SUN FROST SCRAP EATER

COMPOSTING: SOME BACKGROUND

The Scrap Eater creates a small ecosystem with conditions ideal for composting food scraps. The composting organisms thrive in a warm environment with sufficient air and moisture. The food scraps that provide human sustenance also provide a healthy environment for these organisms. In this eco-system, the composting food scraps provide moisture and nutrients to growing plants on the perimeter of the Scrap Eater. The roots of the plants reach down to the bottom of the Scrap Eater to extract nutrients and moisture from the compost. Moisture condensing on the Scrap Eater's dome is also transferred to the plants on the perimeter. If worms are added they will also help move nutrients to the small garden on the Scrap Eater's perimeter.

No matter how you dispose of your food scraps, they will eventually decompose into rich topsoil. The composting process could take weeks or decades depending on the conditions the food scraps are exposed to. Buried 40 feet below the surface of a land fill, beef steaks 20 years old have been found which look as if they were just taken from the refrigerator.

On the other hand, in the proper environment, food scraps can be fully composted in just weeks; we have completely composted a small quantity of food scraps in just ten days. The food scraps were first pureed in a blender and then the temperature, aeration, and moisture levels were carefully controlled to hasten the composting process. Ten days later we had rich dark compost.

Temperature is a measure of how fast the composting process is proceeding, the higher the temperature, the faster the decomposition. Using conventional composting techniques, a compost pile will not heat up unless it is at least a three-foot cube. The unique thermal design of the Scrap Eater allows the compost to heat up and more quickly decompose even when the Scrap Eater is only partially full. In the Sun Frost Scrap Eater, heat within the composting chamber is generated by the respiration of the decomposing organisms and the solar energy collected by sunlight penetrating the Scrap Eater's acrylic dome. Decomposing organisms are kept warm by the insulated walls of the interior liner.

AIR

Air is an important ingredient in the composting process. Insufficient oxygen slows down the rate the compost is decomposing and changes the basic nature of the composting process to anaerobic conditions. Though anaerobic composting is done commercially in closed vessels to produce fertilizer and methane gas, home composters generally dislike it because it is a smelly process.

A unique feature of the Scrap Eater is that its walls are both insulating and porous. The wire mesh forming the interior liner provides a path for infiltrating air. To allow air to freely pass into the compost pile, it should be kept porous and fluffy. If the compost becomes too wet and gooey the pores within the pile will close and the decomposition process will become anaerobic.

If moist fruits and vegetables are a large part of your food scraps, sufficient dry organic material such as peat moss or dry grass should be added to lower the moisture content of the compost and keep the compost aerobic.

When using the Scrap Eater you may be somewhat surprised at the large quantity of food scraps added compared to the relatively small quantity of compost produced. The reduction in volume in the Scrap Eater is typically between ten and twenty times. Most of this loss of volume is due to evaporation and respiration. During the respiration process the composting organisms turn the food scraps into carbon dioxide and water, burning up much of the solid material in the compost.

Worms can also be introduced into the Sun Frost Scrap Eater as a complement to the aerobic composting process. Worms thrive between 50° F and 80° F. If the compost pile goes above 90° F the worms will take refuge in the soil on the outer perimeter of the Scrap Eater. During their travels they keep the compost aerated and transfer nutrients to the plants on the Scrap Eater's perimeter.

ASSEMBLY

To Remove Dome – Turn dome on it's side, remove screws on cage, lift out dome and cage, replace cage in correct position.

MAINTENANCE

We recommend that once a year the outside of the barrel is coated with linseed oil or other wood oil.

SCRAP EATER LOCATION

Ideally, the Scrap Eater should be placed in direct sunlight. The Scrap Eater will work effectively in the shade; however, the composting process may proceed a bit slower. Most importantly, place the Scrap Eater where it is convenient for you to use.

SOIL MIX AND PLANTS

Since the Scrap Eater will be heavy once the soil is added, make sure the Scrap Eater is placed in an appropriate location before adding the soil. To facilitate drainage between the inner liner and the barrel, spread a two-inch thick layer of perlite, twigs, wood shavings or gravel along the outer perimeter of your Scrap Eater. Then fill this space with potting soil or compost until it is level with the top of the barrel. The Scrap Eater is now ready for planting. Plants that are short or vine down work best. Arrange plants so they won't interfere with the lid. Some suggested plants: Miniature Ice Plant, Isotoma, Clover, Strawberries, Dwarf Sweet Peas.

COLLECTING KITCHEN SCRAPS

If the container used for collecting food scraps in the kitchen is totally closed, the food scraps will break down anaerobically and will probably smell. Collecting kitchen scraps in a container that has an inner basket keeps the scraps aerated and minimizes odor, an asparagus cooker works well for this.

COMPOSTING – GETTING STARTED

1. **To start, spread a 2-inch thick layer of peat moss, dry grass, wood shavings or other appropriate dry material in the bottom of the Scrap Eater.**

2. **Add food scraps.**

3. **Add dry materials. Since kitchen scraps alone generally have high moisture content, the overall ratio of dry material to kitchen scraps should typically be one part dry materials to four parts kitchen scraps. If desired, a bag of dry materials may be stored in the Scrap Eater.**

4. **After adding your first batch of food scraps add a few handfuls of finished compost or topsoil to provide microorganisms.**

It's that simple!

MIXING

A compost-mixing tool is provided with your Scrap Eater. Mixing helps speed the composting process by providing air and mixing materials. Frequent mixing will also control odors and flies. To mix, push mixer down into Scrap Eater, turn handle 90 degrees, and pull up. Repeat until materials are well mixed. If large food pieces, or a whole squash, potato, or apple were added to the Scrap Eater, the composting process could be accelerated by chopping this material with a shovel, then thoroughly mixing.

