

Cultivation or Chemicals Which is “Greener”

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Double Diamond Fruit Co.

Measures of Soil Health

- **Biological Diversity**

Bacteria, Fungi, Actinomycetes, Nematodes, Arthropods

- **Soil Organic Matter**

1. Improves water holding capacity & penetration
2. Improves nutrient availability
3. Provides food and fuel for soil microbes
4. Improves root penetration
5. Decreases soil erosion

Building Soil Organic Matter

A close-up photograph of a person's hand holding a clump of dark, rich soil. The hand is positioned in the center, with fingers slightly curled around the soil. The background is a vast field of similar dark soil, creating a textured, layered effect. The lighting is bright, highlighting the texture of the soil and the skin of the hand.

- 1 acre of soil 6" deep = 1,000 tons
- 10% - 20% original material becomes SOM
- The rest converts to CO₂
- 4 tons compost = .8 tons SOM
- Percent SOM increased by .08%

Cultivation: Pluses

- Controls Weeds
- Integrates compost into the soil
- Speeds decomposition and mineralization of OM
- Destroys rodent habitat

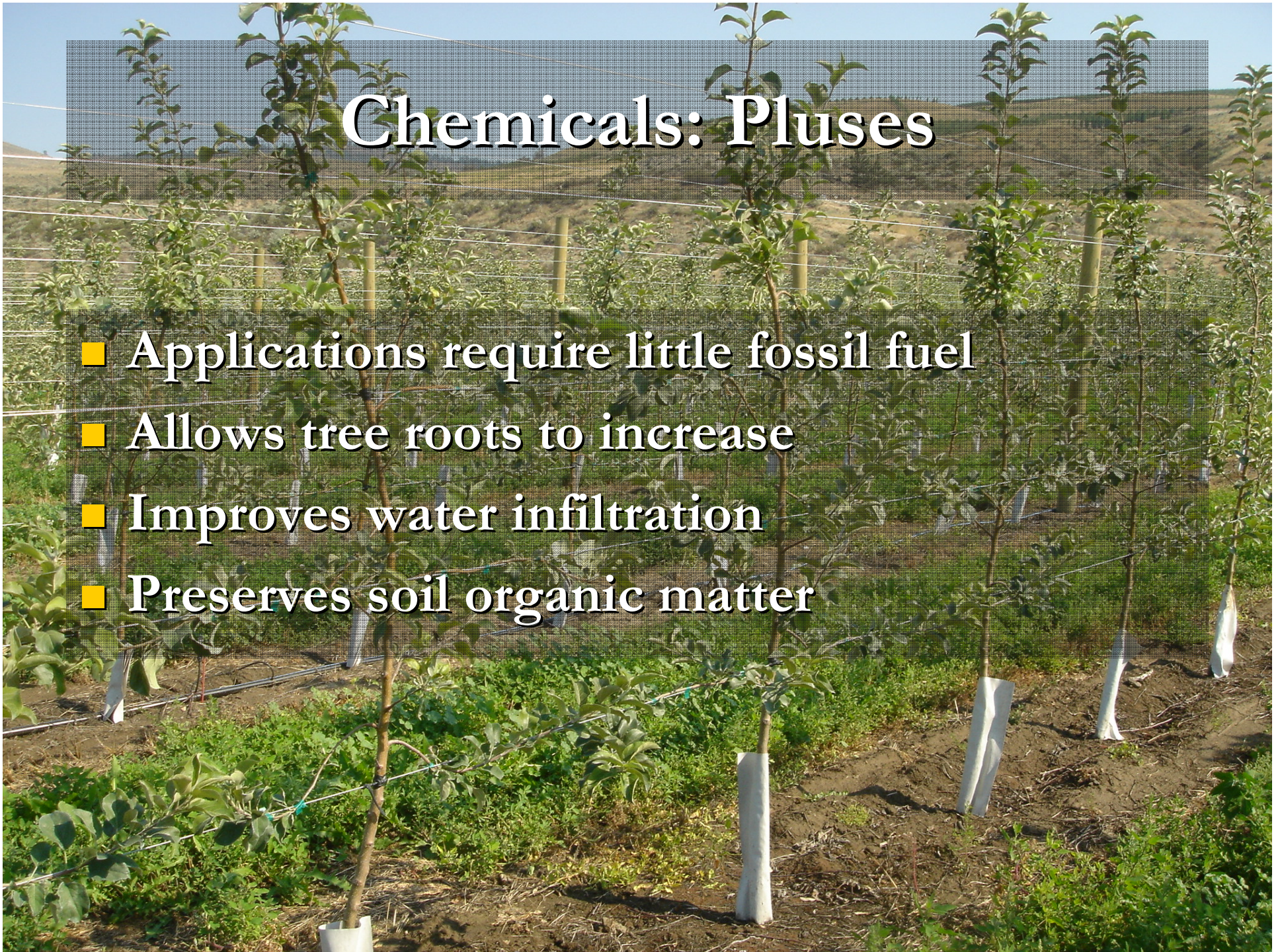
JUL 27 2002

Cultivation: Minuses

- Discourage soil borne organisms
- Destroys capillary structure
- Speeds decomposition and mineralization of OM
- Kills tree roots
- Uses large quantities of fossil fuel
- Selects for weed species that tolerate cultivation
- Not “Natural”

Chemicals: Pluses

- Applications require little fossil fuel
- Allows tree roots to increase
- Improves water infiltration
- Preserves soil organic matter



Chemicals: Minuses

- Not all herbicides are created equal
- May select for resistant weed species
- May inhibit growth of certain soil microbes
- Not “Organic” Can it be environmentally benign?
- Not “Natural”

Best Management Practices

- Build soil organic matter and biodiversity
- Produce “orchard grown” mulches at low cost
- Supplement with conventional fertilizers for the next 5-7 years
- Reduce irrigation applications and amounts
- Avoid cultivation
- Use herbicides with the smallest footprint
- Rotate herbicides when possible

Sustainable Weed Management

A close-up photograph of a bee on a pink flower. The bee is positioned in the center-right of the frame, facing left. The flower is a vibrant pink color with multiple petals. In the background, there are several other pink flower buds and green leaves, creating a natural, garden-like setting. The overall image has a slightly grainy texture, typical of a printed photograph.

- Sequester carbon
- Use less fossil fuel
- Maintain yields
- Protect water and soil quality
- Judicious use of herbicides
- Make money