

8. FOOD STORAGE

8.01 Introduction:

Food, clean potable water and shelter are often compromised in natural and man-made disasters. The proper purchase and storage of food supplies is one of the most important aspects of all-hazard preparedness.

For information about food that can be eaten after a nuclear event, please see 'Food in Post Nuclear War Environment'.

There is not a perfect food storage plan that fits every family's circumstances. Each family has unique dietary needs, based on the age, size and health of the members. Pregnant and lactating women have special requirements. Teenagers eat more than the elderly. Consideration must also be made for the location, climate, space and accessibility of the storage area.

With that in mind, there are some basic guidelines that you may want to consider.

8.02 Long-Term Supplies:

It is difficult and expensive to keep supplies rotated. Many people choose to store an inexpensive basic survival supply of long-term foods that require little if any rotation. People often choose to compliment that supply with other foods that add interest and variety to the diet such as air-dried or freeze-dried fruits and vegetables, herbs, spices, flavorings and condiments. These supplements can become costly, but the ease of creating interesting meals may justify the price. Canned foods from the supermarket are less expensive, but must be rotated on a regular basis.

Much of the following information on basic food supplies is from the FEMA web site (<http://www.fema.gov/library/emfdwtr.shtm>).

Bulk quantities of wheat, corn, beans and salt are inexpensive and have nearly unlimited shelf life. If necessary, you could survive for years on small daily amounts of these staples. If these staples comprise your entire menu, you must eat all of them together (in proportional amounts) to stay healthy.

Stock the following amounts per person per year:

- Wheat--240 pounds
- Corn--240 pounds
- Iodized Salt--12 pounds
- Soybeans--120 pounds
- Vitamin C --180 grams (must be rotated yearly unless purchased in crystalline form).
- Powdered Milk (nitrogen packed) for babies and infants-- 240 pounds

The wheat, corn and beans should be stored in sealed cans or plastic buckets. The powdered milk should be stored in nitrogen-packed cans. We would suggest that you also add multi-vitamins and minerals to this basic supply.



Dr. Art Robinson, of the Oregon Institute of Medicine, reported that this ration would provide 120 grams protein with good amino acid balance, 45 grams of fat, and 2,700 calories of energy per day. Shop your local preparedness stores for current prices. We have found the price to be under \$160 per person.

Dr. Robinson also suggests that the vitamin C be stored only in the form of crystalline ascorbic acid. Vitamin C in that form will store indefinitely.

If using this plan, you may wish to supplement further as follows:

- Purchase the basic survival supply as suggested above, by FEMA.
- Build up your everyday stock of canned goods by purchasing extra canned foods from the supermarket.
- Add freeze-dried fruits, vegetables & meats as you can afford to do so.

The FEMA web site further specifies:

“To avoid serious digestive problems, you'll need to grind the corn and wheat into flour and cook them, as well as boil the beans, before eating. Many health food stores sell hand-cranked grain mills or can tell you where you can get one. Make sure you buy one that can grind corn. If you are caught without a mill, you can grind your grain by filling a large can with whole grain one inch deep, holding the can on the ground between your feet and pounding the grain with a pipe.”

8.03 Other Plans:

There are many excellent books on the market featuring food storage plans. We highly recommend the CRISIS PREPAREDNESS HANDBOOK by Jack A. Spigarelli; and THE SENSE OF SURVIVAL by J. Allan South. You may wish to consider this plan (as found in the 'Crisis Preparedness Handbook', p74):

7-PLUS Plan:

- | | |
|--|---------|
| ○ Table salt | 4 lbs |
| ○ Pickling & Canning salt | 4 lbs |
| ○ Milk, non fat | 60 lbs |
| ○ Oil (2 gal liquid, 7 lbs *shortening) | 21 lbs |
| ○ Sugar | 65 lbs |
| ○ Grains (wheat, white rice, corn, etc.) | 375 lbs |
| ○ Legumes (beans, peas, lentils) | 60 lbs |
| ○ Multi-vitamins (with minerals) | 365 |
| ○ Yeast | 3/4 lb |
| ○ Baking powder | 1 lb |
| ○ Seasonings, spices, flavorings & bullion | |

*Shortening has a very long shelf life. However it is hydrogenated oil and you may wish to store more of the vegetable oil in its place.



8.04 Shelf Life of Foods for Storage:

FEMA has given these guidelines for food rotation

Use within six months:

- Powdered milk (boxed)
- Dried fruit (in metal container)
- Dry, crisp crackers (in metal container)
- Potatoes

Use within one year:

- Canned condensed meat and vegetable soups
- Canned fruits, fruit juices and vegetables
- Ready-to-eat cereals and Uncooked instant cereals (in metal containers)
- Peanut butter
- Jelly
- Hard candy, chocolate bars and canned nuts

May be stored indefinitely (in proper containers and dry conditions):

- Wheat
- Vegetable oils
- Corn
- Baking powder
- Soybeans
- Instant coffee, tea & cocoa
- Vitamin C (in crystalline form)
- Salt
- Noncarbonated soft drinks
- White rice
- Bouillon products
- Dry pasta
- Powdered milk (in nitrogen-packed cans)

8.05 Storage Tips:

- Purchase only high quality foods.
- Keep food in a dry, cool, dark location (below 70 degrees Fahrenheit but above freezing).
- Keep food covered at all times. Store in metal or plastic containers.
- Carefully close food boxes or cans of dried foods close tightly after each use.
- Wrap cookies and crackers in plastic bags, and keep them in airtight plastic containers.
- Empty opened packages of sugar, dried fruits and nuts into screw-top jars or airtight cans to protect them from pests.
- Inspect all food for signs of spoilage before use.
- Periodically check for dented or bulging cans.
- When replacing foods with fresh supplies, clearly date all cans and packages.
- Place new items at the back of the storage area and older ones in front.



