


Download Tonight's Presentation

Folsom Water Conservation Webpage

- Rebates
- Water Wise House Calls
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- Drought Info

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Lose the Lawn for Low-Water Lush

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Largest
irrigated
acreage in US

At 50
Million
acres....

LAWN!





The Goal

CHANGE

- Perspective
- Aesthetic ideal



Lowering Your Water Needs

#1 WAY

- **REDUCE THE TURF AREA**

- Eliminate all non-amenity turf
- Use low-water groundcovers for green swaths



Additional ways to Lower Your Water Needs

- Reduce the amount of planted area
- Replace turf with low-water plants
- Add permeable paths and entertainment areas

Create lively
landscapes that
provide
ECOSYSTEM
SERVICES

- Rain runoff mitigation
- Carbon sequestration
- Environmental cooling
- Wildlife habitat



ALSO CREATE

- Inviting spaces
- Enhanced property value
- Mental and emotional well-being
- Connected to beauty in nature



Factors in Landscape Water Use

Things I can't change

- Soil type
- Climate /Microclimate
- Time of Year

Things I *can* change

- Plants & Hardscape
- Soil health
- Irrigation (system & schedule)
- Fertilization
- Pruning



Steps to Low-water Lush

1. Assess your site
 - Where is sun and shade?
 - Where are slopes?
 - Where is runoff?
 - Dead spots?
2. Assess the irrigation
3. Assess your soil
4. Make a plan-*What is your goal?*

IMPORTANT CONSIDERATIONS

Ask yourself what
you want!

- Shady spot to read?
- Vegetable/herb beds?
- Pollinator garden?
- Colorful flowers?
- Screen?
- Bocce area?





Steps to Low-Water Lush

5. Remove unwanted hardscape & plants
6. Amend soil with good compost
7. Install/convert irrigation to most efficient for the space
8. Plant new material
9. Cover bare soil and lines with organic mulch

PSA: Synthetic Turf

- High surface temperatures in summer
- Does not produce environmental benefits
- Huge carbon footprint (petroleum based) and emits CO₂
- Ends up in landfill in 10 years- not currently recyclable
- Many made with rubbers with toxic metals



Grass Removal Option 1

- 
1. Quit watering/ Herbicide if impatient
 2. Scalp what's left
 3. Cut out below grade at path edges

Option 2: Solarization

- Clear plastic sheeting
- Must be done during warm weather
- May take up to 3 months
- Staple down at the edges and wait

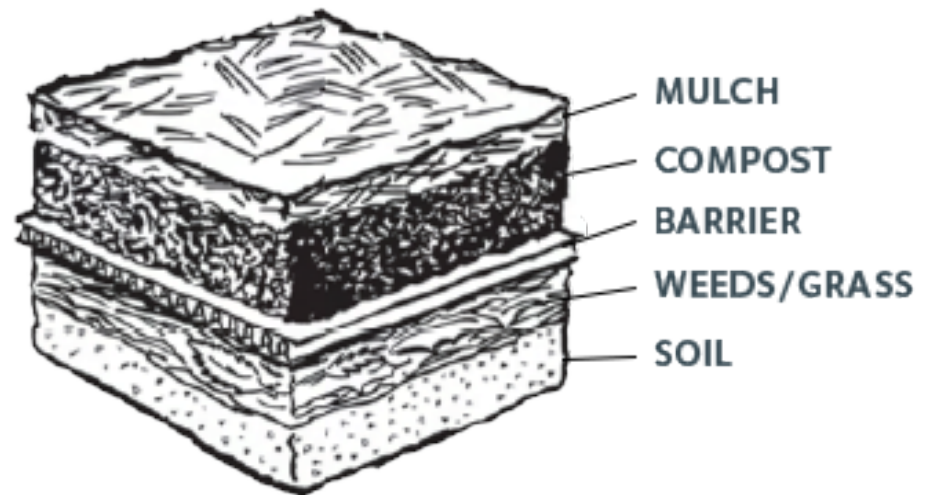


Option 3: Sodcutter



Option 4: Sheet Mulching

- Scalp lawn/weed area
- Cut out below grade at edges of hardscape
- Lay overlapping cardboard layers
- Top with 3-6" good compost
- Cover with mulch



***Best to start 3-6
months ahead with
this method.***

ADDITIONAL OPTION: Seed with wildflowers or cover crop 1st year.

Commercial
grade
cardboard
rolls:

Sheet mulch to
path



Outline beds and paths: stakes, paint, etc.





HARDSCAPE CONSIDERATIONS

- Reduce planted area >> reduce water use!
- **SIDE EFFECTS:**
 - In sun: raised temps
 - If impervious- rain runoff

HARDSCAPE SOLUTIONS

- Use permeable material
 - Pervious concrete
 - Pavers with sand between
 - Crushed rock (like DG)
 - Walk-on bark
- Use permeable landscape fabric beneath rock





Pervious
concrete:
professional
install
required



Terraces for Slopes

- **WHY?**
- Reduce runoff (winter)
- Increase irrigation efficiency (summer)
- **HOW?**
- Cut slopes
- Install small “walls”
- Level each terrace





Each section now irrigated without runoff!

Boulders create terraces that mimic “outcroppings”




Dry Stream Beds

- Act as catchment for heavy rainfall events
- Use permeable geotextile fabric base
- Vary rock sizes for most naturalistic look
- Creating planting pockets helps uptake water

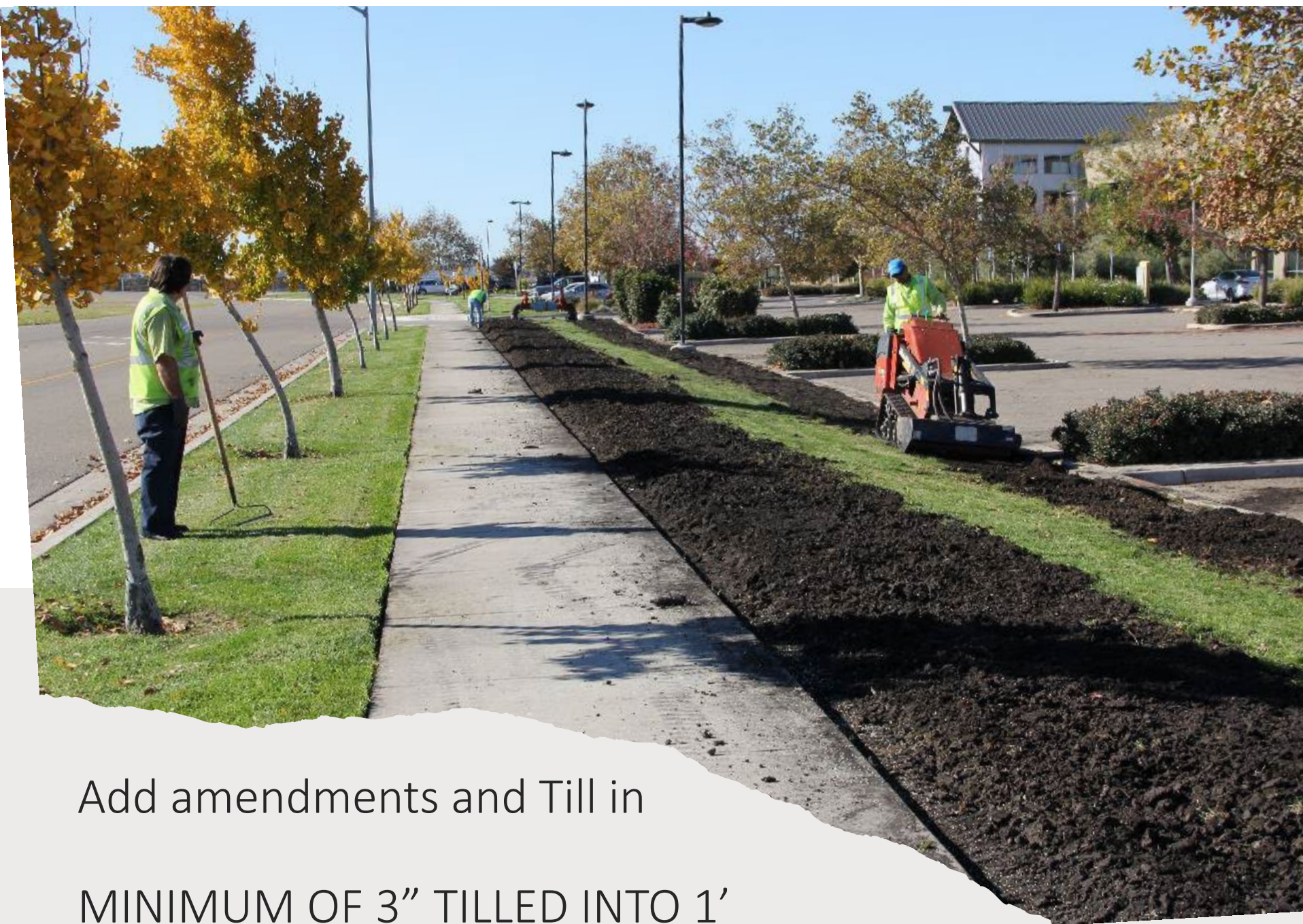


Using Organic materials

- Walk-on bark
- Wood chips
- Pros: infiltrates well, improves soil (slowly)
- Cons: *Must be replenished, hard to roll carts or wheelchairs over*



Create a barrier between organics and direct access to stormdrains!



Add amendments and Till in
MINIMUM OF 3" TILLED INTO 1'

Reconfigure Irrigation



Or Convert Existing Sprays to Drip



**You may want to hire a professional –
check for valid license!**

Point source (button) vs. Inline Drip



BUTTON EMITTER

- Spotty coverage to root zones
- Lines have to be added for new plants
- Emitters need replacement
- Leaks and blowouts
- Difficult to calculate water use



INTERNAL EMITTER LINE

- Even soil coverage
- No need to add lines for new plants
- Pressure regulated emitters with check valves
- Water use easily calculated in in. or gals

In-line Drip

**Emitter rate and spacing
should be matched to the
soil type- *CHECK IT!***

- Tubing with internal emitters
- Laid in grid patterns
- Various emitter rates
 - .24, 0.4, 0.6, 0.9 GPH
- Various emitter spacing
 - 12", 18", 24"





Inline drip
length and
emitter ex.

