

WHAT TO LOOK FOR

WHEN YOU DIG A HOLE

If being able to see what is happening underground is the gateway to great management of your plants, then the humble shovel is the key. Don't leave home without one!

On the following page we have compiled a list of some of the basics that you may consider looking at when you're having a dig around. We've also made suggestions about what you do and don't want to see for each.

This is a starting point for you to look more deeply into what's happening at your place. If something comes up as less than desirable then you can look into whether indeed it is a problem for you, and then how you might go about fixing it with a view to what you want to create.

This is a tool to be used in conjunction with other information at your discretion. It's not an exhaustive list, and it's not designed to give you a full diagnosis of how you're travelling. We do hope you find it useful though.

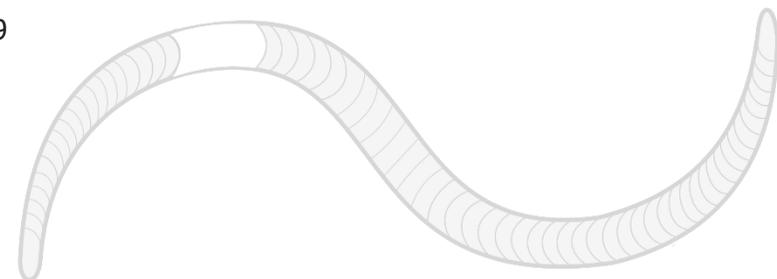
The blog that goes with this handout can be found at <https://biocast.com.au/bring-a-shovel/>

Happy digging!

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What to look for when you dig a hole: the 'shovel only' basics

	What to look for	Least desirable	OKish	Most desirable
Soil	How easy is it to get the shovel in?	You couldn't even push a pen in	You have to jump on it a few times	One good push with your foot and the whole head is in.
	Is there any soil structure?	Soil is in large, solid clumps; or no structure at all (such as beach sand)	Soil is in medium size clumps	Crumbly, friable
	Where does the moisture sit? (Assuming you're not in a wetland)	- No moisture in soil profile; or - Water is below the root zone of your plants; or - Soil is waterlogged	Water penetrates several cm into the soil profile after rain; or with no rain first few cm of soil are bone dry	Moisture is found through the whole soil profile
	Are there any compaction or clay layers?	Yes	Yes but thin or broken	No
	How far down does the topsoil [i.e. the dark, humus-rich layer] extend?	What topsoil?	Thin	You've got to dig for it
Roots	How deep do the roots go?	Concentrated at the surface	Less deep than the plant is tall (*species dependent)	You've got to dig for it
	What is the root morphology?	Very small roots	Smaller than expected; some physical constriction	Extensive root system, the fullest expression of what can be expected for that species
	Are there any nodules on the legumes?	No; or any nodules are brown on the inside (dead)	Nodules only near the plant stem; nodules white to pale pink inside (inactive)	Nodules along the full length of the root; nodules are dark pink to red (active)
	Are there any root diseases?	Extensive rot, deformation, discolouration or other signs of disease	Some signs of disease present	No signs of disease
	Do the roots have a rhizosheath? (a layer of soil and microbes stuck to the root)	Roots are bare	Partial root coverage	All roots are covered in thick dreadlocks
Biology	What does the soil smell like?	Nose-turning (anaerobic)	A bit swampy	Delicious forest floor (aerobic)
	Do you see any earthworms?	No	1 or 2	Heaps
	Do you see any other critters?	No	1 or 2	Heaps
	Do you see any tunnels in the soil from insects, animals or old roots?	No	1 or 2	Heaps
	Is there any material which hasn't broken down, like fertiliser pellets, straw, or manure?	There has been no breakdown	Some unbroken down material	Hard to identify any individual thing, white fungal hyphae visible in humus