

Water Saving in the Home Landscape

Lynda Garvin
Agriculture Agent
Valencia County Cooperative Extension
lgarvin@nmsu.edu



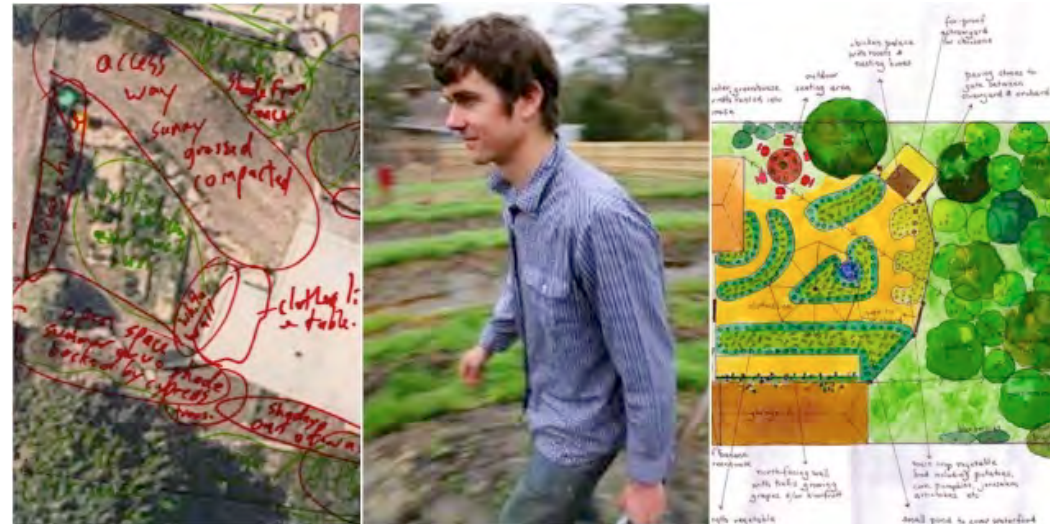
Leslie Davis

Observe your surroundings

Site Assessment

Through the seasons:

- Where do you like to hang out, walk, play
- Wind
- Sun
- Shade
- Warm and cool areas
- Wildlife
- Plant communities
- *Water...*



Milkwoodpermaculture.com

Water - Our most limiting resource

- Where can you find it on your property?
- Where does it flow when it rains?



Texas A&M University

Where do you want it to go?

- Existing trees
- Plant beds
- Future landscape areas
- Diverting water flow to prevent erosion on slopes
- Tanks



[Landscapingdirect.com](https://www.landscapingdirect.com)

Water Saving simple to complex



wikipedia

Building Soil Health

- Healthy Soils
 - Healthy Plants
 - Healthy People
- Rodale Institute



Add Organic Matter



Compost pile at Seed2Need

Organic Matter

- Desert soils – lack of water lack of vegetation not uncommon .02% or less OM in our soils
- New Mexico soils low in Organic Matter
- Recommended for healthy plants 2 to 5% OM (USDA)



Gardeningknowhow.com

Soil organic matter

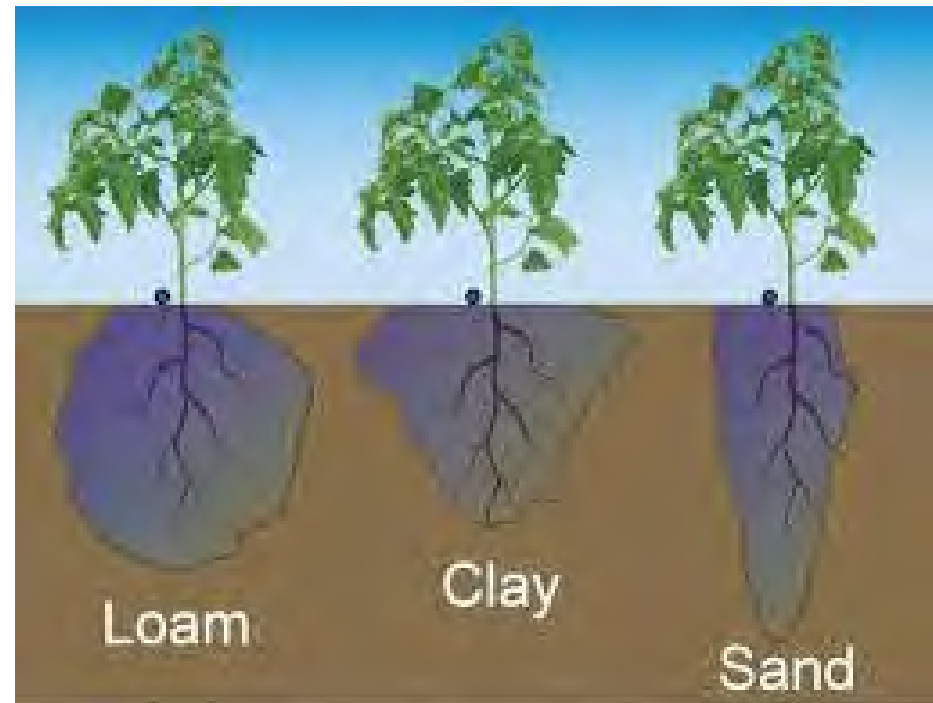
- Increased OM increases the water holding capacity of the soil
- OM has the ability to absorb and hold up to 90 percent of its weight in water (NRCS)



