# SOIL HEALTH

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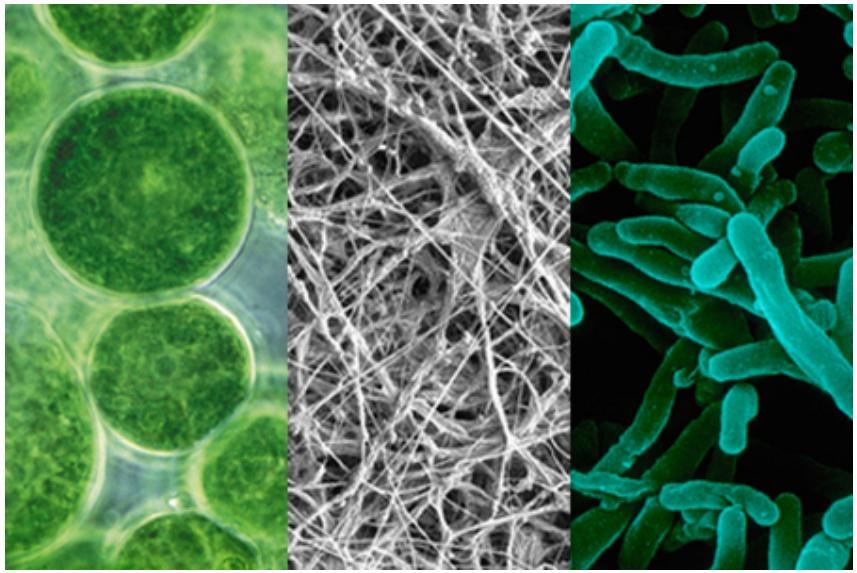
# SOIL IS

- Mineral particles
- Organic materials
- Air / pore space
- Water / pore space
- ALIVE

# SOIL HEALTH?

- Soil is alive!
- Feed the life (soul) in the soil, and…
- They break down nutrients and provide to plants, then…
- Healthier plants = less stressed = less flammable



not just worms:

microorganisms rule

# SOIL HEALTH! (SOIUL HEALTH)

- Pathogens
  - kill, eat, out-compete
  - protect plant health
- Helps soil retain water
- Can make water more plant-available
- Protects soil from erosion
- Improves soil texture
- Breaks down pollutants in soil and water to less toxic materials
  - Contaminants
  - Fertilizers & xtra salts
  - Heavy metals
  - Pesticides etc

# FOSTERING HEALTHY SOIL

- Avoid synthetics
- Work *with* it
- Avoid compaction
- No till
- Avoid transmitting diseases
- Compost & mulch

Singing Frogs Farm
Sebastopol

# Is it Mulch or Compost?

Mulch:

- Top-dressed
- Leaves, chipped trimmings, bark, lumber by-product, or others
- Protects the soil:
  - Erosion, compaction, pathogen movement

Compost:

- Top-dressed OR incorporated
- Controlled(cooked) decomposition
- Fully broken down organic material
- Feeds the soil

# Mulch flammability

Not the best:

- Rubber:  highly flammable and burns hot, tall, long.
- Gorilla hair / Shredded wood, pine needles
- Fine Bark:  slower to catch, but can smolder a long time, other trade-offs

bad gorilla hair

good gorilla hair

# Mulch flammability

Best:

- Partially composted
- Chunkier mulches (with trade-offs)
- For organic mulches, flame retardant additives only bought 10 min

Studies by Universities of Arizona & Nevada

# Mulch & Compost vs. Fire

Site practices reduce risk:

- Don't leave in lg. piles, keep tight delivery schedules
- Keep flammable debris out of non-combustible mulches (ie: dry leaves trapped in rock mulch)
- Avoid highly flammable mulches.

# INORGANIC MULCHES

ie: gravel, rocks, glass cullet, pot chips

- Little benefit, some water retention
- Compacts the soil
- Heat retention & fine root killing = stress
- No nutrients
- Expensive

# WEED FABRICS :(

- **Don't work!**
- Roots grow @ surface or over it = stress
- Poor water infiltration
- No natural nutrient cycling
- Expensive $$

- Bad for environment: mfr, transport, replacing, dumping

# Mulch & Compost

Q: I heard that mulch smolders, and compost could too, so should we even use them?

