

# Wastebuster Operating Instructions and Manual

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Congratulations on purchasing one of the most advanced and environmentally sound domestic worm driven system on the market today. At long last, we in the UK have a system researched, designed and developed by experienced vermicomposters and designer engineers, made here in the UK. The needs of worms in worm units have been addressed. Whilst being one of the most advanced units available, it is also one of the simplest worm waste disposal units available. No large heavy trays to lift, no sweating plastic, no more labour intensive and time consuming methods of harvesting the vermicompost, just a few simple pushes and pulls of the breaker bar. Your unit is made from timber harvested from MTCC\* sustainably managed forests.

The units come in a series of sizes but there are 3 main units used for domestic applications. These are the mini, midi and maxi units, which are small and compact.

Unlike other worm farms available the total absence of stacked trays or the need to rotate and lift sections of the unit provides almost double the "working space" for your worms. This means more composting in a smaller space. This makes the unit a fast and efficient the way to compost household food scraps and other organic material.

The maxi unit is a greater capacity capable of taking approximately 8 –10 litres of organic waste per week. The smaller midi unit processes approximately 6-7 litres per week at peak capacity.

Your unit has the following as a basic kit: -

The unit, tray, breaker bar and handle.

Worm stock (if purchased )

Bedding ( if purchased )

This Manual and Assembly Instructions

## VERY IMPORTANT POINTS

The larger maxi is designed to take small volumes of grass clippings but please ensure that this material is mixed with your food scraps and newspaper or cardboard. This is important or you will find that the worms will not go near the waste until it has cooled down as garden waste and especially grass clippings generate heat very quickly.

Like any worm system you can start with a minimal quantity. We recommend that all mini systems should commence with 2000 worms. This is the minimum quantity, but we are governed by the cost of worms and ideally one would use double this quantity. If you purchase the mini with 2000 worms please remember that it will take at least 1 month or more for the system to really commence working properly as the worms will need to breed up to a volume suitable to cater for the waste you add. It depends on how long you want to wait for the system to reach peak populations and working capacity. Be patient, it just takes time!

All worm driven systems must have a base bedding. This is **only** added when the systems is "seeded" or started. Suitable bedding materials are a combination of any of the following: A mixture of well aged shredded horse manure, mulched paper such as newspaper, computer paper and cardboard, especially corrugated, shredded leaves, chopped up straw, sawdust, dried grass clippings (so they don't generate heat) garden compost, spent seed compost and worm casts. Try to vary the bedding in the bin as much as possible, thereby providing more nutrients for the worms and to create richer compost. It is very important to **moisten** the dry bedding materials before putting them into the bin. Newspaper can be shredded and ripped into 1/2" strips also cardboard, prior to soaking in water. The overall moisture level is like a wrung-out sponge. Add some crushed egg shells, a handful of soil or calcified seaweed and mix into the bedding. This provides the worms with some grit with which to grind the food up in their gizzards, as they are toothless! You have started to recycle already! We will arrange for your worms to be delivered about a week later.

### SETUP INSTRUCTIONS

Place your unit in a cool spot preferably totally shaded. The more shelter the unit receives the less environmental fluctuation there will be for the worms. If this cannot be achieved then at least place it where it can be in the afternoon shade. This is more important in summer as composting worms do not like heat and work best between 50° & 80° F. Worms work better in an environment that suits them!

Due to the excellent air circulation via the lid, it is recommended the unit is given protection from heavy rainfall, from above and sides if at all possible. Do not cover the gap and ensure that any air gaps remain between the lid and the unit, as this is a feature of the airflow system. People are putting units in garages, sheds and even their kitchen!

The unit has been primed with a coating of raw linseed oil inside and out. Do **not** use any oil-based paints or waxed finishes. Regular external coatings of linseed enhance the appearance.

