



### ***Red Wigglers - Basic worm care***

#### ***How often do worms breed?***

The breeding cycle is approximately 27 days from mating to laying eggs. Worms can double in population every 60 days.

#### ***How long do worms live?***

We don't know the extreme of the scale, but 2-3 years under the right conditions is common

#### ***How much do worms eat?***

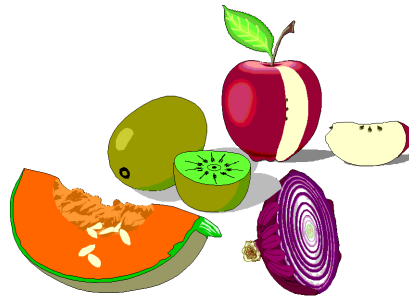
Research shows more than their body weight each day. 1,000 adult worms (1 lb) eat roughly 1 lb of organic waste per week.

#### ***What can kill worms?***

Worms are sensitive to major fluctuations in pH, lack of oxygen and certain toxic chemicals. Research has established that worms are resilient to many chemicals that are toxic to humans. It appears that the vermiculture process will break down some of these chemicals into benign components.

#### ***Worms and Disease***

Worms are subject to very few diseases. The bacteria fostered in their gut and excreted with their castings are benevolent and produced in such overwhelming numbers that disease-producing bacteria find life very difficult in an earthworm environment. Most disease-producing bacteria require an oxygen-free (anaerobic) environment, whereas the environment created by earthworms is oxygen-rich (aerobic). This is the reason why worm castings are usually very low in disease-producing bacteria. Accordingly, worm beds and their castings are essentially free of harmful pathogens and viruses. This makes worms ideal for the stabilization of all forms of putrescible wastes.



## Food

Most kitchen waste or table scraps, any vegetables, grapefruits, orange rinds, apple peels, lettuce and cabbage, celery ends, spoiled food from the refrigerator, coffee grounds, tea bags, egg shells are all suitable worm meals. (Remember, no meat or dairy products belong in a worm bin.)

Don't use meat or milk products in the worm bin. Mice and rats could be attracted to the odors!

Also, non-biodegradable materials don't belong in a worm box.

Cat litter should not be used, either. The odor of cat urine is intolerable to worms, plus the ammonia in the urine could kill the worms! Cats can carry the disease *Toxoplasma gondii*. This can transfer to humans. For example, a pregnant woman could inhale some of the protozoan and pass the disease on to her fetus, causing birth defects.

## Environment

**Moisture Content:** Red worms need a moist environment. Worms breathe through their skin. Skin must be moist in order to breathe. 40-60% moisture is optimal. If you squeeze the worm bedding in your hand and water streams out, it is too wet. It should feel more like a wrung out sponge.

**Aeration:** Red worms need oxygen to live. They produce carbon dioxide. Air circulation is a must in and around a worm box.

**Temperature:** Red worms tolerate a wide range of temperatures, however, the ideal temperature is between 55-77 degrees F. Bedding with a temperature above 84 degrees F. is harmful, sometimes fatal to red worm populations. The temperature should be measured inside the box, because the temperature in the moist bedding is usually lower than the outside air.



### **Bedding:**

1. Corrugated cardboard is an excellent material for bedding. Be careful not to breathe in the dust if you shred it. Corrugated cardboard holds moisture better than any other material. Some people use a piece of corrugated cardboard to cover their bedding. In a "wet" environment, it can help to absorb some liquid, and will eventually disintegrate.
2. Shredded newsprint and computer strips can be used. The papers should be shredded in long lengths of 1/4 inch wide strips. It's easily moistened, but the strips don't keep the moisture as well. Strips provide more surface area from which the water can evaporate. They require frequent moistening. The black ink used for printing the newspaper is not toxic to redworms. The main ingredients of black ink are carbon and some oils. Colored ink should be avoided. There used to be heavy metals, such as lead and chrome, in colored ink. US Government regulations now forbid the use of heavy metals in colored ink for printing newspapers.
3. Shredded newspaper is the most economic material. Make the strips 1-2 feet long by 1/2 to 1 inch wide. Redworms will eat the paper after it has softened.
4. Some people may object to the initial odors of animal manures. It is not recommended to use manures if the box will be located in your living area! Animal manures have other organisms such as mites, sowbugs, centipedes or grubs that you wouldn't want in your home. But if the box will be outside or in a garage, manures would be fine. Worms really like manures. Reminder - no pet, people or pig manures!
5. Old decaying leaves are a good source of bedding. Some leaves are better than others are. For example, maple leaves are preferred over oak leaves, because the latter take longer to break down. Leaves from trees growing along heavily traveled roads could be dangerous because of possible lead accumulation on the leaves.
6. Peat moss can be used if mixed with other bedding materials. It has an excellent moisture holding capacity, however it provides no nutrients for the worms, and can be expensive.
7. Coco-Coir is becoming more and more popular as an excellent bedding. It is ph neutral, has excellent water retention, does not promote a hospitable environment for mold, is affordable and

easy to store.

8. A handful of soil provides the grit worms need for breaking down food particles within the gizzard. Since worms don't have teeth, their food must be broken down by muscle action in their gizzards.