Water-Efficient Irrigation Design and Maintenance

Mountain View

BAWSCA

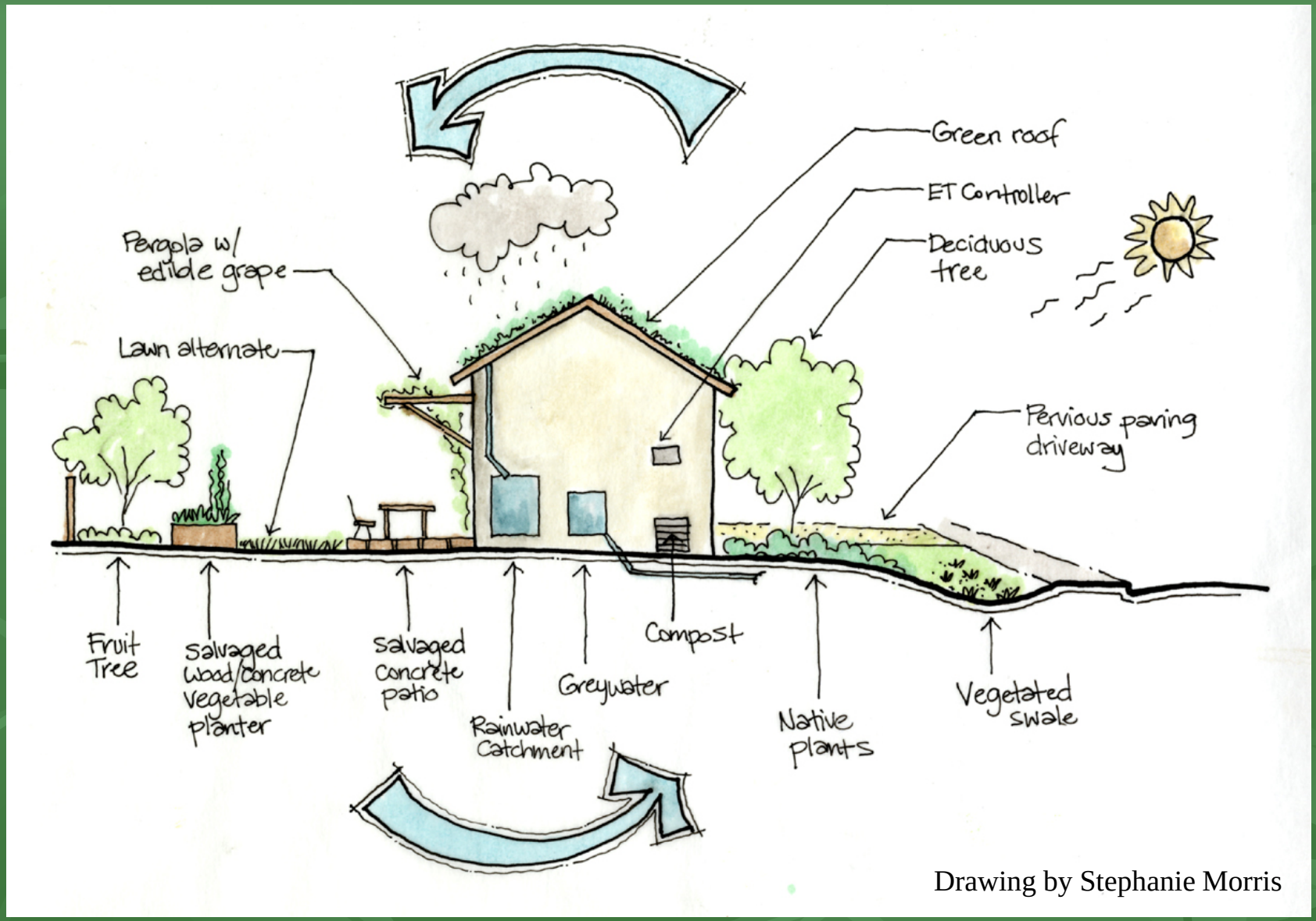
20-Mar-2014

Sherri D. Osaka

Sustainable Landscape Designs

The Water Problem

- Good News
  - Hetch Hetchy – 69%
  - Crystal Springs – 89%
- Bad News
  - San Jose – 6” out of 12” YTD
  - SF – 7” out of 12” YTD



Drawing by Stephanie Morris

WHOLE SYSTEMS APPROACH

Mountain View City Water Rates

Residential Water Rates Single Family Homes:

0-3 Units	$3.54
>3-15 Units	$4.72
15+ Units	$7.55

How to Read Your Utility Bill Statement

CCF = 100 cubic feet, 1 CCF = 748 GALS
1 CF = 7.48 GALLONS

Your utility bill gives you information about your water usage and other charges on your utility bill.

Key Information At-A-Glance

A This area provides the telephone numbers to call for billing and other service-related questions or concerns.

B **Account Information**: A summary of your billing information, including the billing dates, amount due and due date. Note: if payment is not received by due date, finance charges will be added to your next bill.

C **Water**: A breakdown of water usage by tier in the rate structure and is based on meter size, usage and number of days in the billing period. Note: one unit of water equals 748 gallons.

D **Water Usage:** A summary of water usage with a 12-month graph comparing your water usage for the current year to the previous year. Note: single-family residential customers have an additional bar showing the average water usage for all single-family homes.

E **Bill Details**: A breakdown of the *Total Amount Due*.

Water is the total of the *Cost* in section **C**.

Meter Charge is based on your meter size and days in your billing period (this pays for the fixed costs related to water operations and maintenance).

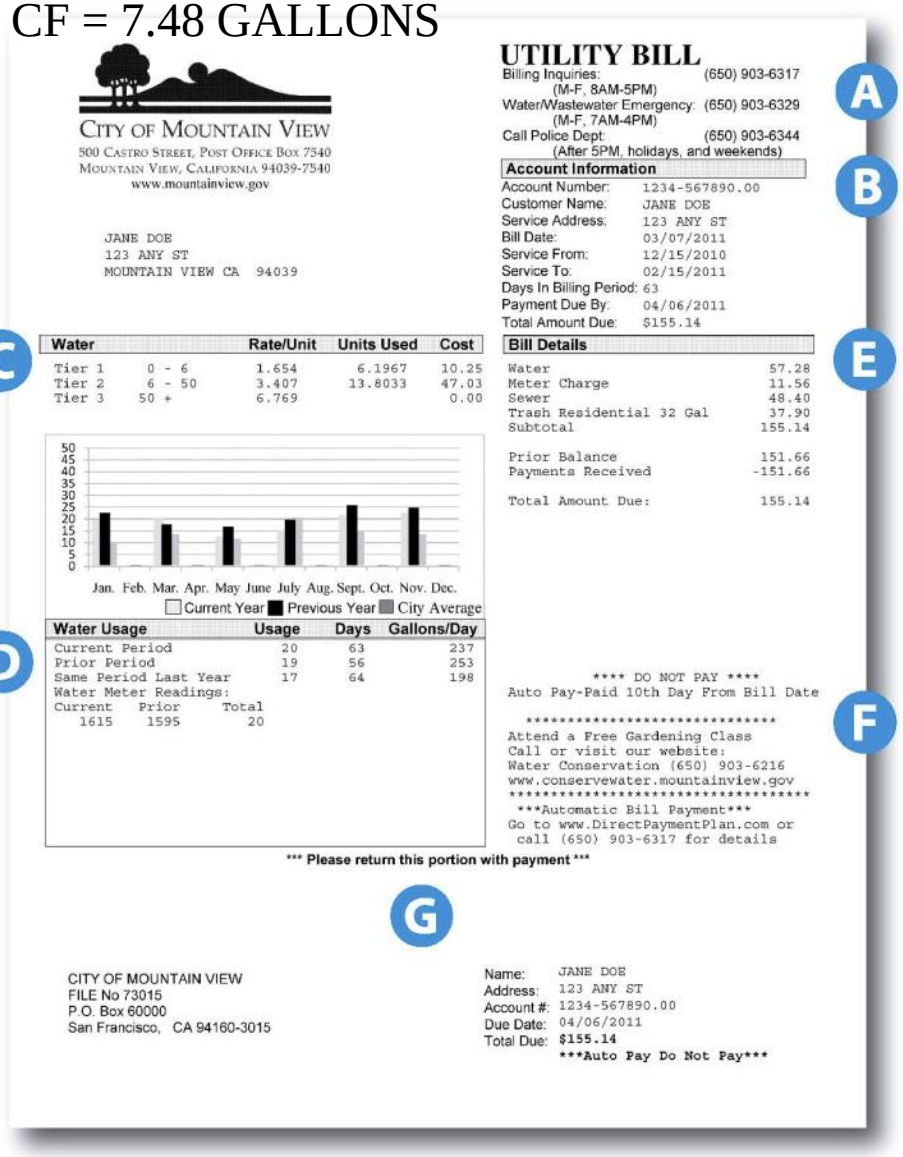
Sewer is a flat rate for residential customers and a variable rate based on water usage for commercial customers.

Trash is a list of the type, size, number and frequency of containers.

F **Messages:** A ****DO NOT PAY**** message indicates that you have signed up with the City to have your bill automatically paid. No payment needs to be sent. This area will also periodically contain special-interest messages from the City.

G **Payment Coupon**: This portion should be returned with your payment made payable to the City of Mountain View and mailed to the address indicated. Please write your account number on your check. Other payment options are:

- Automatic payment through the City (call 650-903-6317).
- Automatic payment through your bank.
- Drop box at City Hall (left of main doors).
- Payment by phone with credit card (call 650-903-6317).
- Payment in person at the Finance and Administrative Services Department (2nd floor of City Hall).



