Getting Started

Planned food storage in the home can help individuals and families become self-sustaining in whatever emergency situation they encounter. But, before buying or storing any food product, there are four basic rules to follow:

1. STORE WHAT YOU EAT, AND EAT WHAT YOU STORE. If no one in your family likes beans, wheat mush, or canned fruit, DON'T BUY them for emergency storage. A time of emergency will seem even longer if you have a food supply no one wants to eat. Because large amounts of food can be purchased on sale, then saved and used in emergencies, this may seem great for the pocket book. But ... it also may require a change in eating habits – like eating more beans, making wheat mush, and eating canned fruit.

   Dealing with emergencies is a process of getting back to normal as quickly as possible. Comfort and reassurance comes from familiar things. An emergency is not the time to learn to eat foods you've never tried or don't like. To determine what foods to store, keep a diary on the products you and your family eat for the next 30-60 days. Use that diary to decide what you need to store. If what you eat can only be purchased at a fast-food place, you may need to re-think some eating habits.

2. ROTATE YOUR FOOD SUPPLY. EAT THE OLD; REPLACE WITH NEW. The quality of most food does not improve with age and storage. You can spend a lot of money on a supply of food and other provisions but they won't be much good after storing them for 15-20 years. In most cases, it's best not to purchase more than you will rotate and use within a 1-2 year period of time. Ensure that the quality of what you purchase is acceptable. Items on sale are often at the end of their shelf life and will not hold up in storage.

3. ENSURE WHAT YOU STORE IS AS NUTRITIOUS AS POSSIBLE. Choose foods that balance protein, carbohydrates, and fat and include essential vitamins and minerals required for health. Some of the more important elements are the essential amino acids (proteins). These can be provided by canned meats, but also by plants such as beans and nuts. Stock a vitamin-mineral supplement for emergencies more than 72 hours.

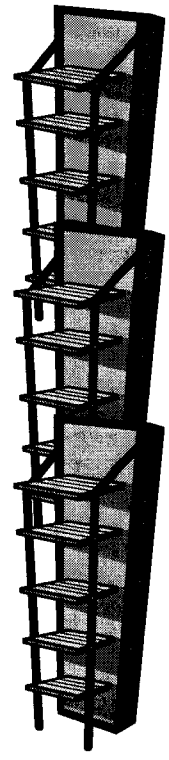
4. PRESERVE YOUR EMERGENCY SUPPLY, especially if you buy in bulk and plan on storing it for several years. Improper storage can attract bugs and mice, allow mold to grow, deplete the nutrition content, and cause food to become stale. Your 5-year-old will not want to eat stale, moldy crackers.

