



Arborist Woodchip as Mulch

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Landscape mulch is an important component of environmentally sustainable gardens and landscapes. Unlike soil amendments, arborist mulch¹ is simply material laid on top of the soil rather than worked into it. Select the right mulch and you reap the benefits of healthier soils and plants; choose the wrong mulch and the only plants that thrive are the weeds. This information aims to assist arborist, associated industries and home gardeners, on how to use arborist woodchip mulch in their landscapes.

Benefits of arborist woodchip

In areas where trees are a dominant feature of the landscape, arborist woodchip is one of the better mulch choices for trees and shrubs. Studies have found arborist woodchip to be one of the best performers in terms of water infiltration, moisture retention, temperature moderation, inhibiting weed growth and stimulating microorganism activity, to cite just a few.

The best thing to feed a tree is a tree!

Unlike uniformly textured sawdust and bark mulches (**Images 1 and 2**), arborist woodchip usually includes bark, wood, and leaves (**Image 3**). The chemical and physical diversity of these materials avoids the impenetrability sometimes encountered with commercially produced mulch.

Additionally, the materials vary in their size and decomposition rate; creating a more diverse environment that supports a greater diversity of microbes, insects and other beneficial organisms. A biologically diverse soil community is more resistant to environmental disturbance and will in turn support a more diverse and healthy plant population.

Arborist woodchip may be a slower decomposer than some mulches; (and possibly faster than others), as their tissues are rich in complex natural compounds eg. lignin and cellulose; with Nitrogen (N) being more readily available in arborist woodchip, potentially reducing N deficiencies. Thus, arborist woodchip supply elements slowly to the soil ecosystem; at the same time they absorb significant amounts of water that is slowly released and/or held in the soil. It is not surprising that woodchip has been cited as superior mulch for enhanced plant productivity, as well as being especially effective in helping establish trees and native plants in urban and disturbed environments.



Arborist woodchip



Image 1: Pine bark



Image 2: Woodchip



Image 3: Arborist woodchip

¹ The end product of a tree or part thereof, after it has been pruned or removed and consequently chipped by a tree service.

Arborist woodchip provides substantial weed control in native and ornamental landscapes (**Image 4**). The mechanisms by which woodchip prevents weed growth are not fully understood.

While there are wood mulches available for purchase at nurseries and home improvement centres, they are not as cost effective as locally produced woodchip. In a society where using locally produced material is increasingly important as a measure of sustainability, arborist woodchip is the natural choice. Finally the reuse of plant materials such as mulch, is of strong economic and environmental benefit ie. prevents it from going to landfill.

Frequently asked questions about arborist woodchip

Q: “Will woody mulch acidify my soils?”

A: No. In field situations it is difficult to significantly alter soil pH without the addition of organic or inorganic soil amendments ie. compost, fertilizers or elements. Temporary changes in pH may be found in the decomposing mulch layer itself, but these have little effect on underlying soils. Significant changes in soil pH are likely to occur only after decades or centuries of mulch use.

Q: “Does woody mulch, like Camphor laurel, leach allelopathic chemicals that kill other plants?”

A: No. Many living, growing woody plants contain allelopathic chemicals, which can prevent seeds from germinating and/or suppress young seedlings. Most compounds have no effect upon established plants. As an example, Camphor laurel (*Cinnamomum camphora*) has not been found to have this ability. Likewise, many of our more common Australian native trees contain allelopathic properties; all appear to show no negative effects when used as woodchip for mulching purposes.

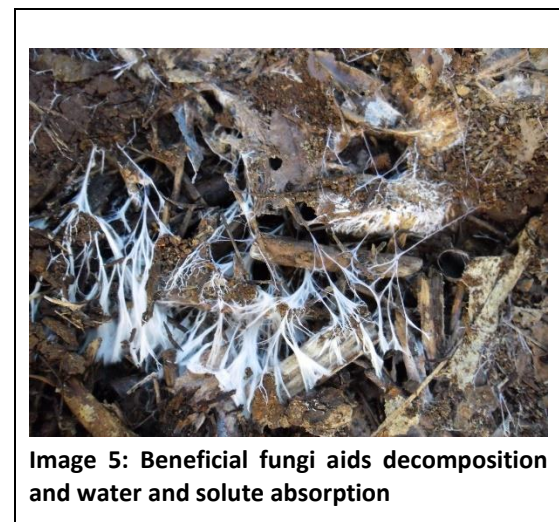


Image 5: Beneficial fungi aids decomposition and water and solute absorption

Q: “Will mulch made from diseased trees infect healthy trees?”

A: No. Most studies indicate that diseased mulch cannot transmit pathogens to the roots of healthy trees. Under no circumstances should arborist mulch be worked into the soil as an amendment; not only is this a poor planting practice, but increases the potential likelihood of injury to plant tissue and the possibility of pathogen infection. If there are any concerns about the woodchip utilized being infected with a harmful pathogen ie. *Phytophthora cinnamomi* or *Armillaria luteobubalina*; allow the mulch to stand so the decomposition process ie. heat and beneficial organisms, have the opportunity to work on these diseases.

Fungal communities found in woodchip mulches are generally decomposers, not pathogens. Under healthy soil conditions, beneficial and harmless fungi (**Image 5**) can out-compete harmful pathogens. Furthermore, healthy plants are not susceptible to opportunistic pathogens such as *Phytophthora cinnamomi*, which may be present, but ineffective in well managed soils.

