

Living Soil, Lovely Garden!

Organic, soil-focused gardening for healthy plants and efficient water use

With Michael Cowan



Source: npic.orst.edu



Source: greenbeanconnection.wordpress.com



Presented by **Michael Cowan**

- Owner & Operator of Edibella Organic Landscapes since 2000
- Co-founder of SOUL (Society for Organic Urban Landcare)
- ISA Certified Arborist
- Organic Master Gardener instructor

Water Wise Veggie Gardening starts underground



Source: Edibella Organic Landscapes

WHY CONSERVE WATER?

In the summer months, water use **DOUBLES** or can even **TRIPLE** due to outdoor water use.

If you live in Qualicum your water comes from groundwater wells, maybe even your own private well.

If you live in the City of Parksville, your water comes from the Englishman River.

In many cases the water that people irrigate with is wasted.....

- EVAPORATION
- RUN OFF
- POOLING



HYDROPHOBIC SOIL... Repels water, water runs off



OVERSATURATED SOILS... Too much water can suffocate soil life



ANAEROBIC ENVIRONMENT

Start with the soil

Soil with high organic matter content can hold up to 90% of its weight in water.

In this way, soil is like a sponge, it's a storage facility for water... we can use this to be water smart in our gardens.



The answer is soil structure!

Soil Texture

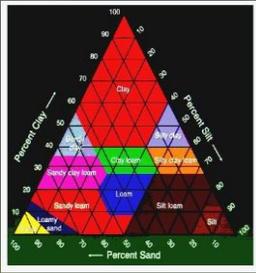
The first thing people think about when describing soil...

- Is it clayey, sandy, rocky?
- Only part of the story of soil!
- Sedimentation/Jar Test description



Source: Royal Horticultural Society, 2011

Soil Texture Triangle

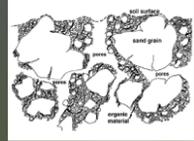


Soil Texture

Can we manipulate soil texture to increase water retention ?



Source: www.small-farm-permaculture-and-sustainable-living.com



Source: blogs.oregonstate.edu

→ Think Soil STRUCTURE...

CASE IN POINT:

The Harvard Trial

Results:

Irrigation in the Test Plot was reduced by over 30%

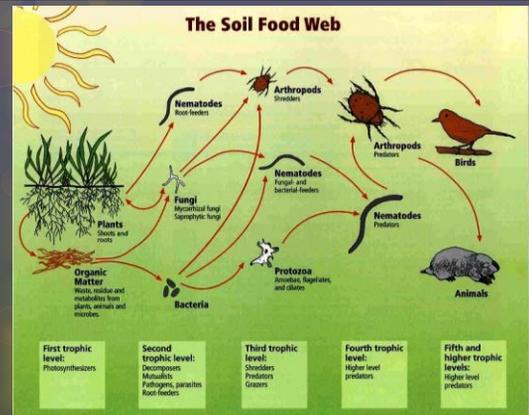
How?

Improved moisture retention capacity of the deeper root structures.



Projected irrigation reduction of 50% will result in the yard saving more than 2 million gallons of water annually!

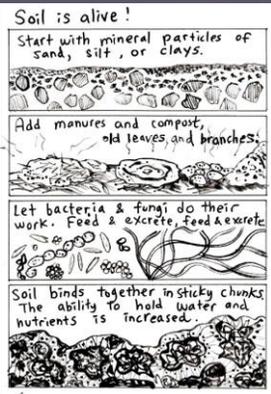
The Soil Food Web



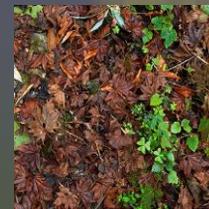
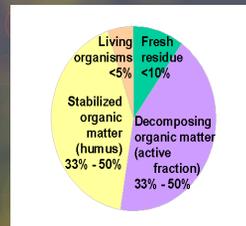
Soil Structure

How we can affect it:

- Create/support soil food web
- Feed (with organics)
- Water (when necessary)

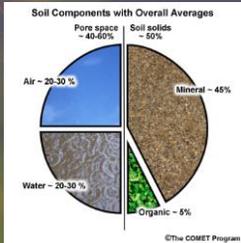


Organic Matter



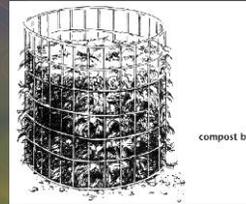
Consider Soil Stratification in nature ... what is found on a forest floor

Importance of Organic Matter



- Nature adds organic matter from the top
- Soils that have 5% organic matter can hold 5 times the amount of water as soils that have 1% organic matter, meaning they will not dry out as quickly
- Soils high in organic matter also hold lots of air even though they hold lots of water.

