Combining Form & Function in Managing FoodScaping Opportunities & Challenges
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Edible Landscaping

Overview

**Definition:**

Use of food plants as design features in a landscape both for aesthetic value as well as consumption.

**Important Note:**

Edible landscapes are diverse in garden types and scales, but do not include food items produced for sale.
Edible Landscape vs. Traditional Landscape

The Pros

- Environment – decreased food miles, reduced reliance on fossil fuel supported calories, birds & bees
- Health - food security, horticulture therapy, healthy food choices

In general, edible landscaping promotes sustainable gardening practices that maximize water efficiency, support wildlife and reduce the use of chemicals in the landscape.
Edible Landscape vs. Traditional Landscape

Image Source: Carmia Feldman
Edible Landscape vs. Traditional Landscape

The Cons

- Time – increased maintenance requirements, seasonal planting, regular garden planning
- Inputs – increased water needs
- Practices - increased plant waste typically requires healthy compost pile management
- Phases
History of Edible Landscaping:

- 20th Century USA Relief and Victory Gardens Movement
- European Landscape Styles:
  - Italian Renaissance gardens (16th Century)
  - French Baroque gardens (17th Century)
  - English Picturesque landscapes (19th-20th Centuries)

Image Sources: www.nationaltrust.org/uk/
Edible Landscapes as Defined Today:
- Food Plants: both ornamental and productive.
- The Integrated Functional Balance of Food-Growing with innovative landscape forms & functions.

Image Sources: “Carrot City” by M. Gorgolewski, SWA Group, & C. Napawan
Planning & Design
Site Selection

- Know the history of the land
  - Risk assessment of prior use
- Consider the neighbors
  - Zoning in surrounding areas
  - Present/Future use
- Existing structures/equipment
  - Septic tanks
  - Plumbing
  - Toilets
- Soil Quality
Land Use Policies

- Private Property Land Use Policies/Restrictions
  - Focus on community gardens rather than residential landscapes

- Home Owner’s Associations
  - Restrictive Covenants
  - Covenants, Conditions, Restrictions (CCR)

- **Maintenance and aesthetics are key!**

- AB 1061, Lieu 2009
  - Effectively promotes the use of low water-using plants
Designing Edible Cities

Hantz Farms Proposal
Detroit, Michigan

Image Source: http://money.cnn.com/
Design & Planning of Edible Landscapes: Same Principles

- **Site Assessment** includes analyzing physical attributes such as site location & neighboring features; growing region, climate, & microclimate; and resource availability such as water, soil, and solar energy.

- **Client/User(s) Assessment** includes understanding the needs/desires, the existing or intended patterns of use, and the maintenance capabilities of the client/users.

- **Programmatic (or functional use) Assessment** includes recognizing the functions attributed to the landscape other than food-growing.

Image Source: “Site Analysis” by E. T. White
**Edible Landscaping: Designing for Form as well as Function:**
Because a landscape loved is a landscape likely to endure.

Image sources: “Form & Fabric in Landscape Architecture,” by C. Dee; & C. Napawan
Planting & Maintenance
Plants Selection: Goals: Diverse & Complex Plant Systems

- Increases diversity
- Eliminates monoculture
- Creates habitat for beneficial organisms
- Crops selected for yield and aesthetics
Sun and Shade Effects

- Affects Crop Performance and Yield
  - Most crops need at least 6 hours of sun per day
  - Sub-surface Soil Temperatures in Early Spring/Late Fall

- Plan for Seasonal Variation in Shade and Sun Angles

- Plan for Seasonal Variation of Crops Produced

- Spring/Fall Colors, Dawn and Dusk Silhouettes
Inputs Required

- Time and labor
  - Attention, customer training, maintenance
  - composting

- Fertilizer
  - Frequency and Type
  - Organic vs. synthetic
  - Timing/Planning

- Water
  - Amount
  - Variation in application methods
Pests and Weeds

- Pest Management ~ Demanding with Edibles
- IPM more complex
- Thresholds
Management Considerations in Edible Landscaping

- Routine Replanting of Annual Crops
  - Dedicate bed space if possible and amend with Organic Material before Planting.