CITY OF MOUNTAIN VIEW
500 CASTRO STREET, POST OFFICE BOX 7540
MOUNTAIN VIEW, CALIFORNIA 94039-7540
www.mountainview.gov

JANE DOE
123 ANY ST
MOUNTAIN VIEW CA 94039

UTILITY BILL

Billing Inquiries: (650) 903-6317 (M-F, 8AM-5PM)
Water/Wastewater Emergency: (650) 903-6329 (M-F, 7AM-4PM)
Call Police Dept: (650) 903-6344 (After 5PM, holidays, and weekends)

A

Account Information

Account Number:	1234-567890.00
Customer Name:	JANE DOE
Service Address:	123 ANY ST
Bill Date:	03/07/2011
Service From:	12/15/2010
Service To:	02/15/2011
Days In Billing Period:	63
Payment Due By:	04/06/2011
Total Amount Due:	$155.14

B

C

Water		Rate/Unit	Units Used	Cost
Tier 1	0 - 6	1.654	6.1967	10.25
Tier 2	6 - 50	3.407	13.8033	47.03
Tier 3	50 +	6.769		0.00

D

Water Usage	Usage	Days	Gallons/Day
Current Period	20	63	237
Prior Period	19	56	253
Same Period Last Year	17	64	198

Water Meter Readings:

Current	Prior	Total
1615	1595	20

E

Bill Details

Water	57.28
Meter Charge	11.56
Sewer	48.40
Trash Residential 32 Gal	37.90
Subtotal	155.14
Prior Balance	151.66
Payments Received	-151.66
Total Amount Due:	155.14

F

**** DO NOT PAY ****
Auto Pay-Paid 10th Day From Bill Date

****
Attend a Free Gardening Class
Call or visit our website:
Water Conservation (650) 903-6216
www.conservewater.mountainview.gov
****
Automatic Bill Payment
Go to www.DirectPaymentPlan.com or call (650) 903-6317 for details

*** Please return this portion with payment ***

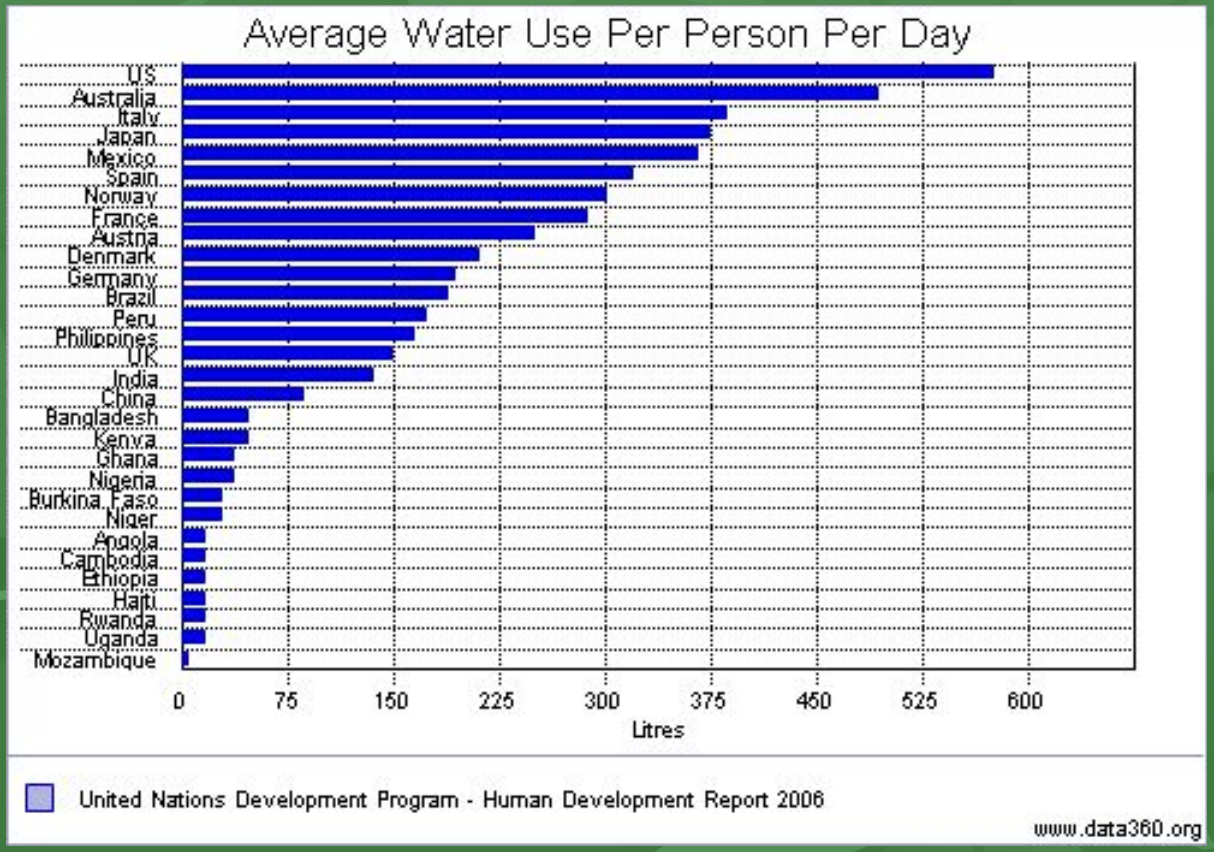
G

CITY OF MOUNTAIN VIEW
FILE No 73015
P.O. Box 60000
San Francisco, CA 94160-3015

Name: JANE DOE
Address: 123 ANY ST
Account #: 1234-567890.00
Due Date: 04/06/2011
Total Due: $155.14
Auto Pay Do Not Pay

World-Wide Water Use

- United Nations estimates that 13 gallons (50 litres) required/person/day
- U.S. uses 145 gal./person/day
- Average US household uses about 127,000 gallons per year

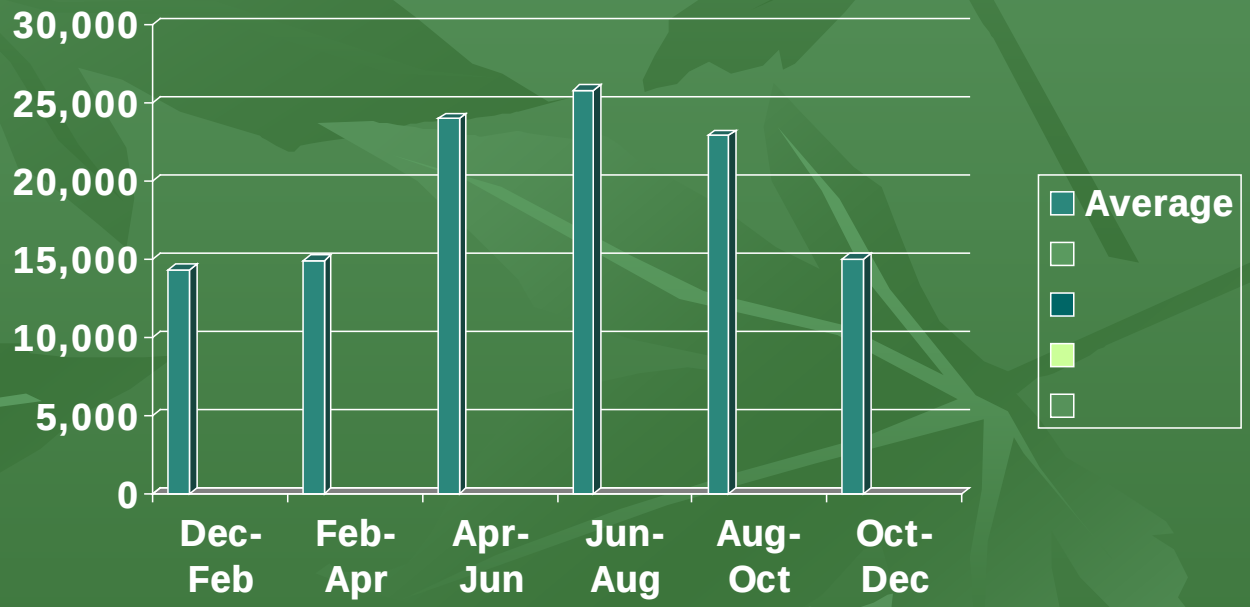


One gallon equals 3.8 litres

Water Use in Bay Area Home

11,000 square foot lot, pool, low water landscape

- About 122,000 gallons per year
- 84,000 gallons inside house
- 38,000 gallons outside house

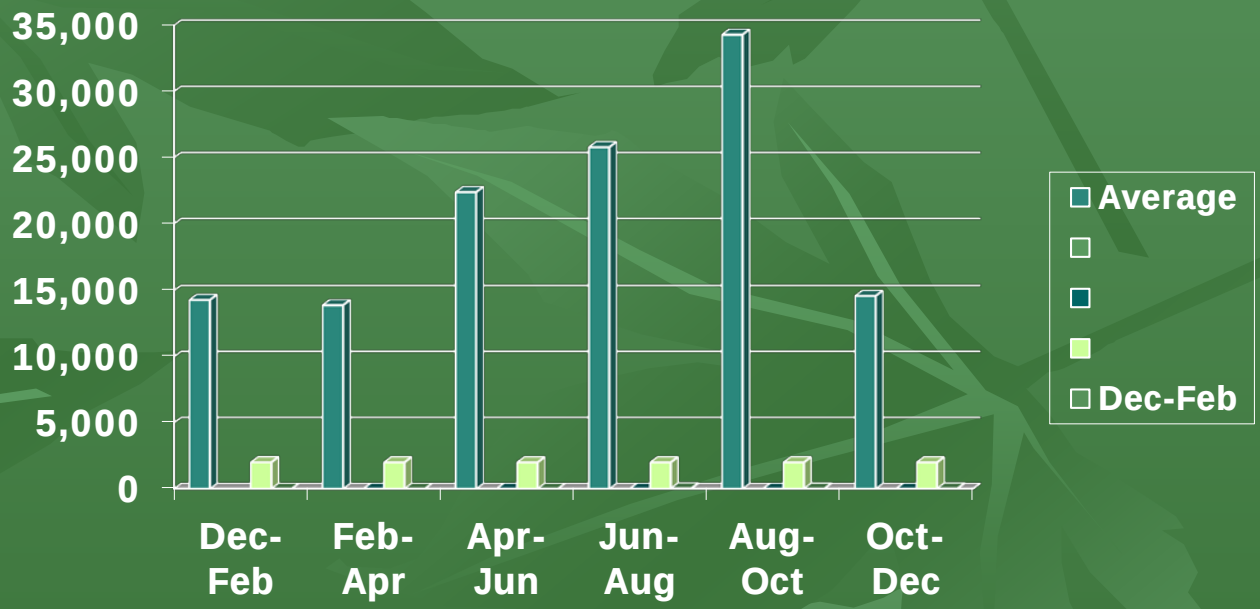


About 30 percent for outdoor use

Water Use in Bay Area Home

11,000 square foot lot, pool, low water landscape

- About 100,000 gallons per year
- 84,000 gallons inside house
- 16,000 gallons outside house



