Fall 2018
Water-Wise Landscaping
Workshop Series

Presented By:

September 19
Soils, Mulches, and More
AGENDA

6:30 pm  Welcome and Introduction
Frances Knapczyk, Napa County RCD

6:35 pm  8 Basic Principles of Water-Wise Landscaping
Frances Knapczyk, Napa County RCD

6:50 pm  Soil Types
Yvonne Rasmussen, UC Master Gardeners Coordinator

7:10 pm  Soil Improvement
Yvonne Rasmussen, UC Master Gardeners Coordinator

7:35 pm  BREAK
1. Soil Maps
2. Soil Samples
3. Mulch/Amendment Samples
4. Sheet Mulching

7:50 pm  Basic Landscape Design: Hydrozones
Cathy Baskin, Certified Landscape Designer

8:05 pm  Rain Gardens
Cathy Baskin, Certified Landscape Designer

8:25 pm  Door Prizes, Upcoming Workshops

8:30 pm  Goodbye*

* Presenters will remain available briefly after the workshop.

SBx7-7 Compliance

GPCD Path to 2020

2020 Target = 132 gpcd
Post-2020:
SB 606 and AB 1668
Urban Water Use
Typical Single-Family Residence

8 Basic Principles of Water-Wise Landscaping

Frances Knapczyk
Napa County
Resource Conservation District
#1

Group Plants According to Their Water Needs

- Concept of “Hydrozones”
- e.g., Separate drought-tolerant natives, low-water-use shrubs, thirsty turf grass
- Allows efficient irrigation

#2

Use Native and Low-Water-Use Plants

- Perennials, shrubs, trees, grasses, etc. naturally adapted to region
- Once established, thrive with little or no water other than rainfall
- Color and beauty
Limit Turf Areas to Those Needed for Practical Purposes

- Lawns require greatest share of landscape irrigation water
- Use for recreation and other functional purposes
- Rest of landscaped area can be used for alternative plants or hardscape features

Landscape Conservation
CASH FOR GRASS

Rebate Amount:
- $1.00 per square foot (St. Helena $1.50)
- Site maximum: $2,500 (2,500 sq. ft. equivalent)
  [$750 maximum for Single-Family Residential]

Requirements for Converted Areas:
- Low-water-use, climate-appropriate plants
- Permeable hardscape

*If irrigation system is used for the converted area, it must be low-volume drip.*
#4

**Use Efficient Irrigation Systems**

- Well-designed and -installed
- Repair broken or clogged sprinkler heads, emitters
- Properly program controllers
- Consider a Weather-Based Smart Controller

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#5

**Schedule Irrigation Wisely**

- Adjust Standard Controller watering schedule to match the changing weather – Don't just “set and forget”
- Early morning is best time
- Infrequent deep watering is generally best strategy
- “Sprinkler Times” app
#6
Make Sure Soil is Healthy

- Healthy soil helps plants to retain moisture and resist evaporation
- Aeration, amendments

#7
Remember to Mulch

- Reduce evaporation
- Inhibit growth of water-stealing weeds
#8
Provide Regular Maintenance

- Soil, plants, weeding
- Irrigation system

8 Basic Principles of Water-Wise Landscaping

1. Group Plants According to Their Water Needs
2. Use Native and Low-Water-Use Plants
3. Limit Turf Areas to Those Needed for Practical Uses
4. Use Efficient Irrigation Systems
5. Schedule Irrigation Wisely
6. Make Sure Soil is Healthy
7. Remember to Mulch
8. Provide Regular Maintenance
QUESTIONS?

Soil Types

Yvonne Rasmussen
UC Master Gardeners Coordinator
Soils

- We’ll begin at the “ground level”
- Soil affects irrigation requirements
- Soil amendments are often helpful to improve soil structure
- Add mulch to soil surface to increase moisture retention

Three Basic Soil Particles

- **CLAY:**
  very small particle size = slow drainage

- **SILT:**
  medium fine particle size, slimy touch

- **SAND:**
  large particle size = fast drainage
Soil Texture

- Combination of Sand, Silt, and Clay
- Influences root growth and drainage
Napa County has a lot of clay and clay loam soil
Very difficult to work with (like concrete when it is dry)
Greater water holding capacity but poor drainage
**SAND**

- Low water holding capacity and fast drainage
- Some of the water percolates below the root zone

**LOAM**

- A mixture of particle sizes is best for plant growth
- Good water holding capacity and drainage
Overlay of Soil Wetting Pattern

Emitter Line

Just Right (Loam)

Soil Type and Water Infiltration

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Maximum Water Infiltration, inches/hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANDY LOAM</td>
<td>0.75 – 1.25</td>
</tr>
<tr>
<td>LOAM</td>
<td>0.25 – 0.75</td>
</tr>
<tr>
<td>CLAY</td>
<td>0.13 – 0.25*</td>
</tr>
</tbody>
</table>

* To avoid wasteful runoff, apply no more than ¼” per hour to clay soils.
The Soil Textural Triangle

What Kind of Soil do You Have?