- **Hunter 0.4 gph/ 18" @ 50 psi can run 784' of line on one head.**
- **Netafim 0.4 /18" @ 50 psi = 654'**
- **Emitters are**
 - **Pressure-compensating**
 - **anti-siphon**
 - **self flushing w/built in check valves**

Inline drip length and emitters

- Total allowable line length is based on your inlet water pressure- *CHECK IT!*
 - Attach a pressure gauge on a spigot close to the irrigation zone
 - Turn water on and read valve



**You need between 30 and 50 psi
for drip**

Design & Scheduling Specifications

	Clay			Loam			Sandy		
Rate (gph)	0.26			0.4			0.6-0.9		
Emitter spacing (in)	18			18			12		
Row spacing	18	21	24	18	21	24	16	18	20
App. Rate (in/hr)	.19	.16	.14	.3	.26	.23	.7-1.1	.65-1	.6-.9
Minutes to apply ¼ "	80	96	106	50	58	66	13-20	15-23	17-26

Download: [Hunter Drip Irrigation Design Guide](#)
[Netafim Techline CV Design Guide](#)

To convert existing drip distributors

- Unscrew drip head
- Replace with T-cap or other adapter



Conversion kits for existing spray heads

- Unscrew head or sprinkler body
- Replace with kit body
- Add a T-adapter



To use existing spray heads

- Unscrew head or sprinkler body
- Add blank riser if removing body
- Add pressure compensator if needed
- Add a T-adapter



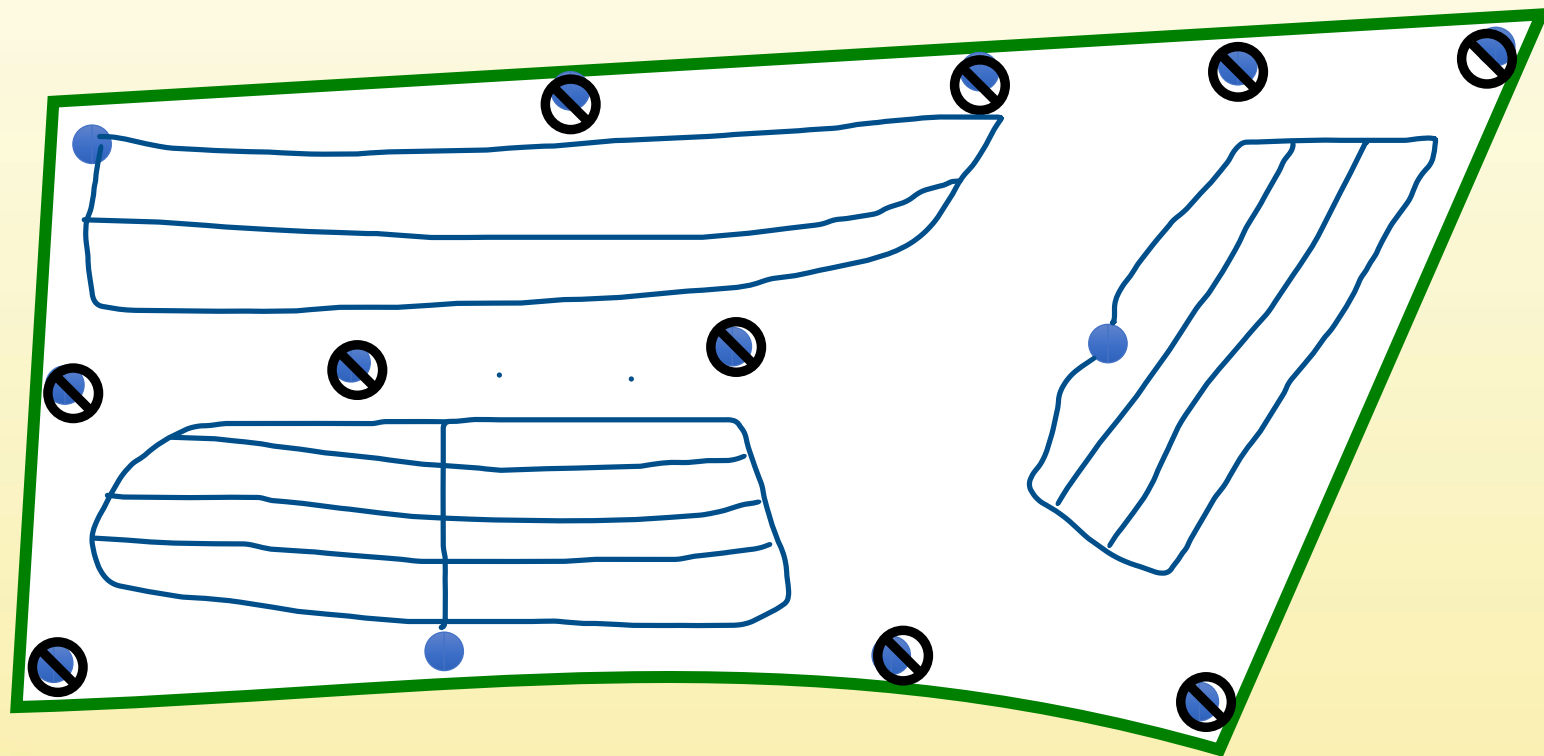
**Use professional
landscape stores for
assistance.**

Spray to Drip: Pressure regulation at the valve



- Avoids individual pressure regulation
- Requires plumbing skills
- If inexperienced - hire a professional

Using existing risers



Looped (“Lite”) Layout



From the Techline CV Design Guide

Last Steps

- Lay your line according to the guidelines and your space.
- Add a flush vent at the farthest spot on each line.
- Run the system to flush out any soil.





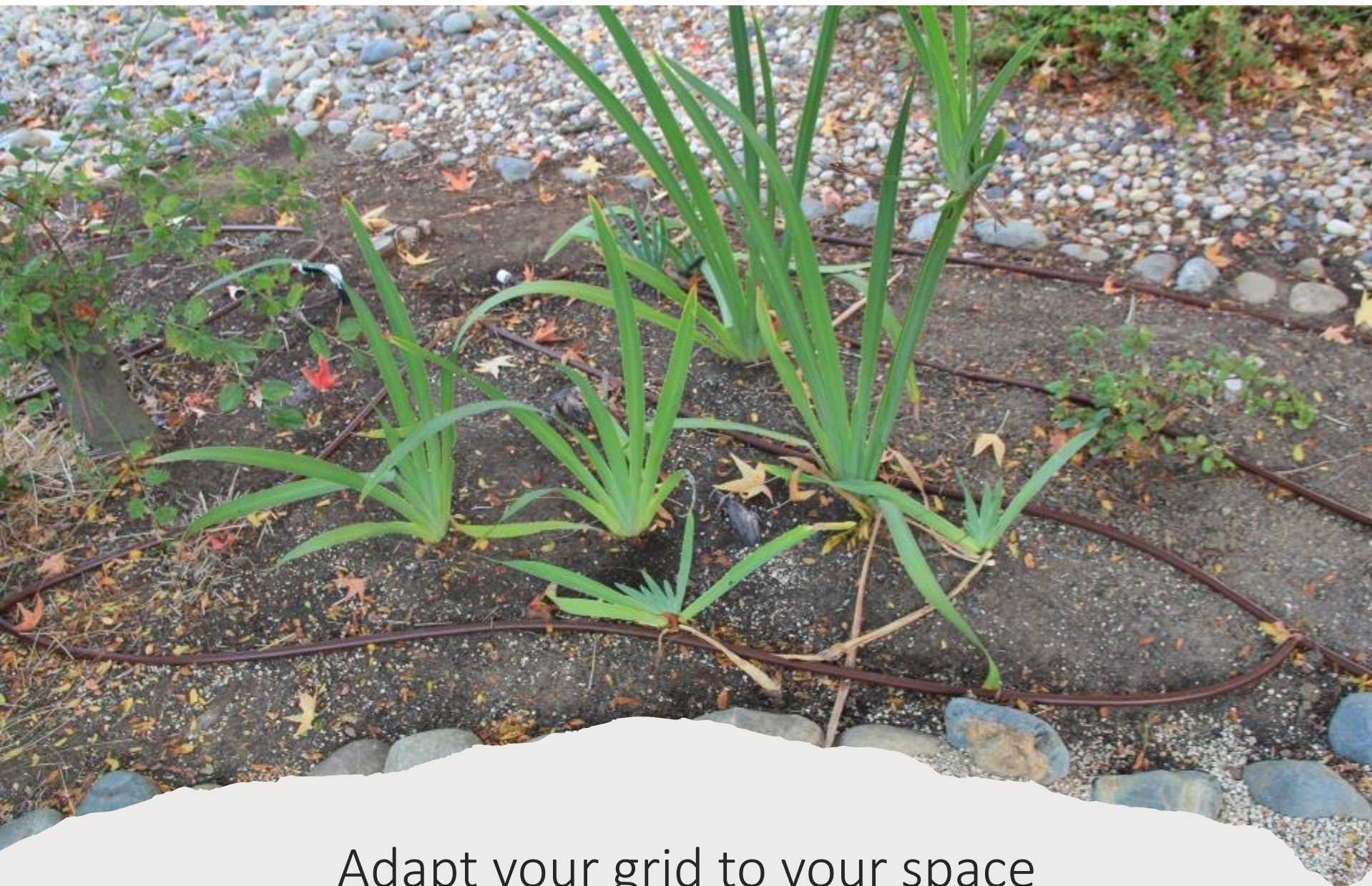
Helpful Hints with Inline Drip

- LAY YOUR LINE OUT IN THE SUN to soften the tubing and prevent kinks.
- Use something hard to push staples in.
- If curves are too sharp, use an elbow.