Ways to Add Organic Matter



- Top Dress with Compost
- Mulch
- Cover Crop

Types of Mulch

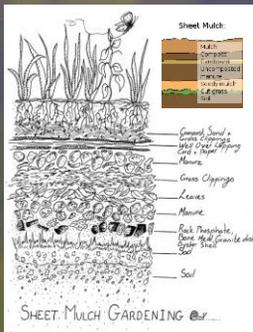


- Straw
- Grass Clippings
- Shredded Paper
- Leaves
- Wood Chips
- Seaweed
- Garden Residues
- Comfrey Leaves

Benefits of Mulch

- **Help with weed & pest problems.**
Organic mulches feed the soil microbes, to keep the soil food web in balance.
- **Conserve moisture** by reducing the amount of soil water lost through evaporation.
- **Maintain a uniform soil temperature.**
They act as insulators, keeping the soil warmer during cool weather and cooler during the warm months of the year.
- **Minimize soil erosion and compaction** from heavy rains and aid in water penetration.
- **Increasing the water holding capacity of the soil**, which means less water will need to be applied.

KISS BED



Keep it simple!!

1. Cut grass or weeds down
2. Add a layer of unfinished compost, partly composted manure
3. Lay down a layer of cardboard or 6 sheets thick newspaper, making sure they overlap well
4. Add a 3 inch minimum layer of soil mixed with compost or straight compost
5. Mulch with chopped leaves, wood chips, or seaweed.

Seedling Beds



- When planting young seedlings use newspaper instead of cardboard so the roots can more easily penetrate the material
- Plant the seedlings right into the compost mix on top, and then mulch with leaves, chopped leaves, straw, or partly decomposed wood chips.

Cover Cropping

Organic Matter: grow your own!!

Non Leguminous

- Rye
- Oats
- Wheat
- Forage Turnips
- Buckwheat

Leguminous adds Nitrogen

- Clovers
- Hairy Vetch
- Field Peas
- Alfalfa
- Fava Beans

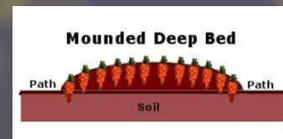
Cover Cropping



Benefits of Cover Crops

- **Adds organic matter** and, in some cases, Nitrogen
- **Attract earthworms**
- **Increase beneficial microorganisms** in the soil
- **Attract pollinating insects**
- **Help aerate the soil**
- **Provide weed control**
- **Protect against soil and nutrient loss**
- Some cover crop plants will excrete substances that **kill off soil diseases or discourage soil borne pest insects**
- **Provide more soil nutrition** than manure
- **Improve soil water retention**

Mounded beds



- A mounded bed will actually loose less water and still provide nice growing space for roots.
- Another advantage of a mounded bed is that plants can be planted right down to the path level, thereby shading soil

Plant Intensively

1. Group plants that have shallow roots and deep roots together.
2. Remember plants can share water by keeping water vapor under the canopy
3. The shade created by the leaves also slows evaporation from the soil



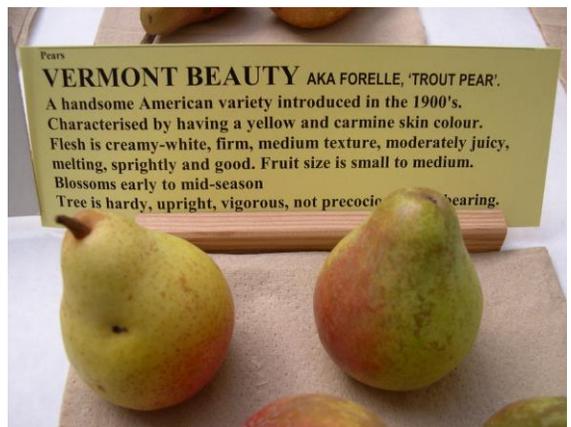
Why Edible Landscaping?

- Lets consider a few facts:
 - Less than 10% of the food consumed on Vancouver Island was grown here.
 - Fruits and vegetables that we purchase at the grocery store have travelled an average of 1600 km, to get to your mouth.
 - That equals a lot of energy consumption in the form of burning fossil fuels.
 - This contributes considerably to global climate change, and air pollution.



Why Edible Landscaping?

- Urban or suburban sprawl has moved into agricultural land where the best soils are.
- Studies have proven that the less time between harvesting and eating considerably increases the nutritional value.
- Many of the tastiest varieties don't travel well and are then completely ignored by major food suppliers.



Why Edible Landscaping?

- So as you can see, growing food in our backyards is really a win/win situation for us, and the earth. With modern agri-business charging full steam ahead with GMO's and factory farms, it is time we reformed our thinking of urban landscapes, and do something to create a positive change on the piece of land that we do have control over.



Where?

- In our back and front yards, on our roofs, balconies, windowsills, decks, porches, in containers or in the soil, these all make perfectly fine places to grow our favourite fruits, vegetables and flowers.





Where?

- Spend some time in the area before you get going. Every yard will have micro-climates; you can learn where these are by watching the sun move through the sky. Where are the shady areas? The damp areas? The dry areas? and most important for growing fruits and vegetables, where are the sunny areas?
- Most fruits and vegetables want at least 6-8 hours of direct sun through the day



Edible Landscaping

Gardening for the 21st century
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See
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