

WELCOME TO THE WRIGGLY WRANCH™



AUSTRALIAN
DESIGN
GOOD PRODUCTS
BY DESIGN
ReIn Pty Ltd
Wriggly Wranch™
Licence No. 94214
STANDARDS AUSTRALIA



Instruction Manual

The Wriggly Wranch™ is made in Australia
from 100% Recycled plastic

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The **Wriggly Wranch™** is the Trade Mark of L.N. Natrass and is subject to a US T.M. App Pending

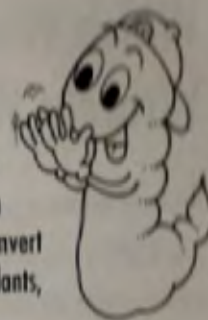
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CONGRATULATIONS!!

... on the purchase of your new Wriggly Wranch™! The Wriggly Wranch™ harnesses the amazing power of earthworms, nature's perfect recycler. By putting composting worms to work in this innovative system you will be able to divert your food waste from the waste stream and convert it into rich 100% organic plant food that your potted plants, flowering plants, gardens, and vegetables will love.



The Wriggly Wranch™ is one of the first fully-integrated recycling products: it's made from 100% recycled plastic, its packaging can be recycled, it recycles organic waste, and it produces a useful, hygienic organic product.

The Wriggly Wranch™ is easy to operate, and fun for people of all ages. It's safe, hygienic, and takes up a minimum of space. It's the perfect indoor composter for those with limited yard space. And it can also be used in a sheltered outdoor location such as a shed, garage, or even on an apartment balcony.

A working Wriggly Wranch™ is a micro-environment of living things that depends upon your good management. Charles Darwin said, "Of all the animals, the worm has played the most important part in the world's history." Earthworms have been friends of the earth and humanity for a long time. Treat them as your friends. They deserve our respect and care.

"Reduce, Re-use, Recycle." The worms do their part naturally. We just have to make the commitment.



Printed on recycled paper

Which Worms Work in The Wiggly Wranch™?

The world has many thousands of species of worms, including over 3,000 species of earthworms. All feed on some form of organic matter, but their preferences and habits differ.

Earthworms can be divided into two broad categories, according to their behaviour:

Earthworkers - these worms generally live in the topsoil on a diet of humus and soil. They will not thrive on food waste. There are many kinds of earthworkers throughout the world, for example, the North American nightcrawler and the 9-10 ft. Giant Gippsland Worm in Australia.

Composters - these surface-feeding worms live, eat, and breed in areas where there is rich organic matter and high levels of moisture, for example, compost bins, heaps of animal manures, heavily mulched gardens, and household worm bins like the **Wiggly Wranch™**. There are only a few species of composting worms. The most widely used in worm bins is *Eisenia fetida*, more commonly known around the world as red wigglers, or tiger worms. Composting worms may appear smaller than many of the earthworkers. But composters can get bigger, particularly if they're fed worm fattener (see page 19 - Appendix 1).

It is important that you use composters, not earthworkers, in your **Wiggly Wranch™**. Earthworkers will not do as well and may even die. Conversely, composters introduced to gardens and pasture will also die unless the soil is kept moist and heavily mulched with compost.

All worms produce worm manure castings or (vermicastings) and liquid fertilizer. Both can be used as plant food. Appendices 2 & 3 (pages 19, 20) discusses how to use them for seed-raising and potting mix, soil conditioner, or fertilizer.



The ReIn Wiggly Wranch™

The Wiggly Wranch™ consists of:

- | | |
|---------------------------------|---|
| 1 Collector Tray | The tray with the solid base and a hole for the tap. This is where liquid fertilizer collects. |
| 3 Working Trays | These are the trays with the perforated/mesh bases. They are interchangeable. The worms live in these trays. |
| 1 Lid | The lid goes on top of a working tray |
| 2 Fly-Proof Inserts | These fit into the slots at either end of the underside of the Lid. |
| 1 Plastic Tap and Nut | The tap allows you to drain off the liquid from your Wiggly Wranch™ . The Nut secures the tap to the Collector Tray. |
| 4 Legs & 8 Leg Clips | Use the Leg Clips to secure the Legs to the corners of the Collector Tray. |

The Wiggly Wranch™ is supplied with:



- this Instruction Manual.



