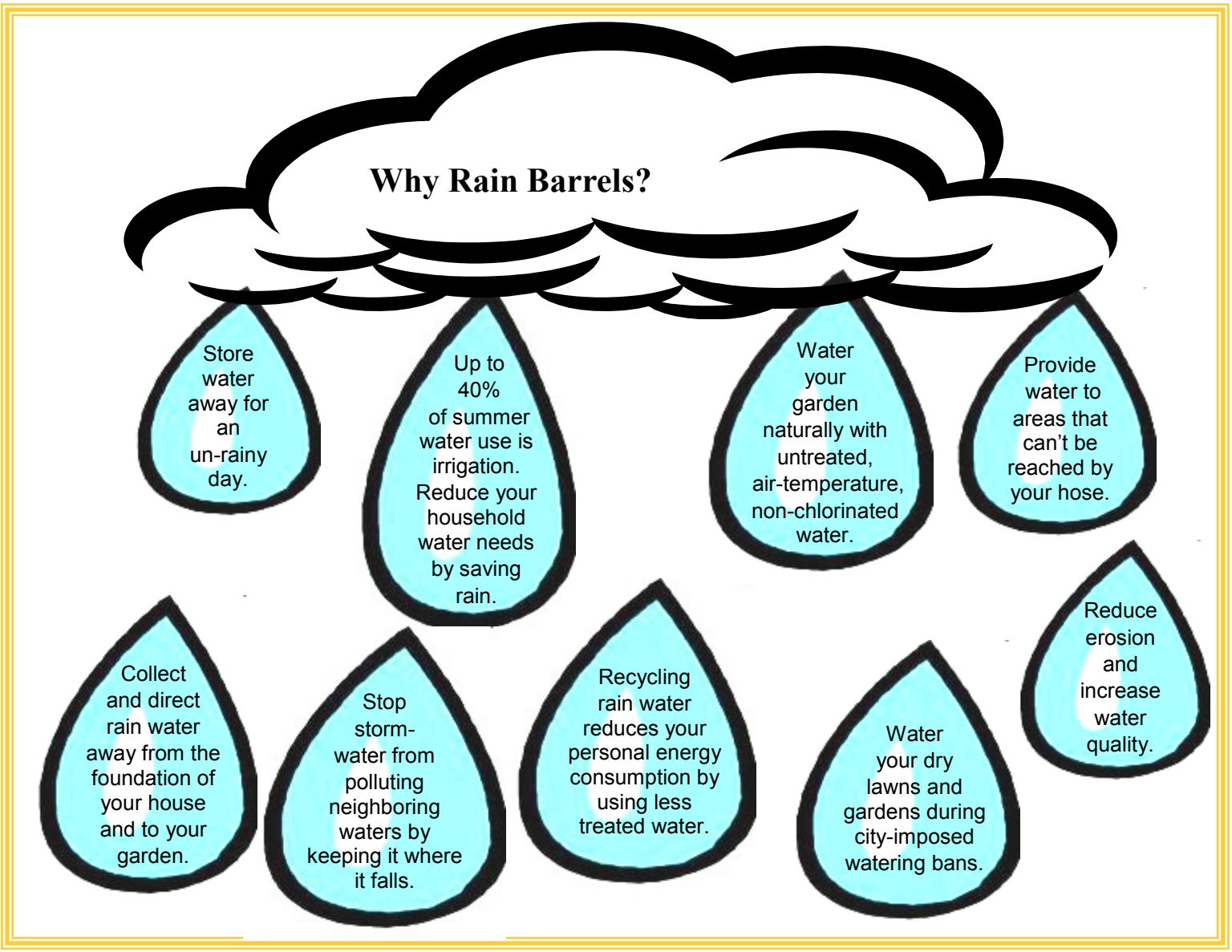
Rain Barrels

More than a drop in the bucket for conservation

A comprehensive guide to deciding on, designing for, building and buying a rain barrel in the Twin Cities Metro Area.



