RAIN BARREL FACT SHEET

What is a rain barrel?

A rain barrel is any type of container used to catch water flowing from a downspout. Rain barrels reduce the amount of stormwater runoff by collecting roof runoff and storing the rainwater for future use.

How does it work?

The rain barrel is placed underneath a shortened downspout, diverting the roof runoff into the rain barrel. Placing the rain barrel on a STURDY platform will allow for more clearance under the spigot, plus also will increase the rate of flow if you are attaching a hose to the barrel's spigot.

How do I maintain the rain barrel?

During the spring and summer months routinely inspect your rain barrel. Remove any debris that has accumulated on the lid that might block the screen mesh. You should also routinely clean the inside of your rain barrel to reduce algae growth. During the winter months, remember to take your barrel out of operation. Simply turn upside down at the same location or stored somewhere else.

What are some of the benefits of using a rain barrel to collect roof runoff?

The use of a rain barrel will provide an alternative to using tap water for watering lawns, flower gardens and houseplants. It will also reduce peak volume and velocity of stormwater runoff reaching lakes and rivers. It will also help reduce peak water demands during the summer months.

Are there any restrictions regarding the use of the water collected in a rain barrel?

The water collected in rain barrels is not suitable for human consumption. Please make sure that children and pets do not drink water collected in a rain barrel. Due to the lack of research data, water collected in a rain barrel is not recommended for watering vegetable gardens.

COMMONLY ASKED QUESTIONS

How much rain do I need to fill a 50 gallon rain barrel?

For every inch of rain that falls on one square foot of your roof, you can "collect" just over half a gallon of rainwater (0.6 gallons). For example, if you have a shed that is 10' x 10' and you can collect the roof runoff from all 100 square feet of your roof, you could collect 60 gallons of rainwater during a 1-inch rain event.

What can I do if I would like to "collect" more than 50 gallons of rainwater at one downspout?

You can connect the overflow hose from your "first" rain barrel to a "second" rain barrel to get twice the volume at the same downspout.

Won't the pressure be too low if I'm watering my perennials with a hose connected to a rain barrel?

The pressure will be less than what you get from a traditional tap water spigot, so "overspraying" your plants will be difficult. To water perennials, place the end of the hose at the base of the flower bed. Move the end of the hose every few minutes to reach different areas within the bed. (Gardening Tip: "overspraying' is not recommended since it can promote certain plant diseases). Also don't forget that raising your rain barrel by placing it on a STURDY platform will increase the rate of flow.

Can I change the color of a plastic barrel?

A plastic rain barrel may be painted any color you wish. Use spray paint specially formulated to bond well to plastic surfaces.

Don't forget to visit the website of the **Lakes Area Clean Waters Council (LACWC)** at www.dropstopabsorb.org for additional information and also to register your rain barrel.

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Crow Wing County Extension Educator
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Rain Barrels: A Way of Collecting and Using Rainwater

Have you ever watched a river of rainwater run down your driveway into the lake or storm sewer? Or even worse, seep into your basement? Collecting roof runoff in rain barrels is a good solution to these problems and they also help to alleviate stressed water systems and conserve limited resources. Although they have been around for thousands of years, people are now encouraged more than ever to use them as a way to protect our lakes and rivers while saving money on water bills.

Rain barrels help prevent roof runoff from quickly washing into natural waterways and sewer systems. Runoff can carry nutrients and other contaminants right into lakes and rivers. Some storm sewers lead right into surface waters without treatment to remove pollutants first. Help reduce the problem by keeping storm water on your property. A rain barrel is a rainwater harvesting system that is connected to a downspout from any building. Downspouts that empty directly on paved surfaces or on vegetative areas with limitable ability to soak up runoff are priority locations for rain barrels. The water is collected and stored for later use.