- Soil Maps
- Soil Ribbon Test
- Drainage Test
Napa County Soil Maps on-line!

Napa River Basin Soil and Geology Map
https://www.napawatersheds.org/app_pages/view/48

or try the Web Soil Survey at
http://websoilsurvey.nrcs.usda.gov

QUESTIONS ?
Soil Improvement

Yvonne Rasmussen
UC Master Gardeners Coordinator

“The Ideal Soil”

50% Pore Space
50% Solid Space
"The Ideal Soil"

- **AIR**: 25%
- **WATER**: 25%
- **MINERALS**: 30%
- **ORGANICS**: 20%

50% Pore Space
50% Solid Space
Compaction/Aeration

**Pore Spaces:**
- Convey oxygen, water, dissolved nutrients
- Provide space for roots to grow

**Compaction**
*Reduced pore spaces!*
*Result of walking on soil when wet*

**Aeration**
"Double Digging" Method
*Soil Life -- Mulching!*

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[Image of soil pore spaces and compaction diagrams]
Amendment-Mulch-Fertilizer

Soil Amendments
Mixed into soil to improve its physical properties

Mulches
Placed on top of soil, helps retain soil moisture, reduces weed growth, etc.

Fertilizer
Minerals for plant growth – Too much will increase water needs (and other problems)!
**Improve Your Soil!**

- Good porosity is essential for growing healthy plants
- Adding organic matter aids air and water infiltration
- Add organic amendments or use organic mulches: compost, leaf mold, manure, peat moss, agricultural by-products and wood by-products
- Add amendments when soil crumbles

**Amending Your Soil**

- Spread evenly, no ‘chunks’
- Incorporate into the top 6”-12” of soil
- Mix thoroughly, mix again another direction
- ‘Hot’ products (uncomposted manure, incomplete compost) may burn plants and lose nutrients (ammonia)
Mulches

- Reduce water evaporation
- Prevent weed seed germination
- Even root zone temperature
- Protect existing soil structure
- Improve soil structure over time (organic mulches)
- Reduce soil erosion
- May be barrier to water penetration

Types of Mulch

- Chips, bark, shavings
- Yard Waste: pine needles, lawn clippings & leaves from your garden
- Ag by-products: straw, rice hulls, barn litter, etc.
- Compost products and (composted) manures
- Man-made coverings: heavy-duty paper, shredded newspaper, etc.
- Inorganic: plastic, gravel, shredded rubber
### How Much Mulch/Amendment?

<table>
<thead>
<tr>
<th>Depth</th>
<th>Volume required to cover 1,000 Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>7 cubic yards</td>
</tr>
<tr>
<td>3”</td>
<td>9 cubic yards</td>
</tr>
<tr>
<td>4”</td>
<td>12 cubic yards</td>
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</tbody>
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**“Sheet Mulching”**

www.lawntogarden.org
Napa Recycling & Composting Facility
naparecycling.com/compost
820 Levitin Way, off Hwy 29 & Tower Road
255-5200

Organic Compost
$10 per cubic yard
Delivery available for a fee (10 cubic yard minimum)

Upper Valley Disposal & Recycling
uvds.com/compostsales
1285 Whitehall Lane, St. Helena
963-7988

Organic Compost  Topsoil
$25-$29 per cubic yard  $32.50 per cubic yard

Mulch available seasonally ($15 per cubic yard)

Let’s Recap

❖ Healthy soil is the foundation for healthy plants

❖ Improve your soil! Good soils provide a balance between drainage and water retention

❖ Apply a 2” - 3” layer (or more!) of mulch to all non-planted areas; around perennials, trees, shrubs; and in your vegetable garden
QUESTIONS?

Breakout Stations

What Type of Soil Do You Have?