About 16 percent for outdoor use

Water Use Goal Setting

SMART Goal Setting in 5 Easy Steps

Step	Mnemonic		Description	Smart Goal	Criteria met?
1	S	pecific	Which, what, who, where, when, why	Monthly sales turnover	☑
2	M	easurable	How much or how many	to $2000.00	?
3	A	ction oriented	Describe a result	build up	✗
4	R	ealistic & Relevant	Realistic and relevant to the individuals business?	Determined by the business owner.	?
5	T	ime based	By When	?	✗

Check for leaks
Read your water meter

We're Chasing Leaks for Fix a Leak Week

EPA WaterSense

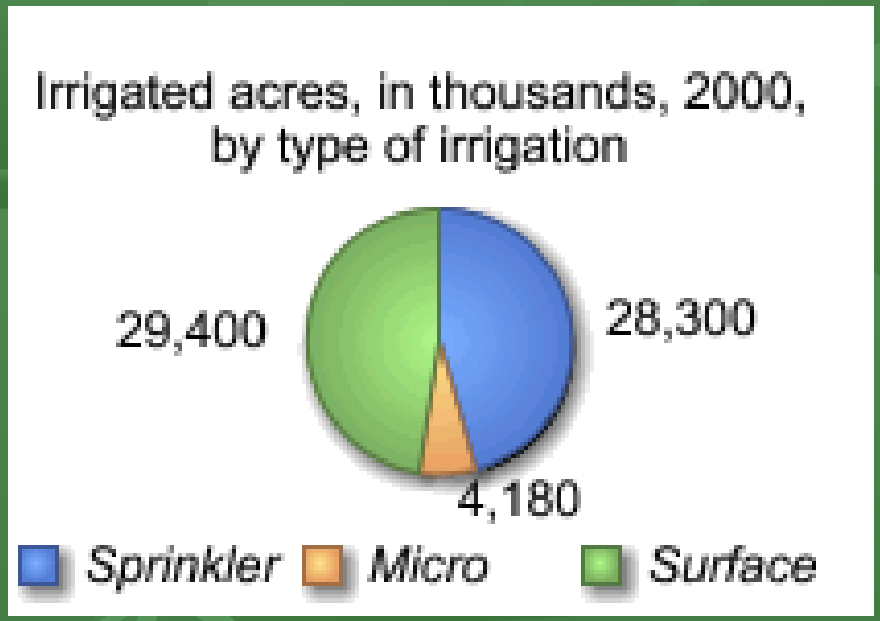
One in every 10 homes has a leak that is wasting at least 90 gallons of water per day.

Water-Efficient Landscapes

- Drought-tolerant plants
- Organic soil care
- Efficient irrigation

Manzanita berries “Little Apples”

Hand water vs. Spray vs. Drip*



- Hand watering – 33% less water than average
- Spray irrigation – 35% more water
- Automatic watering – 47% more water
- Drip irrigation – 16% more water

* American Water Works Association Research Foundation's study

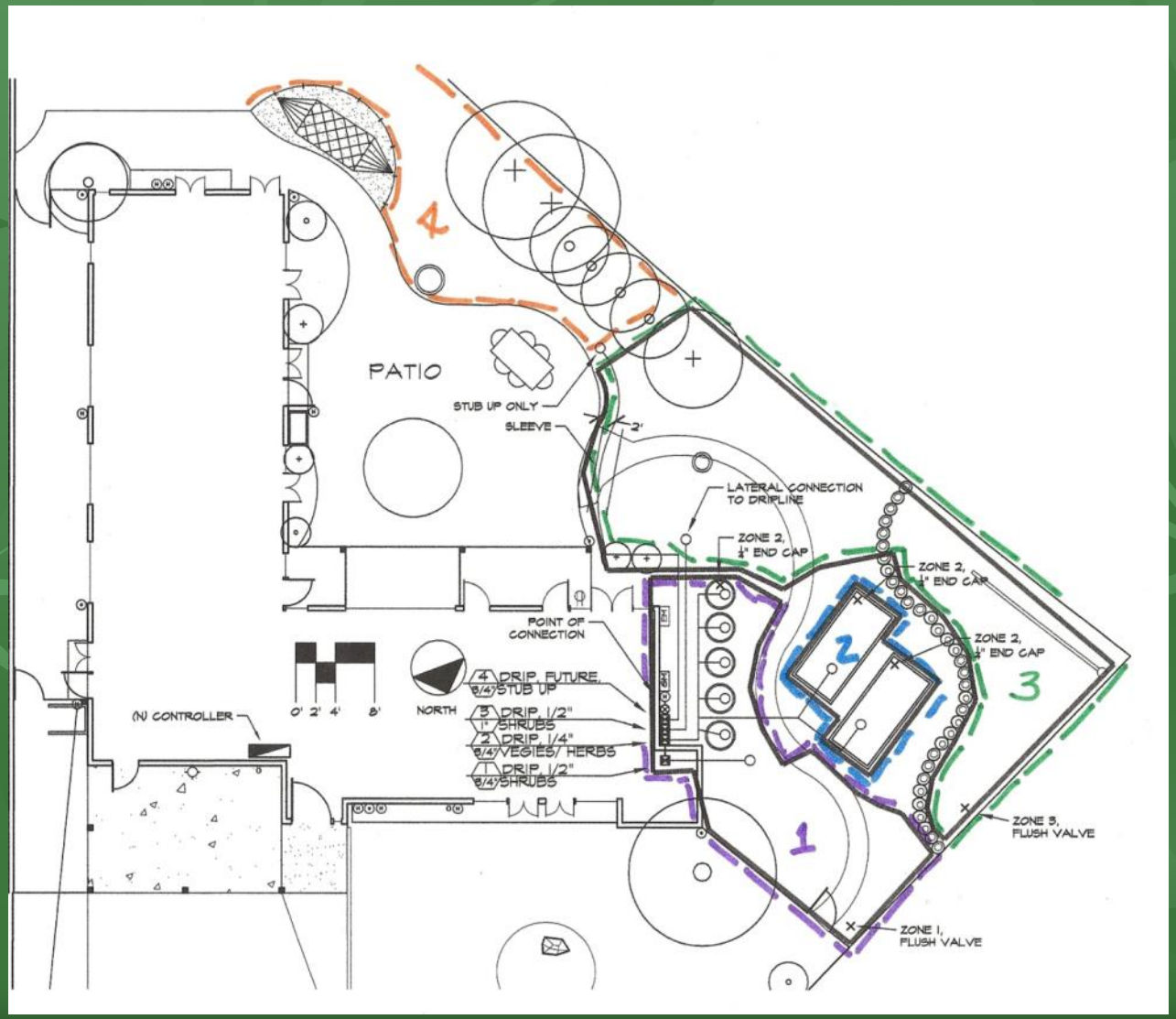
Change your controller at least 4 times per year, monthly better

Dec – Off Mar – 50% June – 100% Sep – 50%

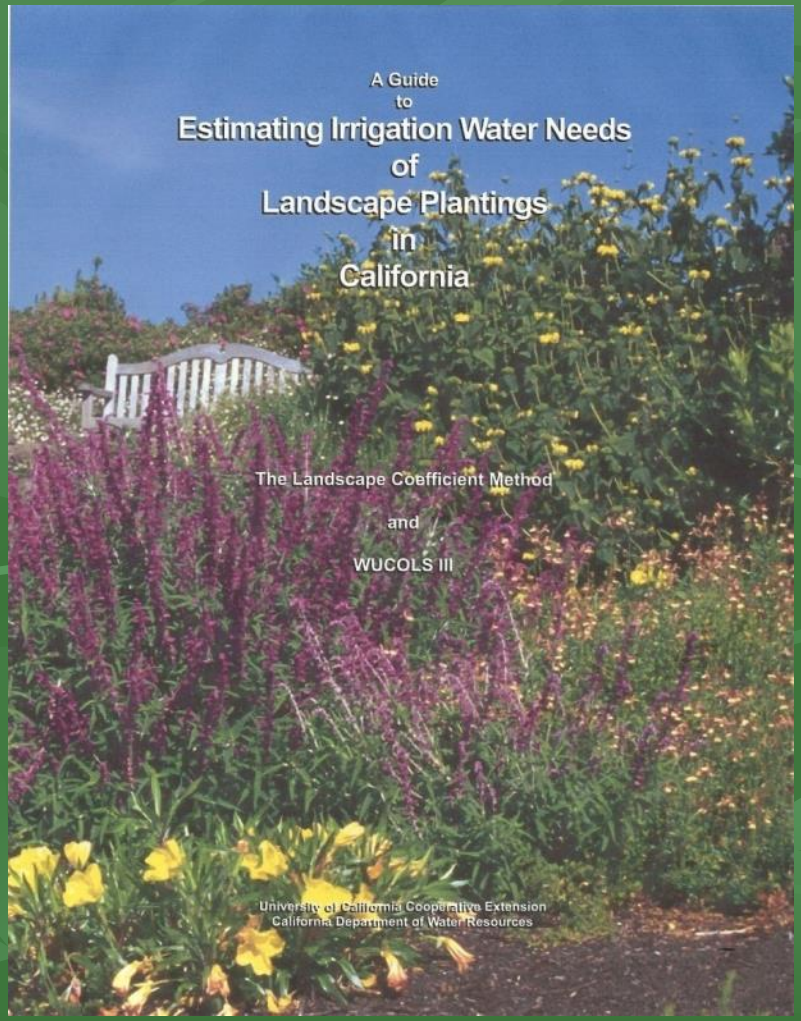
Case Study - Handwatering

Case Study - Handwatering

Hydrozoning



Water Use Classifications of Landscape Species (WUCOLS)



WUCOLS

Species Evaluation List--1999

			REGIONAL EVALUATIONS						
TYPE	BOTANICAL NAME	COMMON NAME	1	2	3	4	5	6	INVASIVE
S	Brugmansia spp.	angel's trumpet	M	/	M	H	/	/	
S	Brunfelsia pauciflora	yesterday today and tomorrow	M	M	M	H	/	H	
P	Brunnera macrophylla	Siberian bugloss	H	H	H	?	?	?	
S	Buddleja alternifolia	fountain butterfly bush	L	L	M	/	M	M	
S	Buddleja davidii	butterfly bush	L	L	M	M	M	M	
S	Buddleja marrubiifolia	woolly butterfly bush	?	L	?	L	/	L	
P	Bulbine frutescens	stalked bulbine	L	?	L	L	/	L	
P	Bulbinella robusta	bulbinella	L	?	?	?	?	?	
T	Bursera hindsiana	bursera	?	?	/	/	/	M	
T	Butia capitata	pindo palm	L	L	L	L	L	L	
S	Buxus microphylla japonica	Japanese boxwood	M	M	M	M	M	M	
S	Buxus sempervirens	English boxwood	M	M	M	/	M	M	
S	Caesalpinea cacalaco	cascalote	?	?	?	?	/	L	
S	Caesalpinea gilliesii	desert bird of paradise	L	L	L	L	M	M	
S	Caesalpinea mexicana	Mexican bird of paradise	?	/	?	L	/	L	
S	Caesalpinea platyloba		?	?	?	?	?	?	