Food, Water & Medical Checklists

What to store for emergencies

DENALI SAFETY COUNCIL

STORAGE AREA



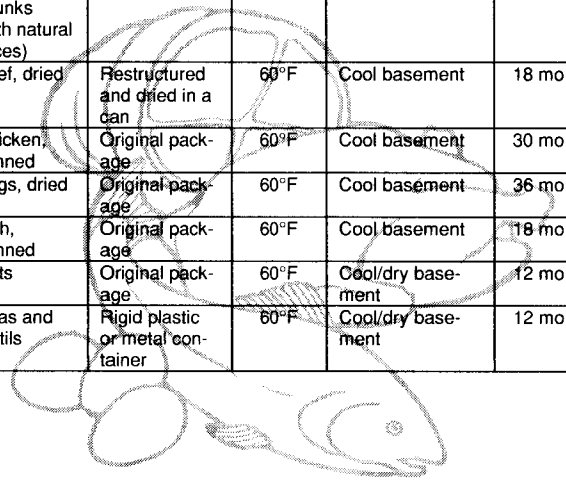
- Emergency food storage areas should be located in a room without windows where the temperature can be kept constant above 32° F and below 60° F. Food will retain its quality and nutrients longer the cooler it is kept. Extra insulation can be added to walls and ceiling to help keep temperatures constant.
- Don't build your storage area where equipment such as a freezer, furnace, or hot water heater is located. These appliances produce heat, unnecessarily increasing storage temperature.
- The storage area should be dry (about 10% humidity), and adequately ventilated to prevent condensation of moisture on or inside packaging material. Dry beans, grains, flours, cereals, etc. contain an average of 10% moisture, based on USDA nutritional tables. Foods absorbing more moisture than they naturally contain can spoil in their own packaging. (In warm, humid areas people refrigerate flours and grains to reduce growth of flour beetles and weevils that can germinate even in flour purchased directly from the grocery store.)
- Store food on shelves, not on the floor. A cardboard box sitting on a cement floor, for example, can become damp and moldy and contaminate its contents.
- Store heavier water containers on the floor below the first shelf. Elevate the containers on 2'x4' boards to allow air circulation all around them.
- Design shelving and cupboards so a simple rotation system allows you to use the oldest foods first. This helps ensure long shelf life of all products.
- Space the shelves to accommodate various sizes of containers. Flour bags, sugar, and cereal boxes require more height than packages of candies, gum, small cans of milk, etc. Store heavier items close to the floor to avoid hurting backs and arms when lifting items off the shelves.
- Treat your emergency supply of food as an extension of your normal daily food storage where items are kept in the refrigerator, freezer, cupboard, and pantry. For example, if you purchase 10 cans of beans, put five cans in the daily supply and five in emergency storage. When the five daily cans are gone, move the five cans in emergency supply to the daily cupboard. Buy five more cans to replenish your emergency supply.
- Inspect the storage area periodically to seal any crack or crevice where insects or rodents may have gained access.
- Don't freeze canned or bottled products. Expansion during freezing may rupture metal or break glass containers, or break the seal on bottle lids, allowing food to become contaminated.

Storage Life

The expected storage life of various foods under certain storage conditions are shown in the following tables. This is an emergency food supply, which likely means no electricity, so foods requiring freezing or refrigeration are not shown.

Meat, Poultry, Fish, and Legumes

Food	Condition	Max Temp	Storage Area	Life
Beans, dry	Rigid plastic or metal container	60°F	Cool/dry basement	12 mo
Beef, canned (in chunks With natural juices)	Original package	60°F	Cool basement	30 mo
Beef, dried	Restructured and dried in a can	60°F	Cool basement	18 mo
Chicken, canned	Original package	60°F	Cool basement	30 mo
Eggs, dried	Original package	60°F	Cool basement	36 mo
Fish, canned	Original package	60°F	Cool basement	18 mo
Nuts	Original package	60°F	Cool/dry basement	12 mo
Peas and lentils	Rigid plastic or metal container	60°F	Cool/dry basement	12 mo



Dairy Products

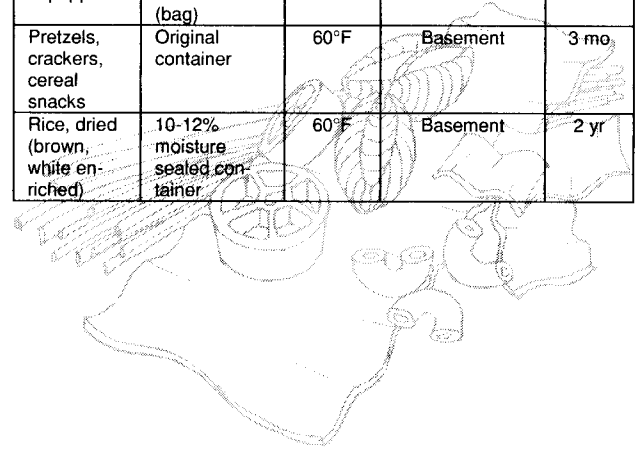
Food	Condition	Temp	Storage Area	Life
Cheeses, dry	Original container	60-70°F	Basement	3 mo
Cream substitutes	Original container	60-70°F	Basement	24 mo
Milk, canned condensed	Can inverted at 2-month intervals	60-70°F	Basement	12 mo
Milk, canned evaporated	Can inverted at 2-month intervals.	60-70°F	Basement	12 mo
Milk, dry products	Original container	60-70°F	Basement	24 mo

