

Stormwater Runoff & You

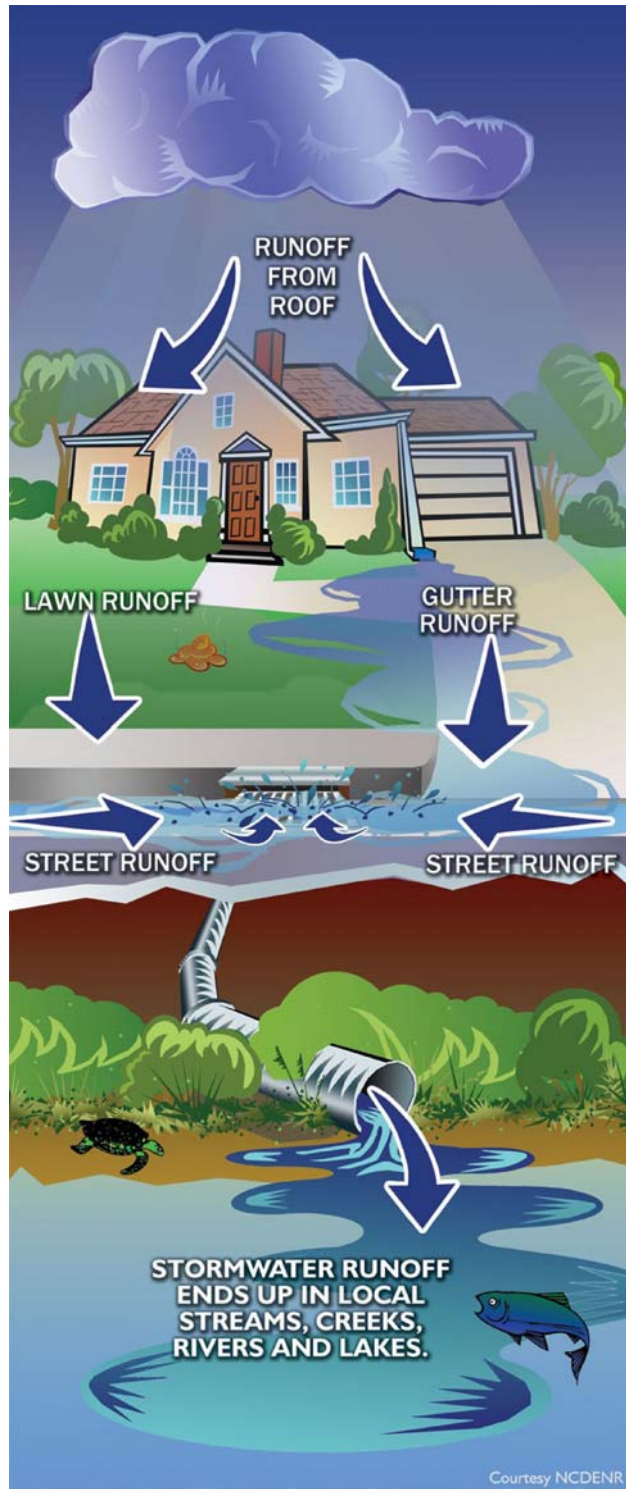
- 1. ROOF**
- Bird droppings
- Heavy metals

- 2. LAWN**
- Pesticides
- Fertilizers
- Dog & cat poop

- 5. SIDEWALK**
- Dog poop
- Grass clippings
- Leaves

- 3. DRIVEWAY**
- Oil / Grease
- Detergents
- Chemical spills

- 5. STREET**
- Oil / Grease
- Sediment
- Leaves
- Salt



The Little River and Lake Barkley

Remember, it ALL drains to our lakes and rivers



Help keep pollution out of storm drains

Only rain in the drain!

That's because storm drains and roadside ditches lead directly to our lakes and rivers. So, any oil, pet waste, leaves, trash, or dirty water from washing your car that enters a storm drain gets into our lakes and rivers. With millions of people living in Kentucky, we all need to be aware of what goes into our storm drains.

What can you do? Simple. These tips will help prevent pollutants from entering our lakes and rivers

- Sweep fertilizer off of driveways and sidewalks, back onto your lawn.
- Keep leaves, grass clippings, trash, and fertilizers out of storm drains.
- Do not dump motor oil, chemicals, pet waste, dirty or soapy water, or anything else down the storm drain.
- Volunteer to label the storm drains in your neighborhood to inform your neighbors that storm drains flow directly to our lakes and rivers.

Keep our water clean!

Adapted by the Kentucky Transportation Cabinet and used with permission from the Southeast Michigan Council of Governments.

Find out more at



Rethinking Yard Care

A SERIES OF WATER QUALITY FACT SHEETS FOR RESIDENTIAL AREAS

A wooden rain barrel was a familiar sight in many backyard gardens at the turn of the century. Its purpose was simple – collect rainfall running off a roof and store it for future use. Often, that use would have been watering flowers and garden plants when the weather turned dry.

Turn-of-the-century gardeners knew by experience what chemistry teaches us today: rain water can be better for plants than water pumped from the ground or piped through a city water main. It's not chlorinated, fluoridated or loaded with dissolved salts. And, rain water is mildly acidic, which helps plants take up important minerals from the soil.

