A farmers guide to the percolation of Opti-feed or "Worm tea".

**Getting started**, it is highly beneficial to familiarise yourself with the differences and benefits of both vermicast in its natural state as an application and brewed Opti-feed as a spray, drip or foliar feed.

- **Worm castings when applied to soil**, stays in situ working to regenerate the soil. They have plant available nutrient, an abundance of plant beneficial microbes, micro fungi, micro flora, hormones and enzymes that all work in various ways to support plants, reduce, control or crowd out pest and pathogens.
  
  In addition it works to rehabilitate the physical structure of soil saving you water and holding applied chemicals in place for easy access by plant root systems.

- **Opti-feed is like rocket fuel**, as a liquid it can be used at the roots, working its way through the soil, supplying nutrient right to the root hairs and disseminating soil and plant beneficial microbes into the soil supporting the plant crucial soil food web.

  Used as a foliar feed, Opti-feed will coat the leaves of plants with billions of microbes, all competing for a food source, by this, plant beneficial microbes crowd out or prey on pathogens, microbes and their wastes. As a result harmful moulds and fungi don't have enough resources to flourish in the end.

  A foliar feed also coats the leaves with a protective surface, shielding the leaf cells from spores, airborne microbes and repelling insects.

  Plants also actively absorb nutrient within Opti-feed through the stomata and epidermis of their leaves.

**For more information on worm castings**, the powdered castings used to produce Opti-feed, please see our literature section, "Optigrow Opti-cast".
Producing Opti-feed is a simple process.

- It involves the agitation and aeration of a solution of water and worm castings. The agitation works to release the highly plant and soil beneficial microbiology, nutrient and minerals within the castings.

Due to Opti-casts highly anionic properties, you will never release 100% of the nutrient, so remember to retain and use the remaining casting silt that remains once the process is complete.

The aeration of the worm castings / water solution releases the microbes and supports their aerobic life cycle encouraging them to breed and multiply in exponential numbers.

Dependent on temperature and level of aeration and agitation, colonies of microbes can double their populations every 20 minutes with brewing time advised for approximately 12 to 24 hours. The formation of a scum or froth on top is simply a sign of healthy microbial growth.

Brewing your Opti-feed.

<table>
<thead>
<tr>
<th>What you need.</th>
<th>Components make up:</th>
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<tbody>
<tr>
<td>55 Gallon drum to 10 000l Jojo tank.</td>
<td>The drum</td>
</tr>
<tr>
<td>Irrigation piping (suggested 15 to 20mm for easy bending).</td>
<td>Aerator module</td>
</tr>
<tr>
<td>Irrigation connectors.</td>
<td>Compressor and connections</td>
</tr>
<tr>
<td>Oil-less compressor, with hosing or high delivery air pump.</td>
<td>Primary sieve</td>
</tr>
<tr>
<td>Hose connectors.</td>
<td>Tap</td>
</tr>
<tr>
<td>Shade netting and extra piping for your primary heavy sediment filter.</td>
<td>Secondary sieve</td>
</tr>
<tr>
<td>Shade netting drum sleeve.</td>
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<tr>
<td>Agricultural tap.</td>
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<tr>
<td>Secondary, agricultural water filter.</td>
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</tbody>
</table>

Construction

- Using your irrigation pipe and connectors, cut and connect a base ring, cross pipes and up pipe for the aerator.
- Using a thick needle, riddle the ring and cross pipes with holes, add a connector to the end of the up pipe so that an air hose can easily be connected.
- Take the top off your barrel and cut a hole a short distance off the base of the barrel for your tap.

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- Sufficient space must be left that when tapping off the tea, the tap is above sediment height, to prevent clogging.
- Sew or drape a shade netting bag as a primary filter, insert into the barrel, lining it.
- If adding the vermicast loose into the barrel, fashion a simple shade netting filter to reduce sediment flow through the tap hole.
- Add all plumbing connections to the outside of the barrel including your secondary agricultural filter.
- It is widely suggested you use a 400 micron filter, but we advise you test the tea after production to ensure that no sediment is making its way thorough and it will not clog sprayer heads, drippers etc.
- Better to over filter than go through hundreds or thousands of spray heads cleaning pesky particles.
- To secure the aerator module, you can hold it in place with a weight. The module will fill with air and tend to want to rise to the surface.

You are now ready to assemble.
- Insert the bag liner.
- Drop in the aerator module and secure in place.
- Ensure you plumbing is all connected, sealed with tap closed.
- Fill with water.
- Connect your air supply with a one way valve if there is any concern for the possibility of liquid making its way back to the pump.
- Aerate for 30min+ if you are using chlorinated water.
- Add your bag of vermicast and begin the brewing process.

Congratulations, you are on your way to successful Opti-feed production!
- For best results, brew out of the rays of direct sunlight.
- A light irrigation of your orchard before application would be advised.
- For best results apply within 3 hours of removing the tea from its air source to ensure maximum population retention.
- If your water source is chlorinated, aerate the water for 30 - 60 minutes prior to brewing to off gas any chlorine that may affect microbial growth.

Application rates, Optigrow would suggest the following application.

- 1:10 brewing ratio for production of concentrate.
- 1:10 application ratio for concentrate to application mix.

- 1 x 20dm bag of Opti-cast at this ratio will produce 200l of Opti-feed concentrate. Applied at a ratio of 1:10 giving a total application volume of 2000 litre per 20dm bag.

<table>
<thead>
<tr>
<th>Vermicast</th>
<th>Concentrate</th>
<th>Application mix</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 dm</td>
<td>200 Litres</td>
<td>2000 Litres</td>
</tr>
<tr>
<td>1 dm</td>
<td>10 Litres</td>
<td>100 Litres</td>
</tr>
<tr>
<td>1 cube (1000 dm)</td>
<td>10 000 litres</td>
<td>100 000 Litres</td>
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</tbody>
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