Edibles vs Ornamentals

The Challenges

- Time and Labor
  - Maintenance, seasonality, planning
- Water and Fertilizer
  - Increased water, fertilizer needs, possible retrofits
- Green waste
- Site issues
  - Sun, soil
- Pests --maybe

Planning, Seasonality

- Plant species & varieties for **yield** and **aesthetics**

Planning (Know Your Plants)

- Pollination requirements
  - Plant corn in blocks
  - Self-fertile, or need pollenizer?
  - Beneficial insects welcome

Site Issues - Sun and Shade

- Most edibles need at least 6 hours of sun per day
  - Affects performance & yield
  - Seasonal variation in sun angle

Sun and Shade:

Both a Challenge and an Opportunity

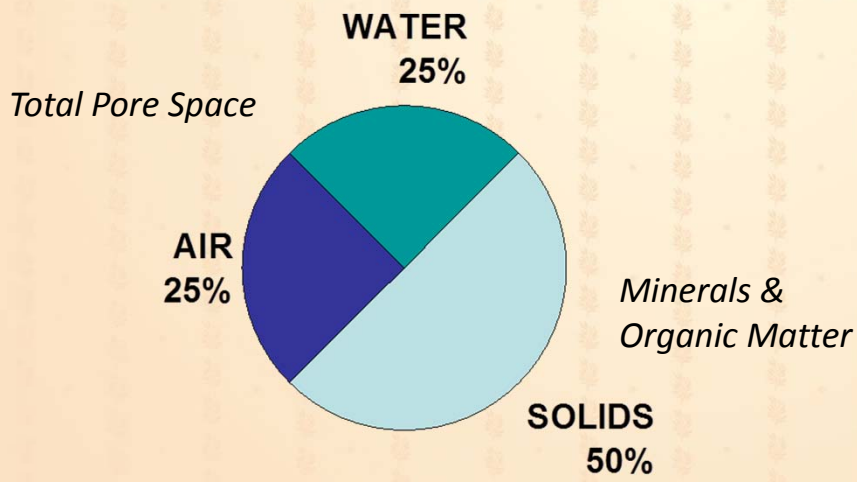
- Create attractive, productive shady spot
  - Grape or kiwi arbor, fruit tree espalier

Espaliered Fruit Trees

Soil Functions

- Physical support for plants
- Water reservoir
- Nutrient reservoir
- Air reservoir

Soil Physical Components



Soil Structure – Organic Matter

- Organic matter (plant debris, humus, etc.)
  - Provides binding agents
  - Improves structure
  - OM breaks down over time

Site Issues - Soil Management

- Inter-planting edible crops into existing landscape
- Routine replanting annual crops
- Fertilizer management
- Container growing

Inter-planting Edibles Into Existing Landscape

- Can be difficult!
  - Difficult to dig and cultivate soil
  - Disturbs roots of established ornamentals
  - Soil conditions less than optimal for edibles

Can You Dig It?

Possible Solution…

Can You Dig This?

Annuals

Annuals - Routine Replanting

- Dedicate bed space if possible
- Amend before planting with OM, perlite, etc.
  - Difficult to amend area after landscape site is established
  - Eases transplanting

Soil Management

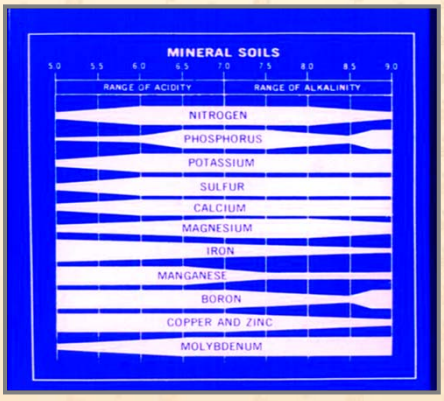
- Raised beds can still work
- Mulches are useful anywhere