Strategies for No Irrigation Landscapes

- Hydrozone
- Use Very Low Water plants – see WUCOLS
- Handwater as needed
- No water vegetables:
  - Dry farm during the summer, or
  - No vegetables in the summer, or
  - Perennial vegetables and fruit tree
- Improve the soil

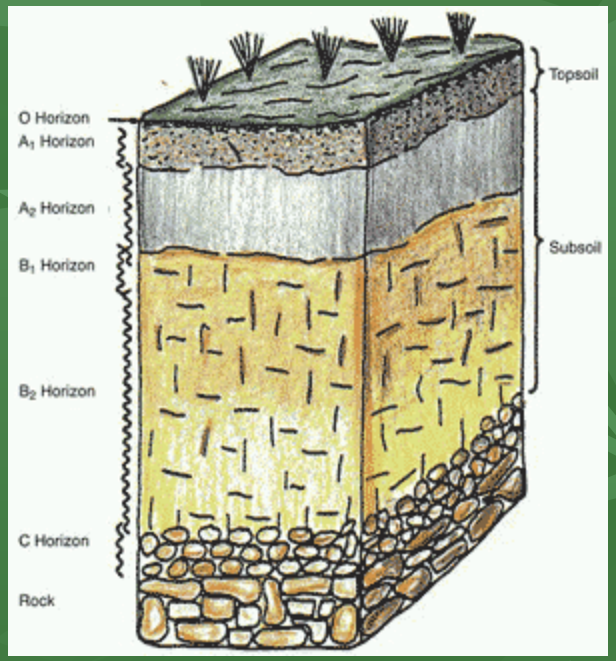
The Soil Problem

Loss of natural capital:

- No top soil
- Lifeless soil

Benefits of healthy soils

- Support plant growth
- Holds water
- Cleans water



Compost aids water retention

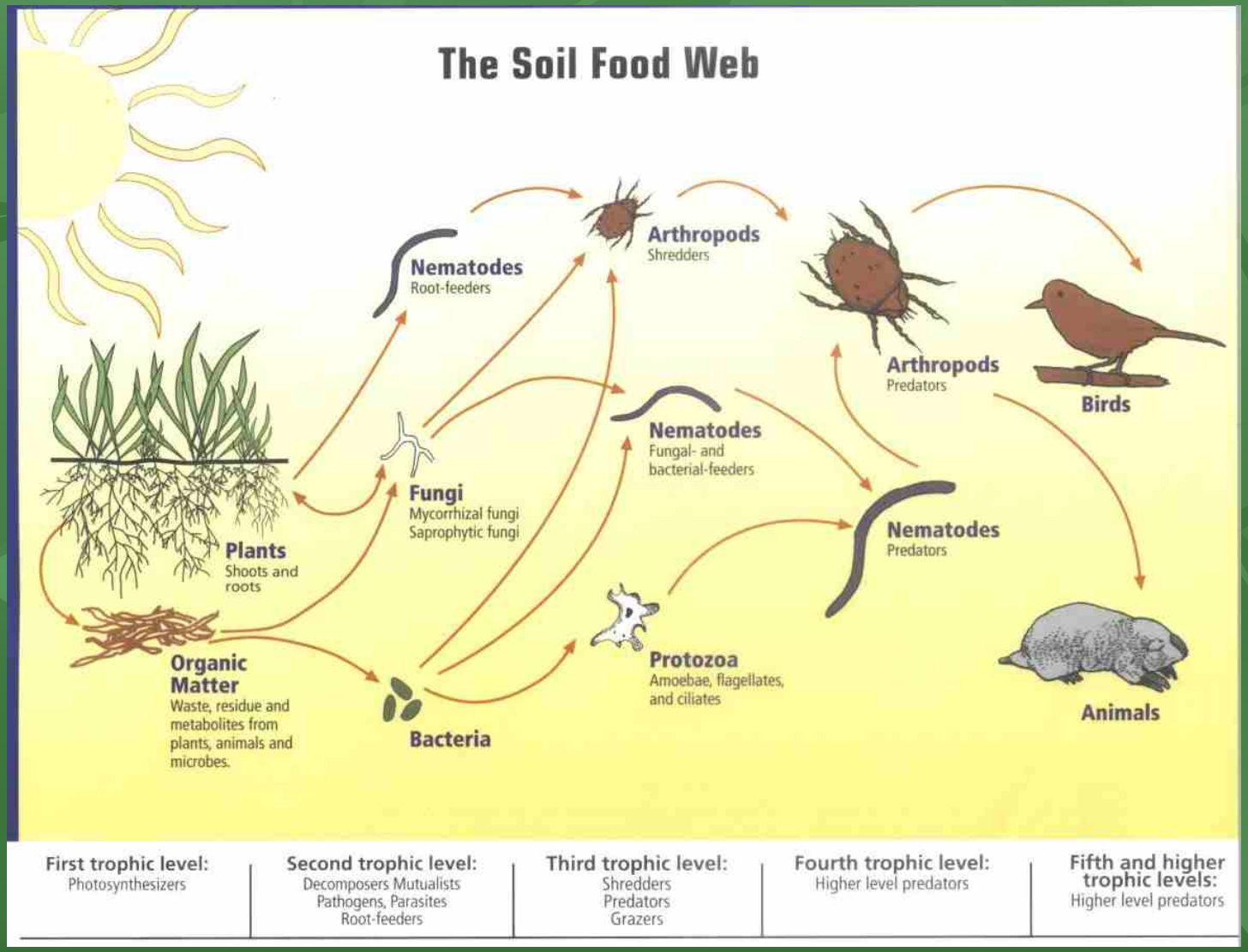
- "Numerous studies have found an increase in the moisture holding capacity and moisture retention capacity of soil as a result of compost applications (Hortenstine and Rothwell, 1972; Bengston and Cornette, 1973; Epstein et al., 1976). Therefore, the incorporation of compost into the soil of turf sites will reduce the need to irrigate."
- For instance, on a typical site in Redmond with little slope, and little wind, turf grown on compost-amended soil can reduce peak summer irrigation needs by 60% when compared to sites with un-amended topsoil.

- **Guidelines for Landscaping with Compost-Amended Soils by City of Redmond, Washington, September 1998**

Gallion Irrigation in Houston, TX "Instant Deep Watering Microbes"

Gene Barnes developed a system that puts water and air deep into the soil.

Soil Biology – It's Alive!



From *Soil Biology Primer* published by Soil and Water Conservation Society

Soil Biology & Plant Health

Two Bugs Are Better Than One

In the experiment depicted here, blue grama grass was grown in sterile soil. Bacteria were added to the soil in some pots. Bacteria and bacteria-eating nematodes were added to other pots.

The plants in soil with both bacteria and nematodes grew fastest. Although this was an artificial environment, the study demonstrated that the interaction between two organisms benefited plants.