Place pieces of slate underneath each wooden leg to keep them from being in contact with wet standing. After assembly, pull handle back and forth a few times to make sure it is working well. Push the handle so that it is fully inside the unit as far as it will go. Once this has been done place 3-5 sheets of wet newspaper on top of the breaker bar.

1. Place the plastic tray under the worm area on the floor beneath the unit.
2. Put your chosen bedding material to a depth of at least 10cm on top of the floor area covered with paper. The purpose of this is to allow the worms to have some where to live so they settle in. It also allows the worms to go directly into the food thus allowing faster waste reduction and solid castings production.
3. If you purchase worms already in "vermibedding" as supplied by us, gently place them onto the newspaper. Moisten the bedding ensuring it is thoroughly wetted right through. If not put the bedding into the Waste Buster then carefully put your worms onto the surface. Spread the worms out and allow them to go down into the bedding naturally. You may like to give them a sprinkle of water to help them settle in. The bedding should be thoroughly moist from top to bottom. Excess water will be caught by the tray and can be used in the garden.

4. Your unit is now ready for recycling your organic waste. Add your organic waste in **Small** amounts when starting off. The amounts can increase as the worm numbers increase to consume greater volumes of waste. It is preferable that you mix your food scraps, fruit and other vegetables with an equal amount of newspaper or cardboard every 2 weeks if this is not added at the time of feeding. This will provide your worms with a good mixture of Nitrogen and Carbon, which assists them to breed, stay healthy and be happy!
5. After you have put your waste in, cover it with a piece of carpet, hessian, underfelt or shredded moistened paper to keep it moist and dark. A piece of black plastic can be used as long as it leaves approx 5cm (2") gap all around the edge to allow air to exchange. The lid excludes daylight, the cover keeps moisture in.

### FEEDING WORMS YOUR WASTE

- Wear gloves when handling any waste materials or vermicompost and always wash your hands afterwards.

When you are feeding your worms you do not have to chop food scraps up but the smaller the food particles, the easier it is for the worms to consume. The faster the worms consume the waste, the more castings you will have available to use on your plants. If this is not an option then we would suggest you put no more than 50mm, (1"), of organic matter spread onto the surface at any one time. Otherwise the organic matter can become acidic and create an ammonia enhanced environment which the worms do not like. If this happens the organic waste will become smelly and anaerobic, becoming unattractive to the worms until it rots completely.

Citrus fruit peel or onions can be added in small amounts, (10% by volume). Never over fill any worm system with such material or it will turn the system anaerobic and smelly.

Only when you can see your worms moving into the food waste on the top layers is it time to add another layer. As a guide, if you put a constant supply of material in daily try to ensure it is no more than the equivalent of 15 mm per day if spread in a full layer across the whole. The system works best.

Allow the worm castings to build up to 350mm or about 50mm from the top of your unit **before** removing your castings. By using the worms' natural instincts to move up to each new layer of food they will be away from the bottom area where the castings are. Some worms may be harvested so return them to the food waste on top of the unit.

When you are ready to take your castings from the unit make sure your catch tray is empty of liquid then simply hold the handle of the breaker bar and pull it and push it back and forth two to three times. When you do this it breaks up the castings and allows them to fall into the catchment tray. You can use your castings on your plants immediately. Do not over harvest as you will deplete the worms resting and bedding area! You may need to stop the castors (if fitted) from moving the unit.

Follow the directions above and your worms will break down your organic waste and produce castings for your use.

If you have a fitted window always close the door after viewing.

## HANDY HINTS

The unit is designed to run reasonably dry. Do not put too much water through the unit at any one time, rather, add small amounts on a **regular** basis. This can be done with a spray bottle or a small rose headed watering can so that the surface and contents of the waste is moist at all times.

Timber has a tendency to warp if it is allowed to dry out too much. Try to moisten the whole unit regularly if you are keeping it under cover. This applies particularly when it is exposed to sun. In addition, keeping the unit moist helps to control the temperature inside the Waste Buster. **Little and often** is the secret for good vermicomposting.