- a cardboard display



- a ReIn Worm Bedding Block

How The Wiggly Wranch™ Works

The **Wiggly Wranch™** is a self-contained habitat for composting worms to continue and enhance the natural process of organic waste decomposition. Worms eat waste matter placed in the **Wiggly Wranch™** and produce worm castings/vermicast and liquid fertilizer.

You start the **Wiggly Wranch™** using the Collector Tray and one Working Tray, which sits on top of the Collector Tray. After preparing the provided bedding for the worms in the first Working Tray, you introduce a pound of worms (approx. 1000), and gradually add small amounts of food scraps. As the worms eat the food scraps, the Working Tray will gradually fill with worm castings. Liquid produced by the worms, as well as through natural decomposition of the food scraps, will drain through the Working Tray to the Collector Tray, where it can be tapped for use as liquid fertilizer. When the first Working Tray is full of worm castings (not food scraps!), you put a second Working Tray on top of the first (this will take a few months). The worms wriggle their way up through the holes in the bottom of the second Tray to the new food, and the process continues. When the second Working Tray is full of castings, the third is added.

By the time the third Working Tray is full of worm castings, most of the worms will have moved up from the first Working Tray. You can now take the first Working Tray, remove its castings, and return it to the **Wiggly Wranch™** at the top, where it will receive the new worm food. At least several months may pass before the **Wiggly Wranch™** is ready for harvesting.

Throughout this process, liquid drains through to the Collector Tray, where it can be tapped for use as liquid fertilizer.

The **Wiggly Wranch™** operates on a continuous cycle. With proper care, you will always have a convenient, environmentally sound, and efficient way to dispose of your food waste, as well as a supply of your own top-quality organic plant food.



Starting Out With The Reln Wiggly Wranch™

1) Get some worms!

Most people buy their worms from commercial worm farmers, nurseries, or bait and tackle shops. You can even order your worms through the mail or using the Internet. It is important that your worms come from a reputable source, that they are healthy, and that they are not contaminated with other organisms.

Make sure you get at least 1000 worms (approximately 1 lb). A smaller number will give the system a very slow start. A larger number will increase the **Wiggly Wranch™**'s initial effectiveness.

2) Select a site for your Wiggly Wranch™

The **Wiggly Wranch™** works best in a sheltered, level location such as a garage, shed, back porch or veranda, landing, basement, kitchen, or laundry. Although they cannot see or hear, worms are sensitive to vibrations, so avoid placing the unit next to a washing machine, dryer, or refrigerator.

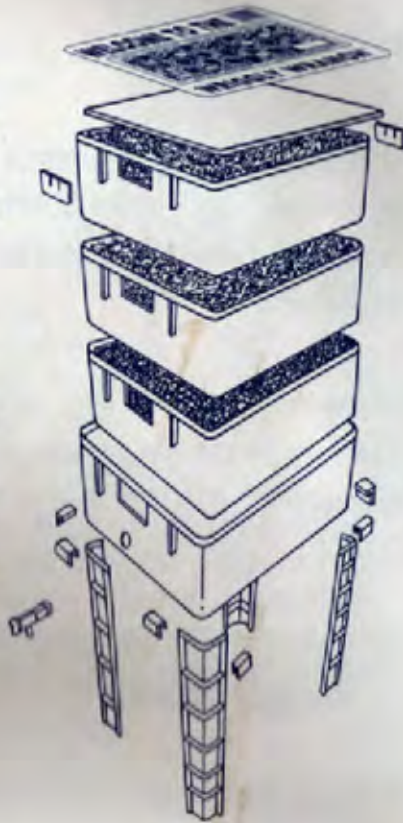
Although worms can survive in temperatures ranging from 50° to 90°F, they prefer temperatures averaging around 70° F. You can install your **Wiggly Wranch™** on level ground outside the house or garage. But remember that it should be sheltered from direct sunlight and protected from the cold.