8.06 Short-Term Emergency Supplies:

Many emergencies (earthquake, hurricane, tornado, local quarantine) would result in a short-term need for food storage. A one-month emergency food supply is a good start on the one-year supply. You may wish to keep it separate from your long-term storage. Complete the short-term supply by increasing the amount of basic foods you normally keep on your shelves.

The one-month supply rotates easily and can be readily stored by most all households. If you have pets, purchase their food in bulk and keep a one-month supply of food for them as well. If your pets are hungry, you may be tempted to share your food with them.

One-month supply should include the following:

- Three-day supply of food that can be easily moved in the event of forced evacuation. Consider storing this supply in your vehicle as part of a 72-hour kit.
- Three-day supply of water (two liter bottles per person) in small moveable containers as part of the 72-hour kit.
- Two-week supply of MREs or canned foods (soups, stews, meats, vegetables, fruits) that do not need refrigeration, cooking or preparation.
- 14 gallons of water per person.
- Two-week supply of basic foods normally used in typical menus (frozen foods, refrigerated foods, cereals, pasta, mixes, juices, staples).

8.07 Food Consumption When Food Supplies Are Low:

If activity is reduced, healthy people can survive on half their usual food intake for an extended period and without any food for many days. Food, unlike water, may be rationed safely, except to children and pregnant women.

If your water supply is limited:

- Avoid foods that are high in fat and protein.
- Limit salty foods (they will make you thirsty).
- Eat salt-free crackers, whole grain cereals and canned foods with high liquid content.

8.08 Special Considerations:

Make sure you have a manual can opener, paper plates & cups and disposable utensils.

8.09 How to Cook if the Power Goes Out:

- Alcohol Stove (see 8.10 Constructing an Alcohol Stove)
- Fireplace
- Candle warmers
- Chemical warmers
- Chafing dishes
- Fondue pots
- Outside, only (charcoal grill or camp stove)
- Always remove the paper label before heating food in the can.



8.10 Constructing an Alcohol Stove:

Always use this stove in a well-ventilated area, as the flame will use up oxygen. Use caution, as this stove will produce a flame similar to a gas-burning stove. Do not use this stove inside a tent or anyplace a fire could start in the event the burning fluid tips and spills. When cooking inside, use denatured alcohol specifically labeled for marine stoves. If using a lesser grade alcohol, always cook outside in the open air.

The first time you use the stove, there will be some smoke from the lining of the paint can. Outside first use is recommended in order for the smoke to dissipate. Store the alcohol outside, or in an uninhabited building away from your home. The alcohol could act as an accelerant in a fire.

Cooking for two hours a day for one week should consume approximately 1-gallon of fuel. A 55-gallon drum of alcohol should, therefore, provide a one-year supply of cooking alcohol.

Equipment needed:

- 1 qt. paint can (unused) with lid
- 1 roll soft toilet paper with center cardboard removed
- Cooking alcohol* (clean burning denatured alcohol for marine stoves)
- Matches
- Small pressure cooker or pan

Directions:

1. Remove the center cardboard roll from the toilet paper, and place one full roll of toilet paper into the 1-quart paint-can. Use a soft roll that will squeeze into the can.
2. Fill paint-can stove with cooking alcohol to top of toilet paper roll.
3. Place the 1-qt. paint can stove on a flat, fireproof surface.
4. Strike the match and light the alcohol on fire. (The alcohol must be at least 53 degrees to burn).
5. Place a grill over the fire, and place the cooking pan on the grill. The grill should be about 2 inches above the paint can.
6. When finished cooking, loosely place the qt. sized paint-can lid over the stove to smother the fire. Allow the alcohol to cool and then press the lid firmly over the can to protect against spillage and evaporation of the alcohol.

*Cooking alcohol can be purchased at most hardware or marine stores. It is clean burning, produces mostly CO₂ and water, and very little carbon monoxide is formed. If handled carefully and with proper ventilation, it can be used for cooking inside homes or shelters.

Isopropyl Alcohol can also be used in alcohol stoves, but it gives off an unpleasant odor and should only be used and stored outside of the home or shelter. It can be found at circuit board manufacturing plants, where they use it to clean off all resins and particulates after soldering and then dispose of it. Talk to the environmental people in charge of disposal of waste products. Ask them if they would allow you to use this as a by-product rather than have them dispose of it. This is a legitimate use. Some members of the Utah TACDA Chapter have purchased the alcohol for approximately \$70 for a 55-gallon drum.



