EARTHWORM COUNT

DEFINITION

Earthworms are an excellent indicator of soil health. They are sensitive to a variety of soil characteristics including pH, waterlogging, compaction, and organic matter, so by undertaking worm counts, we can assess the overall health of our soil. Earthworms are soil-dwelling invertebrates that feed on decaying plant matter. They engineer the structure of the soil, naturally aerating and improving drainage as they burrow.

TEST

Establishing the number of earthworms present in soil is a proxy indicator for biological activity. This is a good indicator of soil structure, health, soil life and activity.

Note: It is best to count earthworms in early Autumn or late Spring. Avoid counting worms during extreme weather conditions, or in the few weeks after a manure/compost application.

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FIELD

- **Material :** spade, white plastic container for earthworms sorting
- **Time needed**: around 1 hour per sample (depending on how many people)

- **Procedure:**
  1. Randomly select one sample site per management area
  2. Label these points with numbers, letters or names both physically (e.g. using marking sticks) and on your site map so that you are able to come back to them again for taking subsequent measurements.
  3. Measure a 30x30 cm square plot (***Note:*** avoid sampling where earthworm populations might be affected i.e. mulch or compost piles).
  4. Dig down to 30 cm with a shovel, minimizing damage to the earthworms.
  5. Count number of earthworms (against pale-coloured background to help locate them): You may need to break apart clods to find them. Look through the soil from the top to the bottom, you can sort the earthworms into small and large earthworms to keep a record of what is in your soil.
  6. Record yearly counts for each of the zones/sample sites in the table below
  7. Rinse earthworms in water and return them to the soil.

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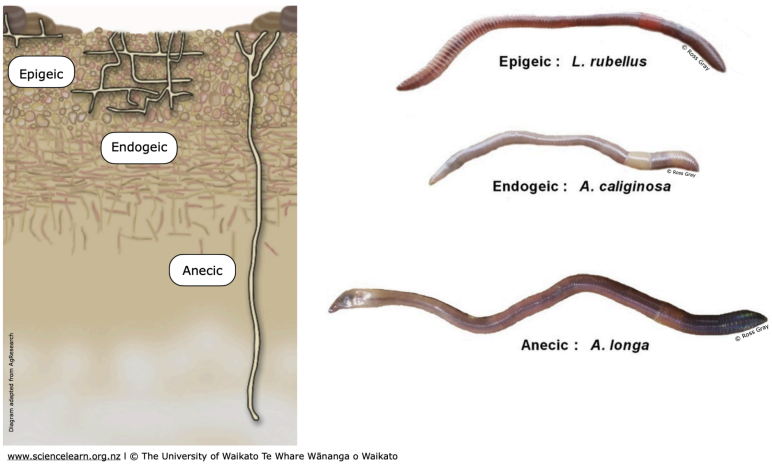
RESULTS

How many earthworms did you count?

Sample	1	2	3	4	5	6
Site						
Date						
Earthworm count Poor = less than 10 Moderate= 10 to 20 Good = 20 or more						
Score						
Observations (other fauna)						

INTERPRETATION

The more earthworms, the better. They indicate a high level of soil biology. There is no 'ideal number', but the presence of different* worms suggest that your soil has a good level of soil life.



* different categories and functions

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Why are earthworms important?

- Their burrowing aerates the soil and improves soil structure.
- They breakdown organic matter for micro-organisms which in turn promotes humus production.
- They mix organic matter into soils.
- They turn and mix the soil as they pass through it.
- They promote the presence of positive bacteria and fungi in soils.

HOW TO IMPROVE THE POPULATION OF EARTHWORMS IN YOUR SOIL

- ☐ Use plenty of organic matter in your soil as this will promote optimum moisture and temperature for earthworms to thrive and give them a good source of food. This organic matter can be in the form of compost, mulch or manure.
- ☐ Avoid walking on your soil as this will cause compaction which in turn makes it harder for earthworms to move around. Use wooden boards or create permanent paths.
- ☐ Do not over-water or water-log the soil as this results in earthworms rising to the soil surface due to burrows and tunnels being flooded. One way to prevent this is to utilize drip irrigation.
- ☐ Do not use any chemicals on your soil as these are likely to have adverse effects on any earthworms there. Pesticides can kill worms or their food, while fertilizers will not provide nourishment to the worm population.