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PARTNERS

- COLORADO STATE UNIVERSITY
 - ONE WATER SOLUTIONS INSTITUTE
 - COLORADO STORMWATER CENTER (STORMWATERCENTER.COLOSTATE.EDU)
- SPLASH (STORMWATER PERMITTEES FOR LOCAL AWARENESS OF STREAM HEALTH, SPLASHCO.ORG)
 - E-470
 - SOUTHEAST METRO STORMWATER AUTHORITY
 - ARAPAHOE COUNTY
- CHERRY CREEK STEWARDSHIP PARTNERS/COLORADO WATERSHED
 ASSEMBLY





AGENDA

- WHY DO WE NEED TO CONSERVE WATER?
- WHAT IS RAINWATER HARVESTING?
- COLORADO RAIN BARREL REGULATIONS
- TYPES OF RAIN BARRELS
- SUPPLIES NEEDED
- HOW TO INSTALL
- WINTERIZING, MAINTENANCE, FAQ
- DECORATING YOUR BARREL





WHY CONSERVE WATER?



CHANGE BY COUNTY

From 2020-2021, 73% of the population growth was along the Front Range, compared to 95% in the previous decade. Growth in the Front Range varied by county. Denver, Jefferson, and Boulder all declined but there were increases in Douglas, Weld, El Paso Larimer and Adams. The Front Range still saw the largest population increase but the Central Mountains and Western Slope experienced faster growth.

Population Growth (2020-2021)		Largest by Population 2021	
1 DOUGLAS COUNTY	9,166	1 EL PASO COUNTY	738,532
2 WELD COUNTY	8,851	2 DENVER COUNTY	711,973
3 EL PASO COUNTY	6,470	3 ARAPAHOE COUNTY	655,581
4 LARIMER COUNTY	2,956	4 JEFFERSON COUNTY	579,654
5 ADAMS COUNTY	2,326	5 ADAMS COUNTY	522,515
		6 DOUGLAS COUNTY	369,286
Percent Growth (2020-2021)		7 LARIMER COUNTY	362,771
1 CUSTER COUNTY	7.0%	8 WELD COUNTY	340,133
2 MINERAL COUNTY	6.3%	9 BOULDER COUNTY	329,793
3 SAN JUAN COUNTY	4.2%	10 PUEBLO COUNTY	169,504
4 OURAY COUNTY	3.5%	11 MESA COUNTY	157,323
5 ELBERT COUNTY	3.5%	12 BROOMFIELD COUNTY	75,363



New water rates start Jan. 1

In October, the Denver Board of Water Commissioners adopted rate changes to help pay for critical upgrades and projects to keep the water system operating efficiently.

Rates

The rate changes will take effect Jan. 1, 2023, and will increase monthly bills for most single-family custor average, over the course of the year, of \$1 to \$4, depending on where they live and if they use water at sin 2022.

2023 Aurora Water Rate Information

Like many things in life, the cost of treating and delivering water is being affected by inflation. We're also seeing greater cost to maintain and improve our system to ensure reliability as it continues to age. For 2023, water rates will have an overall increase of 4%, while sewer rates will go up by 5% and storm drain fees will go up by 3.5%. Residential water tiers were modified in 2021 to promote affordability and conservation with no change to the Tier I rate.

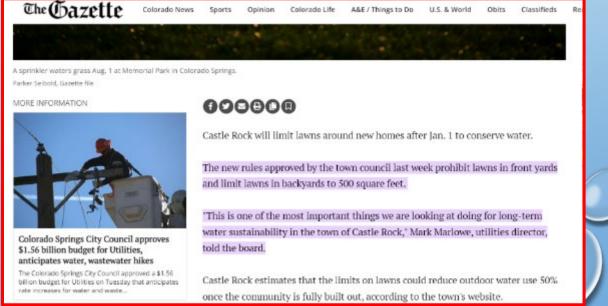


RESIDENTIAL WATER USE

- AVERAGE PERSON IN US USES 160-200 GALLONS PER DAY
- ~HALF OF THAT GOES TOWARDS OUTDOOR IRRIGATION







MHAT CAN ME DOS

- FIX LEAKS
- INSTALL/REPLACE WATER EFFICIENT TOILETS, CLOTHES WASHERS, SHOWERHEADS, ETC.
 - CHECK FOR REBATES FROM YOUR WATER PROVIDER
 - LOOK FOR WATERSENSE PRODUCTS
- INSTALL/REPLACE IRRIGATION SYSTEM COMPONENTS
 - SPRINKLER NOZZLES
 - IRRIGATION CONTROLLER
- SWITCH TO LOWER WATER LANDSCAPING
- RAIN BARREL(S)!!