Rain Barrel Hydrology Lesson:

Spring snowmelt and rains are usually plentiful. A rain gutter and extended downspout will help keep the water away from your house and minimize freeze thaw cycles that are dangerous for sidewalks and driveways. Because it is unlikely that your garden will be lacking in water at this time, the main spring-time function of rain barrels is to reduce the amount of stormwater running off of your property.

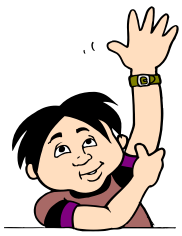
Summer weather is more sporadic with unpredictable rainfall and hot dry spells. Rain barrels provide a way to balance watering needs during this time. Most storms deliver a ¼ inch of rain, but 5 to 6 times per year we get a 1-inch deluge. Because the typical residential roof can collect a significant amount of rainfall, the amount of water saved depends on the capacity of your rain barrel(s). If you want to store water for irrigation between summer storms, you will need a rain barrel of adequate size. Connecting 2 or 3 barrels together or installing a barrel at more than one downspout is an easy way to multiply your storage capacity. To help plan your rain barrel set-up, consider the following:

1 inch of rain on 1 square foot of roof yields 0.6 gallons.

1 inch of rain onto a 10 ft x 10 ft. area (100 sq. ft) yields 60 gallons.

Multiply the square footage of your roof that drains into each individual downspout by 0.6 gallons to get your roof runoff volume. Either use a single barrel and prepare for occasional overflows, or select a rain barrel that can link to another to collect as much rain as possible. Check our recommended web links for ideas on both options.

Example: One side of a one-car garage is draining into the barrel. If that roof area is 15 ft x 20 ft (300 sq. ft.), then 1 inch of rain will yield 180 gallons of roof runoff into the barrel. A more common storm event only delivers ¼ inch of rain, producing 45 gallons that will flow into the barrel.



Do I <u>need</u> a rain barrel?

The simple answer is no, nobody with access to municipal water *needs* a rain barrel. Instead, it is one of many choices we can make to have a positive impact on an over-impacted environment. Choosing rain barrels is a great decision for conservation because it benefits you *and* the environment. While the positive impacts on your local lakes might be harder to see, you will be controlling the amount of polluted runoff from your own property. At the same time, you will gain a healthier, more natural garden without needlessly using municipal waters.

I am committed to helping in some way. I like the idea of rain barrels. Will it work at my house?

My house has gutters and downspouts or I am willing to add them.

Yes

What is the next step?

Yes

Time to do more research!

1. **Calculate how much water you will get from your roof.**
2. **Consider how much water your garden needs.**
3. **Shop for a barrel that keeps leaves, mosquitoes and kids out !!**
4. **Shop for a barrel that you can clean out.**
5. **Shop for a barrel that appeals to you.**
6. **Create a flat area to support a rain barrel—the barrel will weigh 500 pounds or more when full !!!**
7. **Purchase or make your first rain barrel.**
8. **Link more rain barrels together for more water storage if needed, after assessing your new system.**
9. **Do-it-yourself workshops are popular, but your local handy-man can install it if you need help.**
10. **Attach a soaker hose if you do not have time to empty the barrel after big storms or for slow release of water.**

No

To protect your local wetlands, creeks and lakes, it is best to have a well-vegetated yard that will soak up the water from your roof.

Consider rain gardens, infiltration trenches and swales.

Are our ideas soaking in?

Yes

There are impervious surfaces between my downspout and vegetated areas but rain barrels won't work for me.

Yes

There ARE alternatives depending on site conditions

The primary goal is to reduce the amount of rain water runoff from your property. To achieve this without a rain barrel, find a means to deliver rain water from roofs and pavement to vegetated areas.

Install a downspout attachment that drops down across the sidewalk during a storm and sends the water to <u>soak into a vegetated area.</u>

Replace sidewalk or driveway with porous pavers for water to go through <u>to get into the ground</u> if there is at least 10 ft. of distance from the house foundation.