3) Assemble the Wiggly Wranch™

Referring to the diagram of the **Wiggly Wranch™** on the right:

Insert the tap into the Collector Tray. Thread the nut onto the tap and tighten it to secure the tap to the Collector Tray. Fit a Fly-Proof Insert into each end of the underside of the Lid. Attach the Legs to the Collector Tray. There are two left Legs and two right Legs. The tops of the Legs fit under the lip of the Collector Tray with the Collector Tray resting on the supports inside each Leg. Position each Leg and fasten it to the Collector Tray using two of the Leg Clips. Place one Working Tray on the Collector Tray. Put the other Working Trays in a convenient place until you need them. Place the **Wiggly Wranch™** in the location you have selected.



4) Prepare the first Working Tray

The worms begin their new life in the first Working Tray, not the Collector Tray. They will need a good bedding material. We have made this easy for you by providing a ReIn Worm Bedding Block made from coir (coconut husks). Follow these four simple steps to prepare the bedding:

Fill a standard pail 3/4 full with warm water. Place the Bedding Block (still inside its wrapping) in the water. The worms will eat both the bedding and the wrapping. After about 15 minutes, when the block has completely expanded to about four times its original size, break it up into an even mix. (Coir is a clean natural product that will not soil your hands.)

Place the cardboard display that came with your **Wiggly Wranch™** in the first Working Tray. (This will prevent the coir bedding from falling through the mesh.)

Evenly distribute the soaked coir bedding on the cardboard display. The bedding should nearly reach the level of the plastic line marked on the inside of the Working Tray. Let the coir cool down to room temperature before you add your worms.

5) Put your worms in the first Working Tray.

Spread your worms over the top of the bedding. Most worm farmers provide their worms in containers with coconut fibre, peat moss, or other bedding material. Spread the contents of the container over the top of the bedding. Worms do not like direct light, so to enhance their 'settling in', leave the **Wiggly Wranch™** Lid off for a while to encourage the worms to burrow into the bedding. Place a handful of food scraps on top of the bedding.

We've found it helpful to keep a cover of moist burlap or newspaper over the worms' food. It keeps the source of food dark and helps prevent the food and bedding from drying out. It also discourages fruit flies. These covers can be made from other materials, but make sure the material is organic and kept damp. The worms may eventually eat the cover - but, hey, that's not so bad, just replace it with a new one!

Do not add the second Working Tray yet. Worm castings are more compact than bedding and food waste, and as the worms eat the coir bedding, the level of material in the Tray will fall. If you add a second Working Tray before there are sufficient castings in the first Tray, there will be a gap between the contents of the first Tray and the base of the second Tray, and the worms will not be able to move to their new source of food.

Place the Lid on the Working Tray.

6) Feed your worms.

Worms may take a little time recognising new kinds of food. Feed them carefully at the beginning. Take care not to overfeed them. An oversupply of food can become mouldy or even toxic to them. Once your worms have settled in and begun to eat food scraps, continue feeding them just ahead of their rate of consumption. The amount of food they consume will increase as their population grows. To find out more about feeding your worms, see Questions 2, 3, & 4 on pages 10 - 12.



7) Water your worms

Keep your worms moist at all times. Under normal conditions, adding a cup of water each time you feed the worms will ensure that the bedding does not dry out. When it's hot or especially dry you may need to add a few cups. (See Q.6 on p.13). Make sure that you remove the liquid from the Collector Tray - at least once a month - or leave the top open with a container under it.