FOOD IN A POST-EVENT ENVIRONMENT

Many people are confused about the kinds of food that can be eaten after a nuclear event.

Fallout from a nuclear explosion consists of tiny particles of dirt and debris fused with fission products. Alpha and Beta particles in the fallout can persist for long periods of time and will contaminate all food to which it comes in contact. On the other hand, gamma radiation from the fallout is not a particle and does not contaminate food. Gamma radiation is actually used to purify food. Our challenge will be in differentiating between foods that can and cannot be cleansed and decontaminated of alpha and beta particles. Most gamma radiation will not persist beyond two weeks after the nuclear event.

Fruits and vegetables harvested from fallout zones in the first month post-attack may need to be decontaminated before consuming. Foods can be decontaminated by washing exposed parts, removing outer leaves and peeling. FEMA material has stated that most vegetables and fruits that can be washed and peeled can safely be eaten. If the nuclear event were to occur at harvest time, you could still harvest smooth, hard skinned vegetables and fruits such as apples, potatoes, carrots, squashes, and any other fruits and vegetables you could both wash and peel. You should not harvest 'fuzzy' fruits such as raspberries, strawberries or peaches. Cauliflower and broccoli should not be eaten from the garden because of the uneven nature of their outer layers.

People in areas of low fallout accumulation may be able to plant crops the next season. Small plots of land could be scraped of the upper few inches of contaminated soil and planted. The contaminated soil containing the fallout should be moved away from the garden area. It seems unlikely that there would be any large farming activities for some time. People in low fallout areas that have received no blast may have opportunity to cover small plots with plastic before fallout arrives. Storage of large rolls of plastic would be advantageous.

Some plants requiring calcium (such as broccoli and cauliflower) will take up radioactive strontium 90 because of its chemical similarities to calcium. If we eat the food containing the radioactive strontium, the strontium will be deposited in our bones. Liming of acid soil will reduce this uptake. If possible, in areas of significant fallout deposition, plant foods with low calcium content such as potatoes, cereal, apples, tomatoes, peppers, sweet corn, squash and cucumbers.

Storage of non-hybrid seeds is extremely important. Hybrid seeds will not reproduce quality fruit. Seeds last several years if stored covered in airtight containers in a cool, dry area.

Farming implements should be stored in a safe place and protected from blast.

If fallout contamination is suspected, the package or can should be wiped or washed before opening. Dairy products that are wrapped or are kept within closed showcases or refrigerators will most likely be free from contamination. Refrigerated foods should be eaten first, then food from the freezer as it thaws, and then packaged or canned foods.



Crops, which are in the early stages of growth in heavy fallout areas, may absorb radioactive materials through their leaves or roots and would be difficult to decontaminate.

If possible, animals should be put under cover before fallout arrives and should not be fed contaminated food and water. Animals can be slaughtered if they don't appear to be sick. The bones and organs, however, should be removed and disposed of before cooking the meat. The animal may have been foraging on plants and grasses contaminated with Strontium 90. Strontium 90 looks chemically much like calcium. The bone cannot differentiate between Strontium and Calcium and will deposit the Strontium into the bone. If we cook the meat with the bones, the strontium will then be deposited into our bones. Eggs from poultry can be eaten. Fish from streams and lakes, such as trout and perch can be eaten. Bottom feeders such as carp and catfish should not be consumed.

Thyroid Blocking Agents (TBA) tablets should be started as soon after the nuclear attack as possible. Purchase the TBA and consult your physician now, for proper dosages for you and your family. People with thyroid problems may not be able to take TBA, therefore make sure your physician is aware of any thyroid irregularities you may have. The thyroid is always 'looking' for iodine and cannot distinguish between pure iodine and the radioactive isotope. TBA fills the thyroid with healthy iodine and prevents the uptake of radioactive form of the isotope. The thyroid will only accept iodine in certain forms. TBA is formulated with potassium and the proper isotope of iodine. Do not take iodine internally in any other form. TBA is a medicine and has some side effects. TBA should only be taken in the event of a nuclear disaster.

Water can be found in hot water heaters and wells. Hand pumps which will pump from as deep as 200 feet are available through Amish catalogs. Emergency water filtration and decontamination methods will be discussed in a different lesson. Use your imagination and be creative when foraging for water.

A deficiency of vitamin C could cause symptoms of scurvy within 4 to 6 weeks. Store a year's supply of vitamin C as well as other multi vitamins and minerals. A good expedient way to provide vitamin C is to eat sprouted seeds or beans. Instructions are given in the book, Nuclear War Survival Skills.

We cannot overly express the importance of storing a year's supply of food. The basic storage items, as suggested by Dr. Robinson, are easily and inexpensively purchased. After acquiring this basic supply, add items that will complete a more interesting menu. Each month consider purchasing a few extra items such as dried beans, canned tomatoes, catsup, spices, honey, canned soups or canned stews, and freeze-dried fruits and vegetables.

Many disasters, both natural and man-made, could cause a shortage of food or famine. Good God-fearing people will often lose all moral values when their children are starving. Be prudent and alert. Study, Think, Observe and Prepare.