- Inter-planting edible crops into existing landscape areas
  - Cultivation and root disturbance of permanent plants pose problems.

- Consider Perennials
Soil Management in the Edible Landscape

- Fertilizer management for edibles vs. ornamentals
  - More fertilizer?
- Container growing
  - Avoids soil management issues
  - Requires good drainage
  - Requires even more H2O
Water Use in the Edible Landscape

- CAN Plant Crops in Non-Uniform Rows
  - Hydrozoning & Irrigation Scheduling
    - On Plant Needs
  - Drip irrigation
- Higher Planting Density ~ H2O
  - Above vs. Below Ground/Short Term Vs. Long
  - Use soil amendments and mulches effectively to help with soil water retention
Site Preparation: AMENDMENTS & MULCHES
Soil Amendments

- Compost
  - Animal sources (manure)
    - Potential source of high levels of pathogens
    - Properly composted or heat treated
  - Manure from pigs, dogs, and cats must not be used
    - Parasites may remain viable after composing
  - Vegetative matter (no manure)

- Green manures
  - Plant matter grown and chopped and incorporated into soil
Compost

How to Amend Soil with Compost

- Add 30% compost (by volume) to original soil
- Mix compost 6 inches to 1.5 feet deep based on root depth
- Direct Sow or Transplant
- Keep Soils Moist throughout roots establishment
Chemical vs. Organic Fertilization
Fertilizing the Edible Landscape

Chemical vs. Organic Fertilizers

Organic and Chemical Sources (no preference)

→ Organic Types Feed Soil Microbes

→ Microbes convert nutrients into a plant-available form
Combining Form and Function

Image Source: Rosalind Creasy
Organic Fertilizer Categories

- Animal-based
  - Animal killed (blood, bone, & feather meals and fish products)
  - Animals not killed (bat guano, manures)

- Plant-based
  - Alfalfa, cottonseed, and soybean meals, kelp/seaweed

- Compost
  - Usually considered a soil amendment, not fertilizer

- Mined organic fertilizers
  - Phosphorus: Soft rock phosphate
  - Potassium: Muriate of potash, sulfate of potash, greensand
Mulch

How to Amend Soil with Mulch

- Apply <2.5” Hay on Soil Surface
- Carefully spread around the base of plants using a shovel, rake or by hand
Edible Landscaping

Vegetables
Site Selection

- Vegetable crops do best with H2O & 6-8 hours of sunlight
- Vegetables can be used as:
  - Ground covers
  - Annual bedding plants
  - Visual screens
  - Trellis vines
  - Hanging baskets/containers
Planting Vegetables into Your Landscape...

**Identify Edibles YOU Like and that Grow Well in YOUR Climate**

Identify the cultural needs of each
- Sun vs. shade
- Soil ph
- H2O & Nutrient requirements
- Compatibility

- Aesthetic
  - Size, shape, color, flowers, fruit

- Identify Common Pests/Diseases
Choosing Varieties That Best Suit Your Needs

- Plants varieties/cultivars for your landscape
  - Drought tolerance
  - Salt tolerance
  - Disease resistance
  - Pest resistance
  - Striking or more profound colors

http://gurneys.com
Edible Ground Covers

Alpine strawberry
Blueberry (lowbush)
Chamomile
Cranberry
Cucumber
Lingonberry
Mint (creeping)
Natal plum (dwarf)
Oca
Peanut (temporary cover)