Vegetables & Fruits

Food	Condition	Max Temp	Storage Area	Life
Apples, fresh	Separated in boxes	32°F	Moderately moist cellar	6 mo
Bananas, fresh	Ventilated container	60-70°F	Basement	1 wk
Beets, fresh	Ventilated box	32°F	Moist pit or cellar	6 mo
Cabbage, fresh	Ventilated box	32°F	Moderately moist pit or cellar	6 mo
Carrots, fresh	Ventilated boxes or bags	32°F	Moist pit or cellar	6 mo
Citrus fruits, fresh	Ventilated container	32°F	Moderately moist cellar	8 wk
Fruit juices, canned	Original container	60°F	Dry basement	24 mo
Fruit juices, dehydrated	Air & moisture-proof container	60°F	Dry basement	12 mo
Fruits, canned	Original container	60°F	Dry basement	24 mo
Fruits, dehydrated	Air & moisture-proof container	60°F	Dry basement	8 mo
Jams and jellies	Original container	60°F	Dry basement	18 mo
Onions, fresh dry	Net bag	32°F	Cool dry area	6 mo
Pears, fresh	Ventilated container	32°F	Moderately moist cellar	4 mo
Pickles	Original container	60°F	Dry basement	12 mo
Potato chips	Original container	60°F	Basement	1 mo
Potato, canned	Original container	60°F	Dry basement	30 mo
Potato, dehydrated	Original container	60°F	Dry basement	30 mo
Potato, fresh	Ventilated boxes or bags	35-40°F	Moderately moist pit or cellar	6 mo
Pumpkin, fresh	Ventilated box	55°F	Moderately dry basement	6 mo
Squash, (winter) fresh	Ventilated box	55°F	Moderately dry basement	6 mo
Sweet potato, canned	Original container	60°F	Dry basement	30 mo
Sweet potato, fresh	Ventilated boxes or bags	55-60°F	Dry basement	6 mo
Tomato condiments, canned	Original container	60°F	Dry basement	24 mo
Tomatoes, green	Flexible package	55-60°F	Moderately dry basement	4-6 wk
Vegetable juice, canned	Original container	60°F	Dry basement	12 mo
Vegetables, canned	Original container	60°F	Dry basement	24 mo
Vegetables, dehydrated	Air & moisture-proof container	60°F	Dry basement	8 mo

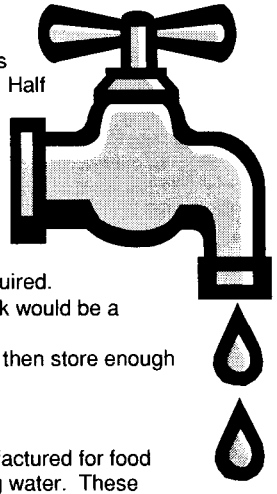
Bread, Cereal, Rice, and Pasta

Food	Condition	Max Temp	Storage Area	Life
Bread, fresh purchased	Original container	60°F	Basement	5 da
Bread, made from white flour	Polyethylene bags	60°F	Basement	5 da
Bread, made from whole wheat (ground fresh)	Polyethylene bags	60°F	Basement	3 da
Breakfast cereals, cold (corn, oat, wheat, rice)	Original container	60°F	Basement	1 yr
Breakfast cereals, hot (wheat & oat)	Original container	60°F	Basement	6 mo
Cookies, boxed	Original container	60°F	Basement	3 mo
Cornmeal	Original container	60°F	Basement	1 yr
Flour (white enriched)	10-12% moisture sealed container	60°F	Basement	1 yr
Flour (whole wheat, graham)	10-12% moisture sealed container	60°F	Basement	2 wk
Flour mixes (pancake, muffin, cake)	Original container	60°F	Basement	8 mo
Pasta, dried	10-12% moisture sealed container	60°F	Basement	2 yr
Popcorn, unpopped	Original container (can)	60°F	Basement	3 yr
Popcorn, unpopped	Original container (bag)	60°F	Basement	3 mo
Pretzels, crackers, cereal snacks	Original container	60°F	Basement	3 mo
Rice, dried (brown, white enriched)	10-12% moisture sealed container	60°F	Basement	2 yr



Water Storage

Preparation for an emergency should include enough water on hand for your family to maintain health and reasonable comfort until the emergency has passed.



