM techniques, which emphasize preventative pest control, saves you money and protects the environment.

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For more information please visit http://www.wichitafallstx.gov/378/Water-Pollution or call the City of Wichita Falls' Water Pollution Division at (940) 761-7670 or (940) 761-7832.


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