CITY OF AURORA » RESIDENTS » AURORA WATER » REBATES



Rebates

Aurora recognizes the importance and scarcity of water in Colorado. Aurora W conservation by offering many water-saving programs to ensure a sustainable supply.

Ultra-high-efficiency Toilet Rebates

Toilets are the single highest water-consuming device Replace them with WaterSense toilets, and you could qualify for a rebate.

Grass Replacement Incentive Program (GRIP)

Maximize outdoor water efficiency by installing a sustainable, drought-tolerant landscape that uses beautiful, low-water plants.

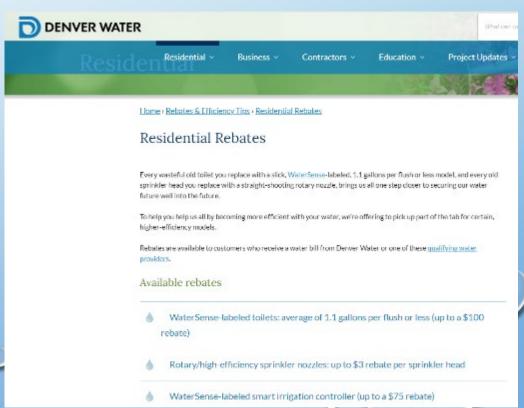
Irrigation Efficiency Rebates

We'll help pay for improvements to your irrigation system, including weather-based controllers.

Low-income Program

Aurora Water helps income-qualified customers replace old fixtures with new, high-efficiency fixtures.





RAIN BARRELS ALSO REDUCE STORMWATER POLLUTION









MHAT CAN ME DOS

- PICK UP AFTER YOUR PET
- NEVER PUT ANYTHING DOWN THE STORM DRAIN
- DON'T LITTER
- MAINTAIN YOUR VEHICLE
- GO P FREE
- INFILTRATE MORE STORMWATER RUNOFF WITH RAIN BARRELS!

Phosphorus-Free Lawn Fertilizer Guidelines

Protecting Colorado's water one yard at a time

These lawn care guidelines will help protect our watersheds and downstream conditions while saving you water, money, time, and keeping your lawn looking great all summer. Use less phosphorus when you can and keep your driveway, curb, and storm drain clean.



Lawn Fertilizer Do's

- Use phosphorus-free lawn fertilizers
- Get your soils tested about every 3 years
- Most important time to fertilize is in the fall
- Check your spreader to make sure it works
- Read and follow all fertilizer directions
- Clean up all spills, even small ones
- Calculate lawn area in square feet
- Know the three numbers (N:P:K) for your fertilizer so you can follow application rates
- ⇒ Fertilizer 2-4 times a season
- Know the weather forecast before applying
- Lightly water after fertilizing
- Mulching is better than bagging your clippings
- Lawn aeration and right pH levels are important
- Use phosphorus only when soil tests show low levels or if you are seeding a new lawn
- Weigh your fertilizer bag before each application