agwaterexchange

Add Organic Matter

- Soils high in OM release nearly all of the water it holds for use by plants
- Clay soils hold water tightly and most of it is unavailable to plants even though it remains in the soil for a longer amount of time (NRCS)



Seminis-us.com

Cover it up with mulch

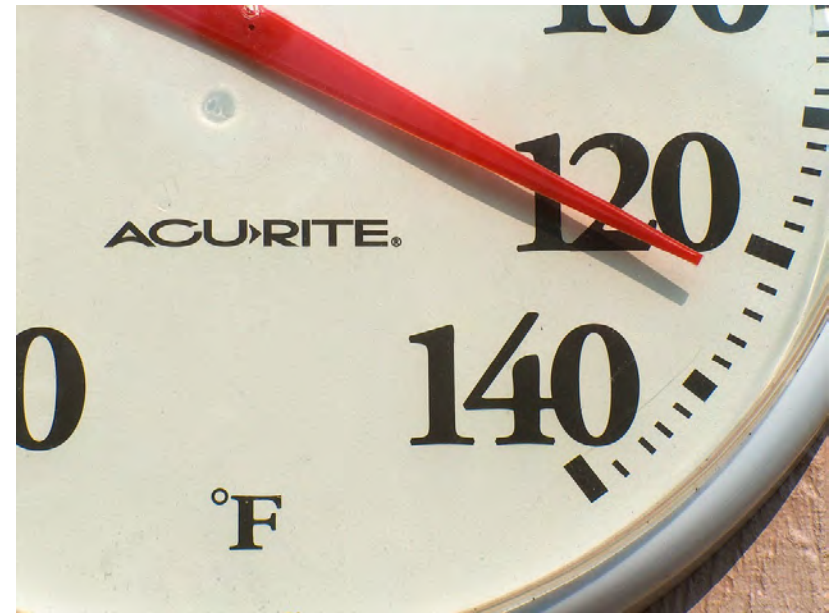
- What is mulch?
- How much to add 4 inches deep (weeds)
- Why apply mulch?
 - Increase soil moisture content (amount)
 - Increase porosity of soil (ability to get into and move through the soil)



It's hot out there

Bare surface soil temperatures can exceed 120 degrees

- Mulches mitigate soil temperatures
- Cooler soils – less evaporation of soil moisture



Cool the soil save water

Mulching study at Los Lunas Ag Science center

Mulching reduced day night soil temperature swings from approximately 18 degrees in bare soil to 3 degrees with mulch (temperatures taken at 4 inch depth)



Plant Mulches

- Large leaved plants that create shade
- Cut and drop
- Cut and compost
 - Squash
 - Comfrey
 - Rhubarb
 - Cardoon...



Marylandgrows.umd.edu

Cover it up – perennial mulches



New Zealand white clover



Sesbania



Sainfoin

Slow it down and keep it on site



Take advantage of areas where water naturally flows and pools

- Planting species that may need a little more water
- Build a garden around those areas



Garden – Tohono Chul Tucson, AZ

Soil sponges

- Dig a hole
- Fill with organic matter
- Absorbs and holds soil moisture
- Great for trees



Swales and berms – slow flow, direct, and hold water



Stone channels

- Create dry landscape channels to capture roof runoff and rain flow onto the property
- Direct the flow to planted landscape areas



French Drains

- Place under roof canals and gutter downspouts
- Direct to pipe to where you want the water to go (fruit trees)



Hard surfaces



Water Harvesting from buildings

- Is it worth the cost?
- How much water are we talking about?