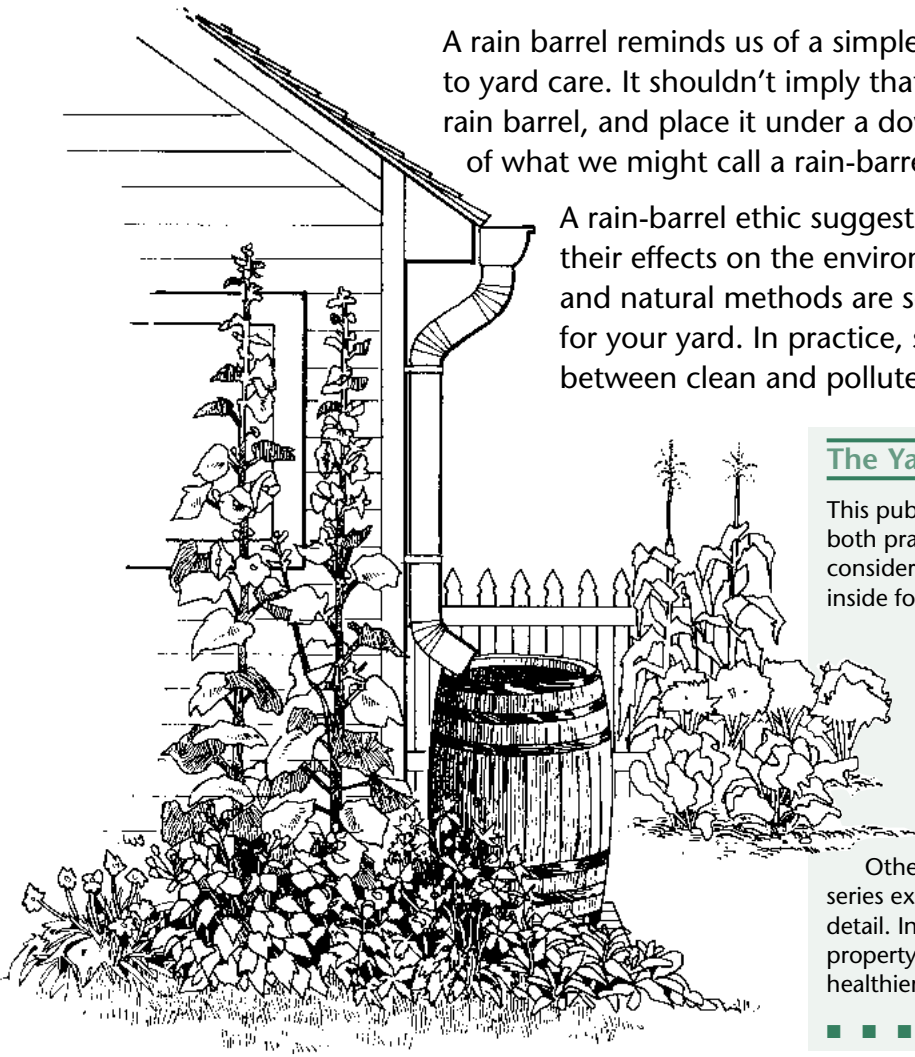
Today, electric well pumps and city water pressure make storing water in rain barrels seem like more work than it's worth. Nevertheless, we might reflect upon the past and consider what the rain barrel can symbolize.

The old-fashioned rain barrel can symbolize a simpler, more sensible approach to yard care.

An old idea reconsidered

A rain barrel reminds us of a simpler, in some ways more sensible, approach to yard care. It shouldn't imply that conscientious people must go out, buy a rain barrel, and place it under a downspout. But there are applications today of what we might call a rain-barrel ethic.

A rain-barrel ethic suggests an awareness of personal actions and their effects on the environment, with the knowledge that simple and natural methods are sometimes the most effective ways to care for your yard. In practice, such an ethic could mean the difference between clean and polluted lakes and streams.



The Yard Care Series

This publication describes an approach to yard care that is both practical and environmentally sound. It offers ideas to consider around your home and in your community. Look inside for information on:

- ✓ water quality problems originating at home
- ✓ the environmental consequences of lawn and garden chemicals
- ✓ ways to reintroduce natural processes
- ✓ practical tips for protecting water quality around the home

Other fact sheets in the *Yard Care and the Environment* series explain environmentally sound actions in greater detail. In some cases, the suggestions can actually make your property easier to manage or more inviting. All promote a healthier environment and better water quality.



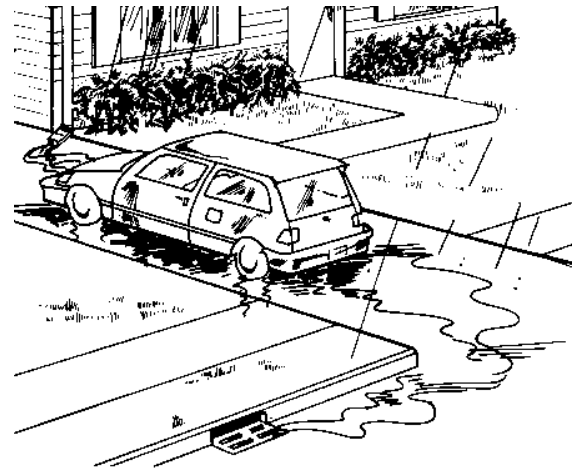
Modern-day activities, especially in urban areas, have greatly disrupted the cycle of water movement and polluted much of our water. It may be a surprise to learn that many of the things we do in our communities and around our homes can create environmental problems.

In the community

Removal of vegetation during development and its replacement with streets, rooftops, and driveways has significantly decreased the amount of rainfall absorbed by the soil. As a consequence, the amount of water running off toward nearby lakes and streams has increased dramatically.

In addition, stormwater drainage systems are typically designed to remove water from developed areas as quickly as possible during a storm. While these systems are convenient for urban residents, they also carry pollutants to surface waters at a “rapid transit” pace. Contrary to popular belief, pet wastes, oil and other materials dumped into storm sewer grates do not go to the sewage treatment plant, but flow directly to streams and lakes.

The connection between auto maintenance and water quality can be very serious and direct. Anything that drips from a motor vehicle onto pavement – oil, gasoline, brake fluid, antifreeze – can quickly be flushed into lakes with a rainstorm. These materials



are toxic to downstream aquatic life. Downspouts positioned to empty directly onto driveways compound the problem.