There are many possible configuration and degree of complexity to a rainwater collecting system. Costs vary considerably as well. You can spend anywhere from about $70 to $300. Your best bet is to review and compare the options commercially available to find out what's in your price range and is really needed for your home. Search the Internet for information available on how to construct and install rain barrels. One website is http://www.ci.superior.wi.us/publicwks/wastewater/RainBarrelInstructions.htm. Making your own rain barrel will considerably reduce costs. Sixty gallon plastic barrels sometimes can be obtained at no or little cost from firms that deal with bulk food items like pickles, fruit cocktail, or soft drink concentrates.

The most common use for rainwater stored in rain barrels is watering gardens. Did you know that rainwater can actually help improve the health of your gardens, lawn and trees? This is due to the nature of rainwater. Rainwater is naturally "soft" and devoid of minerals, chlorine and other chemicals found in city water. For this reason, plants respond very well to rainwater.

Look around your neighborhood, how many rain barrels do you see? Hopefully a lot. If not start a new trend and take pride on being one of the first homeowners to install rain barrels. By placing rain barrels around your house, you will be teaching and encouraging others in your neighborhood to do the same. On a larger scale, you will be helping to spread the culture of rainwater collection in your community and will be helping the environment. We can do it, even if it is one rain barrel at a time!

# # #

Source: Jackie Froemming, County Extension Educator
University of Minnesota Extension - Crow Wing County

Rain Barrels

REASONS TO HAVE A RAIN BARREL AT HOME:

Rain Barrels:

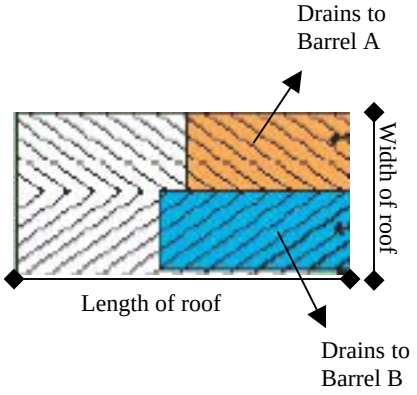
- Keep water out of storm and combined sewer systems
- Protect our rivers, lakes, and streams from runoff pollution
- Control moisture levels around foundation of home
- Provide oxygenated, un-chlorinated water, ideal for plants
- Direct overflow to where you want it
- Reduce water and wastewater bills
- Conserve water in the summer months, when demand is the highest

http://www.ci.minneapolis.mn.us/cso/images/rain-barrel-5.gif

For every inch of rain that falls on a catchment area of 1,000 square feet, you can expect to collect about 600 gallons of water.

Roof catchment area =
total square footage of house
+ extension of eaves

ft^2 = length x width



So, ¼ inch of rain on an average roof = 3 full rain barrels. Ideally, you should have a rain barrel for each downspout of your home.

HOW TO MAKE A RAIN BARREL:

The orange barrels can hold up to 50 gallons of rainwater. They have a lid and lid-ring similar to a canning jar. Aluminum insect screen has been soldered onto the lid to prevent mosquitoes from laying their eggs in the water. The screen also keeps out leaves and other debris.

Barrel with a lid that comes off

Materials:

The following materials are provided in your Rain Barrel Packet:

- 50-gallon barrel (pre-drilled with 15/16^{ths} inch drill bit)
- 14" diameter circle of screen appropriate to prevent mosquitoes from entering the barrel.
- 2 brass spigots with ¾" pipe thread and 1" standard hose fitting
- ¾" pipe threaded overflow adaptor (some have 1" hose fitting)
- 3- ¾" lock nuts
- 3- ¾" rubber washers

Additional materials you'll need if assembling your barrel at home (these will be provided to workshop participants):

- Teflon tape for pipe threads
- Household silicone sealant
- 10" adjustable wrench

Tools:

These tools will be needed if you are not using a pre-drilled barrel provided by the WWTP.

- Gloves
- Safety glasses
- Drill
- 15/16^{ths} inch paddle bit
- Utility knife
- Large adjustable wrench
- Pipe wrench
- Soldering iron to secure screen to a removable lid

These are needed to set up your barrel at home

- Steel wool
- Cinder or concrete blocks
- Hacksaw or tin snips

Participants set up their rain barrels at Rain Barrel Workshops given by the City of Superior.