Thoughts?

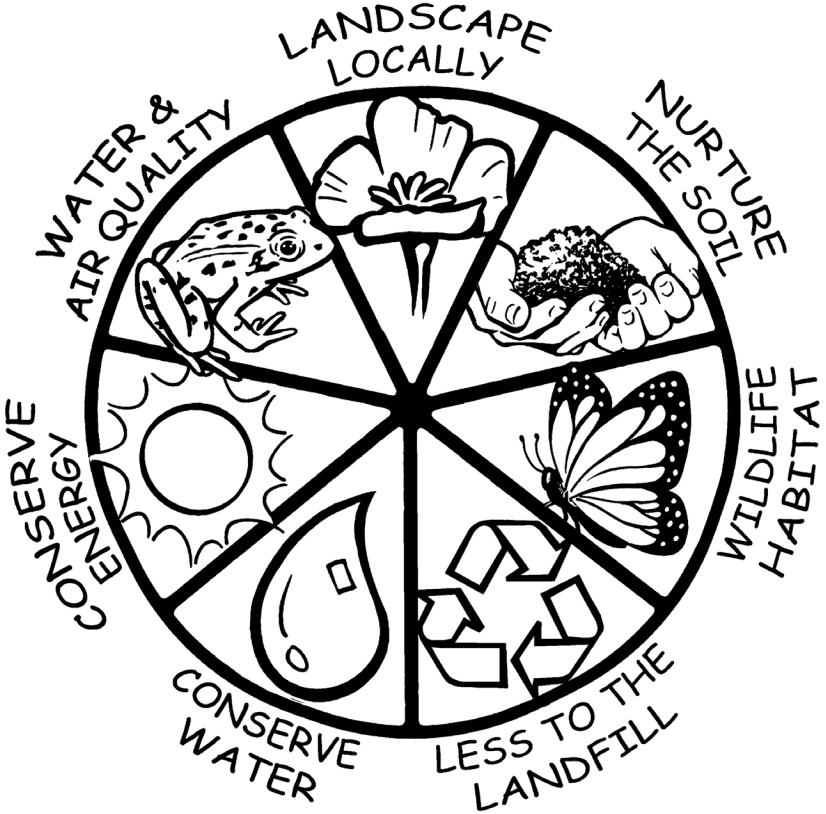
# Mulch & Compost

Q: … should we use compost and mulch?

A: **YES!** They're for the health of the soil which supports the health of the plants: healthy, stress-free plants are more fire-resistant!

# SOIL'S ROLE

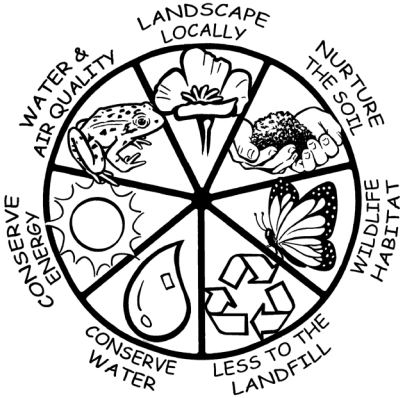
- Landscape Locally
- Nurture the soil
- Wildlife Habitat
- Less to the landfill
- Conserve water
- Conserve Energy
- Water and air quality




Russian River Friendly

# SOIL'S ROLE

- Landscape Locally: This soil, non-generic
- Nurture the soil: Soil health! Living
- Wildlife Habitat: Food chain & plants
- Less to the landfill: Keep and work with
- Conserve water: Water holding capacity
- Conserve Energy: Less fussing
- Water & air quality: Treats water



# SOIL RESOURCES

- RRWatershed.org
- 3 pubs on mulch
  - 2 studies: flammability
  - 1 lit review benefits (free membership to site)
- SonomaCompost.com
- SingingFrogsFarm.com

# THE NATION THAT DESTROYS ITS SOIL, DESTROYS ITSELF

*- Franklin Delano Roosevelt*