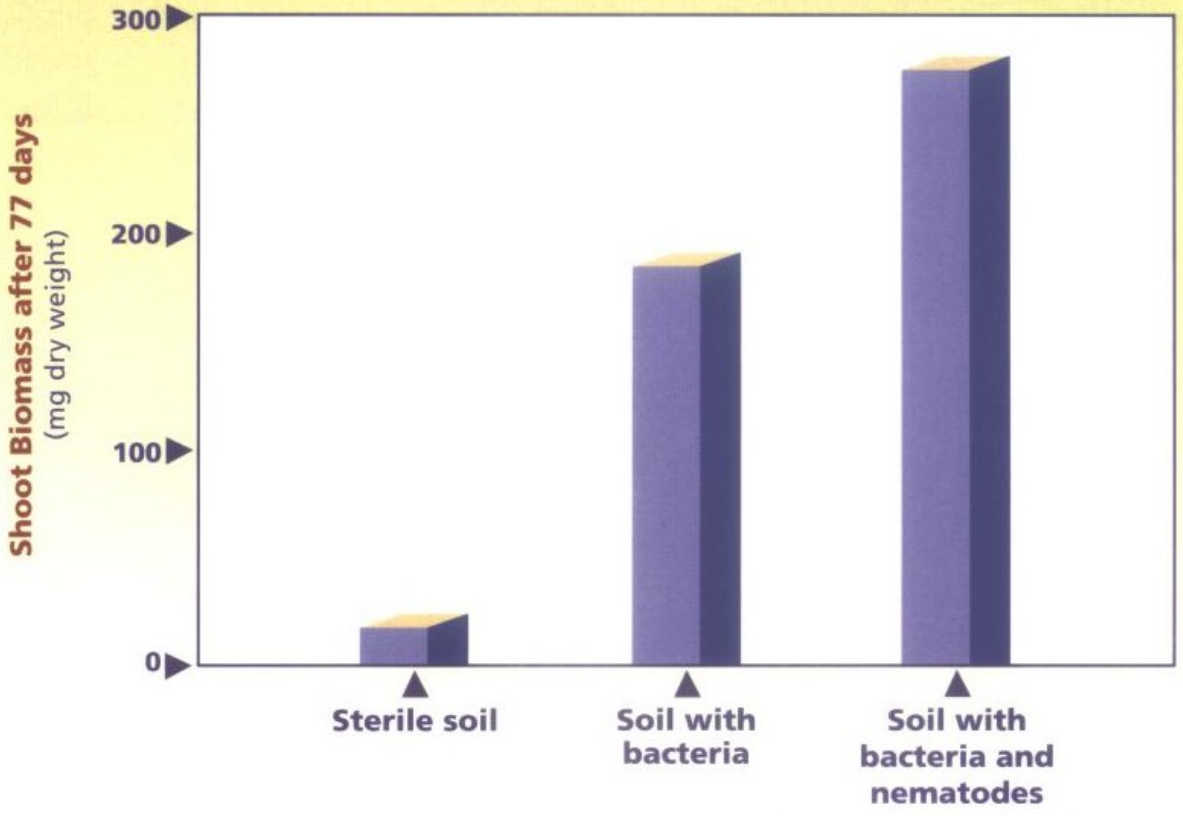
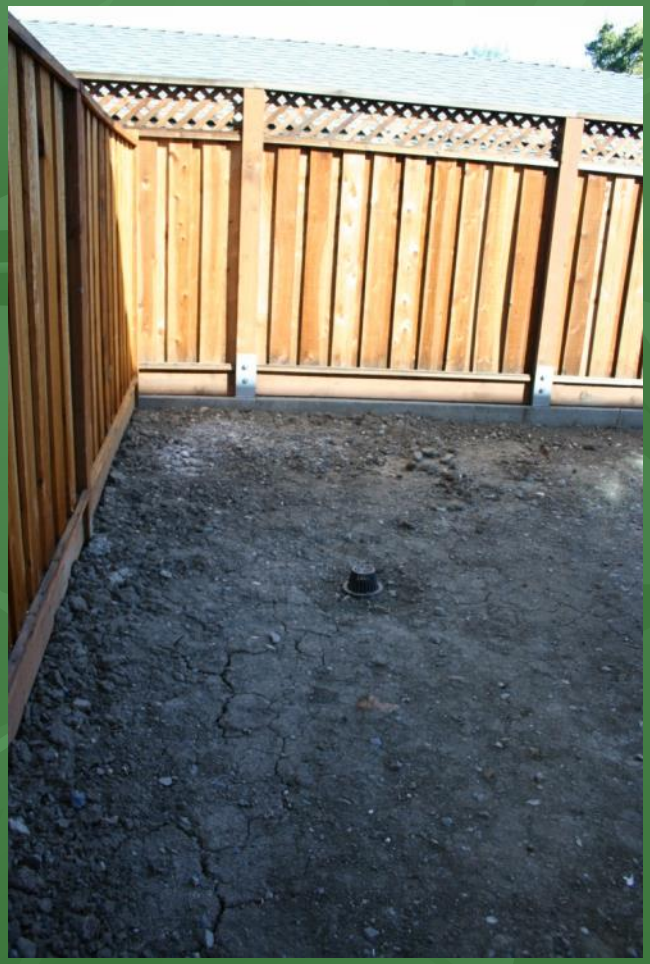


Figure 6

From *Soil Biology Primer* published by Soil and Water Conservation Society

Case Study Soil protection



No top soil at new housing development,
Water puddles, won’t soak in
Won’t support plant life

Eliminate Waste, Feed the Soil Compost!

Steve's Earth Engine – Cedar

Biostack compost bin (made from recycled plastic)

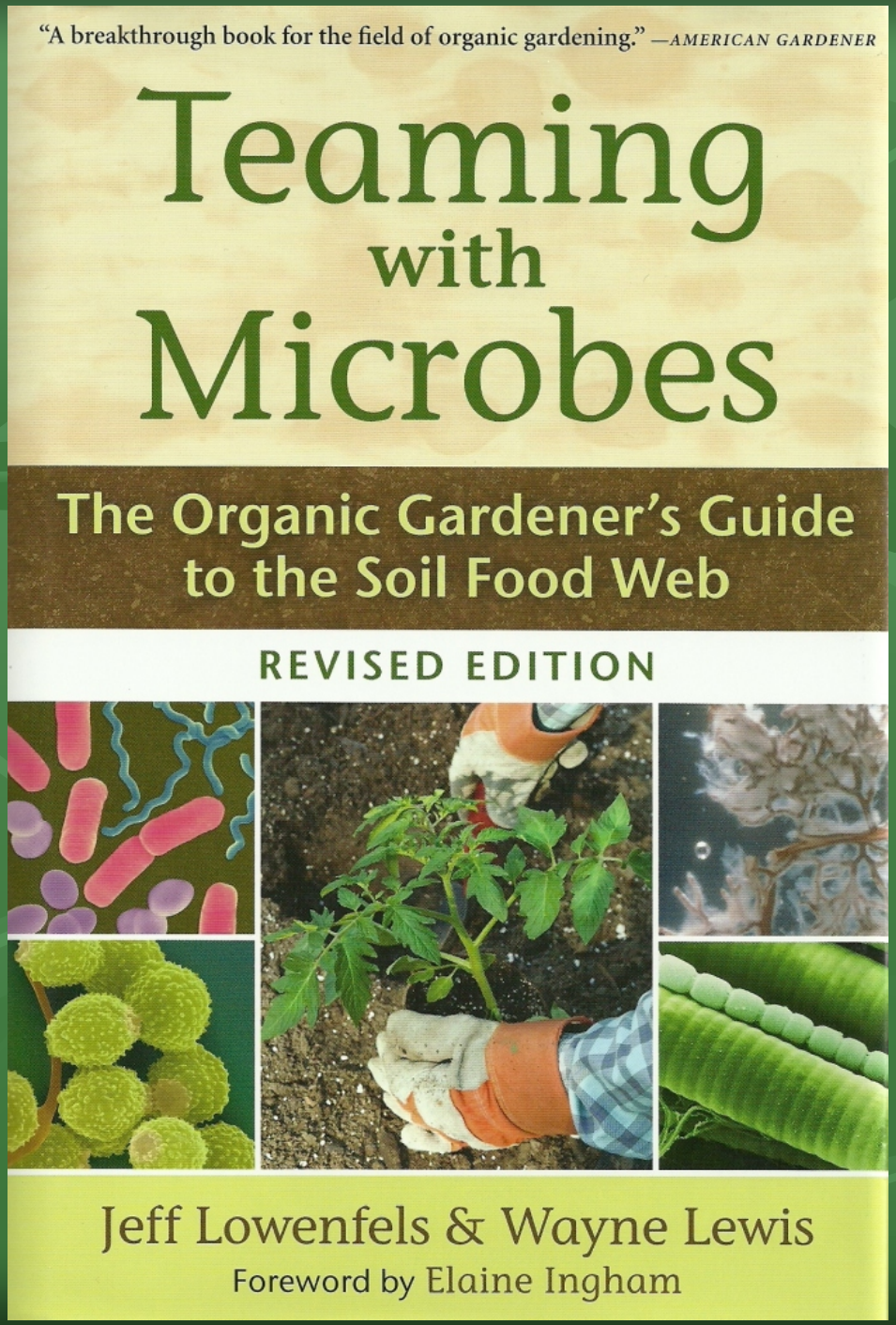
Improving Soil Biology

- Add living compost and compost tea
- Keep soil planted
- Keep plant litter on top of soils or add mulch
- Have soil tested
- Add organic amendments only as required
- Add myccorhiza when planting
- No tilling
- No chemicals or petrochemicals
- No solarization

Photo: www.denver.gov.org

Beach Strawberry

Fragaria chiloensis



- Local composting classes
- Alane O'Reilly Weber - Sanmateoarboretum.org
- Lyngso Garden Materials for compost tea and other supplies

Add a little irrigation….

- Why is Spray Irrigation Inefficient?

- Why is Spray Irrigation Inefficient?
  1. Overspray
  2. Runoff
  3. Poor design
  4. Misting
  5. Broken heads
  6. Plants blocking spray head
  7. Watering when it’s raining
  8. Watering when it’s windy

Spray vs. Drip

- Spray
  - Good for redwood or other coastal communities
  - **50-70% efficient**
  - Good for lawns under existing trees
  - Can damage/ stain fences and wooden structures
  - Uses PVC pipe
  - Does not qualify for rebates
  - Gallons per minute!
- Drip
  - Good for all other plant communities
  - **90-99% efficient**
  - Can be used for lawns
  - Does not damage/ stain wooden structures
  - Uses polyethylene (PE) or PE and PVC
  - Qualifies for rebates
  - Gallons per hour!

History of Drip Irrigation

- Simcha Blass
- 1960s

Pressure/ water guage

Components of Drip Irrigation

- Backflow preventers
- Source of water
- Punch-in or inline emitters
- Pressure regulator
- End caps or flush valves

Backflow Prevention

Source

- Valves
- Hose bib

Filters – A Must!