Q: “Could woodchip be a fire hazard?”

A: No. Depending on the circumstances, coarse textured organic mulches, like arborist woodchip, are the least flammable of the organic mulches. Fine textured mulches are more likely to combust, and rubber mulch is the most hazardous of all tested landscape mulches. If organic mulches are kept moist, they are less likely to catch fire.

Q: “Won’t woodchip mulches tie up nitrogen and cause nutrient deficiencies in plants?”

A: No. Many studies have demonstrated that over time arborist mulch will increase the beneficial fungi and microbial associations in the mulch and soil which benefits associated plants and trees (**Image 6**).



Image 4: Weed control is substantial when arborist woodchip is utilised

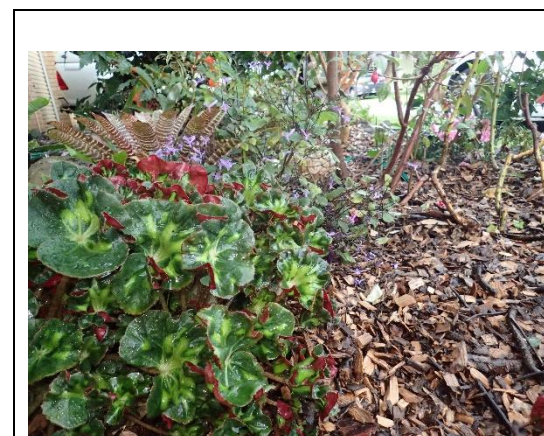


Image 6: Plants respond positively to mulching

Action list for using arborist woodchip in the landscape

Begin mulch application before annual weeds are established.

Mulch is most effective in suppressing weeds before weed seeds germinate. Therefore, bare soil should be mulched as soon as is practicable, especially in the spring and autumn when weed seed germination is at its peak. If this is not possible, the most effective, non-chemical way to remove weeds prior to mulching is to mow them as close to the ground as possible, followed immediately by mulching (**Image 7**).

Prune or mow perennial weeds at the root crown.

This is best done in early spring when root resources are lowest; generally just as leaf growth begins. Extensive pulling of perennial weeds from unprotected soil is not recommended, as this disturbance will destroy soil structure and potentially increase erosion concerns, especially in sandy soils or in sloped areas. It is better to keep unprotected soil undisturbed. However, you can pull re-sprouting perennial weeds in landscaped areas covered in mulch; the mulch layer prevents erosion and facilitates ease of weed removal.

Remove particularly aggressive weeds from the site.

Weeds that easily go to seed or can re-establish themselves readily after they've been dislodged should be composted or disposed with green waste materials.

A thin layer or pockets of compost (introduces beneficial microorganisms).

Before installing arborist woodchip for the first time, the addition of more nutrient-rich compost, (**Image 8**) has been found to be beneficial. This 'organic matter sandwich' approach is a logical one that mimics what you would see in the mulch layer of a forest ecosystem. It's not required, though, and over time arborist woodchip mulch will develop this same structure as the lower layers break down.

Use fresh chips unless there are still concerns about disease.

Some of the nutrient value (particularly nitrogen, if the chips contain leaves or needles) will be lost in the composting process. Using fresh chips ensures that some of the foliar nitrogen will be absorbed into the landscape rather than the compost pile.

Install woodchip to the desired depth.

Successful mulching must be deep enough to suppress weeds and promote healthy soil and plants. Research has demonstrated that weed control is directly linked to mulch depth, as is enhanced plant performance. A review of the research on arborist woodchip and weed control reveals that shallow mulch layers will support, rather than prevent weed growth (**Image 9**). All plants, including weeds, respond positively to the benefits of organic woodchip, particularly the increase in soil water retention. Woodchip maintained at a depth of 75-150 millimetres (**Image 10**) will control weeds and improve to the health of associated trees and plants.



Image 7: Mowing weeds close to the ground prior to mulching is an effective environmental option



Image 8: An application of compost before mulching a new site is beneficial and stimulates micro-organism activity



Image 9: Too little or no mulch will support weed germination



Image 10: Mulching maintained at consistent depth assists tree health

Keep green mulch away from trunks of trees and shrubs.

Creating mulch volcanoes (**Image 11**), by piling mulch against the trunk of trees has the potential to cause problems. Instead, taper the mulch down to nearly nothing as you approach the trunk. This donut-shaped mulch application will protect the soil environment as well as not impacting on the above-ground trunk tissues (**Image 12**). Mulching as much of the drip zone as possible (from the trunk to the edge of canopy) has many long term benefits to a tree.

Keep woodchip away from building foundations.

Although woodchip do not attract termites or other pests, they and other mulches can act as a bridge allowing pest insects to enter houses and garages. Maintain a narrow strip of bare soil next to buildings to prevent pest infestation ingress.

Reapply woodchip as needed to maintain desired depth; replacement rate will depend on decomposition rate.

Once woodchip is applied, low traffic areas are most likely to need little mulch replenishment (this more often needs to be done to maintain a minimum mulch depth). High traffic areas are most likely to need replenishment more often.



Image 11: Mulch volcanoes are a less than ideal practice of mulching for the health of a tree or plant



Image 12: A tapered broad mulching pattern with organics slightly away from trunk is the ideal practice when mulching trees or plants

Further reading

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