Dumping oil into a storm sewer grate has almost unthinkable consequences. Five quarts of oil can create a slick as large as two football fields and persist on mud or plants for six months or more.

Time to rethink

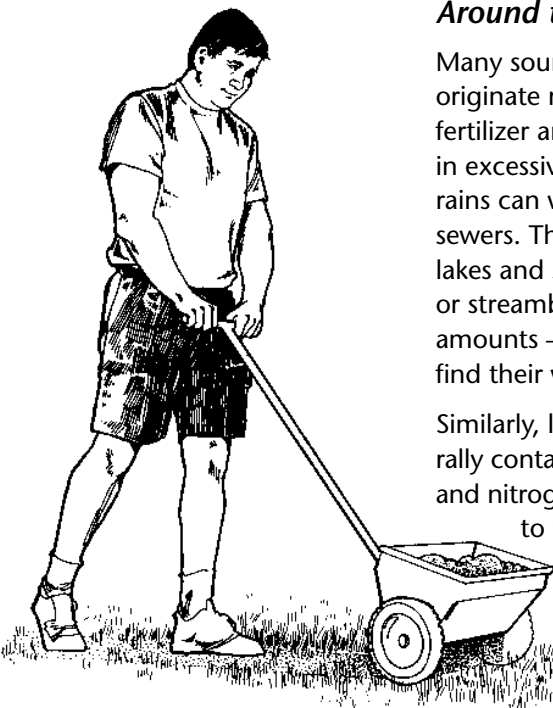
Clearly, there is a need to rethink what we’re doing at home if urban waters are to be clean and usable. Nowhere is this truer than in our use of lawn and garden chemicals. To understand some of the problems caused by our “chemical dependence” and the advantages of introducing natural processes into lawn and garden care, read on . . .

Many sources of water pollution originate right at home. Fertilizers and pesticides can wash into storm sewers, which carry the chemicals to lakes and streams.

Around the home

Many sources of urban water pollution originate right at home. For example, fertilizer and pesticides applied to lawns in excessive amounts or before heavy rains can wash into ditches and storm sewers. These chemicals then travel to lakes and streams. If used near lakeshores or streambanks – even in modest amounts – lawn chemicals may quickly find their way into the water.

Similarly, leaves and grass clippings naturally contain nutrients such as phosphorus and nitrogen. If leaves and grass are raked to the curb, the nutrients they contain can be washed away before collection and end up in our waters. Leaves and grass can also clog storm sewers and contribute to localized flooding. On the other hand, the practice of burning these yard “wastes” not only releases air pollutants, but the ashes can pollute lakes and streams if carried away by runoff waters.



For some, yard care can be a very rewarding pastime; for others, it is merely a chore necessary to protect the investment in a property's appearance. Regardless of motivation, most homeowners rely, at one time or another, on lawn and garden pesticides and fertilizers. Unfortunately, routine use of these chemicals threatens to open a Pandora's Box of unintended environmental consequences. Following some common-sense guidelines, however, will bring about healthy lawns and gardens and minimize environmental problems.

Be wary of the "chemical fix"

When the seasons change, you can almost feel it in the air – that urge to get out and do something in the yard. Unfortunately, what many people end up doing sometimes leads to more harm than good. Fertilizing without a soil test when the lawn really doesn't need it, using weed killers at the wrong time of year, spraying with insecticides "just to be on the safe side," even watering a little bit every day... are all wasteful and environmentally damaging practices.

Without thinking about it, some homeowners reach first for the "solution" that should be a last resort. The serious warning labels on many pesticide products clearly indicate the hazards to songbirds, aquatic life, and humans. In a sense, using such chemicals without proper diagnosis of the problem and careful application procedures is no different than a doctor prescribing medicine with potentially serious side effects for a condition that proper diet and moderate exercise could cure. Resist the urge for a quick chemical solution.

Develop a healthy respect

Because yard care chemicals have come into widespread and routine use for many homeowners, there is some danger that a "healthy respect" for them has faded. Homeowners may have used yard care chemicals before without incident. When pressed for time and confronted by profuse label directions and warnings in fine print, it's tempting to skip the instructions and just "get the job done." But pesticide application is not the time

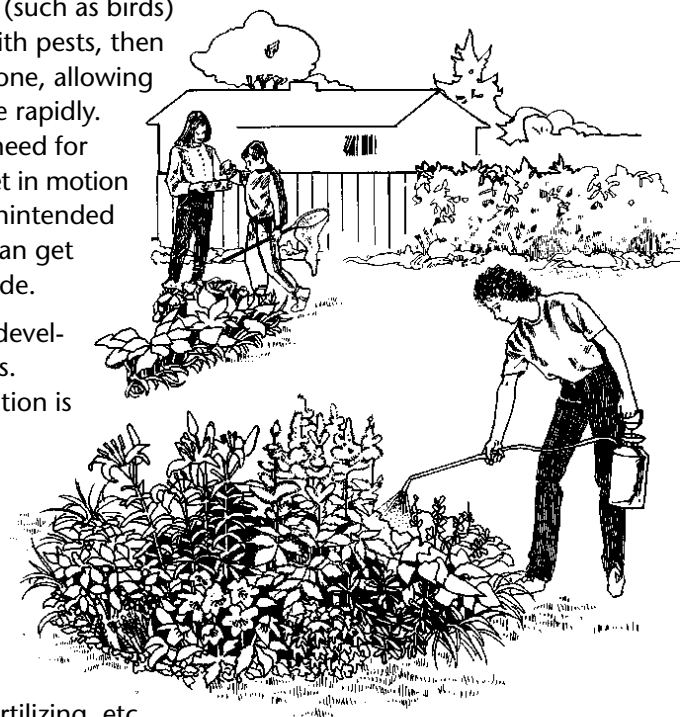
to overlook something important. The suffix "icide" means "to kill." Insecticides kill insects, herbicides kill plants and fungicides kill fungus species. While greater success is realized every year in developing chemical and application methods that are more target-specific, the fact remains that pesticides sometimes kill living things other than their targets.