One disadvantage of using straw as a dry material is that the long, relatively strong strands make the compost more difficult to mix. With a material like Peat Moss, mixing is much easier.

COMPOSTABLE MATERIALS

Most Kitchen Wastes
Rinds, Peals
Coffee grounds

Spoiled and moldy scraps
Meat and Dairy (*see below*)
Manures
Leaves, grass, weeds

INAPPROPRIATE MATERIALS

Dog or Cat feces
Non-biodegradable materials
Large quantities of woody plant material

DRY ADDITIVES

The consistency of the compost should be similar to that of a wrung out sponge.

- **Alfalfa pellets - This material is easy to store and breaks down well. Alfafa pellets are avaialbe at feed stores.**
- **Dry grass – Ordinary dry lawn grass works well, you may want to save some of your summer lawn clippings for the winter.**
- **Dry leaves**
- **Peat moss – Peat moss is good at absorbing odors and works well for aeration. Some peat moss may be very fine and not aerate the compost as effectively. Peat moss is a fairly stable material and will not break down much during the composting process. This will affect how much the compost shrinks in volume as it decomposes and will also have some influence on how often you empty the composter**
- **Wood Shavings – Wood shavings are often available at cabinet shops for free. They breakdown slowly, however hardwood shavings degrade faster than soft wood shavings**
- **Sawdust – Sawdust can work effectively to aerate the compost as long as it is not too fine. Do not use sawdust from plywood or particle board**
- **Newspaper – Unfortunately newspaper does not work very well for aeration because of the way it mats together.**
- **Straw and Hay – Straw and hay are both effective, however unless they are mulched into short pieces, approximately one inch they will make the composter difficult to mix. Hay will break down a little faster than straw.**

COMPOSTING MEAT AND DAIRY

Meat, fish, and dairy products can be composted; however, care must be taken to avoid problems with odors that attract scavengers such as raccoons, dogs, and cats. Fish is probably the most difficult material to compost without causing offensive odors. Keeping these materials several inches below the surface will help minimize odor problems. If problems arise, discontinue adding these materials to the Scrap Eater.

TEMPERATURE

The temperature in the Scrap Eater will vary between the outside air temperature and 155° F. If a large amount of food scraps are added and the pile is kept well aerated the temperature may go up to 155° F for several days. The temperature is more typically about 30° F above the outside air temperature. You may want to get a thermometer to see how the compost temperature varies.

Adding a nitrogen rich organic fertilizer may also accelerate the temperature and composting process. During the winter the Scrap Eater may go through cyclic changes in temperature. If the temperature of the compost is below 55° F the process will proceed very slowly. The composting process may then be jump-started by a relatively warm, sunny day. Heat generated by the composting process should then keep the compost warm until the easily available nutrients in the pile are "burned" up.

TIPS FOR RAPID COMPOSTING

Chop up food scraps either before or after they are added to the Scrap Eater, the smaller the pieces, the faster the composting process.

Make sure your compost has the right moisture content. The compost should be moist and fluffy, not soggy, wet, and compacted. The compost should be about the consistency of a damp sponge; if you can squeeze water out of the compost it is too wet.

Mixing accelerates the composting process.

Place the Scrap Eater in the direct sunlight.

Add a nitrogen-rich organic fertilizer such as manure or cottonseed meal. To a full Scrap Eater add in about eight pounds of cow manure or four pounds of a nitrogen rich fertilizer such as cottonseed meal. If an excess amount of fertilizer is added, nitrogen will be given off as ammonia, which can be recognized by its pungent order. We don't recommend blood meal as an additive because of the odor it gives off as it decomposes.

EMPTYING

A family of four should typically only have to empty the Scrap Eater about every six months. A single person may go two years before emptying. The amount of time it takes to fill up the Scrap Eater will depend on how much food is added to the Scrap Eater and how rapidly the food is decomposing; see previous section.

To Empty:

1. **When the Scrap Eater is full and no more food scraps may be added, the composting process can then be completed in one to three weeks. After its contents are fully composted it may then be emptied. Following the "Tips for Rapid Composting" may minimize the wait time".**

2. **A pot or similar container makes a good scoop for empting the composter.**

3. **The finished compost may be placed in your garden or around potted plants.**

4. **Now start over with a new several inch layer of dry materials on the bottom of the Scrap Eater.**

5. **Put a bit of unfinished compost back into the Scrap Eater. Now resume adding new layers of food scraps and dry materials.**

WORMS

The addition of red wriggling worms to the Scrap Eater will enhance the efficiency and quality of your compost, but adding worms is not essential. Worms complement the composting process, especially when the compost is cool. Worms like temperatures between 50° F and 85° F. When the compost is hot, worms find refuge in the outer ring of soil. They will transfer nutrients from the compost to the roots of the plants growing around the perimeter. Worms may be available from local nurseries or from gardening catalogs. One half pound of worms, or 500, is ample. Place worms right into the Scrap Eater with food scraps.

WINTER OPERATION

In the colder parts of the United States, the composting process will come to a halt during the colder parts of the winter. We suggest emptying the composter just before the cold weather sets in and letting the composter gradually fill during the winter.

SCRAP EATER TROUBLESHOOTING GUIDE

PROBLEM	REASON	SOLUTION
Odors & Flies	Compost too wet	Add dry material and mix
	Freshly added food scraps are exposed	Bury freshly added material
Slow Decomposition	Food scraps too large	Chop up contents, particularly whole-skinned fruits and vegetables
	Food scraps too wet or too dry	Add water or dry material, whichever is appropriate
	Not enough nitrogen in compost	Add a nitrogen rich fertilizer