- Y filter
- Inline filter
- Spray body filter

- 120 mesh minimum

Pressure Regulators

- Pressure should be between 20 and 50 PSI
- Household pressure typically 60-90 PSI

Fittings

- Barbed

- Compression

Emitters

- On-line

- In-line

Flush Caps

Changing from Spray to Drip

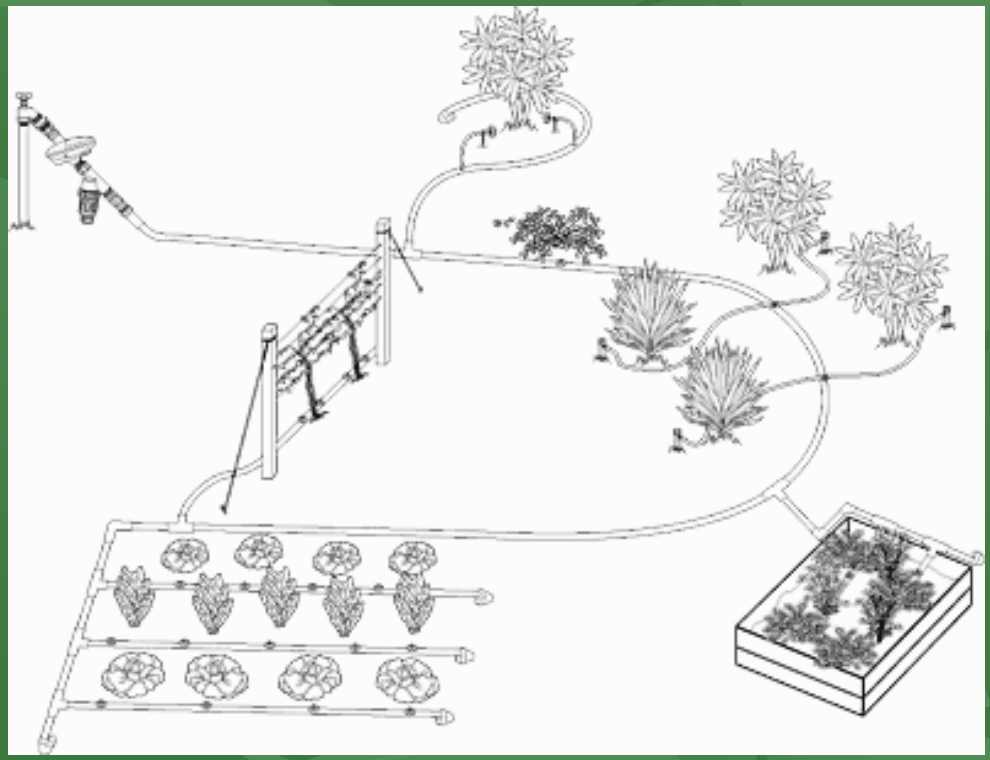
- Rainbird Kit
  - 200 mesh filter
  - 30 PSI pressure regulator

- Kit from Rainbird

Better choice than Rainbird Kit

Two Drip Irrigation Methods

- Per Plant Method
  - Add emitters per each plant
  - More efficient when plants are small
  - Less expensive to install
  - Limits root and plant growth
  - Requires more maintenance if plants change
  - Can make adjustments for differing water requirements



Two Drip Irrigation Methods

- Grid Method
  - Waters all the soil, mimics rainfall
  - Inefficient when plants are small
  - Better long term for growth
  - More expensive to install
  - Must hydrozone!

Subsurface Drip Irrigation for Lawns and Meadows

Lawn uses subsurface drip irrigation—Recommend Netafim Techline CV products

Subsurface Irrigation for Native “Lawns”

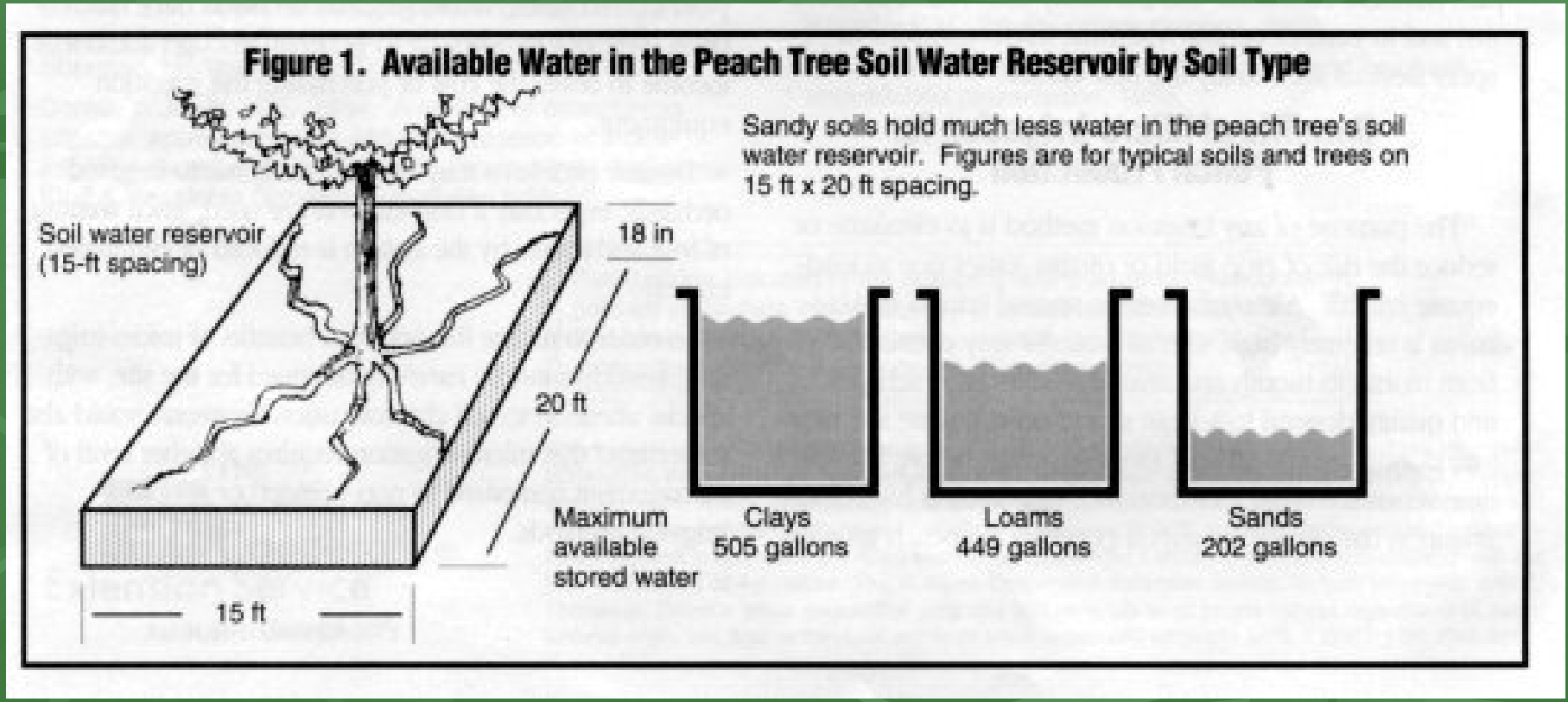
17 mm Fittings

Drip Spacing

GENERAL GUIDELINES	TURF												SHRUB & GROUNDCOVER											
	CLAY SOIL			LOAM SOIL			SANDY SOIL			COARSE SOIL			CLAY SOIL			LOAM SOIL			SANDY SOIL			COARSE SOIL		
EMITTER FLOW	0.26 GPH			0.4 GPH			0.6 GPH			0.9 GPH			0.26 GPH			0.4 GPH			0.6 GPH			0.9 GPH		
EMITTER SPACING	18"			12"			12"			12"			18"			18"			12"			12"		
LATERAL (ROW) SPACING	18"	20"	22"	18"	20"	22"	12"	14"	16"	12"	14"	16"	18"	21"	24"	18"	21"	24"	16"	18"	20"	16"	18"	20"
BURIAL DEPTH	Bury evenly throughout the zone from 4" to 6"												On-surface or bury evenly throughout the zone to a maximum of 6"											
APPLICATION RATE (INCHES/HOUR)	0.19	0.17	0.15	0.45	0.41	0.37	0.96	0.83	0.72	1.44	1.24	1.08	0.19	0.16	0.14	0.29	0.24	0.21	0.72	0.64	0.58	1.08	0.96	0.87
TIME TO APPLY ¼" OF WATER (MINUTES)	81	90	99	33	37	41	16	18	21	10	12	14	81	94	108	53	61	70	21	23	26	14	16	17
Following these maximum spacing guidelines, emitter flow selection can be increased if desired by the designer. 0.9 GPH flow rate available for areas requiring higher infiltration rates, such as coarse sandy soils.																								

Note: 0.4, 0.6 and 0.9 GPH are nominal flow rates. Actual flow rates used in the calculations are 0.42, 0.61 and 0.92 GPH.

Clay Soils Hold More Water

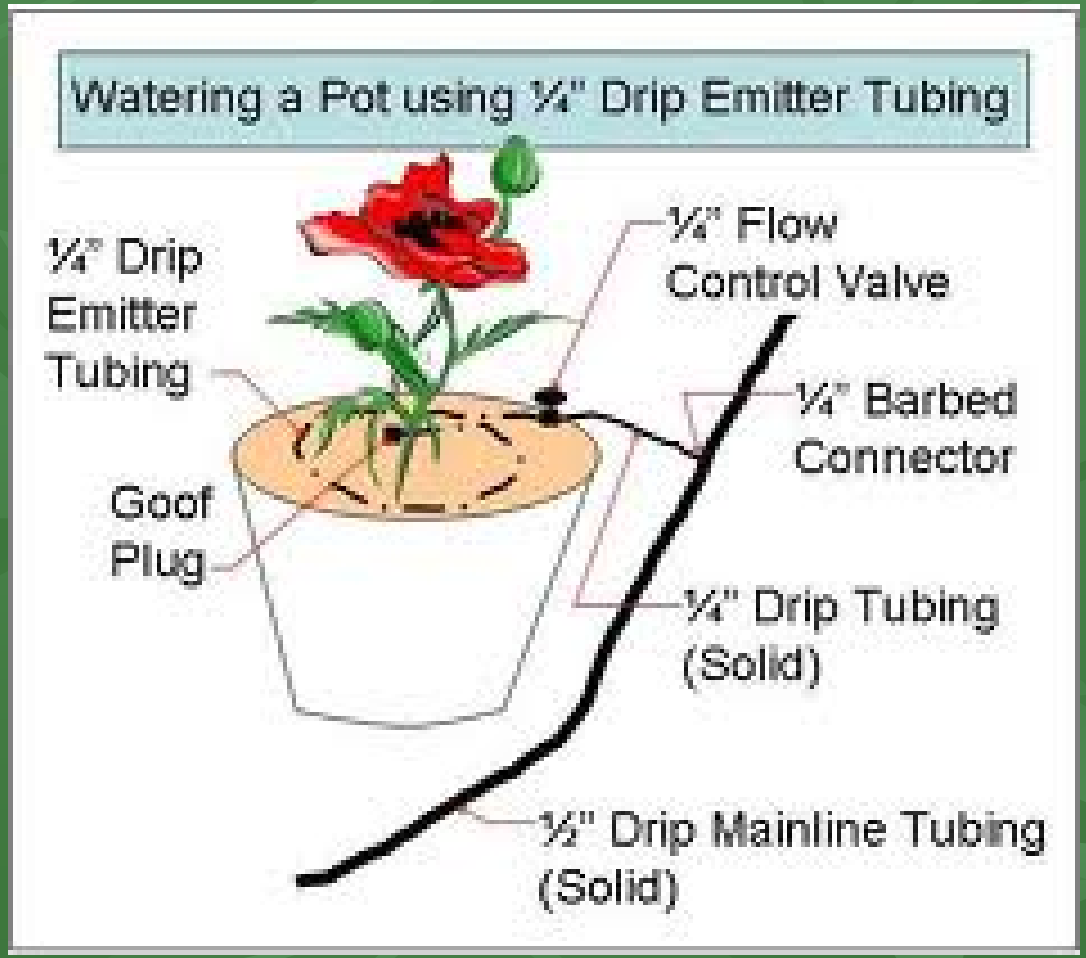


Slopes

- More water at the bottom of the hill, lay lines farther apart
- Less water at the top of the hill, lay lines closer together
- More pressure at the bottom of the hill Lay lines parallel to the contour of the hill