MOVING UP - Adding a Second Working Tray

Worm castings look like rich dark soil. After several months you should have close to a full Working Tray of castings. When the level of worm castings - not uneaten food - in the first Working Tray is approximately 3/4 inch above the plastic line marked on its inside, you're ready to add the second Working Tray.

Remove the Lid and the burlap or newspaper cover. If necessary, use a garden fork or trowel to remove castings and food so that the contents of the Working Tray are approximately 3/4 inch above the plastic line marked on its inside. Put the castings and food you scooped out into the new Working Tray.



Put the new Working Tray on top of the first Tray. Place some food in the new Working Tray. Replace the damp burlap or newspaper cover over the food, and replace the **Wriggly Wranch™** Lid.

When you're using new Working Trays in the upper levels of the **Wriggly Wranch™**, you don't need to make new bedding. The worms will make their own bedding from their castings. It should take several months for this second Working Tray to fill with castings.

MOVING UP AGAIN - Adding a Third Working Tray

When the worm castings in the second Working Tray reach about 3/4 inch above the plastic line on its inside, you're ready to add a third Working Tray. Repeat the steps you followed when adding the second Working Tray. Again, take care not to add new Working Trays too soon.



Keep feeding your worms until the worm castings in the third Working Tray reach about 3/4 inch above the plastic line. At this point, most of the worms will be in either the top or middle Working Tray. The lowest Working Tray, where the worms started out on the coir bedding, will be ready for harvesting.

HARVESTING WORM CASTINGS

Remove the Lid, the top Working Tray, and the Working Tray beneath it. Take care when lifting the Trays - a Tray full of worm castings can be surprisingly heavy - and watch out for worms falling through the mesh bases of the Trays! Place on a newspaper with one end supported on a small item like a brick. This will prevent injuring any worms and keep castings off your floor surface.

Remove the lowest Working Tray. This is the one that is ready for harvesting.

Reassemble the **Wriggly Wranch™**.

The tray that was in the middle now goes directly on top of the Collector Tray.

The tray that was topmost now goes in the middle. (You may need to adjust the level of its contents so that they're approximately 3/4 inch above the plastic line.) Empty the worm castings from the bottom Working Tray. If there are worms among the castings, pick them out by hand and return them to the **Wriggly Wranch™**.



The Working Tray that you have just emptied will now sit on top, ready to receive the new food.

Start adding food to the top Tray.

When the top Tray's full of worm castings, it's time for harvesting the lowest working tray again.

Questions and Answers About The Reln Wriggly Wranch™

Here are some of the most commonly asked questions about the **Wriggly Wranch™**. We have consulted experts from the field of vermiculture to provide answers and hints that will ensure the most efficient use of your **Wriggly Wranch™**.

Q.1 Where can I obtain compost worms?

There are a number of worm farmers in most states and provinces. These can be found through ads in magazines or the telephone directories. Some nurseries may sell composting worms or advise you where to contact local worm farmers. Also, local government agencies may promote backyard worm composting and be able to direct you to a local supplier.

We recommend that you purchase at least 1000 composting worms (approximately 1 lb).

Some people with access to backyard compost bins like to use worms found there in their **Wriggly Wranch™**. Unless you have considerable experience with composing worms, we recommend that you use worms from a reputable worm supplier.

Q.2 How much will my worms eat?

This depends on how many worms you have, their species, size, and maturity. Generally speaking, composting worms can eat half their own body weight or more every day. This means that after adjusting to their new home, 1 lb of worms will eat approximately 1/2 lb of food each day. Remember that in a well-functioning system, your worm population can double their population every few months, and larger populations of worms will need more food.



Q.3 What should I feed or not feed my worms?

Worms will eat almost any food that you eat (as well as other organic matter that you might not eat). This means that worms will eat any vegetable waste that you generate in preparing meals, most of the scraps left after meals, as well as other organic material such as tea bags and tea leaves, coffee grounds, crushed eggshells, shredded newspaper and cardboard.