HOW MUCH WATER

- One gallon per person per day is most commonly recommended. Half this is for drinking and food preparation, the other half for personal hygiene. This is a minimum amount, adequate only if the emergency doesn't last too long. It includes nothing for washing clothes or other cleaning that might be required.
- Ten gallons per person per week would be a better estimate.
- Judge your own family's needs, then store enough water to last seven days.

STORAGE CONTAINERS

- Store water in containers manufactured for food use or for the purpose of storing water. These range from plastic soda bottles, to three- to five-gallon water jugs, to 55-gallon plastic water drums.
- Do not use containers that:
  - Light can shine through and grow algae.
  - Are biodegradable; plastic milk jugs will dissolve in six months
  - The previous contents would give an unpleasant or unhealthy taste to the water, such as shampoo bottles.
- Use several different sized containers. A full three-gallon jug weighs about 25 pounds and is easy to carry and use. A full 55-gallon drum weighs 450 pounds and can only be used as a supply from which to draw.

STORAGE CONDITIONS:

- Store water away from cleaning supplies, fertilizer, and other products with strong odors. These odors could be absorbed by the storage containers and transferred to the water.
- Store water containers out of the light.
- Elevate containers slightly so air can circulate around them.
- Store containers low to the ground so you don't have to lift them up and down.

USING STORED WATER:

- Once a container is opened, use the water rather than re-storing it.
- If stored water tastes flat, pour it back and forth between two containers to restore oxygen.
- Use the water you need each day. Rationing it will affect your health and ability to function. Maintain personal cleanliness for the same reasons.
- Replace stored water every year. If the water you are replacing tastes and looks to be in good condition, you can keep it longer before replacing.

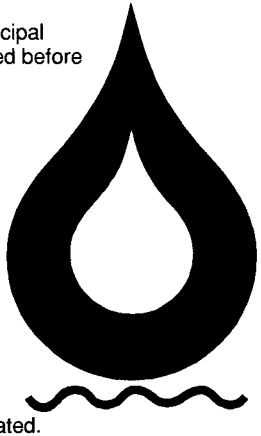
Water Purity

If you have no supply of stored water in an emergency, or if you've used all you've stored, seek other sources.

EMERGENCY WATER SOURCES:

- Your toilet tank or water heater may provide useable water.
  - If warnings say the public water isn't safe, turn off the supply to the house before using these.
  - Dip water from the toilet tank, not the bowl.
  - Turn off the water heater before draining it.
  - Open the drain faucet at the bottom of the water heater tank. The water may be rusty at first.
- Water pipes in your house contain water. Turn on a faucet at the highest level in the house, then obtain water from a faucet at the lowest level in the house.
- Rain water.
- Ponds or rivers.
- Untested wells or springs.
- Avoid floodwater and any water with floating materials, an odor, or a dark color.

PRESERVING WATER:



- Tap water, whether from city municipal sources or a well, should be treated before storing. Do one of the following:
  - Add 8 drops per gallon of liquid chlorine bleach that contains a 5.25% solution of sodium hypochlorite but no soap additives or phosphates.
  - Add 12 drops per gallon of 2% tincture of iodine. (Pregnant or nursing women, or people with thyroid problems should not drink water with iodine.)
  - Add 10 drops per gallon of Ion-stabilized Oxygen. Add 20 drops if the water is not chlorinated.
- Water may be stored for several years if it is bacteria-free and does not react with the container or its components. Polyethylene, polyester, or metallized polyester work well. Ensure that lids do not contain paper components.

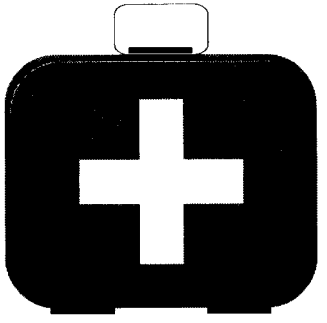
PURIFYING UNTESTED WATER:

- Filter water
- Boil water three minutes at a full rolling boil.
- Cover and cool to room temperature.
- If storing the water, add bleach or other purifier as described above.