Helpful Hints with Inline Drip

- Use cross connectors with long runs
- Use concentric rings around trees
- Add loops for rounded beds



Adapt your grid to your space

BREAK



Assessing your current plants and trees

- Remove
 - High maintenance plants
 - High water users
 - Anything you don't like
- Build around what you like/looks good
- Move plants together with similar water needs (hydrozone)
- *Make a list of plants you'd like*
- *Measure your empty spaces*

*Plants aren't children-
it's okay to get rid of them
if they don't
perform!*

Finding Plants

A close-up photograph of numerous pink flowers with yellow centers, likely petunias, arranged in a dense cluster.

Magazines

A photograph of several vibrant red roses with green leaves, tilted at an angle.

Nurseries

A photograph of a garden bed featuring purple flowers with yellow centers, possibly Salvia, growing next to a grey stone path.

Websites

LATEST!

GREATEST!

IMPROVED!

BEST YET!

What makes a plant the BEST?

- Suited to local climate
- Suited to the soil
- Suited to the site
 - Sun/Shade exposure
 - Wind exposure
 - Slope, level, low spot
- *Mature* size fits space



The BEST plants will also be



- Pest-tolerant
- Disease-resistant
- Non-invasive
- Low-water users
- Host to beneficial wildlife

PLANNING YOUR PLANTS

Plan A

You know what you want

1. Make your list
2. Look up water needs on WUCOLS
3. Group plants by water needs
4. Shop and plant

Plan B

You want to find plants

1. Decide types of plants you need
2. Use WUCOLS to generate list by type and water need
3. Narrow the list down
4. Shop and plant

Choosing Plants for Low-water Lush

<https://ccuh.ucdavis.edu/wucols>



Water Use Categories

HIGH	70-100%
------	---------

MODERATE	40-69%
----------	--------

LOW	10-39%
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VERY LOW	< 10%
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Additional Website for Trees



<https://selectree.calpoly.edu/>

HYDRO- ZONE Your Plan!

- *Put plants with same water needs on same valve.*
- *MODERATE is okay grouped together.*





Researching water use:
UC Landscape Plant Irrigation Trials



Low-water Use vs. Drought Tolerant



Not dead – but *not* low-water

Low-water Use vs. Drought Tolerant



Low-water use vs. Drought-tolerant

Thriving



Moderates water use

Surviving



**Does not moderate
water use**



Low-water Plant Strategies for Water Conservation

- Summer deciduous
 - Broadleaf or bulbs
- Reflect light
- Slow metabolism, go dormant
- Close stomates in day; fix CO_2 at night (CAM)
- Roots deep *and* wide

Leaf characteristics- your clues!

- **Light – gray, silvery**
- **Hairy**
- **Succulent**
- **Reduced leaf size/
needles**
- **Vertically held**
- **Waxy coating**
 - **Leaves will feel
very stiff**

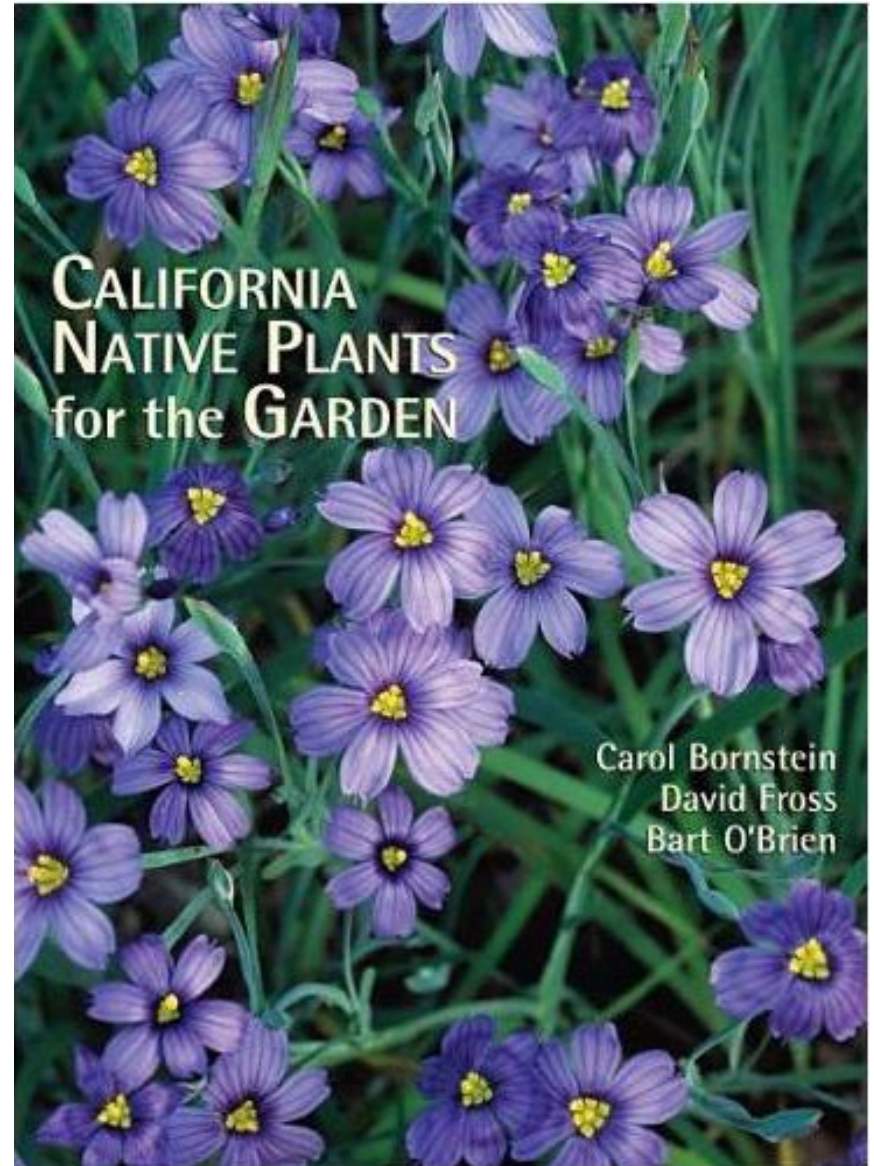


Planting for Success

- Plant in autumn to take advantage of cooler temps and rain
- Closely inspect plants in the nursery for
 - Pests/disease signs or symptoms
 - Healthy root systems
- Buy small except for slow growers

Site Selection & Preparation

- MEASURE planting spaces
- Buy for slight overlap
 - 6" or less for large shrubs
 - 3" or less for small shrubs or herbaceous plants
- Check print and web resources



Examine your Plant

- No hardened circling roots
- Lots of healthy (light-colored) roots
- Trim off damaged and rotted roots



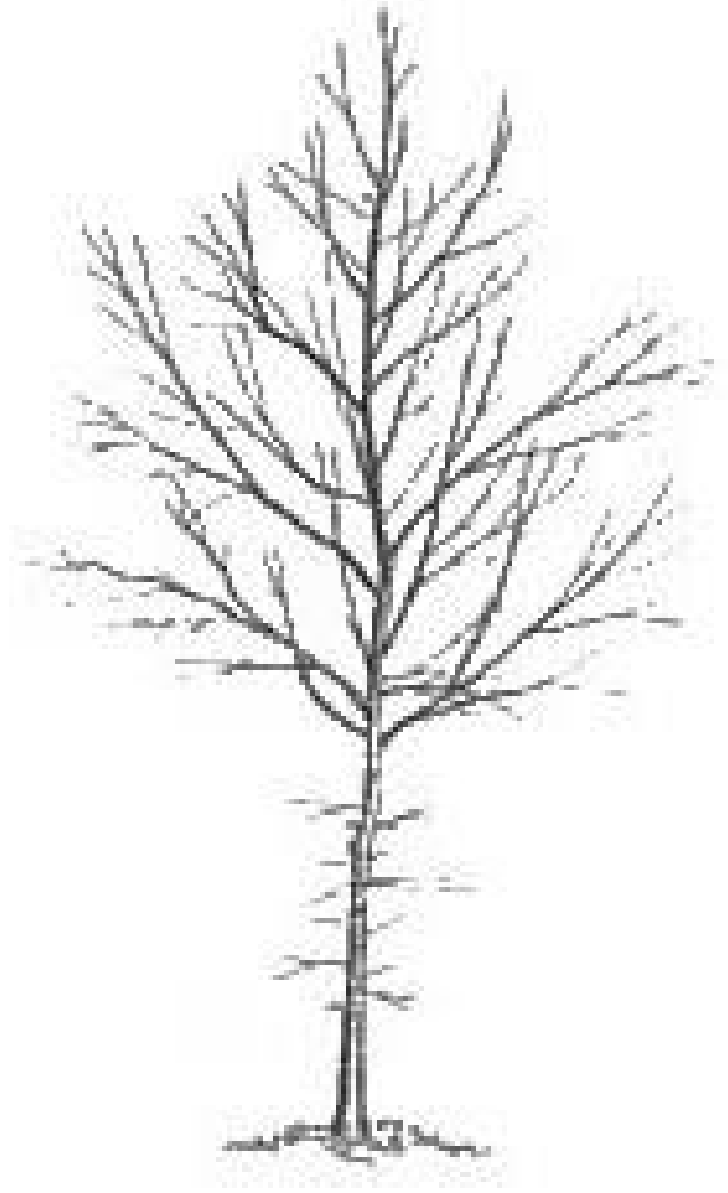


Also inspect
for-

- Insect eggs or signs
- Disease symptoms
- Broken stems
- Unstable crown
- Buried trunks

Examine your Trees

- Should have some branches left on trunk
- Should not flop over when stake is removed
- Find a supplier who sells quality trees



Trunk growth & structure

Importance of taper-
structurally strong

TEMPORARY BRANCHES:

- Increase taper by “feeding” trunk
- Improve flexibility
- Shade trunk- prevent sunburn cracks

