

Mulching

- For which vegetable crops is it usually used?
- Warm season crops: cucurbits, solanaceous vegetables, sweet corn, sweet potato
- Cold season crops: asparagus, lettuces and other leafy vegetables, transplanted onions

Main types of mulches

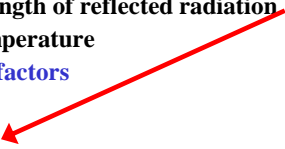
- **Organic materials**
 - Plant residues (straw, compost, green manure)
 - Tree waste products
 - Peat (wet), composted farm yard manure (?)
- **Artificial materials**
 - Earlier methods
 - PE (easy to manufacture, flexible, good resistance to environmental effects, good tearing resistance, possibility of inclusion of additives)
 - EVA; PP

Environmental factors influenced by plastic mulching

□ Abiotic factors

- soil temperature
- soil water content
- soil aeration
- soil nutrient content
- wavelength of reflected radiation
- air temperature

□ Biotic factors

- weeds
 - insects
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Advantages of mulching

- More favourable soil temperature → longer growing period, higher early and total yield (plastic)
- Prevents excess soil warming up (organic)
- Suppresses weeds
- Less evaporation
- Less nutrient leaching
- Less soil compaction, better soil structure
- Cleaner product, less danger of infection by soil born diseases

Disadvantages of mulching

- Extra investment
- Costs of mulch placement
- Costs of mulch removal
- Difficulties of disposal (plastic) – photodegradable and biodegradable types
- Runoff of pesticides into surface water sources (plastic)
- Can raise the extent of frost damage (plastic)
- Can serve as a hiding place for pests (organic)

Importance of plastic mulch colour

- determines optical characteristics of plastic mulch
- **Black** – absorbs radiation, warms up soil through conduction, +1.5-2.0°C, complete weed suppression
- **Transparent** – transmits most of the radiation, +3-5°C, promotes or suppresses weed growth?
- **Light coloured** (lilac, pale green, etc.) – similar effects to the transparent one
- **Photosensitive** – absorbs PAR, transmits other wavelengths; similar weed suppressing effect to black mulch and similar temperature raising effect to light coloured mulches
- **Coloured** (red, blue, green, yellow)
- **Reflective** (white on black, silver) – reflects radiation, -0,5°C