

Here's the worry

Roofs are frequently built from asphalt shingles or they can be treated with pesticides to kill moss and algae. Birds, squirrels, and other critters fly overhead, perch, or scuttle across roofs, leaving pathogen-carrying droppings behind. Then rainwater washes metals, organic-pollutants, and bacteria from your roof into your rain barrel. But is it enough pollution to cause a problem?

Surprisingly clean runoff

Scientists with the Washington Department of Ecology recently did experiments where they constructed panels from commonly used roofing materials, set them up in the rain, and collected the runoff. It turns out that very little lead, cadmium or other pollutants washed off most of the roof panels.

Similarly, researchers with Rutgers Cooperative Extension collected runoff from asphalt-shingled homes in New Jersey and likewise found low levels of toxics. Some samples had elevated levels of *E. coli*, but when compared to US standards for agricultural irrigation water, the rain-barrel water missed the mark only 9 percent of the time.

University scientists from Australia did experiments in which they irrigated vegetable gardens using both roof water and a "synthetic" stormwater mixed to represent extremely polluted runoff.

Veggies grown with roof runoff were tested for metals and found safe to eat, though radishes had detectable levels of *E. coli*. Even much of the kale, French beans, and beets grown in the highly polluted stormwater also passed muster, though some of it did fail health guidelines. But the synthetic runoff was at least one hundred times more polluted than the actual runoff collected in the US studies.



Sightline Institute is an independent, non-profit think tank based in Seattle.



Rain Garden Edibles

Is it safe to use rain-barrel water collected from your roof to irrigate homegrown lettuces, strawberries, and tomatoes?

Resources:

Sightline Institute

daily.sightline.org/2015/01/07/a-green-light-for-using-rain-barrel-water-on-garden-edibles

Washington Department of Ecology

www.ecy.wa.gov/programs/eap/toxics/roofing.html

Rutgers Cooperative Extension

www.nacaa.com/journal/index.php?jid=205

Australian study

www.waterforliveability.org.au/?page_id=6578

University of Nebraska-Lincoln Extension

www.ianrpubs.unl.edu/epublic/live/g2220/build/#target7

Photo credit: Stewardship Partners and 12,000 Rain Gardens for Puget Sound.
12000raingardens.org

The question is so straightforward, yet the answer has been murky due to a lack of research. And as rain barrels proliferate and climate change squeezes summer water supplies, there's certain to be increasing interest in using roof runoff to grow produce.

But recent studies from Washington, New Jersey, and Australia are helping resolve the rain-barrel dilemma. Based on these experiments and others, it appears that most rain-barrel water is safe to use on edibles, particularly if you heed some easy-to-follow advice to reduce exposure to bacteria and other contaminants.



Hedging Your Rain-Barrel Bets

The fact is, the data are still limited when it comes to answering all of the questions around roof runoff and food safety. But there is good information available, and it all points toward the conclusion that rain-barrel water is fine for irrigation in most—but not all—cases. You can reduce the potential risk even more by taking some precautions:

No to treated wood-shake or pesticides:

Ecology did find higher pollution levels from treated wood-shake roofs and Seattle Public Utilities recommends against watering edibles with runoff from those roofs as well as roofs treated with toxic chemicals to kill moss, algae, or rot; roofs with zinc strips; or roofs made of copper or with copper gutters.

Dump the first flush:

The runoff from the first couple of heavy rains after a dry spell can wash away some of the accumulated pollution and bird waste. So don't collect this water; instead divert it straight into the ground or a storm drain.

Bleach the bacteria:

Rutgers researchers suggest treating rain-barrel water with bleach to kill the bacteria. To do this, add approximately one ounce of household unscented chlorine bleach to 55 gallons of water and wait 24 hours to allow the chlorine to dissipate before applying to your garden.

Water the soil, not the food:

As stormwater percolates through soil, the dirt and microorganisms living in the soil will help clean it. So watering the soil instead of pouring runoff directly on the veggies allows the soil to work some of its purifying magic before the water is taken up by the plants.

Rain-barrel hygiene:

Over time, clean your rain barrel by rinsing out any sediment that has collected. The University of Nebraska-Lincoln Extension also recommends using a cleaning solution of one-eighth cup of chlorine bleach mixed into five gallons of water, or a solution made of one-quarter cup each of castile soap and vinegar or lemon juice mixed into five gallons of water. Then rinse with clean water.