Medical Kit

A stock of medical supplies can become even more important than food in an emergency. Buy or build a medical supply kit to keep in you emergency storage area.

- **Implements**
  - First aid book
  - Latex gloves
  - Thermometer
  - Needle
  - Sharp scissors
  - Pointed tweezers
  - Tongue blades
  - Assorted safety pins
  - Soft scrub brush
  - Q-tip swabs
  - Disposable razor
  - Single-edge razor blade
- **Bandages**
  - Assorted bandaids
  - 2-inch gauze pads
  - 4-inch gauze pads
  - 2-inch roller bandages
  - 3-inch roller bandages
  - Adhesive tape
  - Triangular bandages
  - Butterfly bandages
  - Elastic bandages
  - Moleskin
  - Finger splints
  - Eye pads
- **Medications**
  - Aspirin
  - Tylenol
  - Ibuprofen
  - Cold medicines
  - Benadryl
  - Antacid
  - Pepto Bismol
  - Syrup of Ipecac
  - Laxative
  - Anti-diarrhea medication
  - Throat lozenges
  - Motion sickness pills
  - Prescription drugs
- **Cleaners, solutions**
  - Antibacterial soap
  - Antibiotic ointment
  - Hydrogen peroxide
  - Betadine solution
  - Hydrocortisone cream
  - Tincture of benzoin
  - Lidocaine spray, wipes
  - Moistened towelletes
  - Saline solution
  - Sterile water
- **Miscellaneous**
  - Insect repellent
  - Sun block
  - Sewing kit
  - Whistle
  - Lighter
  - Compass
  - Pen, paper
  - Flashlight
  - Space blanket
  - Cold pack
  - Paper & plastic bags
  - Petroleum jelly
  - Powdered Gatorade
  - Sugar, hard candy
  - Cup, straw



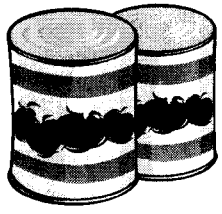
Preservation

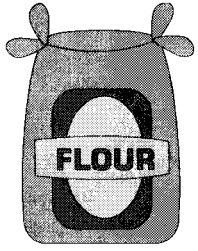
STORAGE LIFE

- Storage life, or shelf life, is the period of time between slaughter or harvest and consumption. Depending on the item, shelf life can be relatively short (fresh bananas – 1 week) to relatively long (unpopped popcorn stored in its original can below 70 degrees – 3 years)
- The quality and nutritional value of food declines over time. Foods should not be held for long periods beyond their established shelf life. When food is stored too long, the following problems occur:
  - The color, flavor, aroma, texture, or appearance deteriorates to a level where people won't eat the food.
  - Food nutrients deteriorate to the point where the product is no longer a reliable source of nutritional value.

CAUSES OF DETERIORATION

- Bacteria, yeasts, and molds are the most common causes of food spoilage and food-borne illness. It is important to realize that food, which is safe due to inhibition of microorganisms, loses that safety when conditions change. For example, a jar of mayonnaise purchased from the grocery store can sit on a shelf at room temperature. Once that jar is opened and the seal broken, conditions have changed and the mayonnaise must be refrigerated to keep microorganisms from growing.
- Stored foods can also become unsafe to eat due to contact with undesirable substances. Odors from a box of clothes-washing soap, for example, can seep into a bag of flour or cereal if they are stored too near each other. The same thing can happen if you store foods in plastic bags that originally contained something different.
- Exposure to sunlight and air can also induce physical, chemical, flavor and color changes in stored food.





STORAGE METHODS

- Containers must have a hermetic (air tight) seal for the food to last well in storage. Good containers are:
  - Heavy (not thin) vacuum seal bags (double bagged).
  - Sealable food storage buckets.
  - Sealable, food-quality metal or plastic drums.
- Use a container that is food-grade and manufactured for vacuum sealing as products can be tainted with whatever the container is made from. Tied plastic sacks are not good airtight containers; paper sacks are even worse.
- Lids on plastic buckets used for food storage seal very well and permit an extremely small amount of air transfer. The amount is so small it is considered a hermetic seal. Lids can even be re-used several times without significantly degrading the performance of the seal.