If your yard slopes away from the paved surface, attach a drain pipe to the downspout and embed the pipe in or under the pavement to deliver it to an area where it can soak in.

Words of Wisdom

1. Clean out your rain barrel.
   - 3/4 cup Clorox per gallon of water to remove remaining contents of recycled barrel prior to installation. This cleaning is only done once before any stored water is used from the barrel.
   - Sediment and debris removal as needed monthly, yearly, etc.
2. Management of heavy rain storms. Rain barrels fill very quickly in a heavy storm. Connect a 1-1/4 to 1-1/2 inch hose to the barrel's overflow port and direct the water at least 6 feet away from the building foundation. Note: Garden hoses can be too small, causing spillage near the house foundation. Emptying your rain barrel before any rain event will provide "dead storage," and allow for optimal water savings.
3. Winterizing rain barrels. Disconnect downspout connections to the rain barrel prior to the first hard freeze. Redirect the downspout area away from the foundation of the house for the winter season.
4. Maintenance. Periodic checks throughout the season should be done to make sure screens are cleaned out, hoses are well attached, and no small animals have found their way in.
5. For safety concerns regarding rain barrel use for drinking water, on vegetable plants, avoiding mosquitoes, or cautions regarding roofing material, see:
   - http://home.comcast.net/~leavesdance/rainbarrels/safety.html.
6. For installation and maintenance tips see our *Local Rain Barrel Resources and Helpful Web Links* document that is Insert 1 in this information packet.

So What's Next? - Rain barrels are not the only way you can reuse stormwater.

Thank you rain barrel users! You are now holding back around 8% of the stormwater falling on your roof or around 3% of runoff from your entire residential lot. This helps reduce flooding and pollution in the stormwater system. Now, look around to see where else you can hold back more water. For more ideas, see: http://clean-water.uwex.edu/pubs/ and look at the section 'Home and Garden Clean Water Practices.'

Use this website as a starting point to learn more about:

Rain gardens. A single rain barrel will not usually be able to contain all the runoff from a heavy storm. To handle larger volumes of water, rain barrels are best used in conjunction with other water management strategies such as rain gardens (see photo).

Planting with Native Vegetation. Native plants are suited to our unpredictable climate. They have deep roots that help use up rainwater and they offer habitat to native birds, butterflies, frogs, and turtles.

Yard Care and the Environment. Use fertilizers, pesticides, herbicides, irrigation, compost etc., wisely and effectively.

If you do not have the internet, use the underlined words above as key words to research these projects at a local library or to ask us!

Connecting a soaker hose to your rain barrel is an efficient means of irrigation.

Photo courtesy of Lake Superior Streams

Ramsey-Washington Metro Watershed District

2665 Noel Drive
Little Canada, MN 55117
Phone: (651) 792-7950
Fax: (651) 792-7951

Local Rain Barrel Resources and Helpful Web Links

Revised 6/13/11

Barrel Depot Rain Barrels

Barrel Depot - A small Minnesota company working towards an eco-friendly environment. Selection now expanded to include salvaging young, good condition, used wine and whiskey barrels as well as a variety of plastic barrels and accessories. Buy one ready made or buy the assembly kit and make your own! Shipping available for a fee. For more information:

Website: www.barreldepot.com
Phone: 612-290-7427
Email: elenakotowski@hotmail.com or see 'contact us' form on their website.

Mother Earth Gardens

Four styles available! Recycled Jack Daniels oak distillery barrels are 55-gallons with brass spigot are $240. The dark gray 55-gallon plastic recycled pickle barrels sell for $140. A 34-gallon collapsible design made of flexible polyester with a screen top sells for $75 (excellent for ease of winter storage). The fourth is a plastic RainXchange barrel with a lockable lid that holds 75 gallons for $200.

