

CLIENT HANDOUT · MULCH & SOIL

Choosing Mulch for Your Soil

Mulch can do wonders for a garden. But the "right" mulch depends on what's underneath: your soil, how water moves through it, your slope and how close you are to the bush. Here's what the research says, where the experts still argue, and how I decide on site whether to mulch, with what, and how deep.

What good mulch does

- ✓ **Keeps soil moist.** Less water dries off the surface than from bare soil. Mulch research agrees on this more than almost anything.
- ✓ **Evens out soil temperature.** Organic mulches (ones that were once alive, like wood chip) keep soil cooler on hot days and soften the daily swings that stress roots.
- ✓ **Keeps weeds down,** if it's deep enough. A thin layer can actually help weeds by keeping their soil moist. Oops.
- ✓ **Feeds soil life.** As it breaks down, organic mulch feeds the fungi, microbes and worms that keep soil crumbly and healthy.
- ✓ **Protects the surface** from crusting, packing down hard and washing away in heavy rain.

In trials, **the difference between mulch and no mulch is usually bigger than the difference between one mulch and another.** But more isn't always better: too much mulch, or the wrong kind, can keep soil soggy, starve new plants of nitrogen (a key plant food) and rot stems. **So I don't mulch on a schedule.** Whether a bed needs it, which product and how deep is decided on a site visit.

What we know (and don't, yet)

Mulch research is still growing up, and most of it comes from overseas. Here's the honest scorecard.

We know

- Mulch beats bare soil
- Coarse mulch lets water in more easily than fine mulch
- Organic mulch can burn
- Fresh mulch stops seeds sprouting
- Banksias and grevilleas dislike extra phosphorus

Still debated

- The best depth
- Whether mulch helps or worsens water-repellent soil
- Whether "toxic" mulches harm grown plants
- Particle size and fire

Not yet known

- How Sydney's common mulches behave on our sandstone and shale soils
- Fire tests of Australian garden mulch products
- Long-term effects on native soil fungi

"We haven't figured everything out about mulch yet, and anyone who tells you there's one perfect mulch for every garden is guessing. What matters most is the soil: how it's layered, and how water actually moves through it. That's why I look and test before I recommend anything."

RF Horticulture · Cert III Horticulture (Ryde TAFE)

Start with the soil

	Sandy soil (from sandstone)	Clay soil (from shale)
Where	Slopes, gullies, near rock outcrops	Ridgetops and upper slopes
Water	Soaks in fast, unless the surface has become water repellent; dries out quickly	Soaks in slowly; can stay waterlogged
Mulch goal	Hold moisture, let water through , and fix water-repellent soil first	Protect structure; avoid thick, fine layers that keep clay soggy

The sneaky problem in native beds

Gum, banksia and sheoak leaves contain waxes and oils. As they break down they can coat sand grains, so water **beads up and runs off** instead of soaking in. This is called water-repellent soil. One study found banksia leaves caused the worst of it among the four species tested. Some fine or dry mulches are hard to wet too. So on sandy soil I test for it before choosing a mulch.



Hairpin banksia (*Banksia spinulosa*): a local banksia-family plant that prefers low-phosphorus mulch · Photo: Lucas Christofides, CC BY 4.0, iNaturalist, <https://www.inaturalist.org/observations/279618109> (cropped/resized). The photographer and iNaturalist do not endorse RF Horticulture.

Sources: Chalker-Scott 2007, *J. Environ. Hort.* 25:239 (review); Maggard et al. 2012, *HortTechnology* 22:353 (few differences among mulch types); van Donk et al. 2011 (depth and weeds); Singer & Martin 2008 (temperature, evaporation); Scharenbroch & Watson 2014 (soil life); Dao et al. 2022, *Plant and Soil* 478:505 (Murdoch Univ.: banksia, eucalypt, sheoak leaves); Féry et al. 2022; Fields et al. 2014 (pine bark wettability); Lin et al. 2026, *Int. J. Wildland Fire* (mulch fire tests); Shane et al. 2004 (*Hakea* P sensitivity). Quote: my own words.

