



Earthworms

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This Agriculture Note provides information on earthworms and the industry.

Product

Worms are intensively farmed for the production of fishing bait, aquarium fish food, worm castings and as seed stock for domestic compost heaps. During the past 10 years there has been increasing interest in using worms for the treatment of effluent and domestic rubbish/industrial waste. There are two types of castings. Vermicompost or "live castings", and vermicast. Vermicompost will contain capsules (worm eggs), and immature worms. It can be used to seed gardens or compost with worms. It will often contain some uneaten worm food, so it should not be referred to as straight "castings". Vermicast is just "castings". It has been eaten out by worms and all the worms have gone. Liquid castings are also manufactured and offered for sale, largely for the garden market. They are made by mixing 20% castings with water. Some organic producers use liquid castings as a foliar broad acre spray.

Production

Because all (or most) of the inputs for a worm farm have to be brought in, worm enterprises can be established virtually anywhere, as soil fertility does not matter. The main considerations are the availability of a good quality reliable water supply, and manure or other by product source that is close and cheap. It is also desirable to be as close as possible to the main market, although worms can be successfully sent through the post if properly packaged.

The tiger worm (*Eisenia foetida*) is the most suitable for intensive breeding. Earthworms should be farmed in an environment that is as natural as possible. The beds should be protected to maintain temperature and moisture so a shed or basic roof is ideal. Because of the expense of roofing, many worm farms just have beds, which are covered with carpet or other protection. Worms are air breathing, manure producing creatures just like other farm animals, and their environment must be kept right or they may die, or leave.

Beds can be built above or below the ground, but the above ground types tend to be easier to harvest. Beds can be any length but only a metre or so wide for ease of management. Tiger worms will feed on virtually any organic matter, as long as it is well rotted down. They

consume their own weight daily. Disasters can happen, so close monitoring of the beds is essential. If beds get too hot, the worms will either leave, or die if trapped. Mouldy bedding can also take a toll as can the introduction of foodstuffs that have been recently treated with chemicals. Animal manure should be well leached and composted, particularly if the animals had been recently wormed.

Earthworms are disease free, but their natural enemies are birds, centipedes, mice and ants. Birds and centipedes eat worms, and mice and ants make a mess of beds and compete for food.

It takes about six months to produce good quality Vermicompost. Worms live in the top 150-200 mm of a bed; so to harvest, remove any uneaten food from the top, and then fork the worms and bedding onto a table under a bright light, or direct sunlight. The most common method to separate worms from bedding is to pile the worms and vermicast in a mound. As the worms are light sensitive, they will burrow to the bottom of the mound.

A well-managed earthworm culture will have a pleasant smell, so any bad smells should be taken as a warning that something is wrong. Acidity (as pH) should be maintained at around 6-8, and lime may need to be added if it is too acidic.

Marketing

Business opportunities do exist in commercial worm growing, whether on a small or a large scale. It is best to start a worm enterprise slowly, while learning about production and targeting a specific market. Management will vary depending on the market the worms are being produced for. Different markets exist for bed run earthworms, bait worms, vermicast or waste management. Until recently marketing of earthworms, and earthworm products has been done largely on an individual basis. This is still the case, but the Australian Worm Growers Association has been established to give the industry a focus. The stated aims of the AWGA are -

- To promote the advancement of earthworm husbandry in Australia and to foster community involvement in vermiculture.
- To promote high standards in the earthworm growing community, and adherence to a code of ethics.
- Facilitate an exchange of ideas, skills and information.

- Determine standards of selling worms and worm related products throughout Australia.
- Support for members of the Association and their views.

Financial Aspects

Very little capital is needed to start a worm farm, as starter kits are inexpensive, and worms breed prolifically. There is a growing need for vermicast (worm manure), because they make an excellent natural fertiliser. Unlike other industries, worm farmers must establish and develop their own markets.

New worm farmers should be cautious if considering participation in a worm buy back scheme. These schemes often involve the outlay of large sums of money, and they target people with no worm farming experience. There have been many examples of failed worm buy backs in the United States, either by deliberate scams or the investor not being able to fulfil their breeding expectations.

As a rough guide, a kilogram of worms will comprise about 1,000 fat worms, 2,000 breeders or 4,000 unsorted mixed sizes. It is important when selling, either directly, or to a worm buy back scheme to make sure everyone understands what is being delivered and what is expected.

By-products for feeding worms were often supplied free of charge in the past. Because of the demand from worm farmers many suppliers now want payment (in addition to the freight). The cost of feed for earthworms is a fundamental component of profitability so it should be researched thoroughly before starting a farm.

Organisations & Contacts

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Phone: 03 9418 7217

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