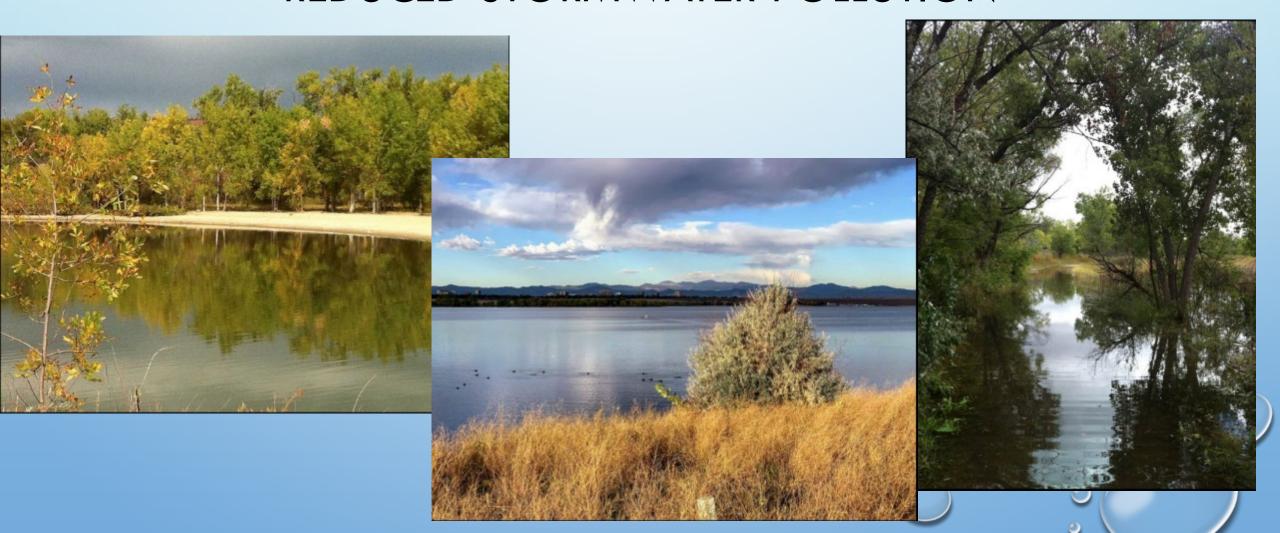
Lawn Fertilizer Don'ts

- on Assume if a little is good then a lot is better
- Apply fertilizers right before a storm
- Apply fertilizer right after a storm
- Apply fertilizers to frozen ground
- Blow clippings and fertilizer into the street
- on Not fertilizer at all and have bare ground
- on Apply during the heat of the summer
- Apply near open waters, wetlands, grassy swales, or near any impervious surfaces
- oo Put anything down the storm drain
- Apply fertilizers to bare ground
- Apply more than a pound of nitrogen per time
- Apply > 3 pounds of nitrogen per year
- oo Clean equipment in the street or driveway
- Throw away fertilizers in the trash
- Fertilize buffalo grass in the spring and fall
- on Throw lawn clippings into the trash or drain





REDUCED STORMWATER RUNOFF= REDUCED STORMWATER POLLUTION





- COLLECTING, STORING, AND PUTTING RAINWATER RUNOFF TO USE AT YOUR HOUSE.
- EASY TO COLLECT VIA THE EXISTING GUTTER SYSTEM



WHY RAINWATER HARVESTING?

- IT'S FREE!
- REDUCED DEMAND FOR TREATED MUNICIPAL WATER
- PLANTS LOVE IT!

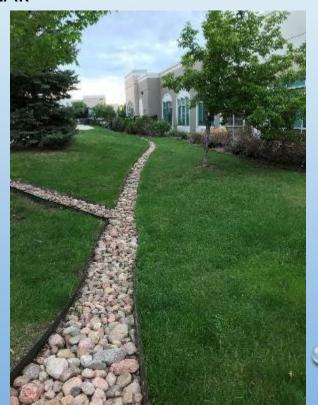


Chocolate Flower



DO WE GET ENOUGH RAIN?

- GREENWOOD VILLAGE
 - 18 INCHES PER YEAR
 - 1 INCH OF RAIN X 1,000 SQ FT ROOF=600 GALLONS
 - 10,800 GALLONS PER YEAR







WHAT CAN YOU DO WITH WATER FROM YOUR RAIN BARREL?