Start small and build onto your system as you learn more about the potential on your property, your experience level, and costs



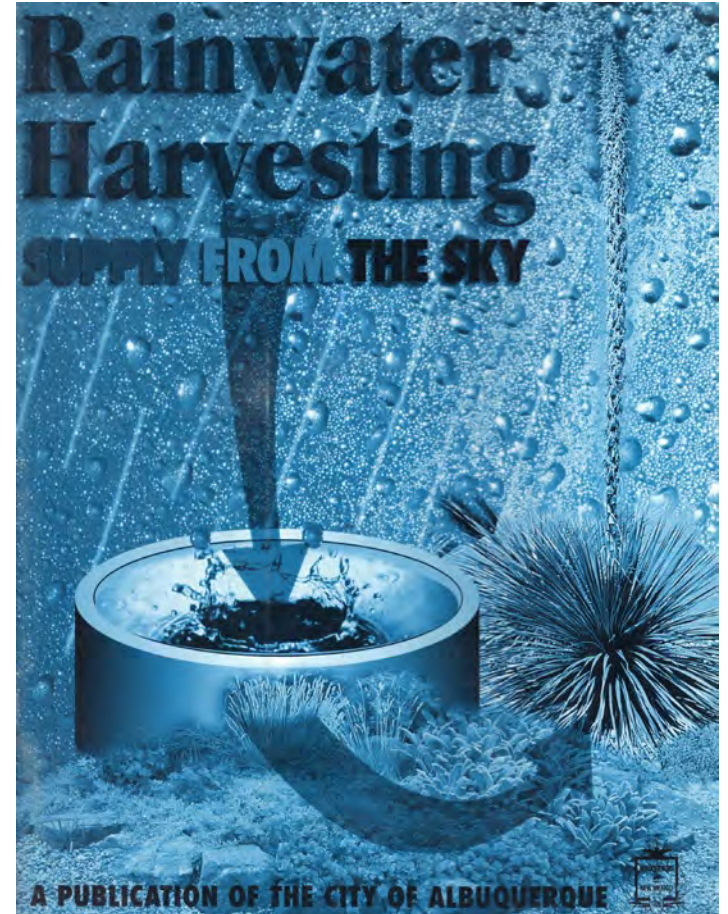
Calculating water harvest

City of Albuquerque

Calculations

Water capture

Water demand



Before you start

Check with local building, zoning, and environment departments, and HOA covenants for any restrictions on height, size, visibility etc.

Calculate Supply

Supply (gallons) =

Inches of rainfall (monthly or annual) x .623 (convert inches to gallons per square foot) x Catchment Area (roof square feet) x Runoff Coefficient (Appendix II)

Roof area = $100 \times 200 = 20,000$ square feet

Approximate: for every inch of rain - .6 gallons per square foot of roof or collection surface.

Rain fed 55 gallon barrels

- Direct fed by canale
- Connected by spigots and hoses
- Cost \$60+ each



Refurbished tanks and rain gutter

- Roof 12,000 sq feet
- 2 – 200 gallon tanks
- 1 – 420 gallon tank

Gutters and used tanks
about \$2,000

Rain event of just under
1" collected 820 gallons.



Brett Bakker



420 gallons

200 gallon tank

Rain Harvest System

- 500 gallon tanks \$550 to \$800+ each
- Two tanks connected to catch rainwater
- Third tank potable water stored for a year from filtered well



500 gallon tanks

- Canale fitted with water catcher
- Fed into 4" PVC pipe spray painted silver with a first flush diverter
- PVC pipe connected to top of tank with a heavy duty bucket
- Tanks connected at the bottom with valves and hoses



500 gallon tank

- 4" PVC pipe fed into a heavy duty inverted bucket on top of 500 gallon tank opening



A few notes for tanks

- Go with the flow for gravity fed systems
- 1st flush diverter kit
- Simple open tanks & rain barrels - use nylon screen and wire mesh covers over tank openings to prevent animals from drowning in your tanks



Waterharvest.com



Nationalpolyindustries.com

More pointers

- Overflow valves
- Raise tanks on platforms so you have space for manifold connectors and hoses.

500 gallon tanks



Resources

- <https://www.ose.state.nm.us/WUC/brochures/rain-water-harvesting.pdf>
- <https://www.ose.state.nm.us/WUC/PDF/NewMexGWGuide.pdf> (Gray water Guide)
- <https://www.cocorahs.org/state.aspx?state=nm>
- <https://www.ose.state.nm.us/WUC/brochures/rain-water-harvesting.pdf>
- <https://www.ose.state.nm.us/WUC/Roof-Reliant-Landscaping/Roof-Reliant-Landscaping.pdf>



Lynda Garvin lgarvin@nmsu.edu