CHAPTER 1 SCOPE OF MULCHING

Mulch reduces the amount of sunlight reaching the soil, minimising temperature changes and evaporation. Organic mulches add nutrients to the soil as they break down. Mulch provides a barrier to sunlight, causing weed seeds to remain dormant.

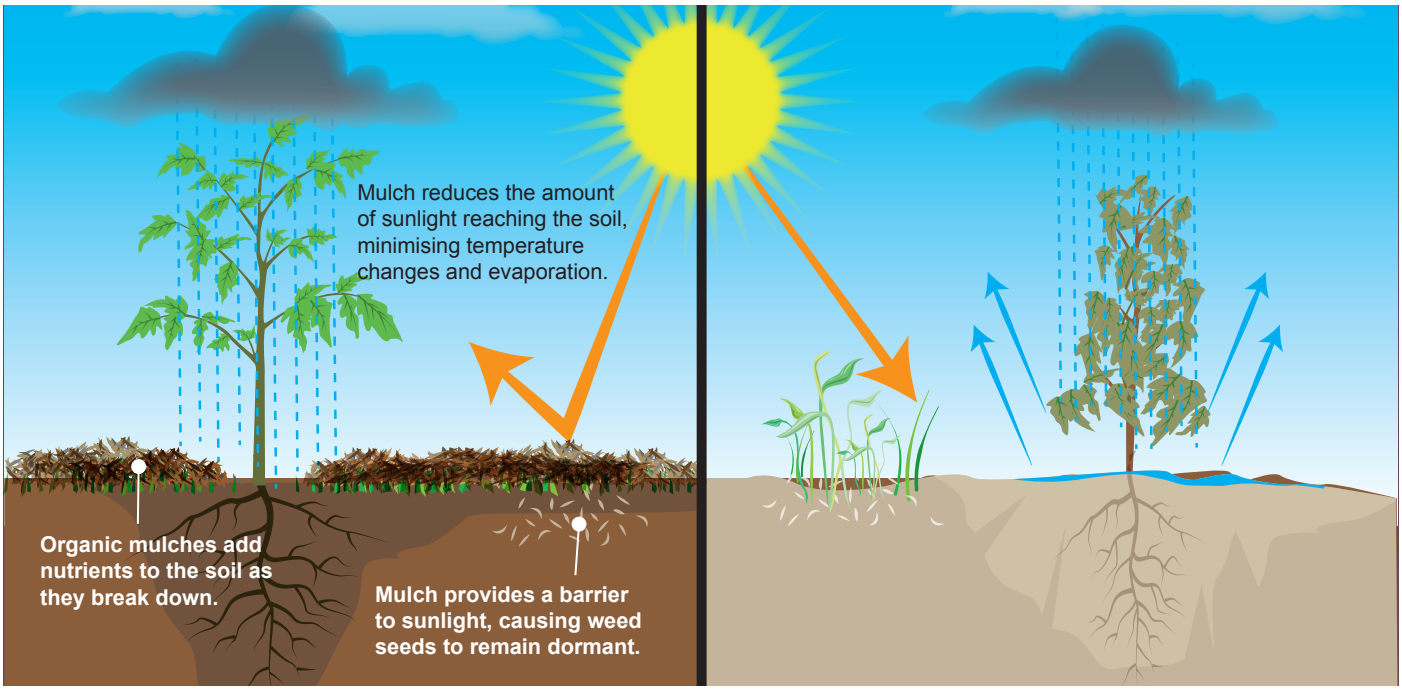
WHAT IS MULCHING?

Mulching is the technique of covering the soil surface surrounding the plants in order to produce favourable growing conditions for the crop. This could include water and soil conservation, temperature control, salinity control, and weed control, among other things. It has a significant impact on crop ripeness, yield, and quality.

Mulch is valuable in an organic garden. It conserves moisture by preventing evaporation from the soil surface and thereby protects the soil and plants from drying out. In summer it helps to reduce soil temperatures and reduces the need for watering, an important consideration today with prolonged dry periods and drought seemingly on the increase.

Mulch minimises temperature fluctuation in roots. Rapid changes in temperature (i.e. sudden heavy frost and a subsequent quick thaw) are damaging, even to cold tolerant plants.

In cold climates (where the soil freezes in winter), plant desiccation is a major problem, as water becomes unavailable to the plant once the ground freezes. Plants should therefore be well watered just before the ground freezes, and heavily mulched. Soil temperature in this situation can actually be higher than air temperature. Mulch helps to prevent rapid, damaging soil temperature changes, helps to protect plants from extremely cold air, cold drying winds, and unexpected warm sunny days that tend to contribute to splitting of frozen plants.