HOW TO MAKE A RAIN BARREL:

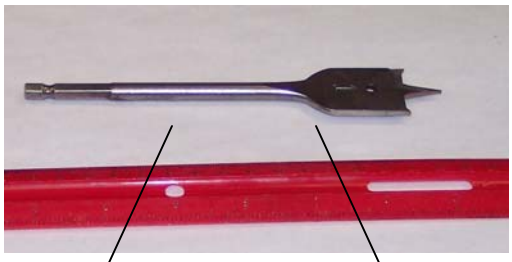
Step 1

The barrels provided with this Workshop Packet likely contained some sort of bulk food, such as vanilla, fruit cocktail, or pickles. All barrels have been thoroughly rinsed, but may have a residual fragrance!

With a drill, use a 15/16^{ths} inch hole saw bit and cut one small hole near the base of your barrel to attach one hose spigot. Turn your barrel one third of the way around to either left or right and drill another hole about halfway up the barrel for a second spigot. Turn your barrel one third of the way around again and drill a third hole about 2 to 3 inches from the top of the barrel for the overflow.

If you are participating in a workshop or purchased your barrel from the City of Superior, the holes will already be drilled.

The spigot, lid, and overflow holes were drilled with a 15/16^{ths} inch paddle bit.



Step 2

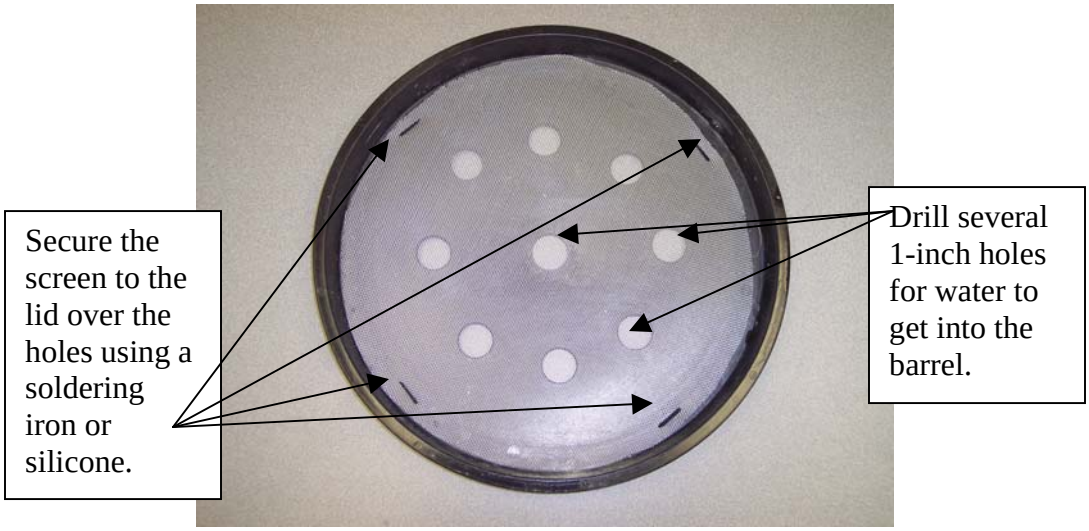
Cut nine 15/16^{ths} holes in the lid of the barrel to serve as inlets for rainwater. Use a standard drill unit with a 15/16^{ths} inch paddle bit and cut holes so they are well-distributed across the surface of the barrel lid. Note: cutting into plastic requires extreme care. Be sure the barrel is secure.

Cut a circle 14 inches in diameter out of aluminum insect screen, similar to that on your screen door or windows.

Remove the ring that secures the lid to the barrel. Secure the screen to the lid over the holes using a soldering iron or silicone.

Keep the lid off the barrel for Steps 3 - 6. When your barrel is fully assembled, replace the ring over the lid to secure the lid onto the barrel.

Barrels purchased from the City of Superior have the holes drilled and the screen soldered for you.