- VEGETABLE GARDENS
 - DON'T DIRECTLY WATER EDIBLE PARTS OF VEGGIES
- HANGING PLANTS
- GREENHOUSE PLANTS
- LANDSCAPING

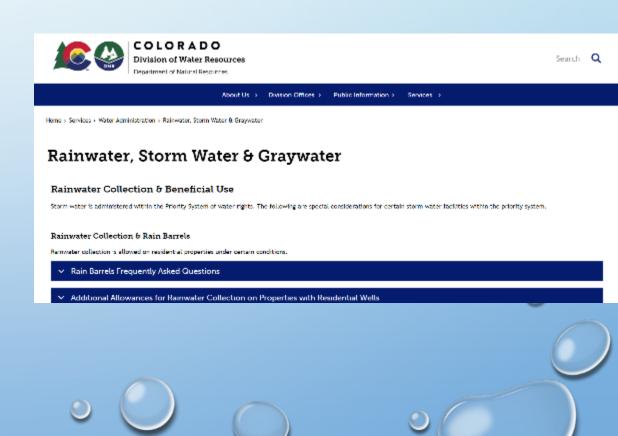


COLORADO RAIN BARREL REGULATIONS

- IN 2016, RAINWATER HARVESTING WAS LEGALIZED IN COLORADO FOR THE FIRST TIME
- MAXIMUM OF 2 RAIN BARRELS WITH THE COMBINED STORAGE OF 110 GALLONS OR LESS
- USED FOR OUTDOOR PURPOSES LIKE WATERING LAWNS, PLANTS, OR GARDENS
- CONTAINER MUST HAVE A SEALABLE LID TO PREVENT MOSQUITO BREEDING
- NEVER DRINK OR COOK WITH WATER FROM A RAIN BARREL
 - IT IS UNTREATED AND MAY CONTAIN CONTAMINATES THAT COULD HARM YOU OR YOUR PETS IF INGESTED



- RESIDENCES THAT HAVE AN EXEMPT RESIDENTIAL
 WELL PERMIT DO NOT HAVE A LIMIT ON HOW
 MUCH THEY CAN COLLECT
- NEED A ROOFTOP PRECIPITATION COLLECTION PERMIT
- HAVE TO COLLECT THE WATER FROM THE ROOF OF YOUR PRIMARY RESIDENCE
- ADDITIONAL INFORMATION WITH THE DIVISION OF WATER RESOURCES





- HOME OWNER'S ASSOCIATIONS
 - CHECK WITH YOUR HOA BEFORE YOU PURCHASE
 YOUR RAIN BARREL
 - MAY HAVE SOME AESTHETIC OR LOCATION REQUIREMENTS
 - HOAS CANNOT PREVENT YOU FROM INSTALLING A RAIN BARREL
- WINTERIZATION NEEDED
 - JUST LIKE YOUR SPRINKLER SYSTEM
- THINK ABOUT SPIGOT PLACEMENT AND OVERFLOW PLANNING





TYPES OF RAIN BARRELS

- MUST HAVE A LID
 - REMOVABLE OR AN ACCESS POINT IS BEST FOR CLEANING
- SHOULD BE MADE OF THICK PLASTIC
 - NO BAGS!
- SHOULD HAVE A SPIGOT ~1-3" ABOVE THE BOTTOM OF THE BARREL
 - CAN'T USE THE WATER
- SHOULD NOT HAVE A TOP THAT HOLDS WATER (MOSQUITOES!)
- SHOULD USE A DIVERTER
 - KEEPS SEDIMENT, LEAVES, ETC. OUT OF THE BOTTOM OF THE BARREL
 - EASY WINTERIZATION
- SHOULD HAVE AN OVERFLOW MECHANISM
 - IF NOT USING A DIVERTER





WILADU 55 Gallon rain Barrel, Beige rainwater Collection Barrel 50+ viewed in past week

\$14200

Big holes in top Spigot too high Fixed lid (no way to clean barrel) No overflow

Could spring a leak! No diverter or screen No overflow



Goplus 100 Gallon Collapsible Rain Barrel, Portable Rain Barrels to Collect Rainwater from Gutter, Rainwater Collection System, Water Storage Tank Catcher Container with...

★★★☆ ~ 575

\$69⁹⁹



Planter on top (holds water)
Spigot too high
No lid or access to clean barrel
No overflow

Gardener's Supply Company 65 Gallon Rainwater Collection Urn | Rain Barrel Storage for Rainwater | Eco Friendly Outdoor Rain Catcher & Container | Hose Included |...