Remember this is a system, a living ecosystem and as such other decomposers will arrive such as earwigs and woodlice. They will all work happily together decomposing your organic matter. They all have an important role to play.

### **DO NOT OVERFEED**

#### FOOD THEY CAN EAT.

Cooked or uncooked vegetable and fruit waste, salad waste, crushed egg shells, tea bags, tea leaves, coffee grinds, paper coffee filters, left over casseroles, mouldy cottage cheese, baked beans, spoiled food, bread, toast, biscuits, cake, pizza crusts, cardboard tubes (eg. loo rolls). Also decomposed corrugated cardboard, cereal boxes, cardboard egg boxes, shredded newspaper, computer paper, grass cuttings (in small amounts so as not to overheat the unit), garden waste, straw, hay, dead leaves. Manure from vegetarian animals like hamster, guinea pig and rabbit manure and old horse manure. This list is not exhaustive.

#### FOOD BEST AVOIDED

Although the more experienced vermicomposter may add meat, fish and chicken to the units, we recommend that all of these should be omitted from home and schools vermicomposting systems. This is partly because of potential pathogen concerns relating to the foot and mouth epidemic in the UK. If not vermicomposted correctly these ingredients will attract carrion flies and vermin and smell. There is no standard management practice that ensures pathogen destruction. We suggest you leave these foods out of the system.

No metal, plastics, nylon or tin foil please, they can't chew it!

Do not feed your worms with fresh horse manure. It may contain worming medications and also heats up as it decomposes. Worms love old horse manure and actually thrive on it!

No cat and dog faeces as they may contain vermicides and pathogens and/or parasites potentially harmful to humans.

### **USING YOUR BLACK GOLD**

Vermicompost is an extremely rich natural fertiliser.

Rake it into your flowerbed prior to planting.

Sprinkle it into your seed drill prior to planting seeds.

Add a handful into the planting hole when planting roses, shrubs or transplanting vegetables etc.

Add some as a top dressing for established plants and houseplants.

Use it as a top dressing to give a healthy lawn.

Mix 10% by volume into your homemade peat free potting mixture.

Steep 1 part vermicompost in 10 parts water, leave 24 hours, drain and strain vermicompost to have an excellent foliar feed. Return the wet vermicompost to the unit or spread it on your lawn.

Why do composting worms\* **C - R - A - W - L** off?

**C - Change** of habitat. Nobody actually knows why this, on a rare occasion occurs. Air pressure and weather are two suggestions that have been put forward. The time it is most likely to occur if at all, is when the unit is seeded with the new worms. If worms have been raised with a particular feedstock or bedding material and are then transferred to a system that uses different material and feed, the worms may crawl away from the new, shockingly different habitat. To keep worms in the bin so they'll adapt to a new environment, keep them in a place where you can leave a light on or even a torch will help! Since worms are sensitive to light, they'll stay in the bin to avoid the light. It is imperative that the light stay on at night or you may wake up to a mass exodus! After being transported, sometimes they just want to wander around their new environment, just like us exploring the hotel when we arrive! As a precaution, during the first 3 weeks, place a piece of plastic under the unit and on top of that, moist cardboard or newspaper. Then any worms that do decide to wander will take refuge in the moist conditions and not dry out and die. They can then be returned into their new home. If you've had your system in operation for a while and the worms crawl off, perhaps you've changed their habitat by adding too much salty, oily or acidic material. Some people have used lime to adjust the pH and caused more harm than good. Crushed eggshells work very well to help balance your system and provide grit for the worm's digestion.

**R - Rain** - Just before and during a thunderstorm or any low-pressure system, it is natural for worms to crawl up and around the lid worm bin. Worms are great natural barometers.