Consider the side-effects

If beneficial predators (such as birds) are poisoned along with pests, then natural controls are gone, allowing pests to multiply more rapidly. This may further the need for more chemicals and set in motion an unfortunate and unintended cycle. Thus the yard can get "hooked" on a pesticide.

A similar pattern can develop with lawn fertilizers. When careless fertilization is followed by routine removal of grass clippings (a natural source of nitrogen) further fertilization is required. The cycle of fertilizing, rapid growth, more cutting and bagging, more fertilizing, etc. gets to be time consuming and costly. It also increases the chance that fertilizer will be washed off to lakes and streams.

On an individual lawn or garden the problem may not seem like much, but area-wide it adds up.



Because yard care chemicals have come into widespread and routine use for many homeowners, there is some danger that a "healthy respect" for them has faded.

Do it in moderation

When used in heavier-than-recommended concentrations, nearly all yard care chemicals can pose an environmental problem. This not only wastes money, but puts the applicator, family, neighbors, beneficial plants and animals, and downstream waters at risk. Many recommended label rates are already liberal, designed so that products still work under less than optimal conditions.

Even under-application can create problems. If label directions are misread or pesticides are being “sprayed about” in diluted amounts just to use up existing supplies, then chemicals will not be effective and needlessly enter the environment. Also, pest populations subjected to non-lethal doses may begin to genetically develop resistance to the chemicals designed to kill them.

Timing is everything

Using the wrong product, or the right product at the wrong time, again wastes money and needlessly releases chemicals into the environment. If an insecticide label does not indicate effectiveness against a specific pest – or is effective only during a certain stage in the pest’s life cycle – then application can end up harming the wrong thing (like honeybees). Yet the temptation may exist when product “X” is in hand now and worked so well against another pest. However, ignoring basic label directions such as “do not apply if rain is forecast” will, at minimum, result in a chemical application that doesn’t do the job.

Another temptation exists during early spring. A dose of nitrogen fertilizer at that time can “green up” a lawn fast. Peer pressure among neighbors to do likewise may set in. Unfortunately, the green top growth takes place at the expense of the root system. An early appearance of health can later give way to a lawn susceptible to drought. The response may then be more watering (more time, expense and possible problems).

Handle with care

An irony of urban society is that some people are squeamish at the idea of picking bugs off plants by hand, yet find it perfectly acceptable to employ chemicals, some of which are hazardous enough that professionals must be certified to use larger quantities. History has shown that some chemicals initially believed safe have had to be removed from the market after damaging effects were later discovered.

Chemicals spilled on pavement during chemical mixing and loading can quickly be washed away with the next rain to pollute lakes and streams. If not cleaned up, a sometimes-severe health threat may also persist. Fortunately, an impermeable surface can contain some spills and allow time for clean-up.

Buy only what you need

Most people want to solve a perceived yard care problem as easily and economically as possible. But buying ahead is definitely not a good idea. Freezing temperatures, for example, can render surplus volumes of some products useless, although they will remain hazardous. Also, if chemicals pile up in a garage, a temptation may develop to throw out the accumulated mess. Proper pesticide storage and disposal – often overlooked or the last thing considered – can be difficult to do right. Meanwhile, curious children and pets may be at risk.

When in doubt, ask for help

Safe and reliable chemical treatment of some yard care problems is definitely possible for the informed homeowner. The key is to know plants, their pests and the chemicals you plan to use. Rather than attempting to tackle a problem you are not prepared for, it is always better to seek professional assistance and consider more natural alternatives whenever possible.



Before using lawn and garden pesticides, know the plants, their pests and the chemicals you plan to use.

The natural amenities that originally drew residents to some areas – clean waters and quality woodlands – were often compromised as people sought to embrace them. However, these qualities can be restored by reintroducing natural processes into lawn and garden care.

The natural cycle

Consider what happens in the forest environment. A layer of fallen leaves helps reduce erosion by protecting soil from the impact of falling raindrops.



That's why, even after a heavy rain, clear water is found in undisturbed woodland streams. Natural grasslands protect water quality in much the same way.

Leaves and grassy vegetation are naturally decomposed by soil organisms, which return nutrients to the soil. The nutrients needed by plants are then taken up by roots to produce new growth year after year in a very efficient recycling process. Under these conditions, plants grow without the need for additional fertilizers. Decaying vegetation also forms an insulating layer of mulch and adds organic matter which reduces daily temperature fluctuations and increases the soil's capacity to hold moisture.

Imitate nature through planning and action

We can't expect that a natural ecosystem can be duplicated in the urban environment; but by taking advantage of natural processes, yard care can generally be made more efficient and less problematic for lakes and streams.