Rosemary (trailing)
Sweet potato (temporary)
Sweet woodruff
Thyme
Wintergreen

© Rosalind Creasy
## Edible Herbaceous Borders

<table>
<thead>
<tr>
<th>Alpine strawberry</th>
<th>Cucumber (bush or trellis)</th>
<th>Parsley</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angelica</td>
<td>Edible flowers</td>
<td>Pea</td>
</tr>
<tr>
<td>Anise hyssop</td>
<td>Eggplant</td>
<td>Peanut</td>
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<tr>
<td>Artichoke</td>
<td>Endive</td>
<td>Pepper</td>
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<tr>
<td>Arugula (perennial)</td>
<td>Kale</td>
<td>Poppy (breadseed)</td>
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<td>Asparagus</td>
<td>Lavender</td>
<td>Rhubarb</td>
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<td>Basil</td>
<td>Lettuce</td>
<td>Rosemary</td>
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<td>Licorice</td>
<td>Safflower</td>
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<td>Borage</td>
<td>Lovage</td>
<td>Sage</td>
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<td>Broccoli</td>
<td>Marjoram</td>
<td>Scented geranium</td>
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<tr>
<td>Cabbage</td>
<td>Mitsuba</td>
<td>Sea kale</td>
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<tr>
<td>Cantaloupe (bush)</td>
<td>Mizuna</td>
<td>Shallot</td>
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<tr>
<td>Celery</td>
<td>Nasturtium</td>
<td>Squash (summer)</td>
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<td>Chard</td>
<td>Okra</td>
<td>Tarragon</td>
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<tr>
<td>Chives</td>
<td>Orach</td>
<td>Tomato (determinate)</td>
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<td>Collards</td>
<td>Oregano</td>
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<td>Corn</td>
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Edible Herbaceous Borders
## Edible Flowers

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<tr>
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<td>Okra</td>
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<td>Apple</td>
<td>Dianthus</td>
<td>Passion flower</td>
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<td>Arugula</td>
<td>Dill</td>
<td>Pineapple guava</td>
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<td>Basil</td>
<td>Elderberry</td>
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<td>Tulip</td>
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<td>Citrus</td>
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<td>Violet</td>
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Edible Flowers
Planting Your Edible Landscape

- Seasonal temperatures are very important
  - Warm season crops germination: 65 to 80°F
  - Cool season crops germination: > 60°F

- Direct seeded, transplants, or self seeding
- Direct Seeding vs. Transplanting
- Hardening Off
Edible Landscaping
Site Selection

- 6-8+ hours of full sun
- Shelter from high winds
- Some trees may benefit from warm south wall
- Avoid planting where fruit falls on walks or driveway
- Soil should be at least 2-3 ft. deep

Crop Specific Information

- Selected planting and training methods
Fruit Tree Considerations in Edible Landscapes

- Allow room to prune, thin, & harvest
- Roots Spread 2-3x Canopy Width
- Spray Drift Effects
- Consider clustering fruit trees and keeping them small
- Similar irrigation, bird netting, mulching, pollination
Espalier
Low-Maintenance Fruits

- Cane berries & blueberries
- Citrus (for now)
- Figs
- Jujubes
- Persimmons
- Plums & pluots
- Pomegranates
Higher Maintenance Fruit Trees

- Apples & pears – Fire blight, codling moth
- Apricots – Brown rot, bacterial canker
- Cherries – Spotted-wing Drosophila
- Citrus – Asian citrus psyllid, citrus greening, scale insects, frost
- Peach/nectarines – Peach leaf curl
- Grapes – Powdery mildew

Consider IPM
with Practical solutions
Food Safety
Some Food Safety Points

■ Fruits/vegetables are an important for healthy diets
■ Fruits and vegetables can also be a source of foodborne illness

■ Preventing Contamination is Key
  ■ Evaluate and mitigate risks from pre-plant to harvest the edible landscape.
Good Agricultural Practices

- Focus is on RISK REDUCTION
  - Prevent contamination where possible
- 4 main sources of foodborne pathogens
  - Water
  - Wildlife or domestic animals
  - Soil amendments
    - especially those derived from animals/people
Microbiological Safety of the Edible Landscape

Planning
• Site Selection
• Water Source
• Facilities: toilets and handwashing

Growth (PreHarvest)
• Water
• Soil Amendments and Supplements
• Animal access

Harvest
• Personal Hygiene and Handwashing
• Cleaning and Sanitation

Post Harvest
• Washing Produce
• Food Storage and Preservation
The Best of Both Worlds – Ornamental & Edible Inter-Planting Reduces Pests
New Textures, Colors, Forms, Helps Grow What You Like Best
Edible Landscapes are Fun for Everyone and Can Be the Norm:
A Great Conversation Piece
And They Bring the Mind to Peace…. 