**A - Absence of Air** Overfeeding, too much moisture, poor bin design, or not enough ventilation can severely reduce the amount of air available to the worms. Anaerobic bacteria live in the absence of oxygen. If there is a foul smell in the bin it may indicate the presence of large numbers of anaerobic bacteria. If this occurs, the environment may lack enough oxygen for the worms to breathe and they may crawl outside of the bin seeking air or die. Be sure there are enough ventilation and drainage holes in your system and aerate the bedding promptly if a bad smell occurs. Add cardboard to soak up excess moisture and aid air passage.

**W - Water** - too much, or too little? Too much water can cause the bedding to become so compacted that there aren't enough pockets of air for the worms to breathe. Putting wood chips, strips of cardboard, straw, etc, within the bedding can ensure that there is enough air throughout their environment. Not enough water can cause your worms to try to escape. Lack of water will cause your castings to dry out and harden. The population of important micro-organisms is lower when the castings dry out, thus diminishing their effectiveness. In order to produce the most useful castings, be sure to manage the moisture carefully. In the warmer months regularly sprinkle water onto the contents using a watering can and rose, allow to soak and gradually sprinkle again, ensuring **all the contents and bedding are moist**. Remove the tray when undertaking this operation so as not to drown any worms that may be in it, unless you have the unit in the kitchen or school assembly hall!

**L - Lack of food** If you don't feed your worms regularly they may go looking elsewhere for much needed sustenance. But please **DO NOT OVERFEED!!!**

## THRIVE

*Eisenia fetida*

**T - Temperature** – optimum is between 68° - 77°F At 40°F the worms are less active. Worms become stressed at 85°F.

**H - H<sub>2</sub>O - Moisture** – 75%-85%. Bedding should have the same moisture as a wrung out sponge. Squeeze a handful of bedding, 1 or 2 drops should be released. Drainage is extremely important in any vermicomposting system.

**R - Recycle organic material only** (anything that was once alive and is now dead eg.) Fruits, Cereals, Pastas, Egg shells, Coffee & Filters, Tea bags, Paper – shredded, Limited citrus, Beans, Breads, Aged manures, Vegetables. No dairy, fish or meat products, Worms will eat it but these items can smell bad and attract pests. Oily or salty foods can harm worms. Recycle pet waste in a separate system. Add more food only when you can visibly see that the worms are in the surface layer of the feedstock (food!).

**I - Invertebrates & Microbes** found in a healthy system. Beneficial creatures that are harmless to you, your worms, and your plants:

Enchytraeids or pot worms

Bacteria (Aerobic)

Gnats and their larvae

Moulds (beware of allergies to spores)

Nematodes

Spiders

Woodlice

Fungi

Millipedes

Mites

Protozoa

Springtails

Invertebrates and Microorganisms to avoid:

Anaerobic Bacteria – characterized by a bad smell, caused by too much moisture & or overfeeding (lack of oxygen) - aerate bedding ASAP

Ants - bedding too dry

Centipedes - carefully remove

Beetles – remove

Planarians or flat worms - remove & destroy

**V - Ventilation** – All the creatures in the system need AIR and lots of it! Cardboard regularly added assists air flow.

**E - Environment** - pH 5.5 is preferred. Worms tolerate a range from pH 4 to pH 9. The worms are sensitive to light so keep it dark.

Good bedding can be any combination of aged manures, shredded paper products, coir (coconut fiber), decomposing leaves, straw, wood chips, which all help to keep the unit **moist**. Add a handful of soil to seed bin with microorganisms, etc.

**REMEMBER:**

**KEEP ALL OF THE UNIT MOIST AT ALL TIMES**

**FEED LITTLE AND OFTEN (FEED WHEN YOU SEE WORMS ON THE SURFACE OF THE FOOD)**

**WORMS ARE LIVING CREATURES!! DO NOT NEGLECT THEM!**

**DO NOT HARVEST TILL THE BLACK VERMICOMPOST BEDDING REACHES APPROX 4"/10CM FROM THE TOP OF THE UNIT**

\* The Royal Horticultural Society (RHS), UK has listed the MTCC scheme as one of the seven recognised certification schemes in its *Conservation and Environment Guidelines*.