Composting worms have preferences of course - they will leave very acidic (e.g., onions and citrus peels), oily, or spicy foods until they have eaten their preferred foods. And, obviously, there are some things worms will not eat - inorganic matter like metal, foil, plastic, glass, chemicals, soaps, solvents, insecticides, etc.

Dry foods such as newspaper, or cardboard, will soak up moisture from the **Wriggly Wranch™**. Because worms prefer a moist environment, and a supply of moisture is important to the composting process, it's best to shred and soak dry food before adding it to the **Wriggly Wranch™**.

Some food wastes are best not fed to worms unless you are an experienced composter: meat, dairy, eggs (but not egg shells), oily, spicy, and very acidic foods, and excessive amounts of bread.

Meat, eggs, and dairy have to break down and decay - putrefy - before worms will eat it. Putrefaction can produce some nasty smells that are likely to attract organisms that you might not want to have around. Depending on the fauna present in your **Wriggly Wranch™**, you're also likely to get larvae of some kind, not necessarily the larvae of household flies, but larvae nonetheless. Some people don't like having larvae in their **Wriggly Wranch™**, though they're not necessarily harmful.

Some people like to feed their worms animal manure. Not all animal manures support earthworm growth equally well. Animal manure may also have active vermicides (worm-killers) that can kill all your worms in one day. Manures are also likely to have other organisms such as white worm (enchytraeids), mites, sowbugs, centipedes, or grubs. Some people would rather not have them in their **Wriggly Wranch™**.

If you are using your **Wriggly Wranch™** to compost household waste, we recommend not using animal manures. Animal manures can be well-composted using conventional outdoor methods.

What about garden refuse? Worms do not have teeth. Their food must be soft. Because garden refuse usually takes longer to compost (and soften) than kitchen scraps, it takes longer to become good worm food. Garden refuse is best recycled using conventional outdoor aerobic composting methods.

The key to keeping your worms contented and producing balanced nutrient-rich worm castings is a varied and diversified diet. Lack of diversity can cause pH imbalances, which may in turn lead to infestations of bugs and mites.

A final note: If you see food going mouldy, you may have overfed the worms. Remove mouldy food - the worms are unlikely to eat it, and it makes the system vulnerable to infestations from other micro-organisms.

Q.4 What's the best way to give food to my worms?

For best results, cut the food into small pieces. The smaller the pieces, the faster the moisture and bacteria will break the food down in preparation for consumption by your worms. Some people prefer to put food scraps through the blender and feed to the worms as a puree. Alternate where you place the food in the Working Tray. As a guide, maintain no more than 1 inch of food over half the Tray's surface. The worms will find it, and you will be able to see how much they are eating. And keep the food covered with moist burlap or a layer of dampened newspaper.



Q.5 I've had my Wriggly Wranch™ for a month now, but the worms don't seem to be eating the food I've given them.

- 1) Your worms may be eating their bedding before turning to other sources of food.
- 2) Another reason why the worms might not be eating is that they can't get to their food. This often happens when a second Working Tray has been added too soon, and there is a gap between the material in the lower Tray and base of the second Tray. Remove the upper Working Tray and, as long as the food has not gone mouldy, empty its contents into the lower Working Tray.

Q.6 Should I add water to the Wriggly Wranch™?

It is important that your worms are kept moist at all times, because they can die when it's too dry. To prevent the worms' bedding from drying out, add a cup of water each time you feed them. However, if your **Wriggly Wranch™** is indoors in a warm consistently dry room (e.g., when the heating's on during winter), or outdoors when it's hot and dry in summer, you may need to add more. Very slowly add 1/2 gallon of water into the top Working Tray, then use a pail to collect the liquid fertilizer that runs down into the Collector Tray.



Some people like to add water to the system to enhance the production of liquid fertilizer. A sudden 'flood' should not harm the worms. However, applications of large amounts of water can compact the worm castings and create a gap between Trays.

