

Sheet mulching

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In permaculture, **sheet mulching** is an agricultural no-dig gardening technique that attempts to mimic natural forests' processes. When deployed properly and in combination with other permacultural principles, it can generate healthy, productive, and low maintenance ecosystems.^{[1][2]}

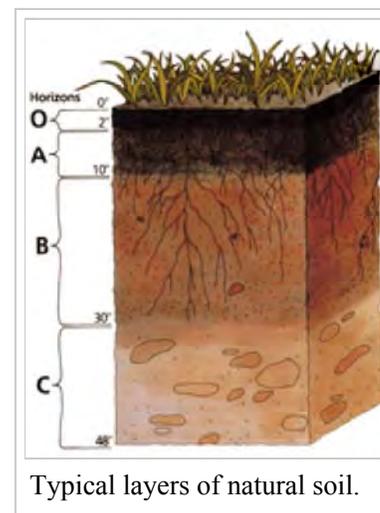
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Technique

A model for sheet mulching consists of the following steps:^{[1][3]}

1. The area of interest is flattened by trimming down existing plant species such as grasses.
2. The soil is analyzed and its pH is adjusted (if needed).
3. The soil is moisturized (if needed) to facilitate the activity of decomposers.
4. The soil is then covered with a thin layer of slowly decomposing material (known as the **weed barrier**), typically cardboard. This suppresses the weeds by blocking sunlight, adds nutrients to the soil as weed matter quickly decays beneath the barrier, and increases the mechanical stability of the growing medium.
5. A layer (around 10 cm thick) of weed-free soil, rich in nutrients is added, in an attempt to mimic the A horizon.
6. A layer (at most 15 cm thick) of weed-free, woody and leafy matter is added in an attempt to mimic the forest floor or O Horizon. Theoretically, the soil is now ready to receive the desirable plant seeds.^[4]



Typical layers of natural soil.

Variations and considerations

- Often the barrier is applied a few months before planting to ensure the penetration of roots of newly planted seeds.^[3]
- Very thick barriers can cause anaerobic conditions.
- Some permaculturists incorporate composting in steps 5 and/or 6.^[3]
- Sheets of newspaper and clothing can be used instead of cardboard.^[3]
- Before step 4, an initial layer (2–3 kg/m²) of matter rich in nutrients (such as compost or manure) may be added to bolster decomposition.^[1]
- Some varieties of grasses and weeds may be beneficial in a number of ways. Such plants can be controlled and used rather than eradicated.^[1] See also: mulch, list of beneficial weeds.
- One variation of mulching, called hugelkultur, involves using buried logs and branches as the first layer of the bed.^[5]

Advantages

Sheet mulch has important advantages relative to conventional methods:

- Improvement of desirable plants' health and productivity.^[1]
- Retention of water and nutrients and stabilization of biochemical cycles.^[1]
- Improvement of soil structure, soil life, and prevention of soil erosion.^{[1][6]}
- Avoidance of potentially dangerous pesticides, especially herbicides.
- Reduction of overall maintenance labor and costs.^[6]

Disadvantages

- Some weed seeds (such as those of Bermuda grass and species of bindweed) may persist under the barrier and within the soil seed bank.^[3]
- Termites are attracted to the area. While they are a natural part of the ecosystem that transforms the weed barrier into rich soil, they can pose a hazard to nearby wood-framed structures.
- Slug populations may increase during the early stages of decomposition. However they can be kept away or harvested.^[3]
- The system may need a constant supply of organic material, at least during the early stages.^[1]
- Roaming animals may interrupt the sheet mulching process.^[1]

See also

- Agroecology
- Ecoagriculture
- Ecological design
- Ecosystem approach
- Forest gardening

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