★★★☆ ~ 34

\$29900



RAIN BARREL MATERIALS



- PLASTIC WORKS BEST
 - BE CAREFUL OF METAL DRUMS!
- CLOSED TOP
 - REMOVABLE LID (ONLY REMOVE WHEN CLEANING!)
 - SCREW CAPS
- UPCYCLED BARRELS WILL NEED ADDITIONAL CLEANING



GEN 1(2004.....2016)



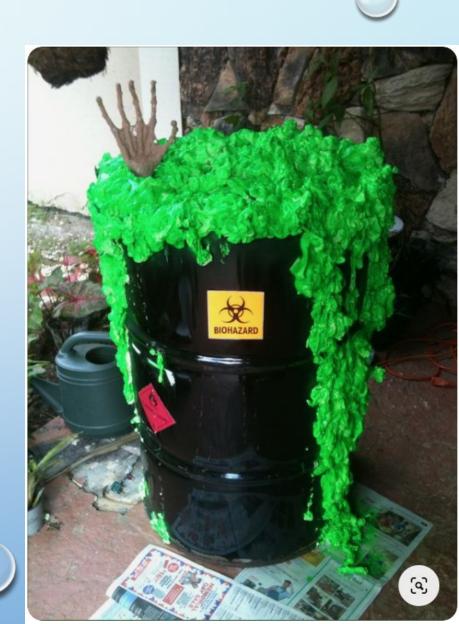






GEN 2

- CHEAP PLASTIC RAIN BARRELS ORDERED ONLINE (EXPENSIVE!)
 - LASTED 1-2 YEARS
 - SPLIT ON THE BOTTOM





GEN 3 (2019)

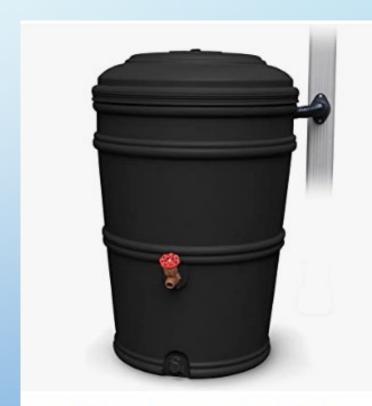
- SO FAR, SO GOOD
 - BACKYARD: TRICKY DOWNSPOUT
 - ADDED ANOTHER SPIGOT
 - NOW WOULD USE A DUAL SPIGOT/SPLITTER
 - BE CAREFUL OF WHICH SIDE TO DRILL/PUNCH **OUT TO ADD ADDITIONAL BARRELS**





GEN 4 (2021)

• THE BEST SO FAR!











WHERE TO BUY

- COLORADO RAIN CATCHER
- CONTAINER RECLAIMER
- BLUE BARREL
- TARGET, SAM'S, WALMART, LOWE'S HOME DEPOT, AMAZON
- BEWARE: CRAIGSLIST, FACEBOOK MARKETPLACE





SUPPLIES NEEDED





- FOOD GRADE 55-GALLON BARREL WITH LID
 - CONTAINER RECLAIMER (ARVADA): \$30
 - COLORADO RAIN CATCHERS (FT. COLLINS): \$50
- RAIN BARREL CONNECTOR KIT
 - COLORADO RAIN CATCHER (\$39.50)
 - AMAZON (\$36.92)
- TOTAL: ~\$70-\$90
 - COLORADO RAIN CATCHER BARREL AND CONNECTOR KIT (\$88)
- TOOLS
 - LEVEL
 - DRILL
 - GLOVES
 - EYE PROTECTION
 - MEASURING TAPE
 - PENCIL
 - ETC



EARTHMINDER DIVERTER

• PROS

- EASY TO INSTALL
- DO NOT NEED TO REMOVE THE DOWNSPOUT
- COST EFFECTIVE
- KIT INCLUDES HOLE SAWS AND SPIGOT

• CONS

- UNABLE TO SEE CLOGS
- POTENTIAL FOR CLOGGING





1. CHOOSE A LOCATION

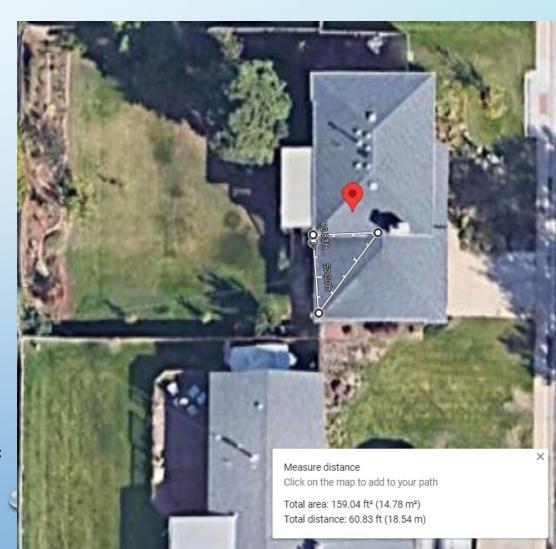
- WALK AROUND YOUR HOME
 - FIND THE DOWNSPOUT LOCATIONS
- CHOOSE A LOCATION FOR YOUR RAIN BARREL
 - PROXIMITY TO WHERE YOU NEED
 THE WATER
 - EASY OF MAKING A LEVEL BASE IN THAT AREA
 - CATCHMENT AREA: THE AMOUNT OF WATER YOU CAN COLLECT FROM THAT DOWNSPOUT/ROOF AREA