Q.7 Will I get too many worms?

No, you will never have too many worms. They will regulate their population to match the available surface-space and the amount of food you give them. If your system has been functioning well, after about 12 months your worm population should reach capacity - about 15,000-20,000 worms. Remember that the number of worms in your **Wriggly Wranch™** has very little to do with the number of Working Trays in use.



Q.8 Can I put compost worms in the garden?

They are composting worms - their survival depends on ready access to compost or mulch for food, and, because they don't burrow or tunnel to find moisture like other earthworkers, they need moist soil conditions. You will probably not be able to provide this environment in your garden, so for worms' sake, don't put them there.



Q.9 Why aren't worms moving up from lower Working Trays into the top Working Tray?

1) You may be putting new food in the top Tray before the worms have eaten all the food in the Tray beneath it. Generally, worms will eat food close at hand before moving up to new sources of food.

2) There may be a gap between the Trays, and the worms are unable to get to the new food. That's why it's important that the level of worm castings (not uneaten food) exceeds the plastic line before you add a new Working Tray. Uneaten food takes up more space than worm castings, and castings in lower Trays will compact over time. If you've added a new Working Tray too early, remove food that may have gone mouldy and replace the remaining food in the lower Tray.

Q.10 What about severe temperatures?

Worms can handle a wide range of temperatures - 50-90°F. They're vulnerable when the temperature inside the **Wriggly Wranch™** goes outside that range. That's why it's best to keep your **Wriggly Wranch™** indoors or where the temperature is relatively constant.



Here are some tips for controlling temperatures in a **Wriggly Wranch™** kept outdoors. If your **Wriggly Wranch™** is getting too hot, move it to a cool shady position, take the Lid off, open the Tap and place an empty pail beneath it, and gently hose the whole system down using a fine spray. (If you don't open the tap, the system may flood.) Alternately, place ice cubes on top of the moist burlap cover and let the cool water filter down.

If the system is getting too cold: 1) move the **Wriggly Wranch™** inside to a warmer location such as a basement, laundry, or shed, or 2) wrap the system in old carpet or blankets or insulate it using 1/2 inch sheets of styrene foam, or 3) in excessively cold conditions, after insulating the system bury an electric heater cable about half way down in the worm castings of the lowest Working Tray. With the cable spread evenly around the Tray, heat will rise into the higher Trays and maintain a temperature that should stop the worms from freezing. Follow closely the instructions supplied with your worm heating cable.

Q.11 It's raining, and the worms seem to be gathering in the Lid. What should I do?

What you are noticing is the worms' sensitivity to the low atmospheric pressure that usually accompanies rain. You may find that the worms will go up into the Lid even before it rains.

Q.12 How can I keep ants out of my Wriggly Wranch™?

Ants can get into your **Wriggly Wranch™** if there are a lot of ants in its immediate environment and particularly if you let the bedding or worm castings become too dry or acidic. You can deter the ants by raising the moisture level in the system - see Q.6 - or by sprinkling a liberal amount of rock phosphate/garden lime/dolomite where the ants are gathering.

If this does not work, you can prevent ants from gaining access by smearing Vaseline around the Legs or placing each Leg in a container of water.

Q.13 Will the Wriggly Wranch™ smell?

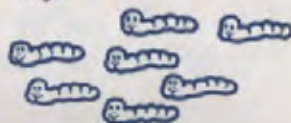
The only smell associated with a well-managed **Wriggly Wranch™** is a pleasant rainforest aroma. An unpleasant or offensive smell means that the system is not going well and the uneaten food has become anaerobic (stagnant, without oxygen).

Stop feeding the worms. Remove any mouldy food. Add a generous amount of damp shredded newspaper or cardboard. Use a garden fork to lightly mix the newspaper/cardboard with the remaining uneaten food, while adding small amounts of rock phosphate/garden lime/dolomite powder. This aerates the uneaten food and allows the worms to move through it more easily. Leave the system to settle for a day or so. Check to see if the smell has gone. Repeat the procedure if necessary. Resume feeding the worms when the smell has gone.