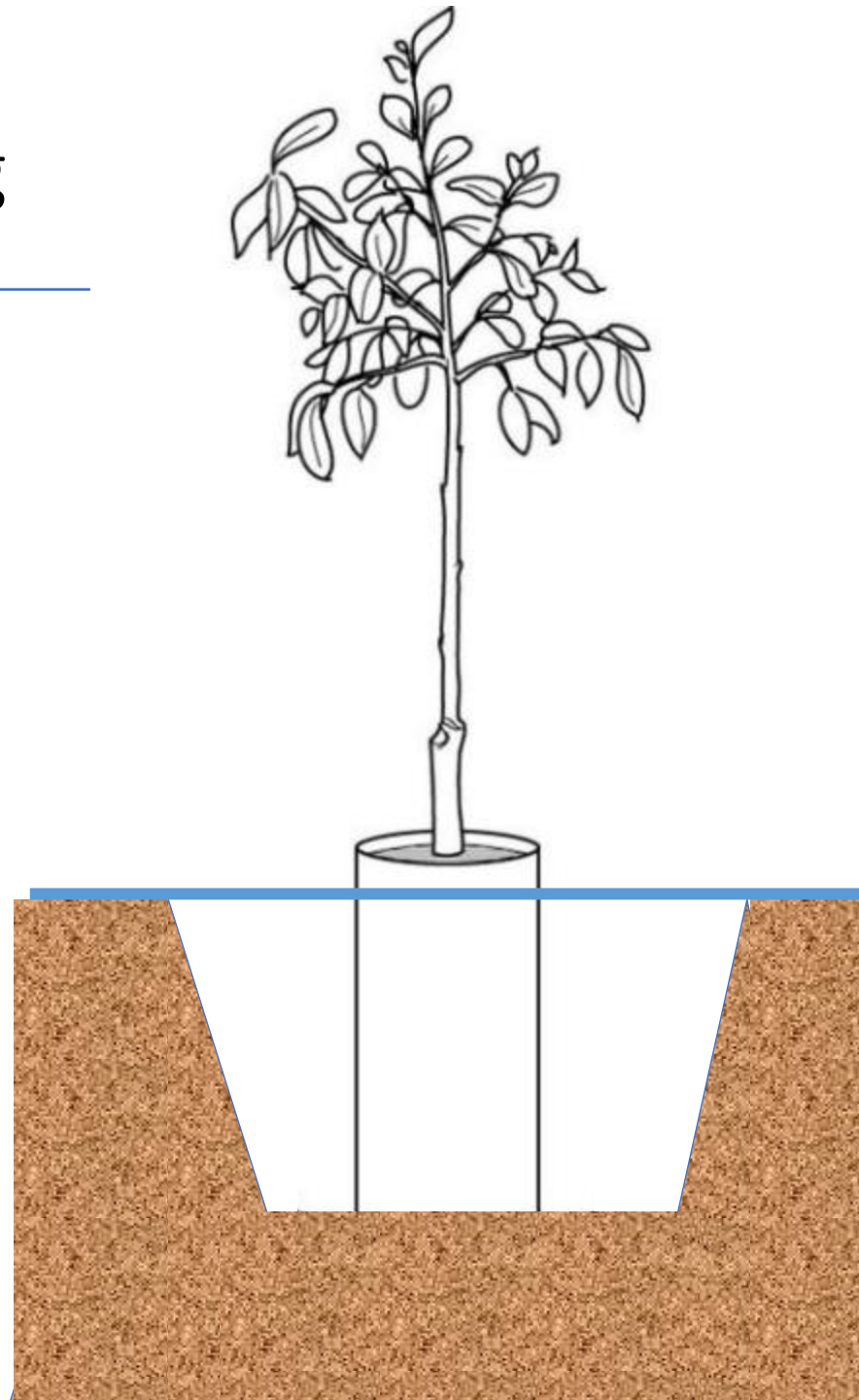
NO LOLLIPOPS!



Tree/ Large Shrub Planting

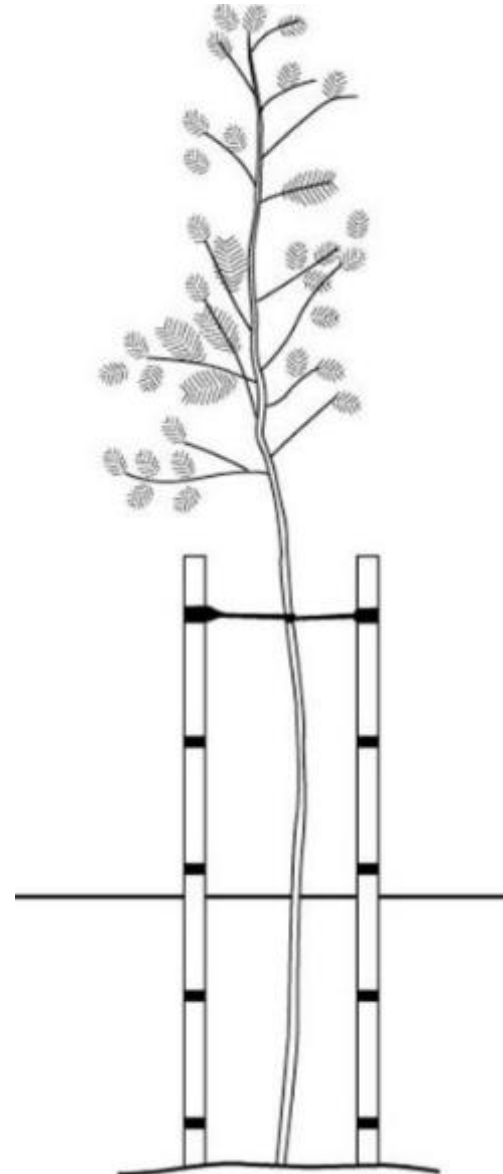
DIG THE HOLE:

- 2 - 3× as wide as pot/ball
- Almost as deep as root ball (examine FIRST!)
- BREAK UP soil from hole
- Back fill with native soil
- FIRM soil around roots
- Make a berm and water in



Proper Staking

- ONE tie height
- Ties should allow top & lower trunk to bend
- Placed slightly above highest “stable” spot
- Lowest spot you can hold the tree and have the tree stand straight



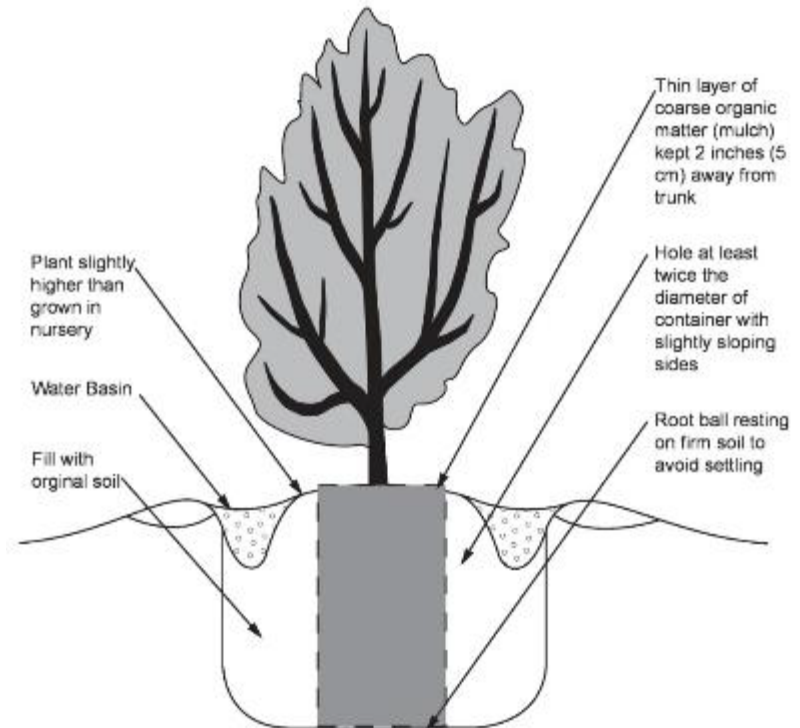


Proper new tree watering berm

REMOVE AFTER YEAR 1!

Planting Notes

- Shrubs may be planted $\frac{1}{2}$ " to 1" high for 5G
- Perennials (non-woody) planted at grade
- **NO BARK IN THE HOLE!**





Shrub and perennial planting notes

- Planting “high” allows for settling of large shrubs and trees.
- Small/delicate perennials at ground level, not above

Planted too high!



Establishing a maximum capacity root system

- Irrigation should begin at the pot/soil margin
- Gradually add water further out
- Drive roots down: water should go below the root ball



No weed cloth in planted beds!

MULCH,
MULCH,
MULCH!

SOIL COVERAGE SAVES
WATER

- 2-3" prevents evaporation
- Keeps roots healthy
- Creates healthy soil
- Provides for beneficial soil organisms





Before Maturity

- Most plants are ***HIGH WATER USERS***
 - TREES— 3-5 years of regular water
 - SHRUBS – 1 full year of regular water
 - PERENNIALS – 1 year or 1 spring & summer (for spring or summer planting)

The background of the slide shows a landscape with green trees and a building under a clear blue sky. In the foreground, there is a garden bed with brown mulch and several small, low-lying green plants.

RULE OF THUMB

New plantings - *frequent water* until roots have grown into surrounding soil

- **SUMMER** – every 2 or 3 days
- **SPRING/FALL** – 1X/wk (depending on rainfall)

How much & How often depend on

- Weather
- Sun or Shade
- Your soil type
- Your application system
- Planting density
- MULCH



Come to an irrigation workshop!