In milder climates (where the soil does not freeze), an organic mulch cover during winter is not helpful in protecting plants from frost damage – it may actually contribute to it. Heat is absorbed into the ground during the day and radiated at night. Mulch prevents the winter sun (which is more prevalent in milder climates) from warming the soil. Therefore the incidence of frost accumulating on top of mulch during a cold snap is more likely than on bare ground.

WHY IS MULCH USED?

Mulch is spread over the surface of the ground in order to do one or more of the following things:

- Suppress weed growth
- Insulate the soil and/or plant roots, against cold or heat
- Reduce water loss from soil below
- Absorb and hold moisture (like a sponge)
- Improve the soil's physical and/or chemical characteristics; add humus to the soil.
- Reduce erosion of soil
- Organic mulch material continuously releases nutrients into the soil as it decomposes, providing nutrients to the crops.

TYPES OF MULCHES

Mulch can be classified into two categories - organic mulches and inorganic mulches.

Organic mulches originate from living things:

- Raw collected but unprocessed organic materials, such as lawn clippings, leaves or twigs
- Processed organic materials, such as chopped up straw, wood chips or washed (desalinated) seaweed, cardboard or paper

Organic mulches will decompose over time, which has its advantages and disadvantages.

Inorganic mulches are non-living material:

- Raw inorganic materials, such as river pebbles or sand
- Processed inorganic material, such as crushed and screened rock, plastics, weed mat materials

Inorganic mulches do not decompose and must be discarded after each growing season.

The table below summarises many types of organic and inorganic mulches that are used around the world.

Organic	Inorganic
Grass Clippings	Sand
Wood chips	Stone and Rocks
Seaweed	Plastics
Cardboard	Geotextiles (e.g. Weed Mats)
Newspaper or Paper	
Sawdust	
Hay	
Pine Needles	
Compost	
Manure	

MULCH, SOIL CONDITIONER OR FERTILISER – WHAT IS THE DIFFERENCE?

The lines between mulch, soil conditioner and fertiliser are blurred.

A soil conditioner is something that improves the condition of a soil.

Mulches commonly do this; but not all soil conditioners are mulches, and some mulches may have little to no impact upon the condition of soil.

A fertiliser will increase plant nutrients that are in the soil. Many mulches do this, but some do not. Mulches generally, but not always, increase nutrient levels at a slower rate than fertilisers. Consider

slow release, pelleted fertilisers, which release nutrients very slowly into soil. When compared with a mulch (that under the right conditions decomposes very quickly), the slow-release fertiliser may be increasing nutrient levels at a slower rate than the quickly decomposing mulch.

SELECTION OF MULCH

There is no one perfect mulch material. Understanding the characteristics of various materials helps select the ideal mulch for a specific site.

The first factor to consider is whether to use summer or winter mulch:

- Winter mulches are generally applied in late autumn. They keep the soil evenly cool throughout winter and are utilised as insulation for woody plants. Winter mulches include straw, crushed leaves, and pine needles.

- Summer mulches (also known as growing mulches) are typically applied when the soil warms up in the spring. Summer mulches have three main functions: warming the soil, retaining soil moisture and preventing weed growth.

Another factor to consider is choosing the appropriate mulch for the location. Black plastic and straw are typically used in vegetable gardens and small fruit crops. For shrub beds or around trees, wood chips, bark pieces, and pine needles are suitable mulches. Fine mulches such as bark granules, wood shavings, and cocoa shells are attractive when utilised in annual or perennial beds. When utilised in rock gardens, fine gravel or crushed stone mulches have the most natural appearance.

Lastly, cost and availability are two further factors to consider when choosing mulch. Although cocoa and buckwheat hulls produce lovely mulches, they can only be sold in areas where these commodities are processed. These mulches are usually more expensive than wood chips or bark products, even when they are readily available.

GENERAL RULES

- Most un-composted organic materials (straw, hay, shavings, leaf litter etc.) will draw nitrogen from the soil, starving plants of nutrients. To avoid problems, top dress with slow-release nitrogen (such as blood and bone).

- A layer of newspaper underneath mulch, reduces the thickness of mulch needed, avoids contact of un-composted material with the soil and deters weeds.

- To prevent collar rot, the mulch should be shallower around the base of the plant and not in contact with the stem. Collar rot occurs when the stem at ground level begins to die due to excess heat generated by the composting mulch and fungal infection. Use contaminant free organic mulching materials.

- Light fluffy mulch will need constant renewal, as it settles quickly to form a thinner layer.

- Always water the area before applying mulch.