Fertilizer Management for Edibles vs. Ornamentals

- Edibles often have greater fertilizer need
  - Especially N
  - Special nutrient needs for some crops to produce well
- Edibles often require more frequent fertilization
  - Side dress N on seasonal crops
  - Annual fertilization of perennial crops
- Consider using slow-release N

Soil Reaction - pH

- Acidity or Alkalinity of Soil Solution
- 7.0 = neutral
- <7.0 = acidic;
- >7.0 = alkaline
- Crops grow best at 5.5 – 7.5



Container Growing

- Avoids soil management issues
- Select quality potting media
  - Bark, forest products, coir
- Leach before planting
- Assure good drainage
  - No gravel in container bottom

Increased Green Waste

- Crops can increase plant debris and green waste
- Debris can be composted

Pests?

- Pest management often more demanding with edibles
- IPM more complex

Pests (and Good Citizenship)

- Invasive pest issues
  - Citrus ACP/HLB
  - SOD (sudden oak death)
  - Light brown apple moth
  - Brown marmorated stink bug (BMSB)
  - Diaprepes root weevil
  - Etc.
- County Agriculture Department
- Invasive plant prevention
- Cal-IPC database

Weeds

- Weed management without herbicides
  - Mulch
  - Hand pull

Harvest!

- How much is too much?

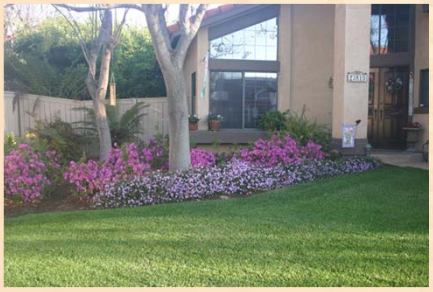
Harvest

The Rewards

- Environment – decreased food miles, reduced reliance on fossil fuel supported calories

Edibles vs Ornamentals

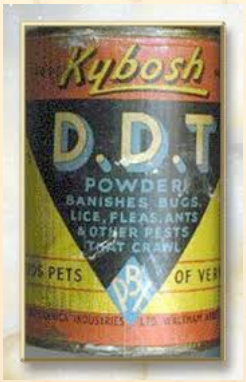
- *The Rewards*
- Increases diversity
- Minimizes or eliminates monoculture
- Creates habitat for beneficial organisms



Edibles vs Ornamentals

The Rewards

- Maximize water efficiency
- Reduced use of chemicals



Edibles vs Ornamentals

The Rewards

- Environment – decreased food miles, reduced reliance on fossil fuel supported calories

Edibles vs Ornamentals

The Rewards

- Health - food security, horticulture therapy, healthy food choices

Thank you!

- Any Questions?

Gail Fulbeck
UC Cooperative Extension
Master Gardener, El Dorado County

Edible Landscaping

Planting & Maintenance
Irrigation

Debbie Hillel
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UC Cooperative Extension

Traditional Garden Layout

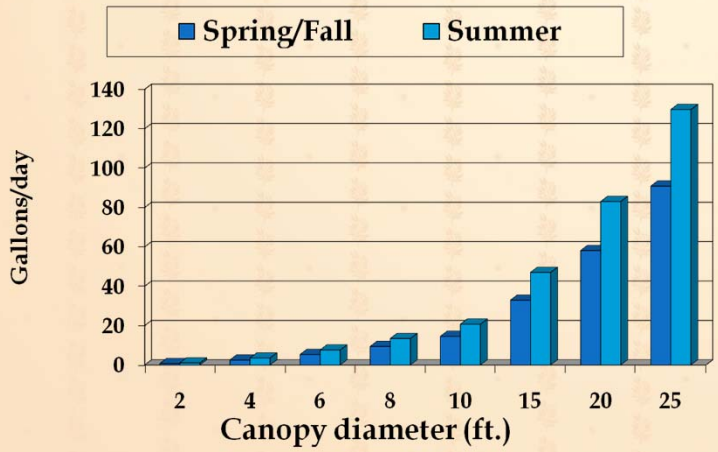
Edible Landscape Layout




Water Use

Higher density = greater water requirement


Fruit Tree Water Requirements are Determined by Canopy Size



Conserve Water

- Conserve water in your edible landscape by:
  - Hydrozoning
  - Scheduling irrigations based on plant needs
  - Making sure sprinklers/drip systems work properly
  - Using mulch and soil amendments effectively