Website: www.motherearthgarden.com
Phone: (612) 724-2296
Address: 3738 42nd Ave. S. Minneapolis, MN 55406

Mother Earth Gardens Barrels

Cedar Hill Natives

Providing products and services to help create sustainable landscapes. Many rain barrel styles and accessory kits available ranging in price from $30 to $189, including oak rain barrels, oak rain barrel kits, and two styles of plastic rain barrels. Delivery and installation services available. Rain barrel workshops also available.

Website: www.cedarhillnatives.com
Phone: 651-252-7598 (located in Stillwater, MN)
Email: connie@cedarhillnatives.com

Gertens

Gertens sells two different plastic barrels, a 54-gallon and a 75-gallon barrel, priced at $100 and $150 respectively. Available year round. For more information :

Website: www.gertens.com
Phone: (651) 450-1501
Address: 5500 Blaine Ave. Inver Grove Heights, MN 55076

Achla Designs @ Gertens

Minneapolis Rain Barrel

50-gallon barrels in decorative cedar and aluminum enclosure. Match to your house! For more information:

Website: www.minneapolisrainbarrel.com
Phone: (952) 475-3234
Email: sdhcfc@aol.com

Mills Fleet Farm

Fleet Farm carries two barrels, a 50-gallon barrel for $70 and a 58-gallon barrel for $150.

Website: www.fleetfarm.com
Phone: (651) 779-7725
Address: 5635 Hadley Ave N., Oakdale, MN 55128

Home Depo

Many designs available online and in stores ranging from $68-$300.

Website: www.homedepot.com
Phone: Maplewood location: 651-770-9600

RiverSides Rain Barrel

RiverSides

Barrels hold 132 gallons, are octagonal, made of UV-stable HDPE to prevent warping and fading from UV rays. Solid green or black are $249 (Canadian) each and sandstone, granite and millstone color/patterns are $299 (Canadian) each. Price does not including taxes and shipping (bulk shipping prices and purchases are available so think about ordering with your neighbors!).

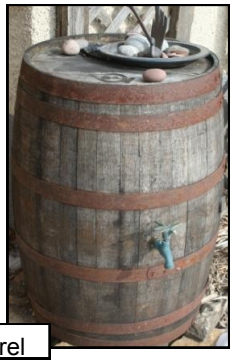
Website: www.riversides.org
Phone: (416) 868-1983
Email: info@riversides.org

Come see a RiverSides Rain Barrel on functioning display at the RWMWD Office!

Sustain Your Place on Earth Rain Barrel

These barrels assembled by Sustainable Community Solutions (SCS) are made from 60-gallon French Oak wine barrels for $184/barrel (+$12.65 tax). For $205/barrel (+$14.09 tax), get it fitted with a decorative recycled brass animal figurine faucet (dragonfly or bullfrog). Bulk rates available. Metro delivery available for $25/barrel.

Website: www.sustainablecommunitysolutions.com
Phone: 507-210-4012
Email: bruce@sustainablecommunitysolutions.com



SCS Barrel

***Note: All prices relate to the revised date listed above.**

The ReUse Center
Wood and black plastic recycled barrels (approx 55-gallons) are available this year. Both are pre-assembled and are priced at $170 for the wooden barrel and $74.68 for the plastic barrel. For more information:

Website: www.thereusecenter.com
Locations: 2801 21st Ave. S. Minneapolis (612-724-2608)
1727 E. Hwy. 36 Maplewood (651-379-1280)

Consolidated Container Company, LLC
Build your own custom rain barrel with these 55-gallon plastic drums. Barrels are blue (clear barrels available but not recommended as they can promote algal growth and heat the stored water). Pricing unavailable at the time of publication, but last year's prices wee $40-$50. Bulk rates available.

Website: www.containerexperts.com
Phone: (612) 781-0923 or Toll Free: 1-800-577-0715
Address: 109 27th Ave. NE Minneapolis, MN 55418

See Insert 2 for a guide to building our own barrel. Ask for food-grade or new barrels from barrel vendors to make sure they did not previously contain chemicals that could harm your garden.

