

HOW TO

Establish a Dung Beetle Nursery

Dung beetles help improve pasture and soil health by breaking down livestock dung, recycling nutrients, reducing pasture fouling, and limiting flies and parasites.

Dung beetle nurseries allow beetle populations to be built and bred in a controlled, low-disturbance environment, providing a reliable source of beetles for release across paddocks and landscapes.

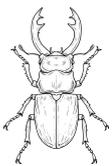
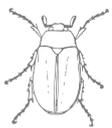
Building a nursery:

Dung beetle nurseries vary in design and can be customised based on needs and materials on hand.

- **Fixed nursery:** Timber box approximately 900mm wide x 900mm deep x 200mm high. Bury the box around 10cm into the ground to prevent beetle escape.
- **Portable nursery:** Use an IBC container with the top cut off. Fill the container with the dung beetles' preferred soil type to a depth of 600 mm. Cover the top with a shade-cloth lid that prevents beetles escaping while allowing airflow and easy monitoring.



Trapping dung beetles for your nursery:



Know which dung beetle species you are targeting

- This will inform you on whether they are day, dusk/dawn, or night active.
- Allows for accurate sorting, ensuring unwanted or pest species are excluded from your nursery.
- Knowledge of your target species ensures a balanced mix of males and females in the nursery through accurate identification, critical for a successful breeding program.

ID Guide: South-West Victoria



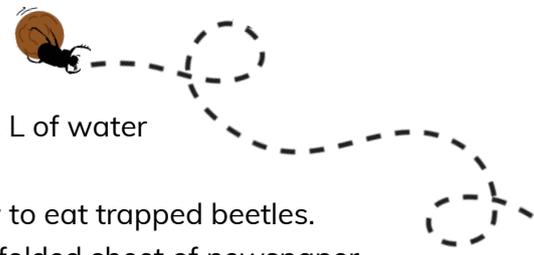
Dung Beetle Ecosystem Engineers

Trapping equipment list:

- Plastic tray - approximately 450 x 300 x 100mm
- 20 L water carboy
- Wire mesh - to fit across top of tray
- Dung bait - 500g approximately 24 hours old
- Mesh bag or newspaper - stop loose dung falling through wire
- Storage container - larger the better with tight fitting lid and airholes
- Moist bedding - coir or vermiculity
- Sieve or strainer - mesh size appropriate for target beetle



Trapping method:



1. Place the plastic tray on level ground and fill with approximately 2 L of water (about 15 mm deep).
2. Fit a wire mesh lid over the tray and peg it down, as foxes may try to eat trapped beetles.
3. Place fresh dung on top of the mesh, either in a mesh bag or on a folded sheet of newspaper.
4. Set traps about 20 metres apart and position them downwind of fresh dung.
5. Place traps away from livestock to avoid competition.
6. Check traps regularly, as beetles can drown if left too long.
7. Sieve beetles from the water, sort them, and place them into a container with air holes.
8. Store beetles with moist coir or vermiculite.

Feeding dung beetles in your nursery:

- Store fresh dung for approximately three days in a warm environment to ensure any pest species are removed before placing dung in the nursery.
- Feed dung beetles once or twice a week, for 100 beetles start by giving them 2x1L. Monitor how much the dung beetles are eating by looking for dung that is shredded in appearance.
- Place dung in a different location each time beetles are fed to spread burrowing activity evenly across the nursery.
- Remove any uneaten dung from the nursery after two weeks. Ensure there are no beetles in the dung before throwing away.
- Do not feed beetles dung from livestock that have been drenched in the last 12 weeks.

Nursery maintenance:

- Regularly trim grass and weeds to maintain visibility and access for monitoring, avoid removing plants by the roots as this will disturb the soil and potentially the beetles.
- Monitor moisture levels by leaving a few plants in the nursery, look for signs of wilting or yellowing.
- Place drainage holes in your fixed nursery to avoid flooding during heavy rain events, ensure beetles can't escape through these holes. If you have a portable nursery, bring it undercover during heavy rain events.

Nursery monitoring:

- Monitor beetle population in line with the specific species' life cycle by placing a dung beetle trap in the nursery, recording numbers after 24 hours, and repeating weekly over key periods, including early emergence, post-overwintering, peak breeding, and post-breeding to assess survival, overwintering success, and population growth.

Releasing beetles from your nursery:

- Dung beetles are ready for release once adults have emerged, in line with the seasonal life cycle of the specific species being bred.
- Trap and remove approximately 100 dung beetles from your nursery to establish the next generation, ensuring an even ratio of males and females.
- Release the remaining dung beetles in a paddock with plenty of fresh dung on offer.

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