Station #1  Soil Maps
Station #2  Soil Samples/Soil Ribbon
Station #3  Mulch/Amendment Samples
Station #4  Sheet Mulching Display

*Slide Presentation Resumes at approximately 7:55 pm*
Basic Landscape Design: Hydrozones

Cathy Baskin
Certified Landscape Designer

Hydrozones

A “hydrozone” is a group of plants with similar water requirements
SITE PLAN WITH HYDROZONES

Hydrozone Legend
- California Natives
- Low Water Use Shrubs
- Low Water Use Shrubs
- California Natives
- Potted Plants (annuals)
- Turf
- Vegetable Garden
- Trees

HYDROZONE 4 - Vegetable Garden
- Turf
- Vegetable Garden
- Trees

HYDROZONE 5 - Patio
- Turf
- Vegetable Garden
- Trees

North

Ground Cover (low water use)
Plan Your Hydrozones!

- Determines the number of irrigation valves you will need
- Lets you program an irrigation schedule suitable for trees, shrubs, perennials, and lawn
QUESTIONS?

Rain Gardens

Design by Colby Eierman
Vernal Pools

A planted depression that lets rainwater runoff from impervious areas be absorbed into the ground.

Impervious areas: roofs, driveways, walkways, parking lots, compacted lawns

Definition...
Why Bother?

- Reduce runoff, siltation and pollution
- Reduce flooding
- Recharge groundwater
- Provide habitat for native species
- Add seasonal beauty
An Example: Flood Zone

Under Construction
Rain Garden in Action

More Examples
Choosing a Location

- Where water flows (from downspout or other surface)
- 10 feet from your foundation
- Downhill from your house, low spot in yard, etc.
- Call 811 before you dig

Digging It

- Choose your weapon
- Manage cut and fill
- Add rocks – different sizes, color, shapes
Other Building Blocks

- If you need to replace soil: 60% sand, 20% compost, 20% topsoil
- A dry well at the low point can help with drainage
- Hardwood mulch

Design

Sample Planting Plans:

ZONE 1: Shade Garden
- Emergents: Canna lilies (Canna xgeneralis) and small meadow plants (Calamagrostis)
- Sedges: Carex pendula
- Ornamental grasses: Low manna grass
- Evergreen shrubs: Boxwood, yew, privet
- Ground cover: Vinca
- Bark chips

ZONE 2: Drought Tolerant
- Emergents: Coreopsis, evening primrose
- Sedges: Carex pendula
- Ornamental grasses: Low manna grass, blue fescue
- Evergreen shrubs: Boxwood, yew, privet
- Ground cover: Vinca
- Bark chips

ZONE 3: Water Garden
- Emergents: Water lilies, water hyacinth
- Sedges: Carex pendula
- Ornamental grasses: Low manna grass, blue fescue
- Evergreen shrubs: Boxwood, yew, privet
- Ground cover: Vinca
- Bark chips
Choosing Plants

Must be tolerant of drought and flooding

Are widely available

* Native (CNPS Fall Plant Sale at Skyline Park, October 6 & 7)
* Mediterranean

Some Choices:
Grasses, Sedges, Rushes
Native Sods

- Molate fescue - Festuca rubra
- Purple needlegrass - Nassella pulchra
- California brome - Bromus carinatus

Riparian Natives

Take a hike by a creek!
Case Study: Community Foundation
Plant list

- Feather reed grass - Calamagrostis x acutiflora 'Karl Foerster'
- White coneflower - Echinacea
- Yucca
- Strawberry bush - Arbutus Marina
- Purple coneflower - Echinacea
- Sage - Salvia clevelandii, Salvia sylvestris
- Blanket flower - Gaillardia
- Butterfly bush - Buddleia davidii
- Santa Barbara daisy - Erigeron karvinskianus
- Yarrow 'Paprika,' ‘Moonshine’ - Achillea millefolium
- Catmint - Nepeta ‘Walker’s Low’
- Rosemary ‘Tuscan Blue’
- Santolina virens
- Monkeyflower - Mimulus
- Fescue ‘Elijah Blue’
- Evening Primrose - Oenothera
- Twinberry - Lonicera
- Rush - Juncus
- Water knotweed - Polygonum amphibium

Swales & Dry Creeks
Curb Cuts & Raised Inlets
The Mantra

Slow it. Spread it. Sink it!
Other resources

- http://raingardenalliance.org
- http://www.lowimpactdevelopment.org/raingarden_design/whatisaraingarden.htm

QUESTIONS?
Upcoming Workshop

Wednesday, September 26
CHOOSING THE RIGHT PLANTS

Same Time/Same Place

DOOR PRIZES!
THANK YOU
FOR COMING!

For more info, visit
cityofnapa.org/water