

Equipment kit checklist

- ☐ Soil description card (one copy per 5 sampling sites)
- ☐ Pen and permanent marker
- ☐ Smartphone with timer and camera (or timer and digital camera)
- ☐ Bucket
- ☐ Rags or paper towels for cleaning up
- ☐ 5 L of tap water for infiltration test
- ☐ Spray bottle or water bottle with rainwater or distilled water (it is important to use rainwater or distilled water for the slaking and dispersion test)
- ☐ Square spade or shovel
- ☐ Trowel or knife
- ☐ Secateurs or shears
- ☐ Stakes and marker flags for each sampling site
- ☐ 5 strips of white 100% cotton or 2 pairs of white 100% cotton undies and 5 ziplock plastic bags
- ☐ Hand-made 30 cm by 30 cm quadrat (square frame) from wire or cardboard for ground and weed cover % estimation
- ☐ Soil pH test kit from a hardware store or garden centre
- ☐ 2 flat bottom dishes or jars for the dispersion and slaking test
- ☐ White tray or board
- ☐ Magnifying glass or hand lens
- ☐ Ruler or tape measure
- ☐ 2 mm sieve (optional)
- ☐ Mortar and pestle (optional)
- ☐ Hand-made infiltrrometer tube (see picture on right)
- ☐ Hardwood board and mallet for banging the tube into the ground

Making your infiltrrometer and quadrat



Cut 9 cm length of poly pipe (a diameter of 9 cm is ideal). Cut plastic ruler to the 0 cm and the 7 cm mark and glue to the inside of polypipe with 0 mark at the top.

** You can also mark centimeter increments on the inside of the polypipe if you do not have a ruler.*



Homemade quadrat

Soil description card

Date:	Weather conditions (wet, dry, drought, prolonged wet):
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Site description

Sampling site	Site 1	Site 2	Site 3	Site 4	Site 5
Time of day					
Sampling site location/GPS coordinates					
Landform (e.g. slope, hill, flat, boggy)					
Soil type (ask your Landscape Board)					
Current land use (pasture, cropping, forestry, native vegetation)					
Previous land use					
Soil moisture (dry, moist, waterlogged)					
Soil texture (topsoil – 5 cm) (only do once)					
Soil texture (subsoil – 20 cm) (only do once)					

Soil test results card

Date:

Test	What to record	Site 1	Site 2	Site 3	Site 4	Site 5
Ground cover percentage	Choose from 20%, 40 %, 50%, 80 %, 90%, 100%. Take a photo.					
Weed cover percentage	Choose from 20%, 40 %, 50%, 80 %, 90%, 100%. Take a photo.					
Leaf colour	Any noticeable plant leaf discolouration					
No. of soil organism types present	The number of soil organisms and time of day.					
No. of earthworms present	The number of earthworms and time of day					
Soil compaction	The depth of compaction layer in cm					
Topsoil pH (5 cm)	Test kit pH using colour wheel					
Subsoil pH (20 cm)	Test kit pH using colour wheel					
Water infiltration (infiltration rate in mm/hr)	Infiltration rate in mm/hr					

Scorecard

Test	Poor rating (= 1 point)	Fair rating (= 2 points)	Good rating (= 3 points)	Site 1	Site 2	Site 3	Site 4	Site 5
Ground cover percentage	Less than 50% average ground cover (ground plants or mulch)	50% to 75% average ground cover (ground plants or mulch)	More than 75% average ground cover (ground plants or mulch)					
Weed cover percentage	More than 75% weeds	50% to 75% weeds	Less than 50% weeds					
Leaf colour	Stunted plants, leaf discolouration	Some variation in growth and colour	Appropriate leaf colour and uniform plant growth					
Soil organism type count	Fewer than 2 types of soil organisms visible	2 to 5 types of soil organisms visible	More than 5 types of soil organisms visible					
Earthworm count	0 to 3 earthworms present	4 to 6 earthworms present	More than 6 earthworms present					
Root development	Roots are shallow and sparse	Moderate root growth	Deep, extensive root system. Lots of fine roots					
Water repellence	More than 60 seconds for water drop to disappear	10 to 60 seconds for water drop to disappear	1 to 10 seconds for water drop to disappear					
Topsoil colour	Pale or grey, indicating low organic matter	Moderately dark colour	Dark, rich colour indicating high organic matter					
Soil compaction	Thick compaction layer, no root growth	Thin compaction layer, some roots can grow through the layer	No layers of compaction, roots grow freely					

Topsoil pH	Strongly acidic or alkaline (below 5.5 or above 8.0)	Moderately acidic (5.5 to 6.0) or alkaline (7.5 to 8.0)	Near neutral (6.0 to 7.5)					
Subsoil pH	Strongly acidic or alkaline	Moderately acidic or alkaline	Near neutral					
Soil slaking at 5 cm depth (refer to page xx for images)	Aggregate broke apart in less than one minute	Aggregates remained partially intact after 10 minutes	Aggregates remained mostly intact after 10 minutes					
Soil dispersion at 5 cm depth after 20 mins	Obvious milkiness	Faint milkiness	No milkiness					
Soil dispersion at 20 cm depth after 20 mins	Obvious milkiness	Faint milkiness	No milkiness					
Water infiltration (infiltration rate in mm/hr)	0 to 30	31 to 100	Greater than 100					
Total				Site 1	Site 2	Site 3	Site 4	Site 5

Soil microbial test (Soil Your Undies) rating

Score	Site 1	Site 2	Site 3	Site 4	Site 5
How decomposed is the cotton fabric after 8 weeks? Not decomposed at all (= 1 point); Partially decomposed (= 2 points); Very decomposed (= 3 points)					

Adapted from New South Wales Department of Primary Industries, Northern Rivers Health Card, <https://www.soilcare.org/uploads/2/9/1/9/29197227/original-nr-soil-health-card.pdf> and NQ Dry Tropics, Rapid Assessment of Soil Health (RASH) manual, https://cdn.environment.sa.gov.au/landscape/docs/ep/rapid-assessment_of_soil_health_rash_manual.pdf