Q.14 What about flies and fly larvae?

Wriggly Wranch™ parts fit together like a seal, and its air vents are sized to keep out ordinary flies. Sometimes small vinegar flies (often mistaken for the fruit fly) and soldier flies get in looking for a place to lay their eggs. Some people find these flies annoying, but they will generally not do any harm. However, a large numbers of vinegar flies may indicate that you have overfed your worms and the food is beginning to rot and smell.



To eradicate vinegar flies, slow your feeding rate to what the worms can eat in two or three days. Lightly sprinkle a small amount of rock phosphate/garden lime/dolomite over the surface of the food. This will help to neutralize acidic conditions caused by anaerobic rotting food.

An influx of larvae will most likely indicate that vinegar or soldier flies have laid eggs in your **Wriggly Wranch™** and their eggs have hatched into larvae. Soldier fly larvae start out white and mature into dark gray, banded "worms" about 1 inch long. Fisherman say they make great bait. Vinegar fly larvae are shorter, usually 1/4 inch or less.



Don't be too alarmed if they appear. They actually help the decomposition of the waste. If you must remove them, sprinkle small amounts of rock phosphate powder/garden lime/dolomite over the surface of the worms' food. Alternately, place bread soaked in milk on the surface of the food under the burlap cover. The bread will become full of larvae. After 2-3 days remove the bread.

Keeping the worms' food well-covered with moist burlap or damp newspaper will also help prevent vinegar flies from laying eggs in the first place. Likewise, keep your kitchen scraps sealed against flies before you place them in the **Wriggly Wranch™**.

Q.15 Are the little white worms in the Wriggly Wranch™ baby earthworms?

No. Baby earthworms are not white, but clear to opaque before they turn a reddish color. The white worms you see are type of worm called enchytraeids. They will not hurt the worms, but they do indicate acidic conditions that can be overcome with a sprinkling of rock phosphate/garden lime/dolomite. If you want to remove them, place a piece of moist bread on the surface of the food, and once the bread has become full of white worm, remove the bread.

Q.16 What is garden lime, dolomite, and rock phosphate powder, and where can I get them?

Garden lime, dolomite, and rock phosphate - and wood ash and crushed oyster shells - are used by gardeners to reduce acidity in gardens. They can also be used to interrupt the life cycle of several unwanted organisms in your **Wriggly Wranch™** and to correct problems caused by anaerobic food. Rock phosphate is ground from a variety of glacial rocks and is thought to contain additional minerals. Rock phosphate, garden lime, and dolomite are generally available from garden stores, nurseries, and even supermarkets. Make sure that you purchase 100% pure rock phosphate, garden lime, or dolomite with **no added fertiliser or other chemicals**.



To add these powders to the **Wriggly Wranch™**, remove the burlap or newspaper cover from the top Working Tray, wait two to three minutes so the worms can disappear into the bedding, and lightly sprinkle a small amount over the food scraps. (Lime, especially, can burn the worms if applied directly to their sensitive skin.) Replace the burlap or newspaper cover.

Q.17 What about vacations?

Leaving your worms for 3-4 weeks without a regular supply of new food is not a problem. Here are some ideas to help the worms in your absence:

Give the worms a regular feed before you leave. Do not put in amounts of food that will rot or mould before the worms get around to eating it. Leave the worms food in the form of soaked, shredded newspaper or cardboard, burlap, or egg cartons. Make sure you leave the **Wriggly Wranch™** in a location where the temperature will stay around their preferred 70° F or at least within their preferred range (50°-90° F). Leave the tap open with a container underneath it. Place soaked newspaper on top of the burlap cover to give added protection against the bedding and castings drying out.



Q.18 Why are my worms in the Collector Tray?