1. CHOOSE A LOCATION

- DETERMINE THE SQUARE FEET OF THE ROOF AREA
 DRAINING TO THE DOWNSPOUT
 - NOTE HOW THE GUTTERS SLOPE
 - CALCULATE
 - GOOGLE THE ADDRESS
 - RIGHT CLICK TO "MEASURE DISTANCE"
 - CLICK TO SET THE MEASUREMENTS AND NOTE THE "TOTAL AREA" IN FT2
- CALCULATE THE GALLONS THAT YOU CAN COLLECT
 - CATCHMENT AREA (FT2) X RAINFALL (FT) X 7.48 GAL/FT3=
 TOTAL RAINWATER (GAL)
 - 159 FT2 X 0.08 FT X 7.48 GAL/FT3 = 95 GALLONS FROM
 A 1 INCH STORM FOR THIS SMALL PORTION OF THE ROOF
 - 1 INCH = 0.08 FT





2. CREATE A BASE



- RAIN BARRELS ARE VERY HEAVY! CHILDREN MUST ALWAYS BE SUPERVISED ABOUT RAIN BARRELS.
- SELECT A FLAT LOCATION WITHIN 3 FEET OF A DOWNSPOUT
- A BASE CREATES WATER PRESSURE
- PURCHASE A COMMERCIALLY AVAILABLE RAIN
 BARREL STAND OR CONSTRUCT A SIMPLE BASE
 WITH WOOD, CINDER BLOCKS, BRICKS, OR
 EXTRA PATIO PAVERS
- FULL RAIN BARRELS WEIGH NEARLY 500
 POUNDS!!



3. DRILL A SPIGOT HOLE IN YOUR BARREL

- SITTING ON THE BARREL GIVES YOU GREATER CONTROL
- MEASURE 3 INCHES UP FORM THE BOTTOM OF THE BARREL AND MAKE A MARK
- CAREFULLY DRILL THE SPIGOT HOLE USING THE SMALLEST HOLE SAW
- INSERT THE GASKET-USE SOAP
- SCREW THE SPIGOT INTO THE FITTING BY HAND
- MAKE SURE THE SPIGOT IS CLOSED AFTER YOU FINISH THE INSTALLATION



4. DRILL A FILL HOLE AND CONNECT HOSE



- CONSIDER THE LOCATION OF THE BARREL
 BEFORE DRILLING THE FILL HOLE
 - THE HOLE SHOULD BE ON THE SIDE OF THE BARREL CLOSEST TO THE DOWNSPOUT
 - CONSIDER IF YOU WILL ADD MORE BARRELS (WILL NEED ROOM FOR THE CONNECTOR HOSE)
- MEASURE 3 INCHES DOWN FROM THE TOP OF THE BARREL AND MAKE A MARK
- CAREFULLY DRILL THE FILL HOLE USING THE MEDIUM HOLE SAW
- INSERT THE RUBBER FITTING AND HOSE

5. INSTALL THE DIVERTER IN THE DOWNSPOUT

- WARNING: ALWAYS WEAR EYE PROTECTION AND GLOVES
 WHEN DRILLING METAL
- MEASURE YOUR DOWNSPOUT. ALWAYS DRILL ON THE 3
 INCH SIDE OF YOUR DOWNSPOUT
 - YOUR DOWNSPOUT COULD BE 2"X3" OR 3"X2"
- PLACE YOUR BARREL ON THE STAND WITH THE SPIGOT AND FILL HOSE IN THE CORRECT LOCATION
- USE A LEVEL TO MARK THE HEIGHT OF THE FILL HOSE
- THE FILL HOSE MUST BE LEVEL TO ALLOW EXTRA RAIN
 WATER TO FLOW BACK OUT THE DOWNSPOUT. IF THE FILL
 HOSE IS NOT LEVEL, WATER WILL OVERFLOW OUT OF THE
 TOP OF THE RAIN BARREL (TOO HIGH) OR NOT FILL (TOO
 LOW)
- CAREFULLY DRILL THE DIVERTER HOLE USING THE LARGEST HOLE SAW INTO THE 3 INCH SIDE OF THE DOWNSPOUT