The ART of Low-water Lush



A NEW AESTHETIC

- Lots of greens
- Layers of texture
- Contrasts for drama
- Year-round interest
 - Think in seasons
- Lots of color
 - Use opposites
but avoid clashes



Use color to advantage

Pastels/same side of color wheel
YELLOW- ORANGE- RED



Deep hues/primaries
BLUE- ORANGE- RED



Use color to advantage

Opposite side of color wheel
YELLOW- PURPLE



Shades & textures of 1 color
PINKS

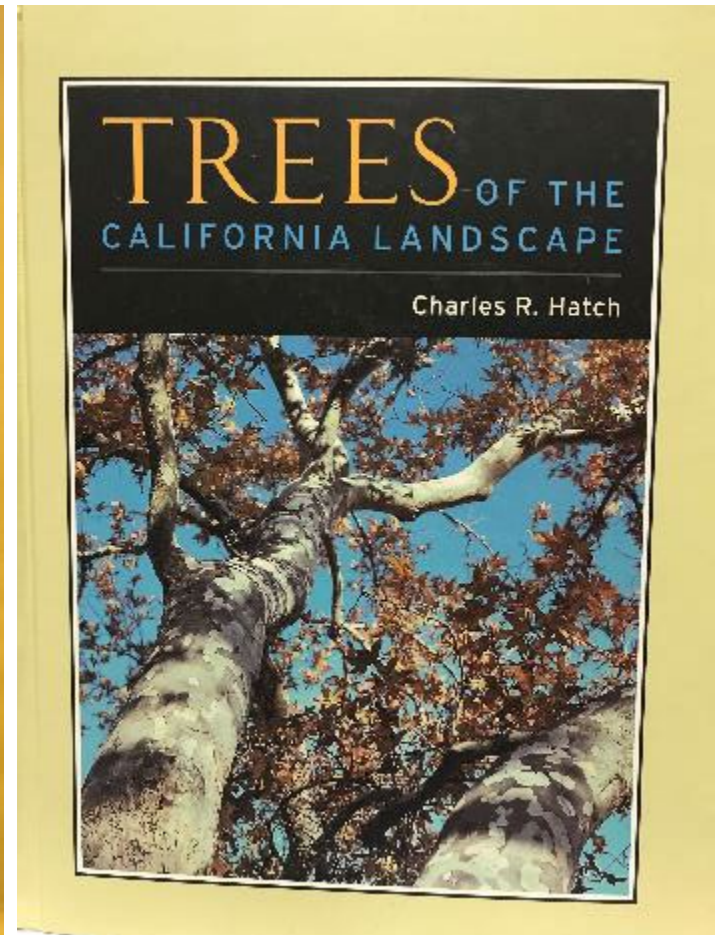
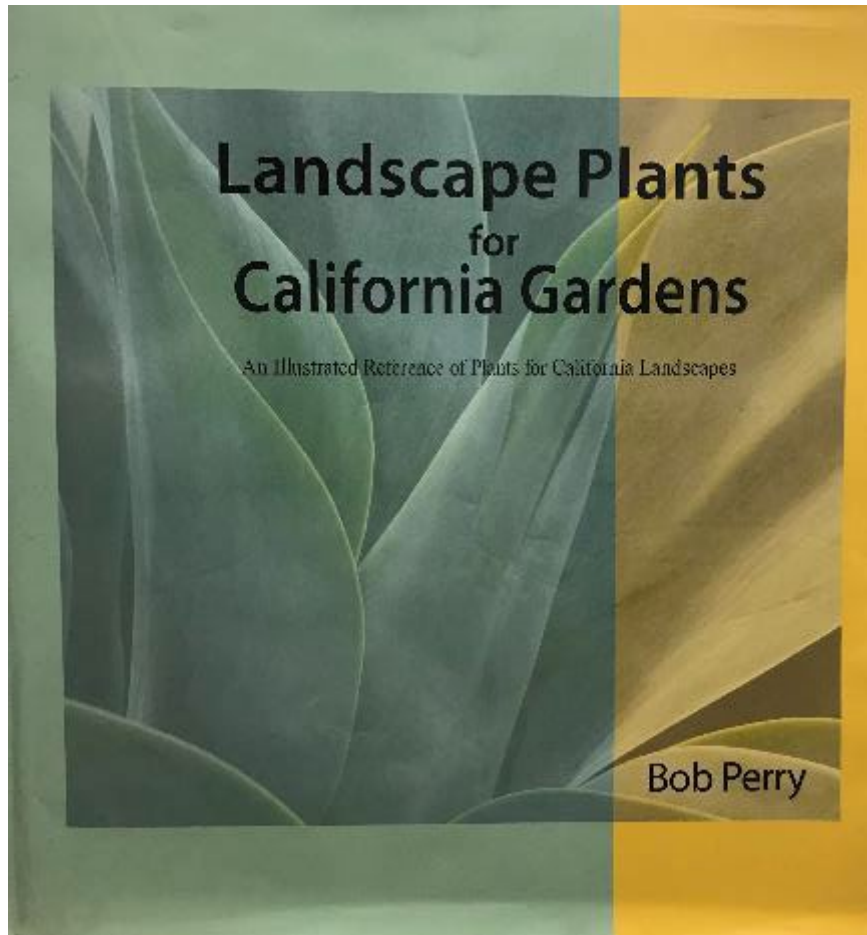


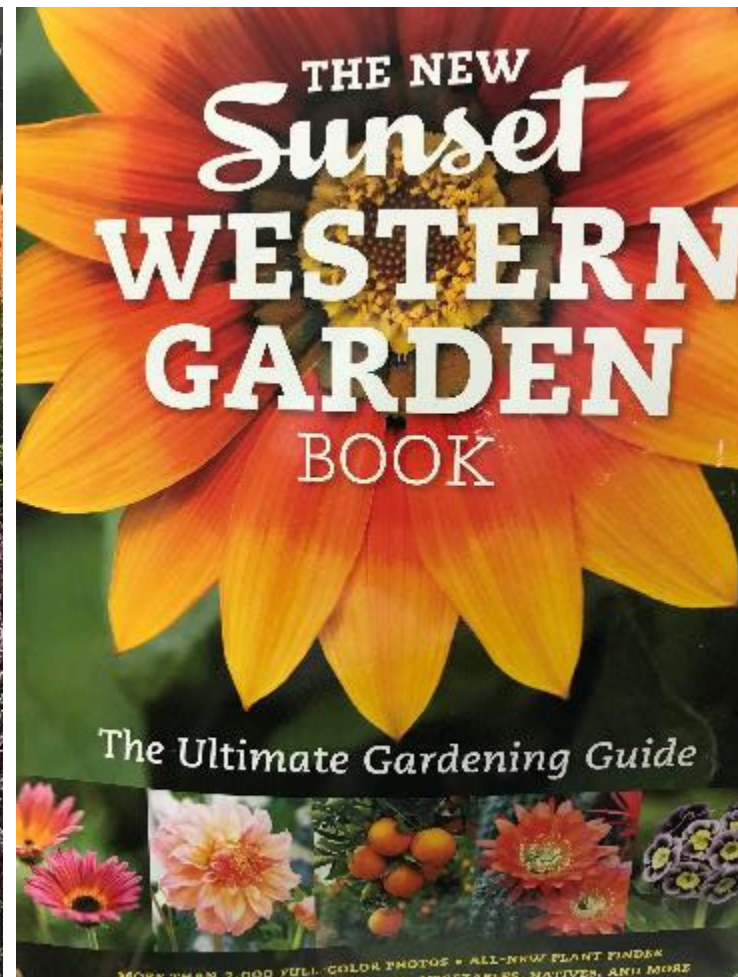
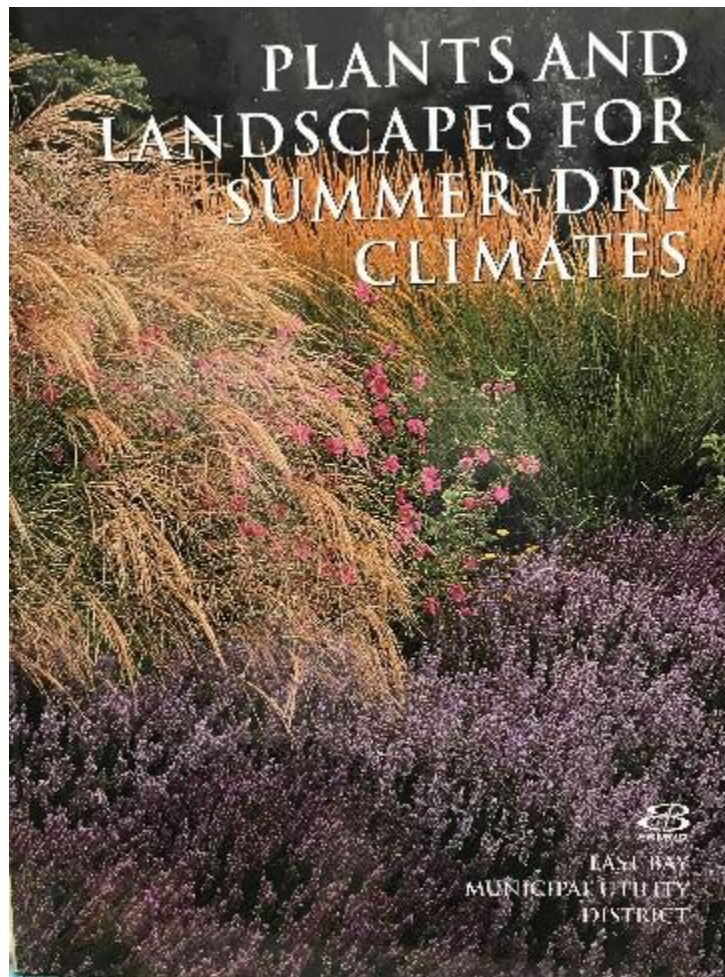
Use color to advantage