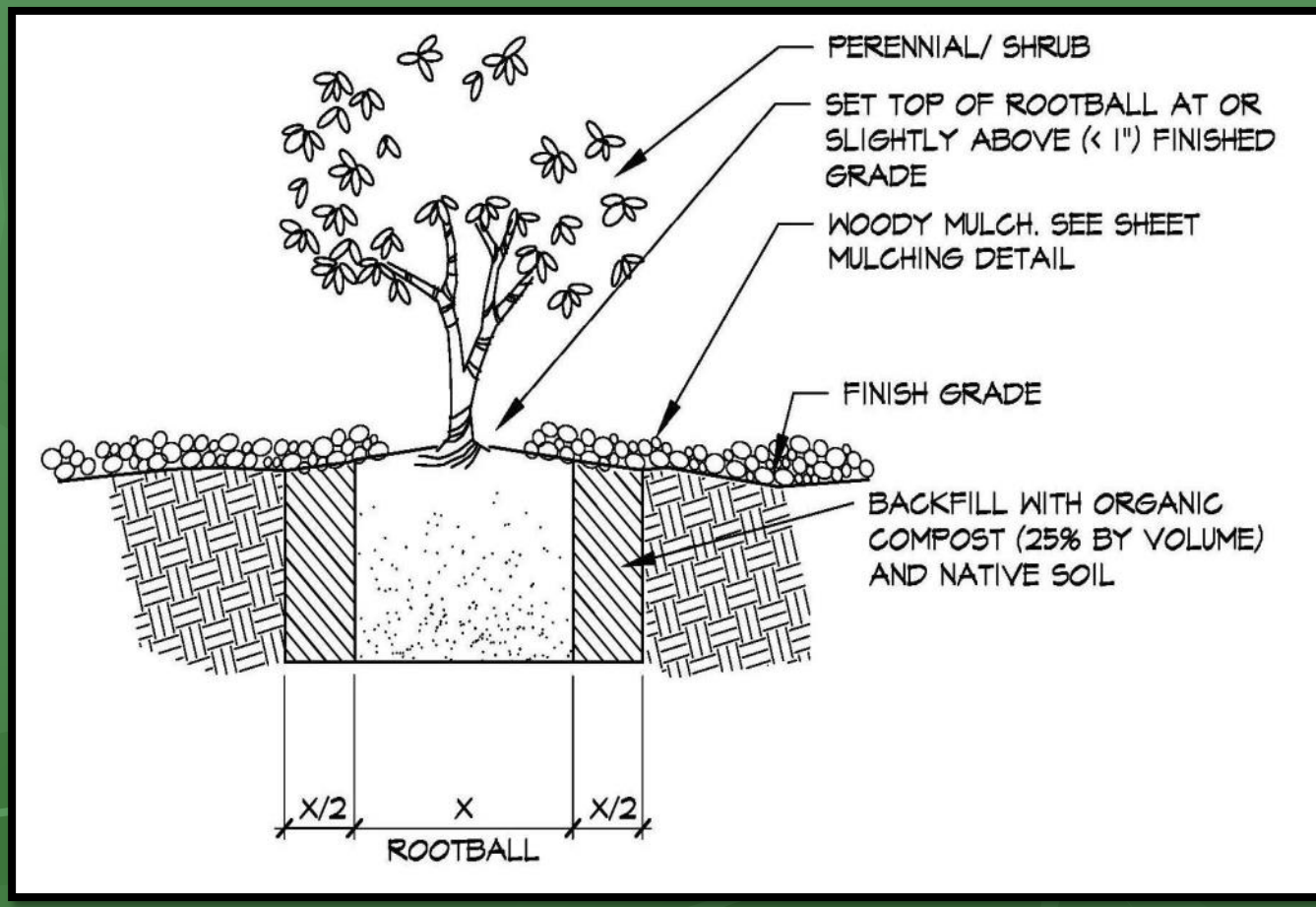
Special Cases

- Vegetable beds – ¼” tubing, 6-12”
- Pots – ¼” tubing, 6-12”



- Add Compost
  - Adds drainage
  - Aggregates the clay particles
  - Etc.

Fine Gardening Article “Improving Clay Soils”



Planting technique

- See Yerba Buena Nursery List

Amelanchier alnifolia	Serviceberry
Aralia californica*	Elk Clover
Arctostaphylos bakeri 'Louis Edmunds'**	Serpentine Manzanita
Arctostaphylos 'Dr Hurd'**	Dr. Hurd's Manzanita
Arctostaphylos edmundsii 'Carmel Sur'**	Carmel Sur Manzanita
Arctostaphylos 'Green Supreme'**	Green Supreme Manzanita
Arctostaphylos densiflora 'Howard McMinn'**	McMinn's Manzanita
Arctostaphylos densiflora 'Sentinel'**	Sentinel Manzanita
Aristolochia californica	Dutchman's Pipevine
Artemisia douglasiana*	Mugwort

Clay-Tolerant Species

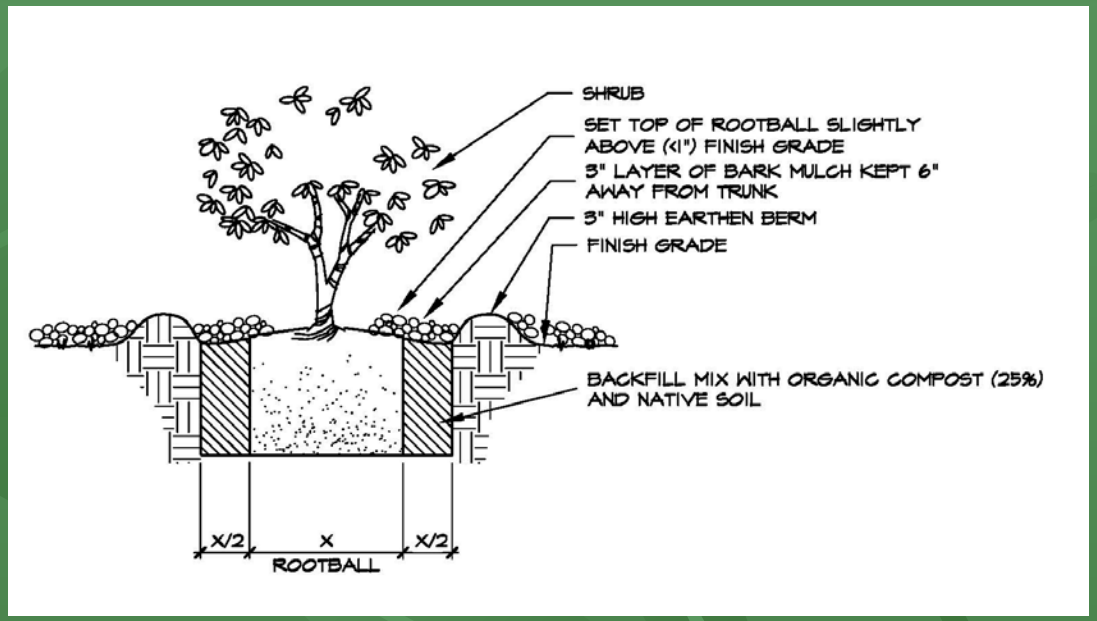
Scheduling

- Planting medium vs clay soil
- Hydrophobic soils

Too Little Water

How to ensure babies get enough water

- Hand water
- Create a berm
- Get irrigation to the plant – see Netafim adapter
- Completely remove potting medium – Kris K's method



Maintenance

- Spring tasks
  - Check/ clean the filter
  - Open the flush valve and turn on the station, flush for 5 minutes
  - Close the flush valve and walk the system, listen and look for leaks
- Monthly summer tasks
  - Read your water bill
  - Turn on and walk each zone listening and looking for leaks

Rebates!

Santa Clara Valley Water District

- High Water Using Landscape Conversion
  - $1.00 /sq. ft.
  - Max = no limit!
  - Palo Alto - $2 /sq. ft

Landscape Replacement Rebates – Santa Clara Valley Water District

Qualifying Irrigation Hardware and Rebate Amounts

Rain Sensor	Up to $50 per sensor
High-Efficiency Nozzles	Up to $5 per nozzle
Dedicated Landscape Meter	Up to $500 per meter
Rotary Sprinkers or Spray Bodies with Pressure Regulation and/or Check Valves	Up to $20 per set
Weather Based Irrigation Controller, 1-12 Stations*	Up to $300 per controller
Weather-Based Irrigation Controller, 13-24 Stations*	Up to $700 per controller
Weather-Based Irrigation Controller, 25 Stations Or Greater*	Up to $1,000 per controller

Rain Sensors

Spray heads to MP Rotators

ET or ‘Smart’ Controller

- ET= Evaporation/ transpiration
- Use weather information to determine precise water needs
- Some monthly fees for connection to weather station
- Several manufacturers: Weathermatic, Toro, Hunter, Rainbird, Irritrol, etc.

