



## INSTRUCTIONS FOR USE

Congratulations on the purchase of your Tumbleweed Worm Farm. You have bought a quality product that will last you for a long time. Please take the time to sit down and read this information in order to ensure that you operate your worm farm successfully.

Your Tumbleweed Worm Farm consists of two sturdy boxes that nest inside each other. The upper box has a perforated floor and a hinged lid and is called the working box. The lower box is fitted with a continuous drain spout and is called the collector box. The worms live, eat and breed in the working box. It is where the vegetable scraps are added and is also where the worm castings collect. The collector box catches any liquid that is produced in the working box and this drains off via the spout.

Some worms venture down into the collector box and may get caught in the drainage spout, blocking it. If this happens just use a thin piece of wood or wire to unblock it. The collector box has very deliberately been fitted with a drainage spout and not a tap. The boxes nest quite deeply inside each other and if a tap were to be left closed the water level in the collector box could easily build up to the working box and drown the worms. The drainage spout allows the liquid to drain out and avoid this problem. The liquid that drains into the collector box is a valuable fertilizer. Simply dilute it with an equal amount of water and use it around the garden. Every two months the collector box should be cleaned out. Separate the two boxes by lifting off the working box and placing it on a piece of plastic. Swill out the collector box with

water and use this liquid to spot water your plants as it is a valuable fertilizer. Do not worry if some worms go out with the water. Check to see the drainage spout is clear. Replace the working box on top of the collector box.

### WORM ENVIRONMENT

The aim is to provide the optimum conditions to breed "happy worms". They like cool dark and damp conditions and will eat the kitchen scraps and breed better when these conditions are maintained. If the temperature gets too high in the box (over thirty five degrees) or it dries out then the worms will stop breeding and die off. Providing the right conditions for worm farming is not difficult and will be covered in detail later on. However it is important that you understand what makes the worms tick so that you are able to monitor the environment in the working box.

Worms are surface feeders and when the food is added it is put on top of the worms in the working box and they will move up towards it. If you open the lid and lift the covering material you will see the worms working away in there, but in no time they will disappear as they dive for the comfort of the darkness below. This is because they are very sensitive to light and will move away from it. You will make use of these two facts in removing the castings. Details of how to do this are covered later on.

### PURCHASING WORMS

You may well have bought your Tumbleweed Worm Farm as a package including worms but if you haven't then you will need to purchase worms. There are many vari-

eties of worms but the ones used in worm farms are called compost worms or more specifically “reds” “blues” and “tigers”. The distinguishing factor of these worms is that they have a voracious appetite and they breed quickly. Both of these aspects are important in the worm farm. It is necessary that they eat your kitchen scraps as quickly as possible and also that they will increase their numbers sufficiently to be able to consume the amount of vegetable scraps that your household produces.

It is possible to start your worm farm by buying 2,000 worms and this will ensure that you get off to a quick start. This number should be able to handle the scraps from an average household. However despite being quick it is also expensive. A better way is to start off with a smaller number. Whilst this means a slower start it also means that the worms that are raised in your worm farm are used to the food that you are feeding them and the particular environment of your worm farm. Tumbleweed recommends that you start off with 1,000 to 2000 worms. Make sure that you purchase them from a reliable source e.g. Direct from a local worm farmer ensures that they are “fresh”. Never purchase them in small plastic “take-away” containers as the worms are deprived of food and oxygen and will quickly die. When you buy them check that they come with an adequate amount of bedding mix or castings. Tumbleweed recommends at least 10 litres. This information should be displayed on the packaging. You can contact Tumbleweed Europe on 01604 882442 or 0044 1604 882442 from outside the UK for advice on where to purchase worms.

### **WHERE TO PUT YOUR WORM FARM**

Never set up the Tumbleweed Worm Farm in direct sunlight as it will get too hot for the worms. Choose a shady place down the side of the house or in the garage. A little morning sun will not be harmful but avoid the hot afternoon sun. It is wise to site the farm close to the kitchen so that it does not become a trial to take the scraps to the

worm farm. Your Worm Farm will need protecting from frosts or the worms will die. Stand the farm on some timber or house bricks to elevate it off the ground and hang a small bucket from the spout or place a container underneath the spout to catch the liquid. It also helps if the farm is slightly angled down towards the spout to encourage the liquid to run out.

### **SETTING UP THE WORM FARM**

Line the base of the working box ( the top box) with two or three sheets of dampened newspaper. This is simply to prevent the bedding mix from falling through the holes in the initial setup. The worms will eventually work their way through the paper and it will disappear. Add your purchased worms and the 10 litres of castings and spread across the newspaper. This should cover the base of the box to a depth of about 6 cm. Check the moisture content - it should be like a damp sponge. If you think that it is too dry add water with a spray bottle and ensure that it is damp all the way through. A piece of covering material cut to size is then put over this to help keep the environment in the box as constant as possible. The covering can be made of many things. It may be a few sheets of newspaper, moistened cardboard, a piece of Hessian, a piece of carpet, a specially purchased worm mat or a piece of thick plastic sheeting. With the carpet, cardboard, newspaper and Hessian the worms will eventually work their way through it and it will have to be replaced. Tests have indicated that surprisingly plastic may be the most effective material.