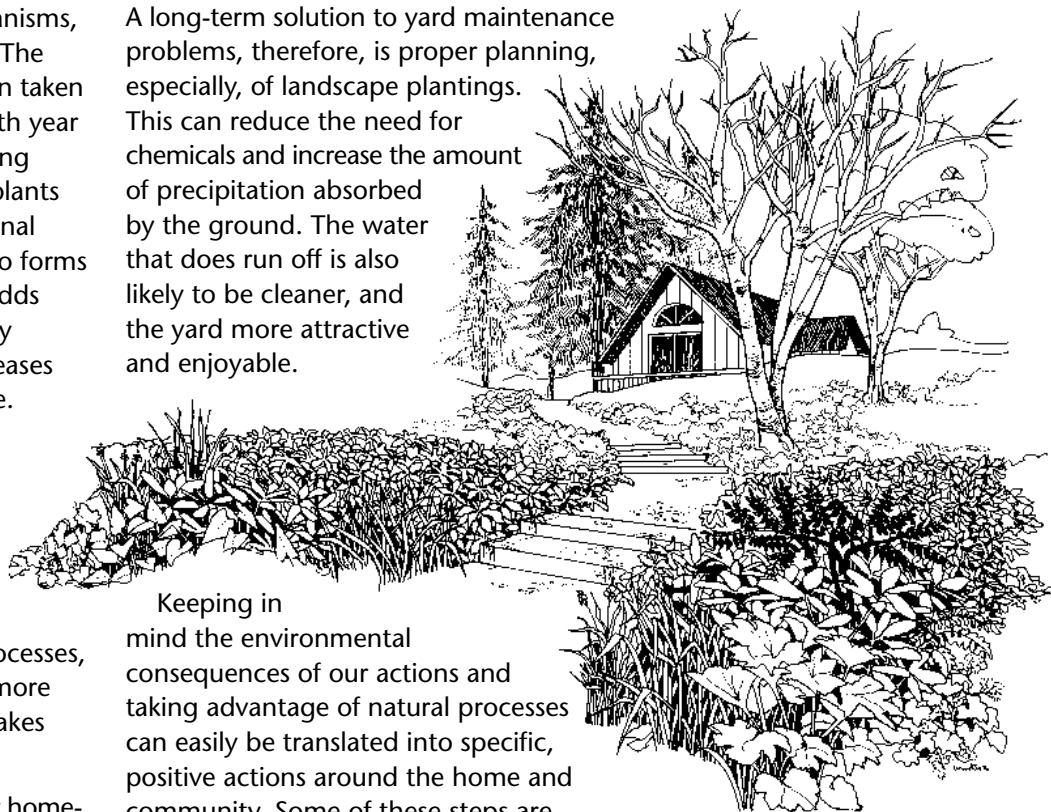
What works for nature can work for homeowners. By properly mowing, mulching,

and composting leaves and grass clippings, the normal amount of fertilizing, watering, and weeding can often be reduced. If grass clippings are allowed to remain on lawns instead of being raked or bagged, they will produce benefits from natural recycling. Even pests become less of a problem if more "natural diversity" in plantings is used – as opposed to typical urban uniformity – so that susceptible plants are grown farther apart.

If you have natural or "wild" areas on your property, think twice before deciding to convert them to more formal landscaped areas. Natural landscapes often require less time and money to maintain than formal landscapes, and are usually the best at preventing water pollution from runoff. This is especially important for waterfront property.

A long-term solution to yard maintenance problems, therefore, is proper planning, especially, of landscape plantings. This can reduce the need for chemicals and increase the amount of precipitation absorbed by the ground. The water that does run off is also likely to be cleaner, and the yard more attractive and enjoyable.

Areas of natural landscaping can be a long-term solution to yard maintenance chores, and reduce the need for fertilizers and pesticides.

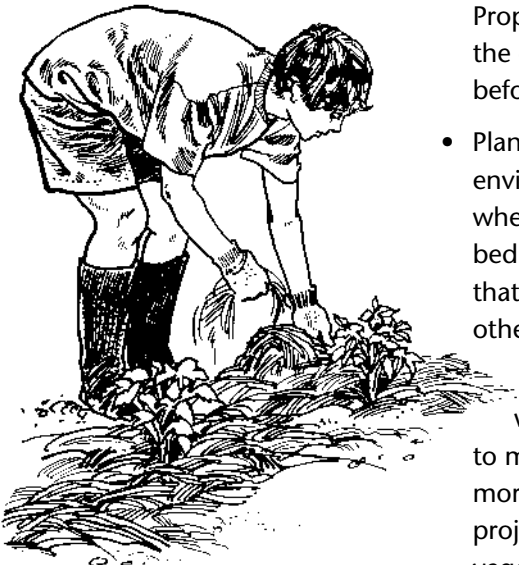


Keeping in mind the environmental consequences of our actions and taking advantage of natural processes can easily be translated into specific, positive actions around the home and community. Some of these steps are highlighted on the following pages.

Whether you live in the city or the country . . . whether your home is large or small . . . whether you have a lot of time and money to invest in your yard or just a little, there is something you can do to improve water quality. The following suggestions are ways that you can make a contribution to clean water and a healthy environment.

Around your home

- Mow often enough to leave grass clippings on the lawn.
- Keep fallen leaves out of the streetside gutter or ditch, using them around the yard as practical. Properly place the remainder near the curb (not in the street) just before municipal collection.
- Plant an extra tree for multiple environmental benefits, especially where it becomes part of a planting bed or “naturalized” landscape area that recycles leaves, twigs, and other yard “wastes.”
 - Seed bare soil and cover it with a mulch as soon as possible to minimize erosion. Disturb no more ground than necessary for a project, while preserving existing vegetation.
- Direct roof downspouts away from foundations and driveways to planting beds and lawns where the water can safely soak into the ground. Use a rain barrel where practical.
- Use lawn and garden chemicals carefully and sparingly. Pesticides, including weed killers, should be considered a last resort – other controls come first.
- Limit the use of toxic or hazardous products in general. Keep them away from storm sewers, lakes, and streams.
- Collect oil and other automotive products preferably for recycling, or tightly seal and wrap them for proper disposal.
- Wash cars on the lawn, where soapy water can’t quickly run toward the nearest storm sewer, picking up other pollutants as it goes.
- Keep cars tuned up and in good operating condition. Check for drips and repair leaks immediately to keep nuisance oils off pavement. Better yet, walk, bike or take the bus.
- For waterfront property, grow a “buffer strip” of dense, natural vegetation along the water’s edge to filter pollutants and stabilize the shoreline.
- If using a septic tank system, maintain it properly through regular inspections and licensed pumping every two to three years.
- Monitor fuel use from any underground gas and oil tanks to make sure they are not leaking.
- Plan your landscape with environmental health in mind, reducing the area that is heavily maintained.
- Clean up pet wastes, from which nutrients and bacteria could be washed toward lakes and streams.
- Conservatively use salt in winter. Substitute sand or old-fashioned “chipping” when possible.



