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Meet Your Emergency Food's Worst Enemies

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^[1]If you plan on packaging your own food for the long term using any of the [11 food items that can last a lifetime](#) ^[2], or other dry goods, knowing how to properly store these items will ensure their freshness and extend their lifespan. If improperly stored, spoilage can occur at exactly the moment when you need your larder the most.

There is nothing more disappointing than seeing your food investment ruined by natural elements or bugs. Knowing what your food's worst enemies are, understanding how they can ruin your food, and how to prevent their havoc will help you preserve your [food investment for the long term](#) ^[3].

Who Are The Enemies and What Do They Do?

The best course of action to preserve your food storage is using a [a multi-barrier system](#) ^[4]. Using this method protects your food investment by reducing oxidation of foods, bug infestations, and exposure to increase temperature and moisture levels. Protecting your future food supply can be achieved by simply investing in a few extra preventative tools such as Mylar bags, oxygen absorbers, and food grade containers.

Moisture

Foods can become contaminated by moisture through humidity, rain, and standing water. As a result, molds, mildew and microbial infestation can form and rot stored food, thus making it inedible. Since some foods draw in moisture, such as wheat, rice and grains, the best way to avoid moisture from coming in contact with stored food, is to store it properly.

Solution: Those that store food for long term, try to remedy this by using a multi-barrier approach and making sure the the food items are away from any possible areas that can flood (laundry rooms, bathrooms, near water pipes, etc), and have been properly sealed to avoid moisture. Additionally, storing your food grade buckets or round cans on shelves or stacked on wooden platforms 6 inches off the floor is another method of preventing decontamination of food. Providing ventilation between the stored containers can also assist in preventing increased moisture levels.

Those that live in areas that are prone to high humidity may want to consider adding desiccant packets to their food storage. Desiccant packets *only moderate* the moisture

levels, they do not completely absorb moisture. Being that desiccant is not edible, if the packet somehow breaks open and spills onto the stored food, the entire contents of the container must be thrown away. Desiccant manufactures recommend adding two 1 ounce packets per 5 or 6 gallon pail, or two per large barrier bag. There are certain food items that desiccant should not be added to - specifically: flour, sugar and salt. These items need a certain amount of moisture to stay activated, and if desiccant is added to it, they will turn into a hard brick. Note: make sure the desiccant packet is not touching the oxygen absorber.

Sunlight

When sunlight shines directly onto your food pantry or food storage area, photo-degradation (spoilage) occurs and results in losses of pigments, fats, proteins, and vitamins, as well as surface discoloration.

Solution: Storing food in Mylar bags is an easy solution to remedy this concern. Mylar bags are metallized foil liners that prevent sunlight, moisture and bugs from ruining food. Investing in the thickest grade of Mylar would be a good investment for your food storage endeavors. The thicker Mylar bags are more durable, and can be reused for future uses. Mylar bags come in different sizes and can easily be rotated into your food pantry. For those who are investing in a shorter term food supply, many simply pour the food contents into Mylar bags, add an oxygen absorber and properly seal the bag closed. This will keep a short term food supply fresh over a given period of time.

Other solutions include storing your food items in a dark area not prone to sunlight or temperature fluctuations is the best course of action. If you have to store your food supply in a room with a window, put up curtains or black out material over the window. This is also a good security measure so that others do not see your stored food.

Oxygen

Oxygen is another force to reckon with when food storage is concerned. Overtime, oxygen will break down food, cause discoloration, and create staleness in foods.

Solution: Using oxygen absorbers greatly prolongs the shelf life of stored food. Because it absorbs the oxygen from the container, it inhibits the growth of aerobic pathogens and molds.

Oxygen absorbers come in vacuum sealed packs. They begin working the moment they are exposed to oxygen. Therefore, it is best to work as efficiently as possible. Oxygen absorbers come in different sizes, so pay attention to the size needed for the container. Manufacturers of this product suggest that, 2,000-4,000 cc's of oxygen absorbers should be added in one #10 can, and roughly 15,000 – 20,000 cc's for 5 gallon pails. If working with smaller containers such as Bell jars, 50 cc's of oxygen absorbers should be used. When in doubt on how much oxygen absorbers to use, check with oxygen absorber manufactures. However, it is best to add extra oxygen absorbers rather than not enough. Oxygen absorbers are not edible, not toxic and do not effect the smell and taste of the product.