Rebates $1000 - $5,000

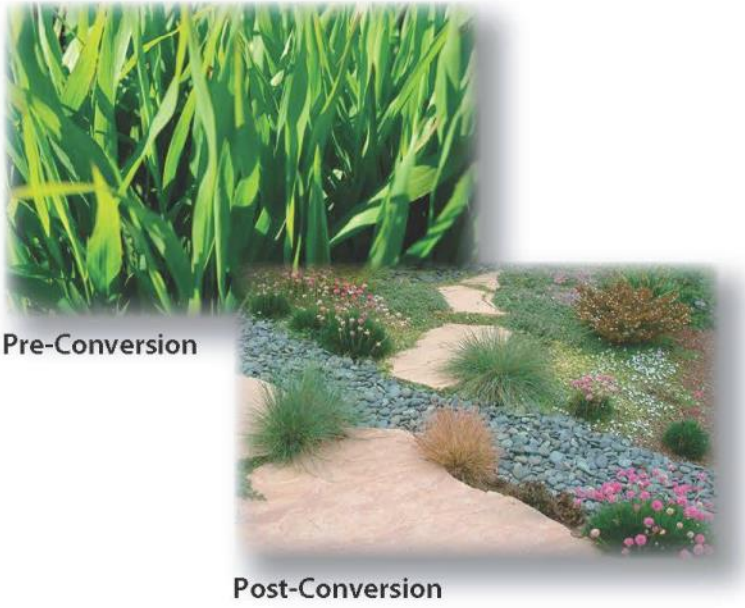
Lawn Be Gone!

Imagine...

Create...

Enjoy...

- $0.75 per sq. ft.,
- Front yards only
- Up to $1,000



Pre-Conversion

Post-Conversion

Get Paid to Transform Your Landscaping!

Effective July 1, 2013 through June 30, 2014

BAWSCA
Bay Area Water Supply & Conservation Agency

650-349-3000
www.bawsca.org

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Bay Area Water Supply & Conservation Agency

650-349-3000
www.bawsca.org

Water-Efficient Landscape Rebate Program

Photo By Stephanie Penn

Trade in your high-maintenance and water-thirsty lawn for a more natural, low maintenance, and water-efficient landscape, and ACWD will give you money back for doing it!

Get a Rebate of up to $1,500-$20,000*

Effective May 1, 2013

**Rebate is based on $1.00 per square foot of lawn converted to water-efficient landscape. Single family residential customers are eligible for up to $1,500, multi-family residential, commercial and industrial customers are eligible for up to $20,000.*

ACWD
ALAMEDA COUNTY WATER DISTRICT

Drought tolerant landscapes – Case study bird sanctuary

30 species native plants, 17 for birds

Pondless waterfall on timer

Drought-tolerant landscape
Case study lawn replacement

Before

After: 18 species of native plants

Drought-tolerant landscapes
Case study front yard

Drought-tolerant landscape – Case study pool removal

Next Steps

- Check your water meter for leaks
- Determine how many gallons of water you use in a year
- Determine how much is inside vs outside
- Set a goal to reduce your consumption
- Set a reminder to adjust your water meter 4 times per year

KEY TIPS TO REMEMBER WHEN IT COMES TO WATER-SMART LANDSCAPING:

- **Go native or choose plants that need less water.** Once established, native and low water-using plants require little water beyond normal rainfall. If you're designing a new landscape or just sprucing up your current landscape, be sure to consider the water needs of the plants you choose.
- **Group plants according to their water needs.** Grouping vegetation with similar watering needs into specific "hydrozones" reduces water use by allowing you to water to each zone's specific needs. Turf areas and shrub areas should always be separated into different hydrozones because of their differing water needs.
- **Maintain healthy soils.** Healthy soils are the basis for a water-smart landscape; they effectively cycle nutrients, minimize runoff, retain water, and absorb excess nutrients, sediments, and pollutants.
- **Be selective when adding turf areas.** Turfgrass receives the highest percentage of irrigation water in traditional landscaping. To improve the aesthetics of your landscape and better manage outdoor water use, plant turfgrass only where it has a practical function.
- **Water wisely.** Know your plant's water needs and avoid watering during the heat of the day. If you have an irrigation system, make regular adjustments to ensure proper watering. And be sure to look for the WaterSense label on components for your system.
- **Use mulch.** Incorporate mulch around shrubs and garden plants to help reduce evaporation, inhibit weed growth, moderate soil temperature, and prevent erosion. Adding organic matter and aerating soil can improve its ability to hold water.
- **Provide regular maintenance.** Replace mulch around shrubs and garden plants at least once per year, and remove weeds and thatch as necessary.

In short, plan and maintain your landscape with these principles of water efficiency in mind, and it will continue to be attractive and healthy while requiring less maintenance and less water.

Irrigation References

- Irrigation Supply Stores
  - Ewing
  - Horizon
  - Water Savers
- WUCOLS: http://www.water.ca.gov/pubs/conservation/a_guide_to_estimating_irrigation_water_needs_of_landscape_plantings_in_california__wucols/wucols00.pdf
- Rebates:
  - Santa Clara Water District
  - Alameda County Water District
  - Bay Area Water Supply and Conservation (BAWSCA) – Lawn Be Gone!
- EPA's "Water Efficient Landscaping" guide http://www.epa.gov/WaterSense/docs/water-efficient_landscaping_508.pdf

Upcoming Talks

- **See www.sustainable-landscape.com for more information!**
- **Thursday, March 20, 2014 "Irrigation Basics for Homeowners", Mountain View**
- **Saturday, April 12, 2014, "Sustainable Edible Gardening", Menlo Park**
- **Saturday, April 19, 2014, "Graywater Irrigation", Palo Alto**
- Common Ground Organic Garden Supply and Education Center, 10:30 AM-12:30 PM, 559 College Avenue, Palo Alto, CA
- **Saturday, April 26, 2014, "Maintaining Your Native Garden", Sunnyvale**
- **Thursday, May 1, 2014 "Maintaining Your Native Garden", Mountain View**
- **Wednesday, June 25, 2014, "Irrigating Native Plants", Campbell**

The California Native Plant Society (Santa Clara Valley Chapter)
in association with
UCCE Master Gardeners of Santa Clara County
present the

Master Gardeners Santa Clara County

12th Annual Going Native Garden Tour

Saturday, April 26, 2014, 10-4: NORTHERN GARDENS: Sunnyvale, Mountain View, Palo Alto, Los Altos, and San Mateo County

Sunday, April 27, 2014, 10-4: SOUTHERN GARDENS: Cupertino, Santa Clara, Campbell, San Jose and south

SPONSORS:
Almaden Valley Nursery • Bay Area Water Supply & Conservation Agency • Bay Maples • Bay Natives Nursery • California Nativescapes • Central Coast Wilds Nursery • East Bay Wilds • Gold Rush Nursery • Mediterranean Garden Society • Native Revival Nursery • Santa Clara Valley Water District • Watershed Watch

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To sponsor or support the tour, contact info@GoingNativeGardenTour.org

Photos: tmousecmouse.blogspot.com

Bay Area homeowners are making their gardens aesthetically pleasing, attractive to birds and butterflies, water-wise, and low maintenance by incorporating California native plants. Visit gardens landscaped with native plants on this **free** annual tour, now in its 12th year.

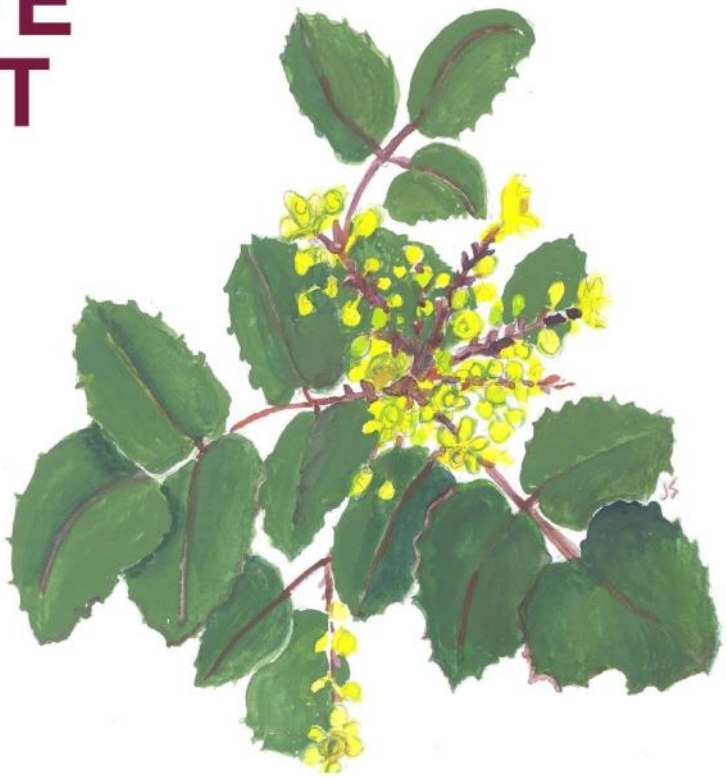
About 50 gardens will be open for viewing, from town home gardens to acre lots, from newly planted gardens to established ones. The gardens are located all over the Santa Clara Valley and the Peninsula, so you won't have to go far to see one. Some gardens will feature **talks**, others will have **plants for sale**. Visit as many as you like — for inspiration, for photos, for meeting other garden enthusiasts.

Free admission • Plant Sales & Talks at select gardens • Register at www.gngt.org

Garden information, maps, and directions will become available to registrants the week of April 7. Registrations will be accepted until noon of April 27. For information, visit www.gngt.org, or email info@gngt.org

THE CALIFORNIA NATIVE PLANT SOCIETY
SANTA CLARA VALLEY CHAPTER AND ACTERRA

NATIVE PLANT SALE



BERBERIS AQUIFOLIUM
VAR. REPENS

SATURDAY MAY 3, 2014 10 AM - 3 PM

HIDDEN VILLA RANCH

26870 MOODY ROAD LOS ALTOS HILLS, CA

2 MILES WEST OF FOOTHILL COLLEGE
TAKE THE EL MONTE / MOODY EXIT FROM 280
CONTACT: 650-260-3450 or www.cnps-scv.org
PARKING IS FREE BRING A BOX FOR PLANTS

Summary

- Drought-tolerant plants
- No or efficient irrigation
- Organic soil care
- Drip Irrigation

Fremontodendron californica ‘Ken Taylor’

Thank you!