Now add approximately 500 grams of food scraps to the top of the worms and under the covering material and spread it across the surface. Please read the following paragraph on “Feeding” before adding the scraps. Check the worm farm every few days to see if the food is being worked through and when it is nearly gone add the same amount again. The process will be slow in the early stages so be patient. The worms will take a little time to adjust to a

new environment and will be inclined to eat any food that comes with their bedding mix rather than the scraps. As the worms start to breed and increase in number so they will require more food. At this stage you can increase the amount of food going in. The unit will handle up to 3 kg of scraps per week and it is recommended the scraps be added once per week (see Feeding instructions). The population of the worms will increase according to the amount of food they are receiving (I.e, if you only generate 1 kg of scraps per week the population will adjust accordingly).

## **FEEDING**

Worms do not actually eat the food scraps but consume the bacteria from the breakdown of the food. This means that the worms will not touch food scraps that are not decomposing. If you add fresh food they will wait until decomposition has started. Sometimes this process can take some time to start in a worm farm as the cool internal environment does not encourage decomposition. The secret is to ensure that the food is already beginning to decompose before it is added to the worm farm.

To do this you can operate a “two container food scrap storage system”. Obtain two 4 or 5 litre containers with a handle and sealed lid. Ice cream buckets are ideal. These can be kept in the kitchen in a convenient place e.g. Under the sink. When food preparation is taking place the leaves and stalks of fruit and vegetables can be chopped and added to one container. Food decomposes quicker if it is cut into small pieces so anything that goes into this container should be finely chopped. If you really want to be dedicated you can put the scraps through a food processor. This certainly speeds up the whole process but involves a little more work. When the first container is full, set it aside either under the sink or outside next to the worm farm and continue to fill up the second one in the same manner. When the second container is full, add the contents of the first one to the worm farm by spreading it in a layer over the

surface of the worms (underneath the covering material) and take the second one out to wait by the worm farm. The first container can be swilled out and you can start to fill it again with food scraps. By the time this one is full the second one is ready to add to the worm farm. In using this method the food has already started to decompose before it is added to the worm farm. As the decomposition aspect is an important part of the worms ability to process the food it should be noted that this will be quicker in warmer rather than cooler temperatures. You may find that in winter the worms are slower than in summer.

## **WHAT KIND OF FOOD CAN I FEED THE WORMS?**

The worms will eat all the food and vegetable scraps from your kitchen both raw and cooked. Coffee grinds, tea bags, dust from vacuum cleaners and soaked egg cartons can all be added. DO NOT add meat and dairy products or bread as these can attract vermin. Many experts advise not to add onions, citrus peel or tomatoes as these are very acidic. Small amounts of these foods can be added as long as they are well mixed in with other food.

## **SEPARATING THE CASTINGS**

Although worm castings are promoted as a beneficial by product of worm farms it should be noted that the worms do not produce large quantities. This is because of their diet. Fruit and vegetables are more than 90% water and so the liquid waste from worm farms is produced in much greater quantities than solid waste or worm castings. You may find that it will be well over a year before you need to empty the box. However it is quite possible to harvest small quantities of castings which can be used in potting mix or seed raising mix at any time. Two main techniques are used which utilise the worms’ fondness for food or their aversion to light.

In the first method the food is added to one side of the box only. Over a period of time the worms will move to the good and vacate

the other half. The castings can then be dug out from the non-food side with a trowel. Some worms may go out with the castings but there is no need to be concerned about this as there will be plenty left. In the second method the working box is sat in the sun and the lid opened. The top layer of food is scraped away. The worms will move down away from the light and the top layer of exposed castings can be carefully scraped off. This procedure is then repeated as often as needed. Do not empty the box completely as the worms need some bedding material in the box (at least 10 cm depth of castings). The worm castings are sometimes referred to as "vermicastings" and are an excellent soil conditioner.

## **TROUBLE SHOOTING**

Sometimes things go wrong and you can ring Tumbleweed Europe on 01604 882442 or 0044 1604 882442 outside of the UK for advice. One of the most frequently asked questions is about other creatures inside the worm box e.g. Ants, maggots or vinegar flies. Your worm farm is home to many different organisms. They all live in harmony and are part of the breakdown process. For the most part these other creatures bother us humans more than the worms. Providing that the worms appear to be eating the food and doing what they are supposed to do, they are not a problem and should be left. However if any of these other creatures start to develop in plague proportions it may indicate that the environment in the box has moved away from one that favours worms. Check the moisture level. If it is too damp the spout may be blocked and the water level rising. It may have got too dry in the box, in which case it should be sprayed with water.

The pH level may have altered if you have been adding too much acidic food. Check what kind of food is being added. The presence of vinegar flies is harmless but may indicate that too much food is being added for the number of worms in the box. This may happen particularly in the early


stages of the worm farm as the worms breed up. Often however they just occur in warmer weather and do not indicate any problem at all.

If ants become a problem in proprietary ant killer can be put down in the path of the ants. Look at the worms. Once your farm has been going for some time the worms should get bigger. A Thickened band around the larger worms indicates they have reached maturity and are ready for breeding. If the worms are still small and not showing signs of having reached sexual maturity your worm population won't be increasing in numbers. This may be because they are not getting sufficient food. This can be a result of adding "fresh" food as opposed to decomposing food (see paragraph on Feeding). Although there is food in the farm it is not accessible to the worms and so they starve.

Worm farming is a satisfying and enjoyable activity for young and old alike. It is a positive way for anyone to contribute to the improvement of their environment. The byproducts of liquid fertiliser and worm castings are an added bonus for any gardener.

***Happy Worm Farming!***



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