Mulch types at a glance

Every mulch has pros and cons. ● good fit for most native beds ● fine in the right spot ● avoid or use with real care

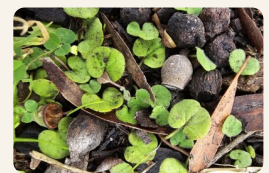
Mulch	Good for	Watch out for	Natives?
Coarse woodchip / arborist chip	Holds moisture, lets water through, strong weed control at depth. Feeds soil fungi slowly. Interlocks on slopes.	Burns if it ignites, so keep it back from the house. Don't use chips from diseased tree roots. Quality varies by source.	● Excellent
Pine bark (coarse / fine)	Long-lasting, low nutrients, tidy look. Coarse nuggets let water in.	Fine bark is hard to re-wet once dry. Nuggets float and wash off slopes. Combustible.	● Coarse yes; I don't use fine bark
Eucalyptus & cypress / forest blends	Good weed control; fresh euc mulch stops weed seeds sprouting. Cypress breaks down slowly.	Fine, stringy euc can mat and shed water, so I use coarse grades only. Stops natives self-seeding too. "Repels termites" claims are unproven.	● Coarse blends yes
Sugar cane, lucerne, pea straw	Cheap, quick to break down, good for veggies and exotics. Lucerne and pea straw add nitrogen.	Very flammable. Breaks down fast. Can carry weed seed or herbicide residue. Lucerne and pea straw add nutrients	● Not for banksias & co. or near the house
Native leaf litter	The natural mulch of our bushland. Low nutrients, habitat for skinks and insects, recycles what local plants evolved with.	Can make sandy soil water repellent. It's bushfire fuel, so keep it away from the house and out of gutters.	● Best fit, managed well
Composted mulch & compost	Improves soil, holds water, feeds soil life. Composted mulch tends to smoulder rather than flame.	Higher in nutrients, including phosphorus. Fine compost on the surface can crust and grow weeds. Where compost suits the plants I dig it in at planting, not lay it as a mulch or under-layer. Buy compost made to the Australian Standard (AS 4454).	● Not around banksias & grevilleas
Gravel, scoria, pebble	Won't burn, so it's the best choice next to the house. Cuts evaporation and lasts forever. Scoria suits pots.	Soil underneath runs hotter. Adds no organic matter. Some rock (limestone, concrete) can raise pH. Hard to remove later.	● Dry, rocky and heath styles
Living mulch (groundcovers)	Long-term weed control, holds slopes, feeds soil through living roots. Local options include <i>Dichondra</i> , native violet and <i>Myoporum</i> .	Plants use water too, and need coarse mulch between them while they establish.	● Yes, with local species
Rubber, plastic, weed mat	Plastic and weed mat stop weeds for a while.	Rubber burned worst in two US fire tests and can release zinc. Plastic blocks air and water. Weed mat breaks down, weeds grow on top of and through it, and roots grow into it.	● Avoid in garden beds

"Will wood chips steal my plant food?"

Mostly no. The microbes breaking down woody mulch do use some nitrogen, but only in a thin layer where mulch meets soil. Studies of wood chips on the surface generally show grown plants do fine, often better. It's a different story if you **dig** wood chips or sawdust into the soil, so don't.

Living mulch

A dense native groundcover is a mulch that renews itself. It's great on slopes and under trees where loose mulch keeps washing away.



Kidney weed (*Dichondra repens*) · Photo: Josh, CC BY, iNaturalist, <https://www.inaturalist.org/observations/232457168> (cropped). No endorsement implied.

How mulches behaved in fire tests

Won't burn

Gravel, pebbles, scoria, brick chips. The best choice next to the house.

Mostly smoulders

Composted mulch. Fire still creeps through it slowly, so it's not "fireproof".

Flames readily

Straw, pine needles, shredded bark, uncomposted chip and bark. Rubber was the worst of all.

These tests were done overseas. No Australian fire tests of our common garden mulches have been published that I could find, so I err on the side of caution near homes in bushfire-prone areas.

Sources: Duryea et al. 1999 (decomposition, germination, pH; termites ate most mulches); Downer & Faber 1994 (fresh euc mulch and weed seeds); Airhart et al. 1978 and Fields et al. 2014 (pine bark wetting); NSW Government DCEEW Water, *Saving water in the garden* (2025; fine mulch 2.5 cm); Steward et al. 2003, Quarles & Smith 2011 and Lin et al. 2026 (mulch fire behaviour); Bush et al. 2001 (rubber and zinc); Shahzad et al. 2019 and Chalker-Scott, *Myth of Landscape Fabric* (fabric, plastic); Chalker-Scott 2007, 2013 and Scharenbroch & Watson 2014 (nitrogen); NSW EPA, herbicides in compost; Standards Australia AS 4454-2012; Gardening Australia 2009 (straws; pine bark on slopes); fire tiers: Steward et al. 2003, Quarles & Smith 2011, Lin et al. 2026, CSIRO. Groundcover picks: RF Horticulture practice.