There are many reasons why the worms might find themselves in the Collector Tray. As the worms adjust to their new home some may wander down looking for food. In more mature systems, the presence of worms in the Collector Tray may indicate that they have been unable to find food (see Q.5) or that upper parts of the system have become anaerobic (see Q.13).



To encourage the worms to return to the Working Tray, place a standard size ice cream container upside down in the center of the Collector Tray. Place several sheets of newspaper on top of the ice cream container. The worms will now be able to wriggle up the newspaper ramp through the mesh into the lowest Working Tray. Remember that you may need to replace the newspaper when it disintegrates or breaks apart.

Appendix 1 - Fattening Your Worms

Use this recipe to make a mash for raising tough fat worms for fishing.

Monster Mash

Ingredients		
chicken feed pellets		50%
wheat or corn flour		10%
powdered whole or skim milk		10%
bran or wheat meal		20%
powdered rock phosphate/ garden lime/dolomite		10%

Method

- 1) Mix the ingredients together well.
- 2) Lightly sprinkle a cup of the mash over the food wastes.
- 3) Repeat Step 2 once a week.



Appendix 2 - Using Worm Castings

Worm castings can be used as pure organic plant food or as an additive to your preferred potting mix. The content of your worm castings to a large extent will mirror what the worms have eaten. Likewise, the nutrient content of castings will depend on the nutrients in their food. An important feature of castings is that as worms process food waste, many of the nutrients it contains are changed to forms more readily taken up by plants. The pH of worm castings is likely to be neutral or very slightly alkaline and therefore suitable for all types of plants. Here are some ways to use your worm castings:

Soil Conditioner: Add the castings to the soil in a layer approximately 1-2 inches deep. Either dig them into the soil or cover them with a layer of mulch. The mulch will help maintain moisture and life. Castings left to dry out will become extremely hard, like clay.

Seed-Raising Mixture: Mix 3 parts aged compost or coir to 1 part castings.

Potting Mix: For some plants, worm castings may be either unnecessary or too rich. Check the requirements of the plants. As a general rule, use 3-4 parts aged compost, 1 part castings, and 1/2 part vermiculite.

Top Dressing: Depending on the diversity of material that has been fed to the worms, your castings should also have a diverse and well-balanced nutrient content suitable for use as fertilizer. Spread the castings around a tree's drip-line, water well, then cover the area with mulch.

Appendix 3 - Using Liquid Fertilizer

Like the castings themselves, the content of the liquid from your **Wriggly Wranch™** will depend largely on what the worms have eaten.

The fact that liquid drains through the castings to the Collector Tray means that the nutrients in the food processed by the worms will be shared by the castings and the liquid.



Depending on what you have been feeding your worms and if you have added extra water to the system, the liquid from your **Wriggly Wranch™** can be quite concentrated. Most would recommend diluting it with water at a ratio of at least 4-5:1. Some worm liquids may require further dilution, so it's best to experiment or err on the side of caution.

ReIn Pty. Ltd. has designed and developed the **Wriggly Wranch™** as an environmentally friendly way of reducing and recycling household organic waste. Its packaging also reflects our concern with waste. The polypropylene packaging strips and the plastic bag holding the accessory kit are the only packaging items that cannot be recycled in the **Wriggly Wranch™**. ReIn urges purchasers to direct these items to your nearest plastics recycler.

ReIn has made a long-term commitment to waste minimisation and recycling, not only in the design and manufacture of waste minimisation technologies. ReIn pioneered the use of recycled plastic and is now one of its leading consumers. The **Wriggly Wranch™** is just one example of ReIn's many products made entirely from 100% post-consumer plastic.

Whether you need further information about vermicomposting and recycling or just want to stay up-to-date, visit ReIn's website at:
<http://www.rein.com.au>

ReIn - 14 Williamson Road Ingleburn, NSW 2565 Australia

Tel.: 61-2-9605-9999

Fax: 61-2-9605-9222

Email: rein@healey.com.au