Conserve Water

Hydrozone: Place plants with similar water needs together and irrigate them accordingly

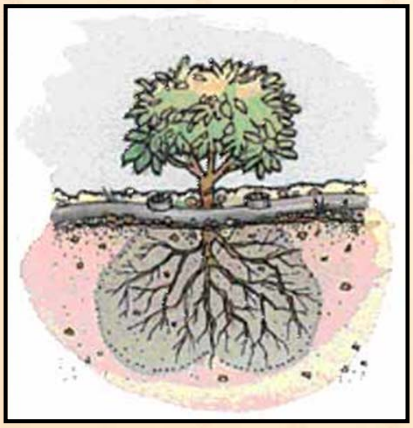
Conserve Water

- Use Efficient Systems
  - Drip
  - Hand watering can be efficient

Conserve Water

Conserve Water

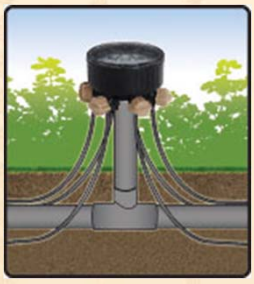
- Drip Irrigate Edibles to Reduce Soil Evaporation and to Apply Water Directly into Root Zones



Many Types of Drip Systems

Sprinkler System Retrofitting

- Retrofit a sprinkler system to use or convert an existing 1/2" riser or sprinkler head to a 1, 4, 6, or 12- outlet drip system



Conserve Water

- Minimize the use of water to clean sidewalks and driveways
- Mulch and remove weeds
- Irrigate Established Plants Deeply and Infrequently

Conserve Water

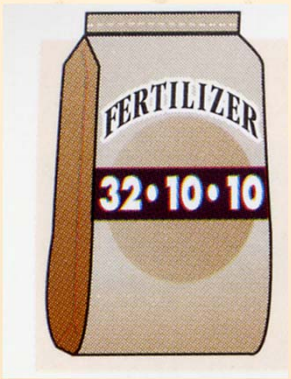
Improve Water-Holding Capacity and/or Drainage with Compost Mixed Evenly into Soil
(6" – 1')

Conserve Water

Apply mulch around plants

Conserve Water

- Avoid over-fertilizing
  - Creates flushes of weak growth
  - Increases water requirement



Edible Landscaping

Green Materials Management

Debbie Hillel
Master Gardener
UC Cooperative Extension

Green Materials Management

Important uses for organic materials in edible landscapes:

- Soil Amendments (mixed into the soil)
- Mulches (applied on top of the soil)

Soil Amendments: Compost

Compost is an excellent soil amendment because it enhances soil quality and diverts valuable organic matter from landfills

Soil Amendments: Compost

- Improves water and nutrient holding capacity
- Improves drainage in heavy soils
- Prevents/reduces erosion
- Improves soil aeration
- May decrease chemical fertilizer requirement
- Remediates chemically damaged soils
- Increases number and range of microbes
- Filters storm water runoff