Verde Strategies
Reused 55-gallon plastic, food grade barrels are converted to rain barrels for $60/barrel. The online ordering form allows you to customize overflow size and spigots. *Verde is also doing many workshops throughout the metro.* (note: website was under construction at time of this publication. Use contact info below to order)

Website: www.verdestrategies.com
Phone: 952-212-6576 (Ed) or 612-281-9145 (Doug)

Western Container (Bargain Container Co.)
55-gallon, closed-top and open-top, blue barrels are available to be used in making your own rain barrel. New barrels are $70, used barrels sell for $25. For more information:

Website: www.bargaincontainer.com
Address: 8811 Science Center Dr., New Hope, MN 55428 . Hours: M-F, 7am-3pm.

Website Resources for Rain Barrels

General Information Sites
www.duluthstreams.org/stormwater/toolkit/rainbarrels.html - Lake Superior, Duluth Streams Organization.
www.rainbarrelguide.com – How to use rain barrels for rainwater harvesting.
www.ci.minneapolis.mn.us/stormwater/green-initiatives/rain-barrel.asp - Minneapolis.
www.co.dakota.mn.us/EnvironmentRoads/EnvirProtect/Stormwater/RainBarrels.htm
www.naturalrainwater.com - Rain barrel photo gallery.
www.marcy-holmes.org/projects/rainwater/4.html - Marcy-Holmes Neighborhood Association (Minneapolis). Lists addresses of local demonstration sites.

Where to Buy Ready-Made Rain Barrels Online:
www.rainwatersolutions.com - 100% recycled content.
www.recycleminnesota.org - look for spring specials.
www.cleanairgardening.com/rainbarrels.html - Earth friendly lawn and garden supplies including a variety of rain barrels.
rainwater.fiskars.com - Unique variety. Downspout accessories.
www.northerntool.com - Ten different barrels. Not in stores.
www.composters.com - Many styles of rain barrels & accessories.
www.greatamericanrainbarrel.com - (see photo) Rain barrels and accessories such as polished river stones, and rain diverters.
www.watersavers.com - Green Culture.
www.bushmanusa.com - For barrels from 130 to 2825 gallons.
www.cypressdesigns.com - Paintable, conforms to corners.
www.aquabarrel.com - 55 to 214 gallon systems and much more.

How to Make and Install a Rain Barrel and/or Buy Recycled Barrels
http://tylertork.com/diyrainbarrels/toolsneeded.html - DIY in the Twin Cities Metro
www.cwp.org/documents/cat_view/80-factsheets-and-outreach-materials.html—Center for Watershed Protection—Solutions for Clean Water and Healthy Natural Resources.
www.diynetwork.com/how-to/how-to-create-a-rain-barrel/index.html
www.d.umn.edu/~seawww/quick/easypdf/rain_barrel_const.pdf

Come see our rain barrels and other green initiatives at our office in Little Canada, MN

Ramsey-Washington Metro Watershed District

2665 Noel Drive
Little Canada, MN 55117
Phone: 651-792-7950

The RWMWD is a grouping of five smaller urban watersheds (Phalen Chain of Lakes, Beaver Lake, Battle Creek, Fish Creek, and East St. Paul) that drain to the Mississippi River just downstream of downtown St. Paul. We are a special purpose local unit of government with a mission to protect and improve water resources and water related environments within our jurisdiction. For more information, you can visit our website at www.rwmwd.org, or call our office at 651-792-7950.