Matching mulch to your garden

Sandy soil

Use: coarse chip or leaf litter, **after** fixing any water-repellent soil. Compost dug in at planting (not for banksias and grevilleas).
Avoid: fine euc, fine pine bark or a crust of fine compost on top.

Clay soil

Use: coarse chip, which lets air and water in and improves structure over time.
Avoid: thick, fine mulch that keeps clay soggy, and mulch heaped against stems (they rot).

Pots

Use: a thin top layer of scoria, pebble or coarse bark. Soak dry pots in a bucket to re-wet them.
Avoid: fine bark that dries into a water-shedding crust.

Slopes

Use: interlocking arborist chip and groundcovers; jute netting on steep banks.
Avoid: pine bark nuggets and straw, which float or blow away and block drains.

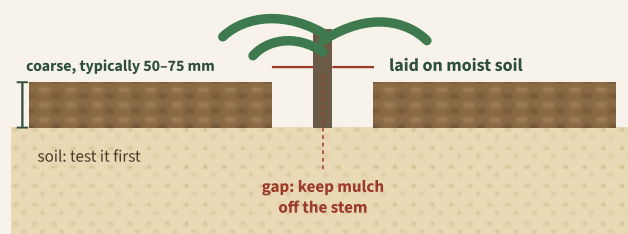
Banksias, grevilleas, waratahs

This plant family is harmed by phosphorus levels other plants love.
Use: native leaf litter or coarse chip. **Avoid:** compost, manure, lucerne, pea straw and general fertiliser around them.

Near the house: bushfire & termites

On bushfire-prone land, keep the zone right next to the house free of organic mulch. Use gravel, pebbles, crushed brick or paving, with no timber edging. Keep all soil and mulch **below the slab edge and clear of weep holes** so termite inspections can see the edge.

How deep? Set on site



Mulch	Where I use it
Coarse chip, leaf litter	Typically 50–75 mm, set by the site. Deeper only where the assessment calls for it (e.g. smothering weeds before planting)
Fine (sawdust, fine euc, compost layers)	Not used, not even as an under-layer
Gravel, pebble	About 50 mm, where the site suits

The NSW Government suggests 5–7 cm for coarse mulch and about 2.5 cm for fine. Birds in Backyards says at least 100 mm, and a US university guide says 10–15 cm of wood chips for weed control. Deeper layers stop more weeds; thinner layers let light rain through. Your soil decides, so I set depth on site.

Water beading on the soil? Fix it first

- 1 Test:** put a few drops of water on dry soil. If they sit for more than a minute, the soil is strongly water-repellent.
- 2 Wet it slowly:** water a few minutes, let it soak in, repeat two or three times.
- 3 Wetting agent:** it works like a detergent to get water past the waxy coating. Follow the label and water it in. It wears off, so re-apply as directed. (Water crystals are different and don't fix repellence.)
- 4 Then, if the bed needs it, mulch** with something coarse and open, onto moist soil.
- 5 Re-test in late summer,** when it's usually worst.

Laying mulch: the basics

- Weed first, and water before you mulch.
- Keep mulch **5–10 cm clear of stems**, more for trees.
- Leave a few bare, sunny patches for ground-nesting native bees.
- **No set top-ups.** I check depth at visits and add more only if the bed needs it.

Buying mulch: five questions to ask the supplier

- **Is it composted or fresh?** Composted (to Australian Standard AS 4454) has been heat-treated. Fresh is fine for weed control but stops seeds sprouting.
- **How coarse is it?** Ask to see it. Chunky and open lets water in; fine and stringy can mat.
- **What's in it?** Tree source, leaf content, any manure or grass.
- **Is there a nutrient analysis?** This matters for banksias, grevilleas and other phosphorus-sensitive plants.
- **How do you manage weeds, herbicide residues and plant disease?** Avoid chips from trees that died of root rot, and straw or hay of unknown origin.

Sources: NSW Government DCCEEW Water, *Saving water in the garden* (updated Jul 2025; 5–7 cm coarse, 2.5 cm fine, 4 cm stem gap); Birds in Backyards (≥ 100 mm); Chalker-Scott, WSU FS160E (4–6 in chips); van Donk et al. 2011; NSW DECC 2007, *Conserving water using compost* (fine or thick mulch on heavy soils); Handreck 1997 and Shane et al. 2004 (phosphorus and Proteaceae); CSIRO Bushfire best-practice guide, *Mulches*; NSW RFS, Standards for Asset Protection Zones; Ondeij, Price & Bowman 2024 (defensible space); CSIRO, *Managing termites* (2021); Müller & Deurer 2011 and Fields et al. 2014 (wetting agents); Aussie Bee; Standards Australia AS 4454-2012; NSW EPA, herbicides in compost; UC IPM, mulch and plant pathogens. Coarse-only, site-assessed mulch standard, stem gaps and slope advice: RF Horticulture practice.