- Shades and textures of one color
- **GREENS**

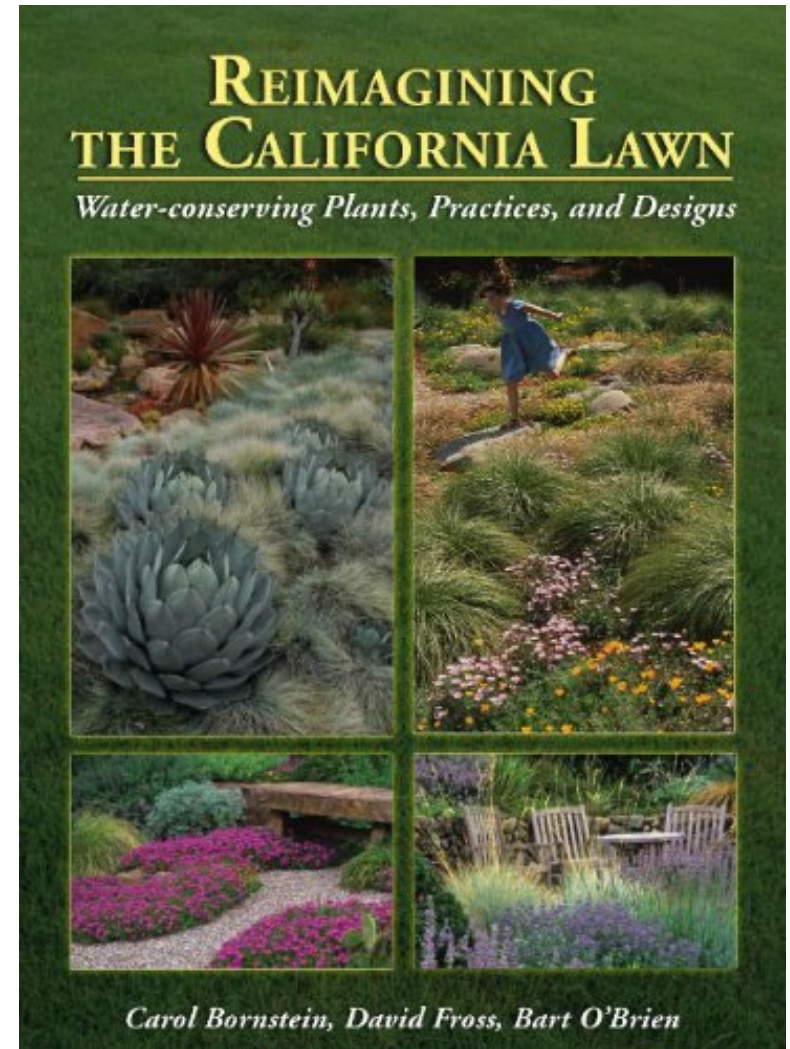
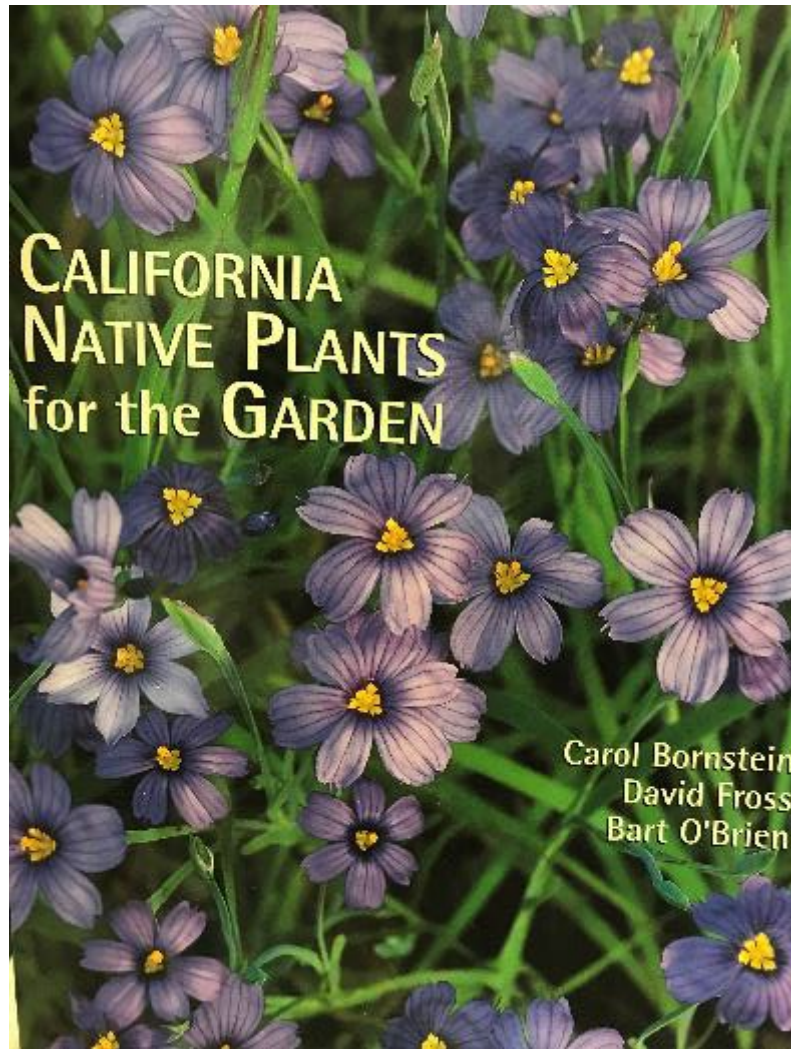


Favorite Book Resources





Favorite Book Resources



Favorite Book Resources



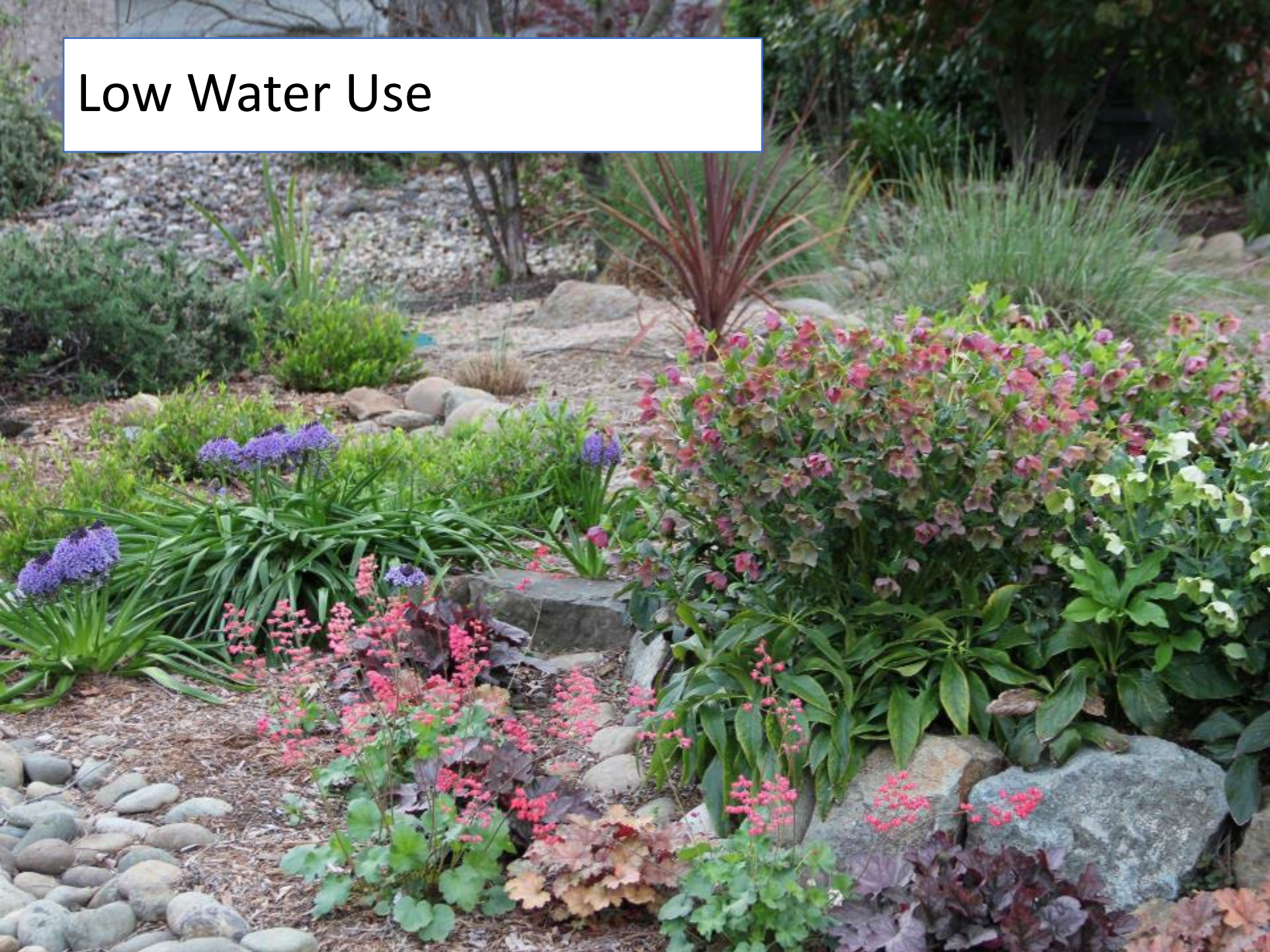
The Low-water Lush Landscape – Beyond Xeriscaping