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How to Assemble and Install Your Rain Barrel

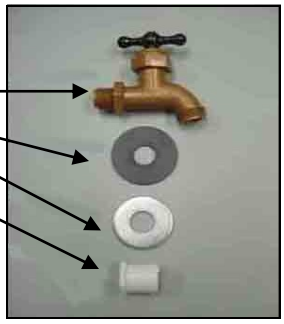
The barrel shown on the right is a typical food-grade plastic drum that you can use to build your own rain barrel. Most of these barrels are between 40 and 60 gallons and can be obtained from vendors other than the manufacturer who initially used the barrel. (See Insert 1: Local Vendors for these barrels or search the web for others.) Because of this, you will need to ask if the vendor knows the following traits for a "good" rain barrel:

> Was it ever used to contain chemicals or other harmful substances? This can leach into the ground when you water your garden, harm the soil, pollute the ground water, and possibly affect you and your family. Always smell a barrel before buying it to test for lingering smells. Pickle smells are OK.
> Does it have a tight fitting lid to prevent curious little critters from getting in?
> Is it made from UV tolerant plastic so it will not decay with sun exposure?
> What color does it come in? The practical aspect of this is to keep the water relatively cool. If the barrel is clear, it will get too warm. The aesthetic aspect is simple. If you do not like how it looks against your house, you are less likely to use it.

Assembly A: Faucet

- Drill a 3/4" hole roughly 3 or 4 inches from the bottom.
- Screw the spigot into the hole.
- From inside the barrel, slide the rubber washer over the spigot threads.
- Slide the metal washer over the threads behind the rubber washer.
- Screw on the bushing and tighten.

Cost:*	Materials Needed
$4.49	1/2" hose spigot
$1.50	3/4" inside diameter rubber washer
$0.50	3/4" inside diameter steel washer
$0.75	PVC bushing with inside diameter to fit on non -hose end of the spigot
$1.96	1-1/2" wing nut plug (rubber)*



* Please note that costs may vary with time and vendor.

Assembly B: Overflow

- Drill a 1-1/2" hole ~6" from the top.
- From inside the barrel, push the smaller end of the female insert adapter through the drilled hole.
- Attach overflow hose onto the insert adapter. Cut hose to a length that will reach a vegetated area or at least 4 ft from the house foundation.
- Tighten the hose clamp where the hose covers the adapter to secure it.
- From the inside of the barrel, caulk the seam where the adapter meets the barrel walls.

Cost:	Materials Needed
$5-8 Available at large hardware stores	1-1/2" sump pump drain kit, including: > 1-1/2" inside diameter male adapter ($0.41) > hose clamp with range of 1-1/2" ($0.78) > 1-1/2" overflow hose (weather resistant)
$2.99	Marine or other weather resistant caulk

*Note: The rubber wing nut plug should be used to seal "Plug" in the Figure 2 drawing below if multiple barrels are being connected. To connect another barrel, remove the spigot from the first barrel, and screw in a hose adapter. Optional: installing another rubber wing nut plug on the side of the barrel as close to the bottom of the barrel as fits helps with yearly cleaning (See "Plug" in Figure 1). If barrels are not winterized, leaving this valve open (rubber wing nut plug out) will prevent the barrel from freezing in the winter. Rubber plugs should be kept inside in the winter to prevent cracking.