Mulch myths: busted (or not)

MYTH: "Eucalyptus mulch poisons plants."

Partly true: fresh eucalyptus (and many other fresh mulches) stops seeds sprouting in lab tests. That's useful against weeds, but it stops natives self-seeding too. There's little evidence it harms established plants.

MYTH: "Cypress or tea-tree mulch keeps termites away."

Unproven: I found no Australian trial. In US tests termites ate most mulches, and mulch type made no difference to how often they found monitors. The real risk is mulch hiding termites at the slab edge. No mulch is termite protection.

MYTH: "Mulch saves 70% of your water."

Best case only: that figure traces back to farm studies of mulched onion crops. Mulch does save water, but how much depends on your soil, the mulch and the weather.

MYTH: "The thicker, the better."

It depends: deep coarse chip controls weeds well and didn't harm tree roots in trials. But thick, *fine* mulch can soak up light rain, shed water or keep clay soggy.

MYTH: "Weed mat means no more weeding."

Not for long: it breaks down in sunlight, weeds grow on top of and through it, and roots tangle in it. It also stops leaf litter feeding the soil. Under paths, fine; in garden beds, no.

MYTH: "Mushrooms in mulch mean disease."

Usually not: most fungi in mulch are decomposers doing useful work. Wood chips rarely spread disease, but chips from the roots or stumps of trees that died of root rot are the exception.

MYTH: "Pine bark makes your soil acidic."

Only slightly, if at all: studies found small pH changes under bark and wood mulches, sometimes up and sometimes down. Soil type matters far more. A pH test (acid or alkaline?) settles it.

MYTH: "Leaf litter is messy; rake it all up."

Keep most of it: it's free, low in nutrients and full of life. Just keep it away from the house and gutters on bushfire-prone land, and watch for water beading on sandy soil.

What I check before recommending a mulch

- ✓ **What's under the surface:** a test hole in each area for sand, clay, layers or fill
- ✓ **Water-repellent soil:** a water-drop test in several spots
- ✓ **Moisture and drainage:** is water reaching roots, or sitting on clay?
- ✓ **Soil pH** (acid or alkaline), and a lab nutrient test if banksias or compost are involved
- ✓ **Slope and wash paths,** wind and sun
- ✓ **Bushfire and termite zones** around the house
- ✓ **Trees, roots and any disease history**
- ✓ **Your plants and goals:** weeds, wildlife, look, budget, upkeep

The best mulch is the one that suits your soil.

The research gives the rules of thumb. Your garden gives the answer. Looking at the soil on site is the surest way to choose.

Get in touch for a quote

I'll check your soil on site (what's underneath, a water-drop test, drainage and slopes) and quote for soil improvement, wetting agents, the right mulch, and supply and spreading. If mulch isn't the answer, I'll tell you.

Planning a native garden from scratch? See "Native garden advice" on my website.

Call or text 0481 106 188 · rfhorticulture@outlook.com

Handy to have ready for your visit

- Photos of the garden during or after heavy rain (where water pools or runs)
- The mulch you use now, and where it came from
- Any plant list, or plants you'd like to keep
- Whether you're on bushfire-prone land (check the NSW Planning Portal) and any termite inspection reports

In short

- ✓ Mulch only where your site needs it
- ✓ Coarse only, typically 50–75 mm
- ✓ Test sandy soil for water beading first
- ✓ Low-phosphorus mulch for banksias and grevilleas
- ✓ Nothing that burns right next to the house
- ✓ Keep mulch off stems and below the slab edge

Sources: Duryea et al. 1999a, b and Downer & Faber 1994 (germination; termites); Long et al. 2001 (termite foraging under mulch); Chalker-Scott 2013 and UC IPM (wood chips and disease); Duryea et al. 1999a, Iles & Dosmann 1999 (pH); CSIRO, *Managing termites* (2021); NSW DECC 2007 fact sheet, citing Abu-Awwad 1998/1999 (the "70%" figure); Watson & Kupkowski 1991 (deep chip and roots); NSW Government DCCEE Water 2025 (fine mulch); Chalker-Scott, *Myth of Landscape Fabric*; Appleton et al. 1990; Dao et al. 2022 (leaf litter and repellence); NSW RFS APZ standards. Full reference list: RF Horticulture, *Mulch and Soil* reference guide (Oct 2026). Assessment checklist: RF Horticulture practice.