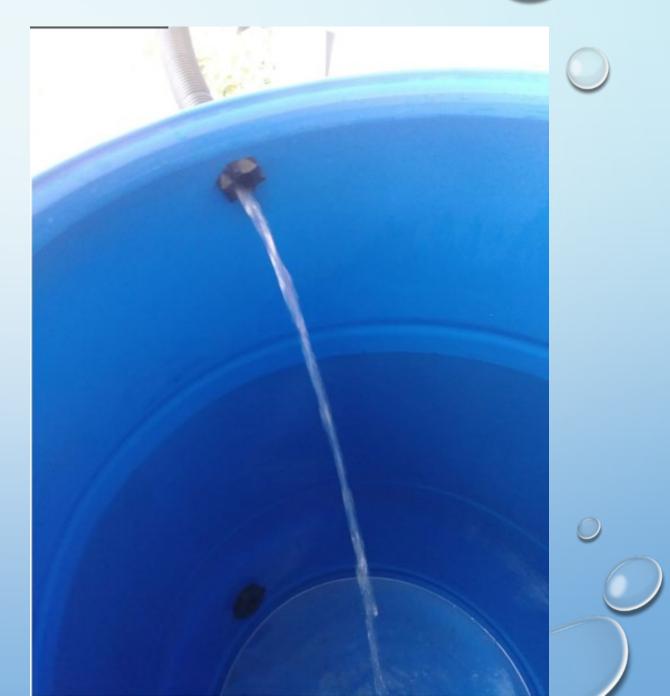
5. INSTALL THE DIVERTER IN THE DOWNSPOUT



- INSTALL THE FLEXIFIT DIVERTER
 - SQUEEZE THE SIDE OF THE RUBBER DIVERTER AND INSERT INTO THE DOWNSPOUT
 - THE CUP AND ARROW SHOULD BE FACING UP
 - SECURE THE DIVERTER TO THE DOWNSPOUT WITH THE TWO SELF-TAPPING SCREWS
 - INSERT THE FILL TUBE TO THE DIVERTER AND INTO THE BARREL'S TOP HOLE
 - MAKE SURE THE DIVERTER IS COMPLETELY FLUSH (NO GAPS!) AND ALL THE WAY INSERTED INTO THE DOWNSPOUT
 - LISTEN FOR THE "POP"



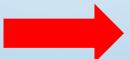
TEST YOUR SYSTEM





TROUBLESHOOTING







TROUBLESHOOTING









OR...



7. OPTIONAL: INSTALL THE TUBE FOR TWO BARRELS



- KIT SOLD SEPARATELY
- INSTALLATION ADJUSTMENT—DRILL AN ADDITIONAL INTAKE HOLE ON FIRST BARREL
- CONNECTOR PIPE MUST BE LEVEL AND BELOW THE INTAKE HOLE OF THE FIRST BARREL



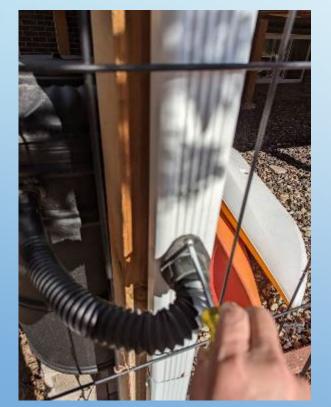
WINTERIZING YOUR RAIN BARREL



- EMPTY BARREL
- REMOVE DIVERTER AND INSTALL WINTERIZATION CAP ON DOWNSPOUT
 - TIP: TURN DIVERTER UPSIDE DOWN IN DOWNSPOUT. WIGGLE AND SQUEEZE THE DIVERTER.
 - THE WINTERIZATION CAP MAY BE DIFFICULT TO PUSH INTO THE DOWNSPOUT. USE SELF TAPPING SCREWS TO SECURE IN PLACE.
 - CHECK THE WINTERIZATION CAP FOR LEAKING.
- REMOVE ANY DEBRIS FROM TUBING.
- LEAVE BARREL IN PLACE OR STORE FOR WINTER.
 - BARREL MAY BLOW OVER IF WINDY.