Figure 1

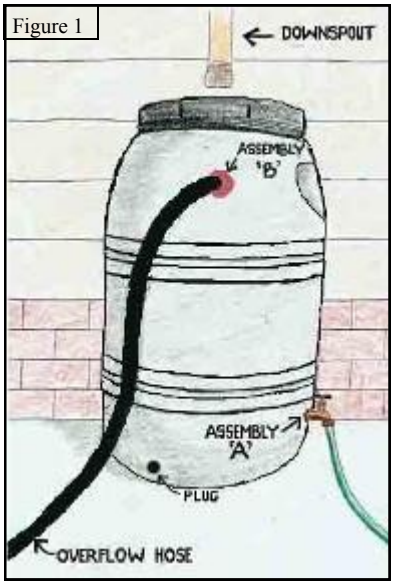
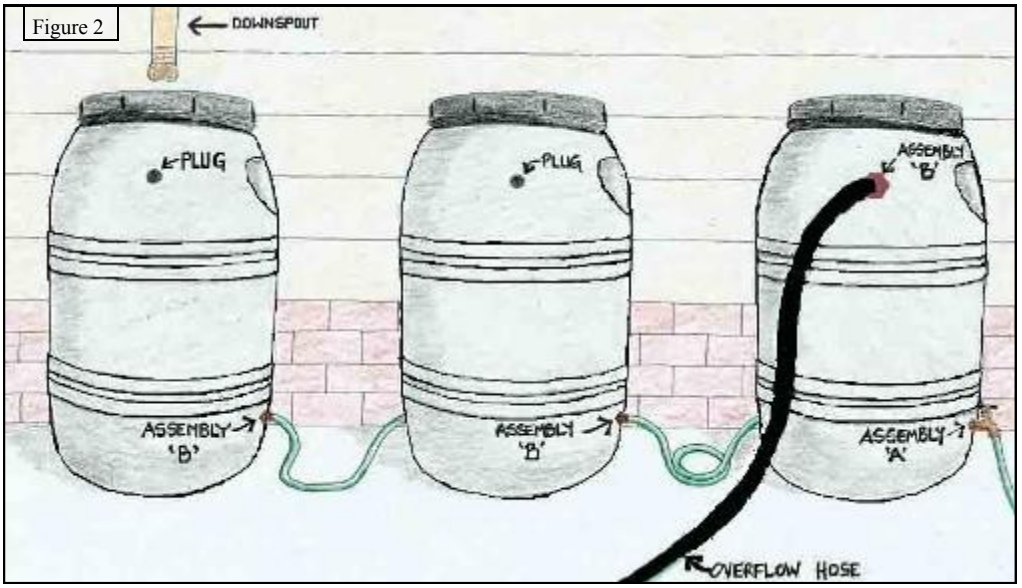


Figure 2



Lid: Be Creative. Used barrels vary greatly, so you may have to improvise.

Example A: Barrel with lid.

- Use a jigsaw to cut a hole in the lid the size of the inside of the atrium grate rim. Cutting it the same size as the outside of the rim will make it fall into the barrel.
- Put filter sock in the atrium grate and secure. This will assure that mosquitoes won't use your barrel to create more mosquitoes. Clean as necessary.

Cost	Materials
	Jigsaw or sharp utility knife
$6.99	6" atrium grates
$7.99 for 3	Inlet filter sock

Example B: Barrel with no lid - bottom of barrel becomes top of rain barrel

- Use jigsaw or knife to cut 8-1/2" - 9" hole in drain tray.
- Trace the size of this hole on the base of the barrel.
- Cut out three holes as shown in photo of the blue barrel. The remaining plastic "Y" is for support and to make sure small critters don't fall through the screen.
- Cut screen and hardware cloth in 10" circles. Stack and center both layers over holes.
- Place drain tray over screens, Screens should not stick out of edge.
- Screw drain tray through screen and to barrel. Pre-drill holes one at a time if you want. Drilling all holes before adding any screws often results in misaligned holes.

Cost	Materials
	Jigsaw or sharp utility knife
$3.00	14" drain tray from plastic plant pot
$1.25	1 sq. ft. hardware cloth –1/4" grid
Recycle or <$6/roll	1 sq. ft. window screen - smallest possible grid for mosquito control
$0.72	(6) stainless steel screws, 3/4" in

Example C: Barrel with threaded or snap-on lid that has tall edges

- Cut out circle in lid to desired size. Note: it should be big enough to handle large amounts of water, but small enough to keep kids and animals out.
- Take lid off, and place window screen over the top of the barrel.
- Pop or twist the lid back on.
- Trim edges of screen, but leave excess so it will be easy to re-assemble after cleaning.

Cost	Materials
	Jigsaw or sharp utility knife
Recycle or usually < $6/roll	3 - 4 sq. ft. window screen - smallest possible grid for mosquito control (Measure the diameter of your lid, and overestimate by ~4" on each of four sides to allow for overhang).

This document produced by
Ramsey-Washington Metro Watershed District
www.rwmwd.org
in cooperation with
The MN Association of Metropolitan Soil and
Water Conservation Districts.