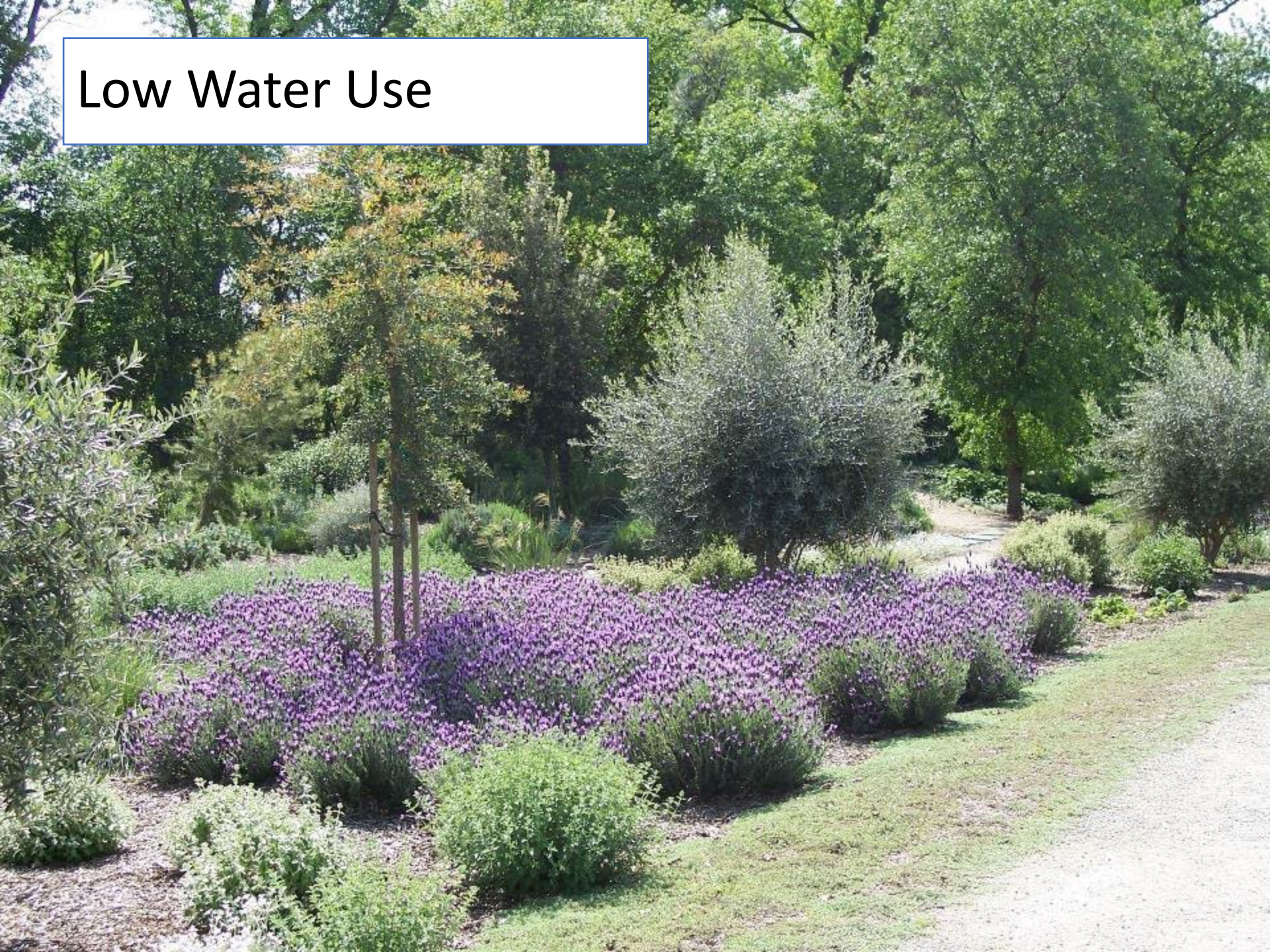
Low Water Use



Low Water Use



Low Water Use



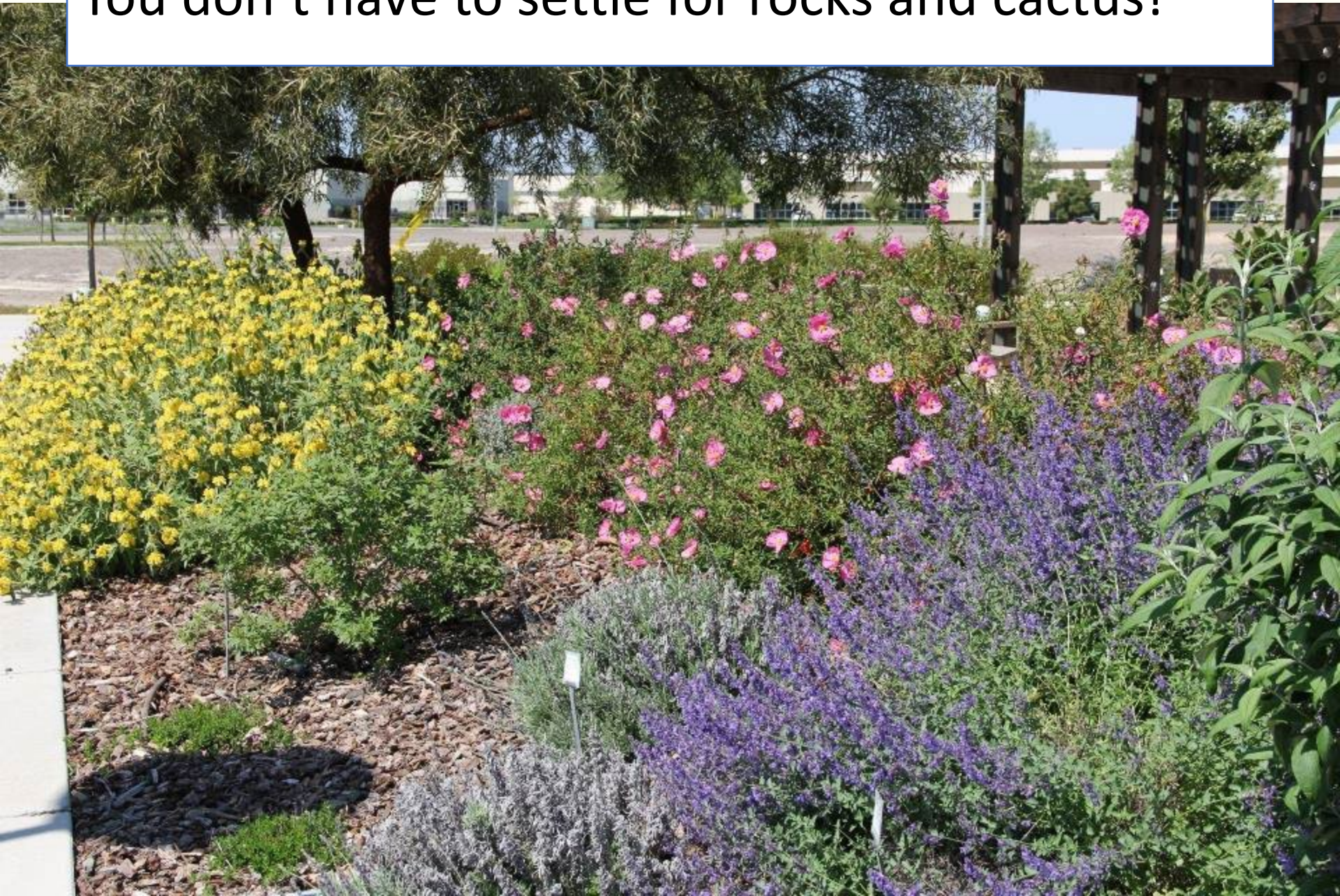
Low Water Use



Low Water Use



You don't have to settle for rocks and cactus!





Thank You!

Questions?

FULL SUN FAVORITES

Kurapia



The Meadow Look



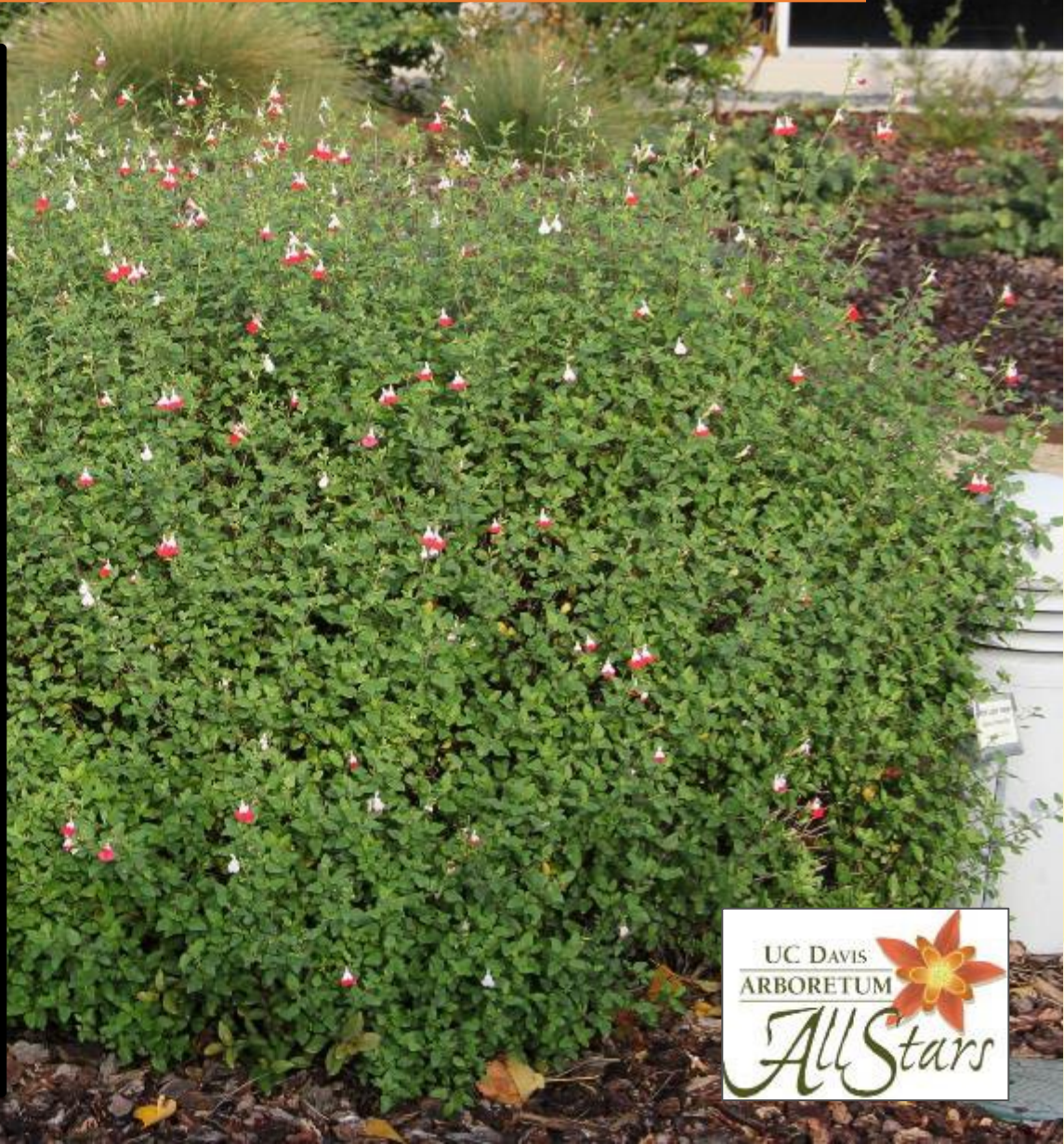
Native Mow Free™

- Western Mokelumne Fescue - *Festuca occidentalis*
- Idaho Fescue - *Festuca idahoensis*
- Molate Fescue - *Festuca rubra*