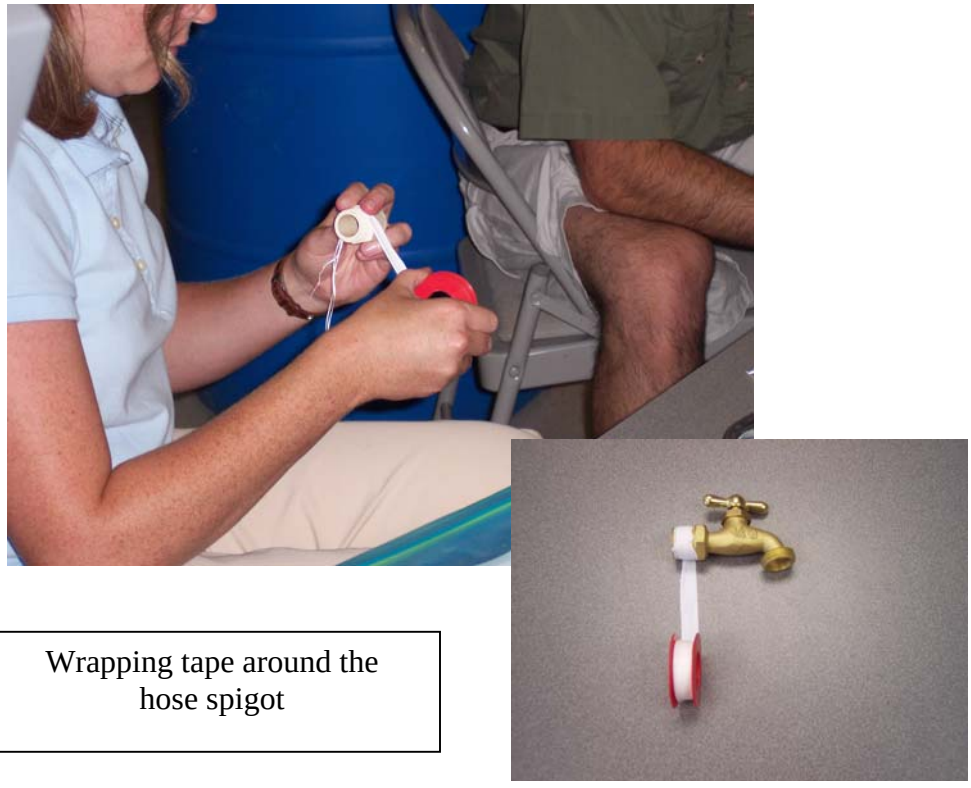


Step 3

Wrap Teflon tape clockwise (holding the spigot in your left hand with the threaded end facing you, wrap the tape with your right hand clockwise) around both spigots and overflow adaptor threads to ensure a good seal.

This will also help provide a snugger fit into your barrel and can help prevent leaking.

If the spigot seems loose in the hole, wrap extra Teflon tape for an even snugger fit. If the spigot is screwed all the way into the hole but it still spins, don't worry – the spigot fits tight enough in the rain barrel to prevent leakage. If you are concerned about leakage, put silicone around the spigot where it connects to the exterior of the barrel.



Wrapping tape around the hose spigot

Step 4

Secure one ¾" hose spigot in the hole about halfway down the barrel. Put one ¾" rubber washer on from the inside of the barrel. Place a bead of silicone between the washer and the barrel wall to ensure a tight seal. Secure the spigot with one ¾" galvanized locknut.

¾" Hose Spigot (faucet is threaded to attach a hose)

¾" Rubber Washer

¾" Galvanized Locknut

Reach into the barrel to fasten the washer and locknut on the upper spigot and overflow while holding the spigot securely.

Step 5

Secure the second hose spigot to the lower half of the barrel by screwing the threaded end of the spigot into the hole closest to the bottom of the barrel. Attaching the washer and locknut to the lower spigot requires reaching all the way down into the barrel (some people find it easier to lay the barrel on its side for this step). It helps to have someone hold the lower spigot in place while the locknut is being put on, to prevent the spigot from spinning. Because of the curved surface at the bottom of the barrel, it may be difficult to get the washer and locknut to fit on the end of the spigot – if so, just use the Teflon tape and a bit of silicone to secure the spigot from the outside – this is usually adequate enough to prevent leakage. If the spigot seems loose in the hole, wrap extra Teflon tape for a snugger fit.