If you have excess grass clippings, use the clippings as a mulch or compost them along with leaves that might otherwise “fertilize” local waters.

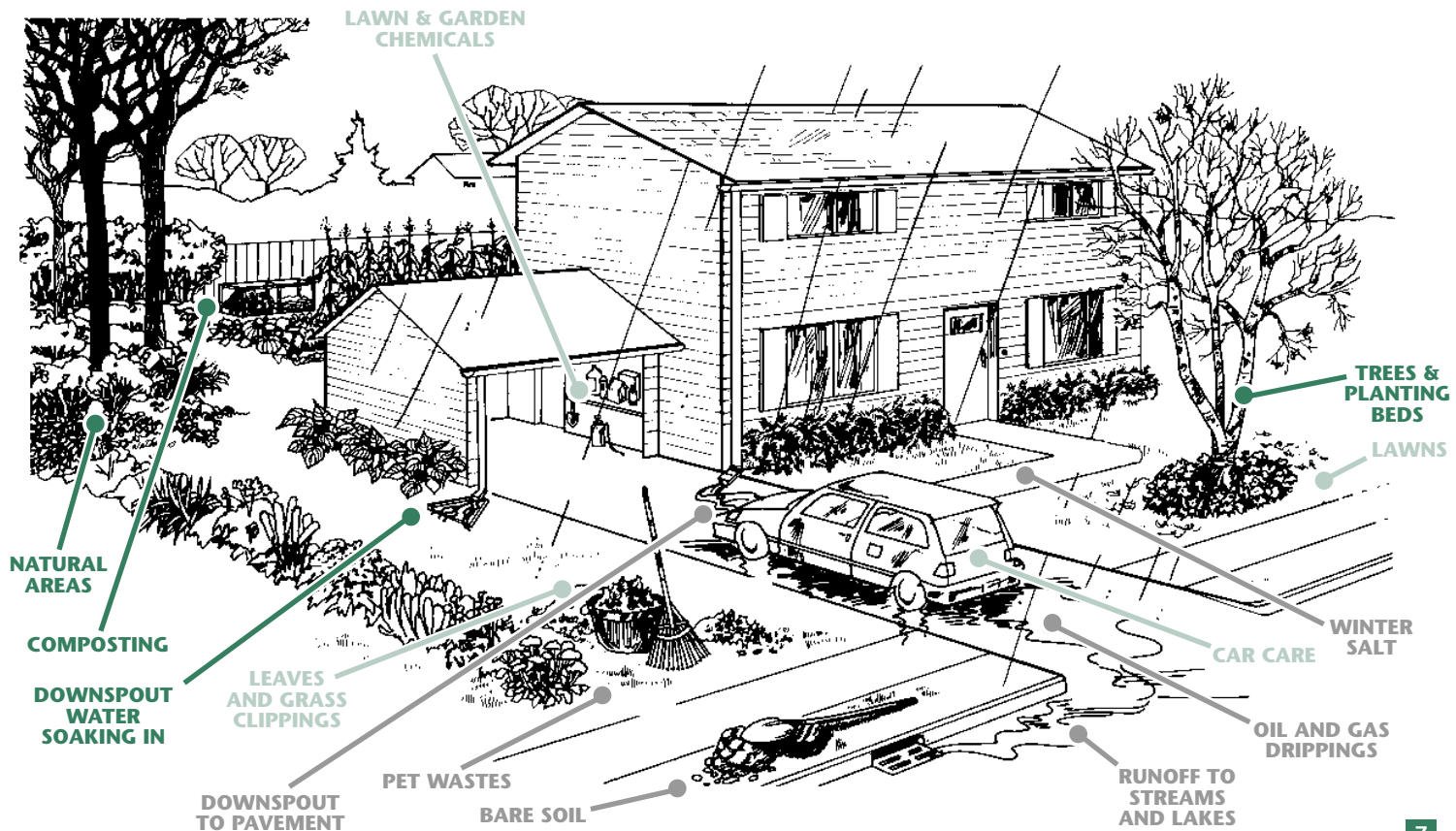
In your community

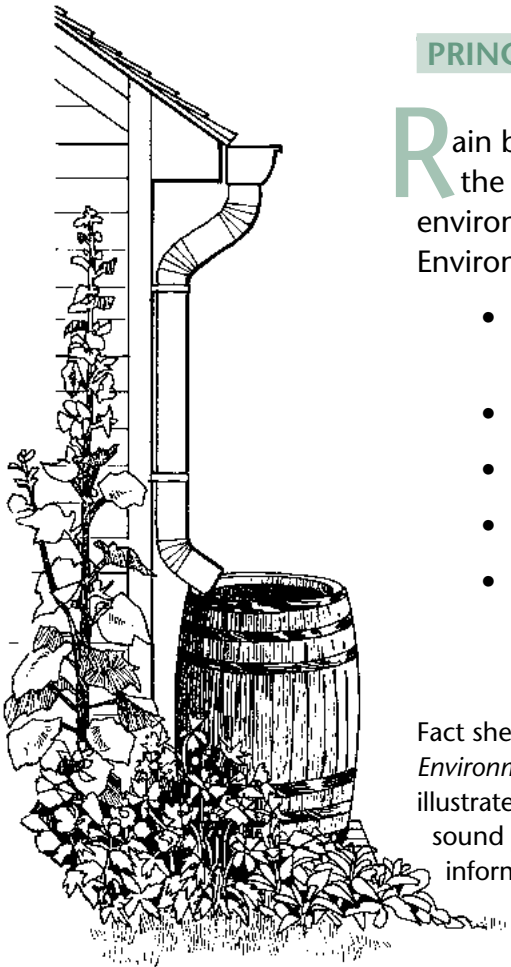
- Support and follow ordinances that limit soil erosion from construction sites.
- Encourage detention ponds and other stormwater management practices that reduce runoff pollution by temporarily holding water or letting it soak into the ground.
- Encourage the safe but conservative use of salt on roads and limit application to critical areas.
- Tell public officials about your interest in cleaning up local waters and about their value to recreation and the economy.
- Support the preservation of wetlands as natural filters that protect water quality, prevent flooding, and provide vital open space.
- Promote “environmental or parkway corridors” adjacent to streams and waterways for water quality, wildlife, and multiple-use benefits.
- Participate in groups, projects and events that promote conservation, waterfront recreation, or shoreline clean-ups.

Home hot spots for water quality

Around every yard are spots where your activities affect water quality. The illustration shows a few of them. Take a look around your own home with an eye toward water quality.

- Good for water quality
- Bad for water quality
- Could be good or bad, depending on your actions





Rain barrels were used in the past to collect water for use around the yard. Today, they symbolize a bygone era of sensible, environmentally sound approaches to growing healthy lawns and gardens. Environmentally sound yard care stresses:

- Thinking of environmental consequences in addition to conveniences.
- Planning for greater harmony with natural surroundings.
- Being conservative and resourceful, rather than wasteful.
- Believing that little changes collectively make a big difference.
- Capitalizing on the time and cost-savings that rethinking yard care can bring.

Fact sheets in the *Yard Care and the Environment* series are designed to illustrate the principles of environmentally sound yard care. They provide specific information about pesticides, fertilizers, landscaping, watering, and related topics. These and other

publications can be obtained from your county UW-Extension office. Help is also available there regarding soil testing, pest identification, plant selection, and other important items related to yard care and water quality.

This publication is available from county UW-Extension offices or from Extension Publications, 630 W. Mifflin St., Madison, WI 53703. (608) 262-3346.

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Yard Care**

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Why Rain Barrels?



- ◆ Rain barrels reduce stormwater runoff, especially polluted “first-flush” runoff
- ◆ Rain barrels save on water bills
- ◆ Rain barrels provide healthy , chemical-free water for irrigation of lawns, gardens, and trees
