

CASE STUDY : FARMING COMPOST WORMS: An ENVIROPOWER enterprise.

Jenny and Paul Pont at Alstonville NSW farm compost worms and sell

- Worms: tiger (*E.fetida*), red (*L.rubellus*) and blue worms (*Excuvatus*)
- Wormjuice, a liquid organic fertiliser
- Vermacast, both refined and unrefined. Marketed as *Envirocast*.

Eighteen months ago they bought the original six breeding boxes or *pits*, complete with misters and 20 kg of worms. They are gradually adding more boxes.

Figure 45: David Pont with an opened worm pit



Figure 46: David pulls back the Hessian cover to inspect the worms



Figure 47: Tiger worms feeding on the composted manure. Look for traces of lime and white fungal hyphae



The pits have an underskirt of reinforced black plastic under the timber frame and this underskirt catches the liquid, or worm juice, and channels it into the piping system. Shredded paper is placed on the timber frame and then layers of manure are spread out under the worms. The feed mixture is placed over the worms and then a top covering is put in place. The covering can be hessian, old blankets, carpet or cardboard. The final blanket is black weed-mat plastic that keeps the conditions dark and moist. The worms don't control their own body temperature and so they need to be kept warm in winter and cool in summer and so the pits are covered with shade cloth which also protects the worms from birds.

The shredded paper in the bottom of the pit lets in the air the worms need and the pits are regularly *fluffed* to keep the air moving.

The beds are placed off the ground on steel frames; this has several advantages including ease of working with the worms and reducing attack from snakes and centipedes.

Conditions in these pits are ideal for the worms and so they are *harnessed*, this means they don't leave.

Food for worms is mainly cow manure (from a local dairy) mixed with lime.

If animal manure is used be sure that the animal hasn't been drenched for worms!

Harvest. Every 90 days the pits are harvested—the worms are extracted and the casts separated. The worms can be sold or returned to the pits.

Worm oil extracted from worms is valuable and free of odour and is used in

- the cosmetic industry, including shampoo
- pet health. It is used to stop itch, some heart problems, asthma, arthritis and is used in shampoo
- human health. The oil is rich in omega 3 and in some countries is used in treatment for heart problems, asthma and arthritis

Packaging. For transport the worms are packed in a very fine paper mulch. The paper is put through the hammer mill and a small amount of water is added to it.

Worm tea. A type of juice or *worm tea* can be made from the worm castings. This is filtered before use.

The worm juice or liquid is drained from the pits and travels through the piping system into a holding sump. The juice is pumped from the holding sump to the 2,500 L tanks and it is then recycled over the worm beds until it meets the high standard of nutrient quality and the pH in the advertised product.

The juice in the large tank is tested regularly and once it has been sufficiently refined by being recycled through the pits it is run into 1 L, 5 L, 20 L or 205 L drums for sale. The juice is used on the soil of gardens or broadacre crops or as a foliar spray for vineyards.

Unrefined vermicast spread on the soil will attract earthworms but the compost worms themselves do not normally survive for long periods in broadacres. However, those that develop from the compost worm eggs can survive outside the pits.

Figure 48: Packaged refined vermicast, Envirocast



Refined vermicast has had all the worms, eggs and seeds removed whereas the unrefined still contains them.

The harvest. Worms and casts are harvested in the rotating worm harvester. Worms from the pit are tipped into the harvester which spins around. As it spins the worm casts fall through into the black buckets underneath the harvester and the worms catch on the spikes. Paul uses a fork to help collect worms from the spikes so that they drop into the collecting trays in the middle of the harvester.

Figure 49: Paul uses a fork when collecting the worms from the worm harvester



Figure 50: Mounds of worm casts taken from the harvester and ready to be sieved



Figure 51: Sieved casts



Figure 52: Casts ready for packaging

Casts collected from the harvester are sieved so that they are fine enough to go through a fertiliser spreader. They are used to add organic matter to soil and improve the humus content.



Figure 53: Worms harvest ready for sale



Figure 54: Package for transport and marketing



Another enterprise on the property

The *Enviro Bokashi* composting system is designed to turn food waste into a soil conditioner rich in nutrients. The bucket for this system comes in an average household size or a larger size suitable for schools, colleges and universities or restaurants or industrial sites.

Figure 55: The *Enviro bokashi* bucket

Paul prepares and sells the active ingredient for this composting process, *Effective Microorganisms* (EM). He buys the starter microbes from VRM International Ltd (located in Queensland) and he feeds the microbes with wheat bran. He is an agent for the bucket and composting materials and gives advice to people interested in using the system.