A view inside the barrel of the lower spigot secured by a washer and locknut. Can you reach all the way in the barrel?

Doing the Rain Barrel Reach!

Step 6

Similar to Steps 4 and 5, install the overflow fitting in the top hole. The double-threaded overflow fittings may be used. If you have one of these, make sure to use the end with **four threads** when screwing the overflow fitting into the barrels. The end with seven threads will be used to attach to the end of a hose.

Secure one ¾" male PVC adaptor in the hole near the top of the barrel. This is for overflow. Reach into the barrel through the louver hole to fasten the washer and locknut on the overflow.

Put a ¾" rubber washer on from the inside of the barrel. Apply a bead of silicone around the washer where it faces the inside of the barrel. Secure the adaptor with the ¾" galvanized locknut.

¾" PVC adaptor (not double-threaded)

¾" Rubber Washer

¾" Galvanized Locknut

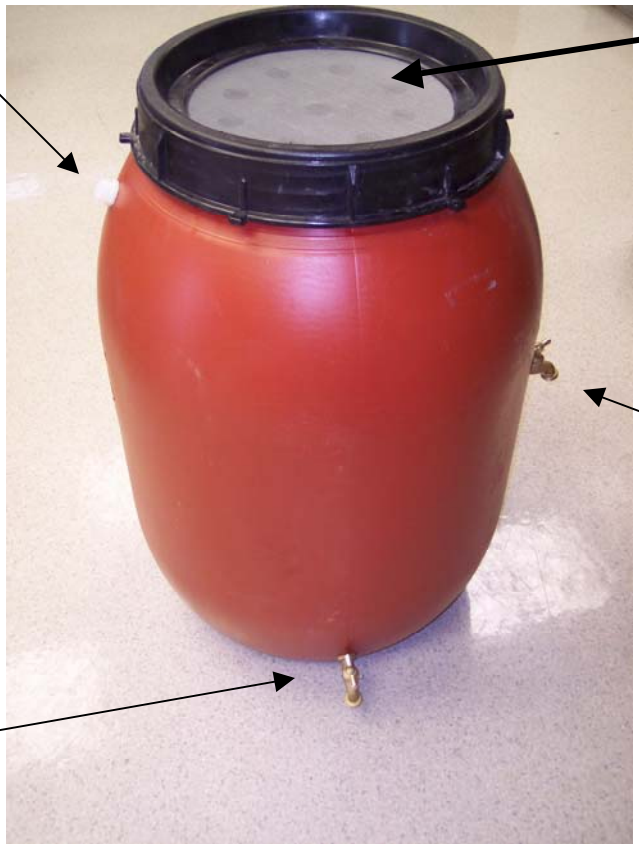
Putting in a threaded adaptor.

An adaptor secured by silicone, washer, and locknut

Your Rain Barrel!

Place your downspout on top of the barrel. Water will enter through the screen, but mosquitoes will not.

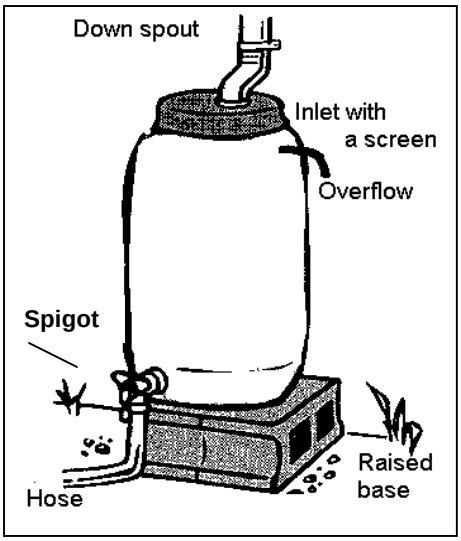
Overflow: upper 1/3 of the barrel. Attach a garden hose or connect to a second barrel using PVC pipe.