- ◆ Rain barrels can be connected to a rain garden, further improving our water quality
- ◆ Rain barrels can be an attractive, yet functional addition to the landscape

Rain Barrels - The Facts

A prolonged drought plagued the Hopkinsville area during 2007 causing the loss of many valuable landscaping plants and prompting water rationing. Water conservation and development of alternative water supplies is necessary to meet a growing demand for fresh water.

Rain barrels are an alternative water supply anyone can construct and use. Rain barrels capture, divert, and store rainwater for later use. Collected rainwater is often used in landscaping, because the water is free of salts and other harmful minerals. It can also be used to provide water for wildlife.



Large rain barrel

Installing rain barrels directly benefits our city by reducing demand on the water supply, and reducing run-off, erosion, and contamination of surface water.

In many communities, 30 to 50 percent of the total water is used for landscape irrigation. Capturing rainwater for use in the landscape makes efficient use of a valuable resource, reducing water bills and reducing demand on water supply.

Capturing rainwater using barrels can also help to prevent flooding and erosion, turning stormwater problems into water supply assets by slowing runoff and allowing it to soak into the ground. Reducing stormwater runoff helps reduce contamination of surface water with sediments, fertilizers, and pesticides.



Urban flooding



Oil spills



Sediment-laden runoff

Rain Barrels - Frequently Asked Questions

How large of a rain barrel do I need?

You may start with one small 55-gallon barrel. However, if your garden is sizable, contains vegetables, or you have lots of potted plants, you may use up the entire barrel in one good watering.



55-gallon rain barrel



Linked rain barrels

To increase the storage, link two or more barrels together in a stairstep fashion, or graduate up to a larger rain barrel. Linking barrels together or purchasing one large barrel eliminates cutting multiple downspouts. One 275-gallon barrel comes with a cage, a built-in vine support! Keep in mind neighborhood aesthetics and deed restrictions when purchasing and locating your rain barrel.



275-gallon rain barrel

How do I make my rain barrel?

You may use the materials list and the instructions provided, you may purchase a rain-barrel from a local or on-line source, or you may stay tuned for a future "make and take" rain barrel workshop.

How do I maintain my rain barrel?

Rain barrels need periodic cleaning, especially removal of debris deposited from the downspout. Translucent, unpainted barrels may need to have algae cleaned out occasionally. Also, to prevent freeze damage, barrels should be emptied, dried, and stored over-winter.

Can I paint my barrel?

Yes! Match your house, camouflage the barrel, or be creative.