WINTERIZING











WINTERIZING









MAINTENANCE

- CLEAN OUT GUTTERS IN SPRING BEFORE CONNECTING BARREL
 - GUTTER COVERS CAN HELP (OPTIONAL)
- WAIT TO CONNECT THE BARREL UNTIL THE SECOND RAIN IN THE SPRING
- RINSE OUT BARREL TO PREVENT ALGAE BLOOMS
 - CAN USE A LONG HANDLED BRUSH
- USE THE WATER IN YOUR BARRELS





FAQ

- WILL COLLECTING WATER OFF OF AN ASPHALT ROOF LEACH POLLUTANTS?
- IS IT SAFE TO USE RAINWATER ON A GARDEN?
- WILL ALGAE GROW IN MY RAIN BARREL?
- HOW DO I KEEP LEAVES AND PARTICLES OUT OF MY BARREL?
- CAN MOSQUITOES STILL GET IN MY BARREL?
 - MOSQUITO DUNK—HARMLESS TO POLLINATORS AND WILDLIFE AND SAFE ON PLANTS

DECORATING YOUR BARREL

Decorate BEFORE installation or remove rain barrel from house before decorating



- USE SAND PAPER (100 WEIGHT)
- WIPE DOWN AND ALLOW TO DRY
- SPRAY PLASTIC PAINT PRIMER—PAINT WILL NOT STICK WITH IT!
 - 30 MINUTE DRY TIME
 - RUST-OLEUM 2X ULTRACOVER PRIMER FOR PLASTIC
- CREATE YOUR OWN DESIGN
- CAN USE CARDBOARD STENCILS
- FOR ARTISTIC BARRELS
 - USE ACRYLIC PAINT
 - PROTECT YOUR WORK BY SPRAYING WITH A PAINT SEALER

DECORATING YOUR BARREL







ACCESSORIZING YOUR BARREL

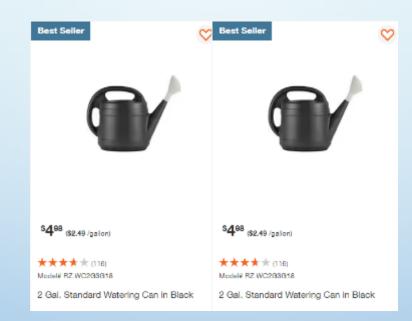




Heavy Duty 2 Way Hose Splitter (Premium Brass for Superior Durability), Wye Garden Hoses Connector for Water Spigot Faucet Bib Tap, Double Shut Off Valve, Y Adapter, Rus... **食食食食**食~1,904

\$1199 List: \$13.99





Rain Bird YFA075X Drip Irrigation Dual Port "Y" Faucet Adapter, 3/4" Female Hose Thread x 3/4" Male Hose Thread, On/Off Valves

Visit the Rain Bird Store

4.3 ★★★★ ~ 2,952 ratings

Amazon's Choice | for "rain bird drip irrigation faucet connection kit"

5477

√prime Two-Day FREE Returns ~

Get a \$150 Gift Card: Pay \$0.00 \$4.77 upon approval for Prime Visa. No annual fee.

Size: 3/4" Hose Thread





Horiznext rain barrel spigot, brass 55 gallon water tank faucet, bulkhead valve for outdoor plastic bucket rainwater drum gal container downspout collector in garden, 1... ★★★★女~79

\$1490

P72-02330G Brass Spigot for Rain Barrel. Lead-Free Compliant, 3/4" Quarter Turn Ball Valve w/Bulkhead Fitting, Thread Tape, and Polyester Wire

申申申 · 513 100+ bought in past week

\$1650



More Options Available

\$448

**** (3143) Model# 05GLHD2

The Home Depot 5 Gal. Homer Bucket





QUESTIONS?











PICK UP YOUR RAIN BARRELS