Temperature Fluctuations

Fluctuations in temperature create an imbalance in the environment that the food is stored in. Ideal temperatures for stored food should be between 65-80 degrees F.

Solution: Typically, people store their food storage in unused closets or areas in the home that do not have large exposure to sunlight. Ideally, the area where the food is stored should have access to air conditioning. Those that do not have extra space in their homes have used their basements, root cellars and have even used temperature controlled storage warehouses. To ensure the area where the food is stored is at adequate temperatures and moisture levels, install an [indoor thermometer and humidity gauge](#) ^[5].

Bugs

Bug infestations can also occur from improper storage methods. Nearly all foods are susceptible to these pests. Typically the stored food product becomes infested at the warehouse it was processed at. Nearly all dried food products are susceptible to insect infestation, including cereal products (flour, cake mix, cornmeal, rice, spaghetti, crackers, and cookies); seeds such as dried beans and popcorn; nuts; chocolate; raisins and other dried fruits; spices; powdered milk; and cured meats. Insects will chew their way through cardboard, plastic or foil liners, or folds in the packaging system. This is why a multi-barrier approach to food storage is suggested.

Solutions: There are few different ways to prevent bug infestations. Learning the different methods can help you choose which is right for you.

Freezing Method – freeze food that will be stored for 72 hours. Freezing will kill any bug eggs.

Heating Method – Heating the food supplies is another option. Heating the food to be stored at 150 degrees F for 15-20 minutes will kill any bugs or eggs as well.

Organic Option – Diatomaceous earth are the fossilized remains of diatoms. They are organic and are safe to use on food. Use 1 cup to each 25 pounds of food.

Dry Ice Method – This method can be done two different ways. According to the [Family Preparedness Handbook](#) ^[6] by James Talmage Stevens, the proper method for this techniques is:

Basic on-top method:

- On top of almost-full 5 gallon container, place 1/4 lb. dry ice on non-conductive (insulating) material such as Kraft paper
- Press lid down gently so some air can escape
- After 20-30 minutes, check to see if dry ice has completely evaporated.
- If not, wait another 5 minutes, then check again.
- When dry ice has completely evaporated, remove material and seal container.

Basic on-bottom method:

- on bottom of 5-gallon storage container, place 1/4 lb. of dry ice under non-conductive (insulating) material, such as Kraft paper.
- Press lid down gently so some air can escape
- After 20-30 minutes, check to see if dry ice has completely evaporated.
- If not, wait another 5 minutes, then check again.
- When dry ice has completely evaporated, remove material and seal container.

In Conclusion

A little preventative maintenance can go along way in terms of food storage. Understanding the different methods for storing your food supply for short or long term storage will help you get the most out of your food investment.

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[1] Image: <http://readynutrition.com/wp-content/uploads/2011/04/rice-weevil.jpg>

[2] 11 food items that can last a lifetime: http://readynutrition.com/resources/11-emergency-food-items-that-can-last-a-lifetime_09032011/

[3] food investment for the long term: http://readynutrition.com/resources/essential-items-for-a-long-term-food-supply_15022009/

[4] a multi-barrier system: http://readynutrition.com/resources/best-practices-for-long-term-food-storage_03042011/

[5] indoor thermometer and humidity gauge: http://www.amazon.com/Chaney-Indoor-Thermometer-Humidity-Gauge/dp/B0013BKDO8/ref=sr_1_1?ie=UTF8&qid=1302115086&sr=8-1

[6] Family Preparedness Handbook : http://www.google.com/products/catalog?q=Family+Preparedness+Handbook&rls=com.microsoft:en-us:IE-SearchBox&oe=&rlz=117SKPT_en&um=1&ie=UTF-8&cid=3066174329982745524&sa=X&ei=UaucTaaPDKST0QGsrN3dAg&ved=0CDAQ8wIwAg#

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