Stormwater & Rain Barrels - Online Resources

Stormwater Runoff

<http://en.wikipedia.org/wiki/Stormwater>

<http://www.hoptown.org/agencies/planning-commission/storm-water-management/>

<http://www.nrdc.org/water/pollution/fstorm.asp>

<http://www.epa.gov/weatherchannel/stormwater.html>

Rain Barrel Sources

www.rainbarrelguide.com

www.cleanaingardening.com

<http://www.aquabarrel.com/>

<http://www.midwestinternetsales.com/rainbarrels.htm>

<http://www.rainbarrelsource.com/>

Additional Rain Barrel Information

www.swfwmd.state.fl.us/publications/files/rain_barrels_guide.pdf

<http://www.dnr.state.md.us/ed/rainbarrel.html>

http://www.epa.gov/owow/nps/toolbox/other/KSMO_buildarainbarrel.pdf

<http://rainwaterharvesting.tamu.edu/>

Materials List for Basic Rain Barrel

<i>Materials</i>	<i>Cost</i>	<i>Location</i>	<i>Location Details</i>	<i>Comments</i>
(1) 55-gallon plastic barrel (white)	\$12.00	Billy Frogue's	On Hwy 68/80 service road between MM 3 & 4, Todd Co.	Good selection. (270) 878-0052
(1) Small pool skimmer basket	\$9.00	Water Witch	on Pembroke Road between Skyline Drive and Parkway	Allows easy removal of debris and cleaning of barrel
(1) Poly Full-Flow Shutoff Valve for Garden Hose (Gilmour)	\$5.50	Lowe's	in Garden Hose Section (may be seasonal)	Item #213282
(1) 25' 1-1/4" drain hose kit (black), or equivalent***	\$9.00	Lowe's	in Plumbing Section	***Makes 2+ overflow hoses
(1) 1-1/4" Adapter Insert FIPT (dark grey)	\$2.00	Lowe's	in Plumbing Section	Item #54129
Silicone caulk	***	Lowe's	in Paint/Caulking Section	***Can be used on several barrels
Teflon tape	***	Lowe's	in Plumbing Section	***Can be used on several barrels
Basic Rain Barrel Cost Estimate:	\$37.50			

Tools

Drill w/7/8" and 1-1/4" hole saws; smaller bit for starting hole on barrel top

Reciprocating saw, jig saw or coping saw

Screwdriver

<i>Other Materials</i>	<i>Cost</i>	<i>Location</i>	<i>Location Details</i>	<i>Comments</i>
Flexispout (optional)	\$8.00	Lowe's	in Gutters/Roofing Section	If downspout needs redirection
Fiberglass window screen (optional)	***	Lowe's	in Windows/Doors Hardware Section	***One roll can be used on several barrels
Garden hose (2' to 6')	varies	Lowe's	in Garden Hose Section (may be seasonal)	Keep it short for filling watering cans
Soaker hose (optional)	varies	Lowe's	in Garden Hose Section (may be seasonal)	If rain barrel is adjacent to plantings

- ◆ Cost per barrel goes down when making more than one rain barrel.
- ◆ Locations are only suggestions. Any food-grade drum source, home improvement store, or pool supply store should carry the above supplies.

Rain Barrel Instructions

<i>Top Hole for Water Input from Downspout</i>	
1	Using bottom of pool skimmer basket, trace circle in top center of barrel with pencil.
2	Cut out the hole for the skimmer basket using a reciprocating saw (wood blade), coping saw, or jig saw. Cutout on the small side, trimming more as necessary to increase the circle diameter so that the pool skimmer basket flange rests comfortably on top of the barrel without falling in.
3	Smooth/sand edges of circle if necessary.
<i>Lower Hole for Garden Hose Shutoff Valve</i>	
1	Starting about 1" - 1-1/2" up from bottom of barrel, drill a hole using the 7/8" hole saw. Use gentle pressure to reduce kickback. Increase hole diameter as needed to fit the shutoff valve.
2	Screw in the shutoff valve, then back it out, apply teflon tape, and a bead of silicone caulk on flange edge to seal. Rescrew back into hole.
<i>Upper Hole for Overflow</i>	
1	Starting about 4"-5" from top of barrel, mark center of overflow hole. Typically this hole is at a 90-degree angle from the lower hole for the garden hose.
2	Drill a hole using the 1-1/4" hole saw.
3	With some force, pop the 1-1/4" Female Adapter for the drain hose into the hole. Seal around opening with a bead of silicone caulk (optional).
<i>Connecting the Barrel</i>	
1	Let all glued and siliconed parts cure for 24 hours before connecting hoses.
2	Position barrel on sturdy platform at least 12"-16" above ground near/under downspout. Raising the barrel facilitates the flow of water and ease of access to lower hole for the garden hose. Cinder blocks can be used and topped with a more aesthetic 24" cement paver. Keep in mind the barrel can weigh up to 400lbs when full of water.
3	Insert pool skimmer basket into hole on top of barrel. Line inside with window screen to protect against mosquitoes (optional). Use PVC cement to attach screen to basket, but do NOT glue basket to barrel.
4	Modify downspout and position into the skimmer basket. Most likely, the downspout will need to be shortened using a hacksaw. A plastic Flexispout can be purchased for maximum flexibility and location options. Use Metal Self-Drilling screws to attach the Flexispout to shortened downspout.
5	Connect the drain hose to the overflow adapter. Trim the hose connector end to the appropriate size, and use the included clamp to fasten. Drain hose away from house foundation.
6	Connect garden hose to the lower hole shutoff valve. Apply teflon tape (optional). Turn valve to OFF until ready to use.
7	Ready!
<i>Options</i>	
1	Paint the barrel. Using a spray paint for plastic, paint the barrel to match the house or the surrounding shrubs. Artistic renderings can also be pretty once the barrel is primed. White translucent barrels can promote algae growth, so painting is recommended.
2	Landscape the barrel on the sides for camouflage. Or, place potted plants conveniently next to their water source to hide the raised base.
3	Connect a soaker hose to the hose adapter and open the valve when needed to slowly water an adjacent garden.
4	Connect two barrels in series to collect more rainwater. Simply connect the upper overflow hose to another lower rain barrel. Second rain barrel must have an overflow.