Arctostaphylos densiflora 'Howard McMinn'



Salvia microphylla 'Hot Lips'



Salvia clevelandii 'Winnifred Gilman'



Rhamnus californica 'Mound San Bruno'



Westringia cultivars





Kniphofia 'Christmas Cheer'

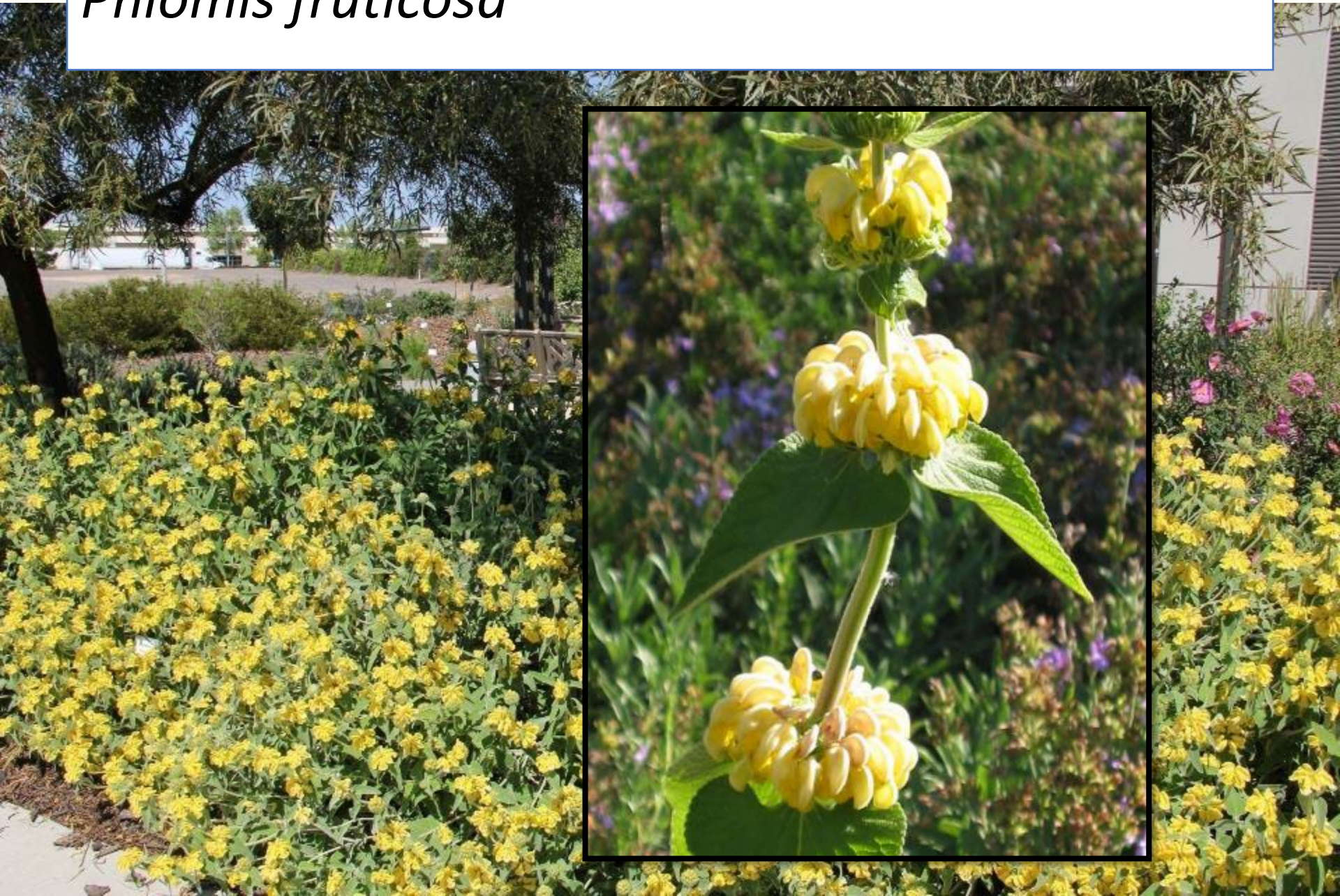
Nepeta x faassennii 'Walker's Low'



Lavenders- many kinds



Phlomis fruticosa



Iris 'Canyon Snow'



Bulbine frutescens & 'Tiny Tangerine'



Santa Barbara daisy

Erigeron karvinskianus



Dwarf germander

Teucrium chamaedrys

'Prostratum' or 'Nanum'



- Low mounds
- Spread slowly

Teucrium chamaedrys



Epilobium cvs.
California fuchsia



Bouteloua gracilis



'Karl Foerster' feather reed grass
Calamagrostis acutiflora



Lomandra 'Lime Tuff'



Lomandra 'Lime Tuff' in shade



SHADE/AFTERNOON SHADE FAVORITES

Heuchera rosada



Heuchera 'Canyon Delight'



Heuchera maxima



Dianella tasmanica 'Variegata'



Lomandra 'Platinum Beauty'



Helleborus 'Lady' series & others



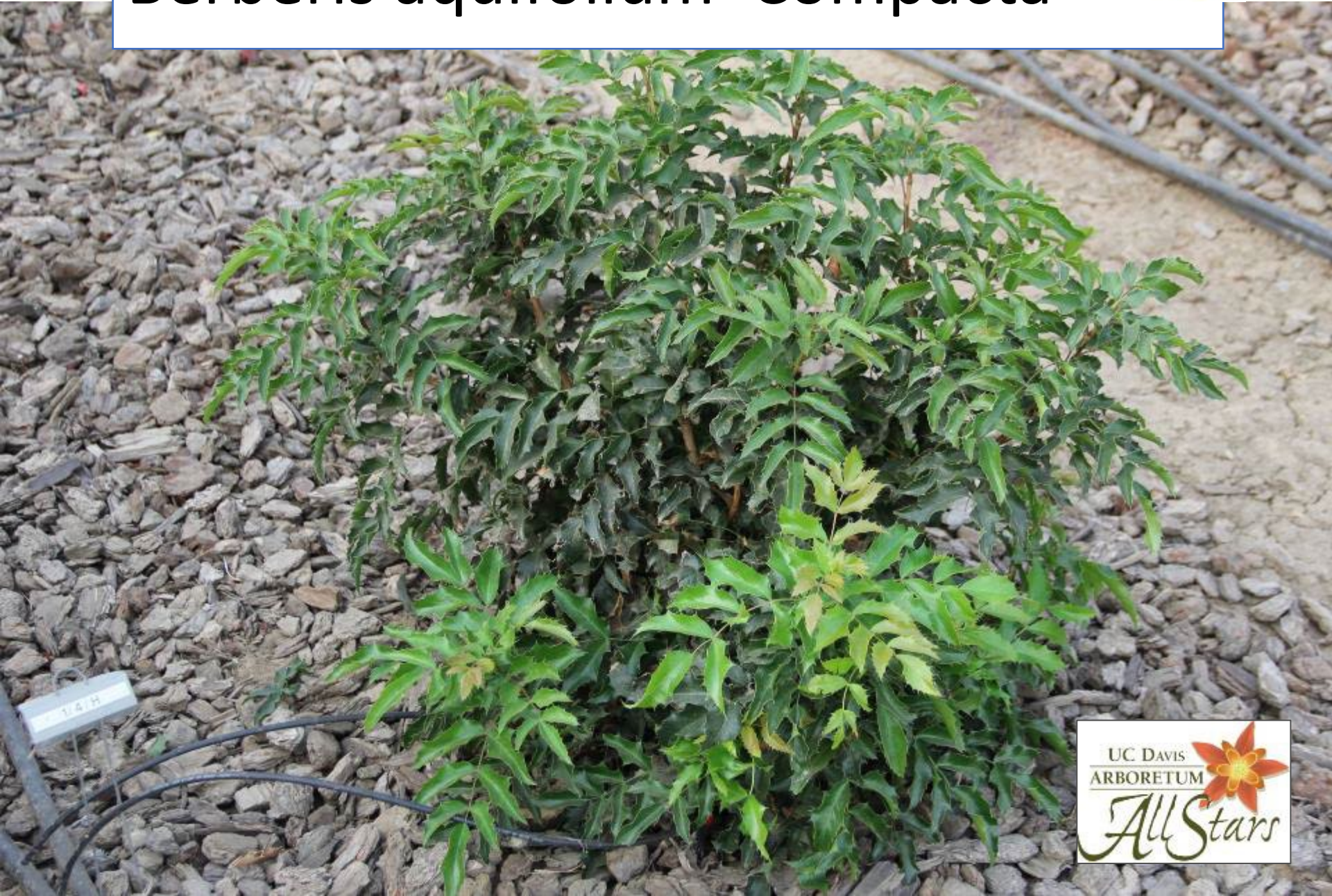
Helleborus 'Red
Lady' & 'White lady'



Ligustrum sinense 'Sunshine'



Berberis aquifolium 'Compacta'



Berberis aquifolium



Sollya heterophylla



Daphne odora 'Aureomarginata'



Ribes viburnifolium 'Spooner's Mesa'



Correa pulchella 'Pink Eyre'