Waste Management

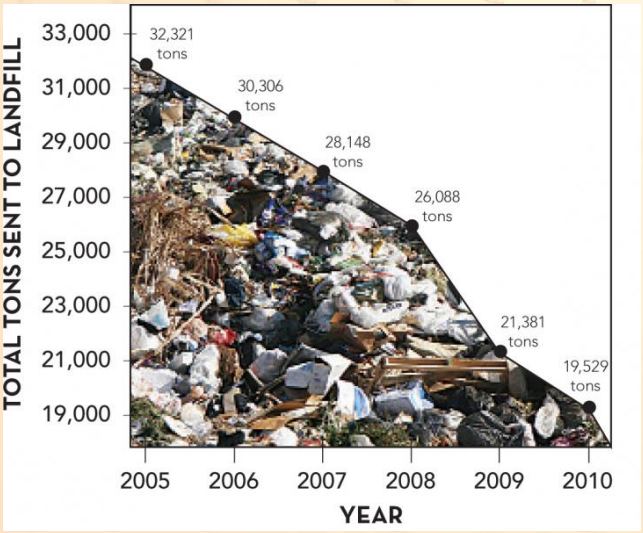
The CA Waste Management Act (Assembly Bill 929)

- Divert 25% of organic matter destined for landfills by 1995
- Divert 50% of organic matter destined for landfills by 2000

New Legislation: Assembly Bill 341

- 75% solid waste landfill diversion through source reduction, recycling and composting by the year 2020

Waste Management



Soil Amendments: Compost

- In CA, yard wastes are the largest component of municipal waste
- Grass clippings comprise approximately half of the yard trimmings deposited in state landfills
- An average California turf area produces 300 to 400 pounds of grass clippings per 1,000 square feet annually (up to 8 tons per acre)

How many million tons of food residues are generated annually?

A. 5
B. 10
C. 15
D. 20
E. 25

21.5 million tons of food waste.

If this food waste were composted instead of being sent to landfills, the resulting reduction in greenhouse gas emissions would be equivalent to taking more than two million cars off the road.

Soil Amendments: Compost

One teaspoon of high quality soil amended with compost contains:

- 100 million bacteria
- 800 feet of fungal threads

Soil Amendments: Compost

Compost is not a fertilizer but does contain small amounts of:

- Nitrogen and phosphorus (mostly in organic forms)
  - Released slowly to plants
  - Not readily leached from the topsoil
- Micronutrients that are essential for plant growth

Soil Amendments: Compost

How do you make high quality compost?

- Pile should be 3' x 3' x 3' or larger
- Maintain correct C:N ratio by adding both 'greens' and 'browns'
- Turn pile weekly
- Keep pile moist but not soggy (aeration)
- Maintain a high enough temperature
- Cure before using

Soil Amendments: Compost

When is compost mature?

- Dark brown
- Crumbly, loose, and humus-like
- Earthy smell
- Contains no recognizable pieces
- Pile has shrunk to about 1/3 of its original volume

Simple Tests for Finished Compost

Bag test: store compost in a plastic bag for 4-5 days; when opened there should be no foul odor

Germination test: will seeds germinate in the compost? Use easy to germinate fresh seed (radish, etc.)

Soil Amendments: Compost

How to Amend Soil with Compost

- Amend entire planting site or bed when possible, adding at least 30% compost (by volume) to original soil
- Thoroughly mix compost 6 inches to 2 feet deep (depending on depth of expected root zone)
- Seed edibles directly into garden soil amended with compost or transplant seedlings/container plants into amended soil at same depth they were in their containers
- Irrigate immediately and maintain a moist root zone through establishment

Mulch

- Reduces water evaporation from soil
- Prevents/reduces erosion
- Buffers soil temperature
- Reduces weeds
- Prevents mechanical weed whip/lawnmower damage to tree trunks

Mulch

- Apply 2.5-3.5 inches of mulch on top of the soil
- Carefully spread mulch/compost around the base of plants using a shovel or rake
- Avoid applications around tree trunks
- Apply outward toward dripline of trees

Keep mulch away from trunks

Mulch

Bark chips or nuggets

- Bark nuggets (1/2 to 1 ½) are more stable than smaller bark or woodchips and do not break down as quickly
- The larger the particle size, the greater the depth to provide adequate weed control

Mulch

Fabric Mulch

- Also called geotextiles or weed barriers
- Woven and non-woven polypropylene polymers (synthetic material).
- Some polypropylene polymers oxidize and degrade under ultraviolet light (cover with bark or woodchips)

Thank you!

- Any Questions?

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