Upper hose spigot (about halfway down the barrel) for a watering can or hose.

Lower hose spigot (near the bottom of the barrel) for a garden hose.

Tips for Using Your Rain Barrel at Home:



http://ottawa.ca/city_services/water/images/barrel4.gif

- Put concrete or cinder blocks on level ground under the downspout to provide a base under the rain barrel. Make sure the barrel is level, not leaning and ready to tip over! 50 gallons of water weighs about 400 pounds!!

- Make sure the barrel is high enough to allow a bucket to be placed under the upper spigot. The higher you can place your barrel, the more water pressure you can get from a hose.

- Shorten your downspout using a hacksaw or tin snips. Dull the cut edge with steel wool. Set the end of the downspout just above or on top of your barrel. If you experience uncontrolled splashing, make sure your downspout is as close to the top of the barrel as possible.

- If you don't want to cut your downspout, downspout adaptors can be found at local hardware stores – their length can be adjusted to fit from the gutter to the top of the rain barrel.

Milt, a former graduate of the Rain Barrel Workshop, and his trouble-shooter!

- If your barrel overflows through the top, enlarge the overflow holes to 2” or add an additional overflow on the opposite side of the barrel from the existing overflow adaptor.
  - If your barrel overflows/fills quickly, reduce the amount of area draining to the barrel by diverting water coming off the roof to other downspouts and by adding barrels to the other downspouts. You can also set up multiple barrels in a cascade arrangement.

- During heavy rain (>1”), run garden hoses away from your house into your yard/garden and open spigot valves to drain away from your house. Your rain barrel will overflow during a heavy rain event, so try to prevent it from overflowing near your foundation!

- Periodically check your barrel to ensure that it remains in good working order.

- To prevent algae growth, do not let water remain in your barrel more than 5-7 days. If algae grows, rinse your barrel with a VERY dilute (5%) bleach solution (3/4 cup chlorine bleach per 1 gallon of water should do). Rinse well. Keeping your barrel out of direct sunlight may also help.

- In winter, you may take your barrel indoors, or simply leave the barrel out with all spigots open. This will help to control snowmelt from your roof during winter warm-ups and spring thaws.

Be creative! These barrels take paint well, but make sure to use paint specifically designed for plastic. Crylon Infusion and Plasticoat are two types of paint that work well, but be careful when handling your barrels as the paint can rub off.

From this...

To this…

Or this!

Barrels in action...

We hooked up a rain barrel near one of our rain gardens and ran a soaker hose from the lower spigot on the barrel through the garden. Think of all the stormwater that can be saved after a rainstorm!

Water from the roof of the building is funneled into the barrel and saved.

Funneling the water through the barrel helps to control erosion from the downspout and the heavy water pressure from destroying the yard and garden.

We found that it took about 12 hours to empty a rain barrel through the soaker hose in this garden. After the barrel fills, we just open the valve on the spigot and leave it open for about four hours in the morning. We can water our garden for three days on a single barrel. We will soon add a second barrel since we found that we lose a considerable amount of water through the overflow.

Send us a picture of your Barrel in Action!

You may purchase pre-drilled barrels and hardware kits, described in the materials section of this instruction booklet, from the City of Superior Wastewater Treatment Facility (barrel + hardware).

Barrel styles and kit cost are subject to change without notice, cannot be special ordered, and all sales are subject to stock on hand.

Let us know how your barrel works!
Problems...Ideas...Troubleshooting

Superior Wastewater Division of Public Works
51 E. First Street
Superior WI 54880

Call Diane at 394-0392 extension 131
thompsond@ci.superior.wi.us
or
Kari at 394-0392 extension 141
jacobsonk@ci.superior.wi.us

This workshop is brought to you by the City of Superior Wastewater Division of Public Works and by a grant from Duluth/Superior Area Community Foundation.

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