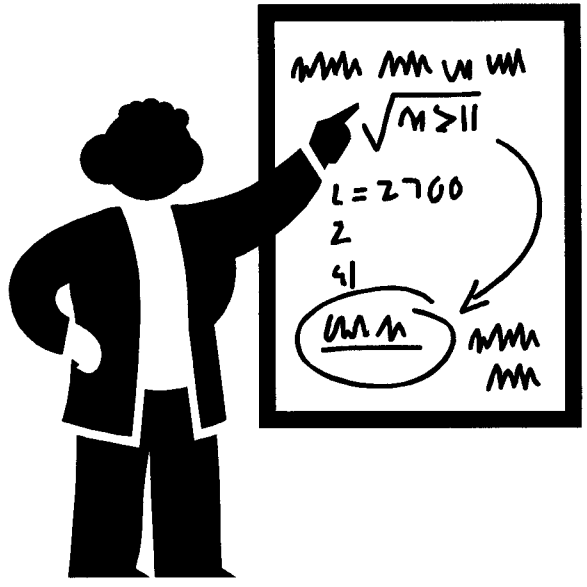
How Much

QUANTITY PER DAY

- One pound of dry matter provides about 1,600 calories of energy. Thus dried beans, flour, wheat, rice, dried fruits or vegetables, pastas, or milk powder all provide about 1,600 calories per pound.
- Energy is the most critical item in a food storage program and should be considered first.
- While 1,600 calories will not adequately meet the energy needs of a hard-working large man, it will prevent the baby from being hungry and quiet hunger pangs for individual members of a family.
- One pound of dry matter per person per day thus serves as a basis for a food storage program.

TOTAL QUANTITY

- Cities outside Alaska, with an available "integrated" transportation system (trucking, airlines, postal, railroad) instruct residents to be prepared to be self-sufficient for about 72 hours or 3 days.
- In Alaska, where there is limited access to highway or air, or where an earthquake or war-type disaster (World Trade Center) can quickly take these means of transportation away, residents should be prepared to be self-sufficient for at least 7 days.



Information in this brochure obtained from:
Federal Emergency Management Agency, American Red Cross, Walton Feed,** and Cooperative Extension Services of **University of Alaska Fairbanks, Utah State University, University of New Hampshire.

Alternative Cooking

Electric power may be disrupted during an emergency and the gas may be shut off. You'll need some way of cooking the food you've stored for such a situation.

INDOOR COOKING

- A **wood or coal stove** used for home heating can also be used for cooking. Boiling a pot of water on top of it may be all you need for some meals.
- A **fireplace** can be used for food preparation. Use bricks or stones to support a grate for pots and pans. Some foods can be cooked in the fire itself. Wrap potatoes or corn in heavy foil and place them directly on the coals. Put small chunks of meat and vegetables on a skewer and cook them over the fire.
- Your **camp stove** will certainly come in handy during an emergency if you have a supply of fuel. There are many varieties of camping stoves that use fuels such as white gas, alcohol, kerosene, propane, or butane. Pressurized cans of propane or butane are the easiest to store and use. Consider adding a camp stove to your emergency stores if you don't already have one.

OUTDOOR COOKING

- The **barbeque grill** that makes wonderful meals during the summer can also be used in an emergency. Cook meat on the grate as usual, but you can also cook foil-wrapped items in the coals and heat food in pots on the grate.
- A **campfire** will perform just as well in your backyard as it does on the trail. Build a small ring of stones in an open area, start a fire with wood or charcoal, and cook food on sticks or in pots on a grate over the fire. If you live in a high-rise apartment building, lighting a campfire on your deck is an extremely bad idea.

- You can **make a stove** from a Number 10 can. Cut a 2"x4" hole for fueling near the open end. Punch holes in the side near the closed end with a triangular-point can opener. Set the can, open end down, on something solid that does not burn. Use the 2"x4" hole to build a small fire inside the can with sticks or charcoal. Set a pot atop the closed end of the can. The triangular holes in the side serve as the chimney.

FOLLOW APPROPRIATE SAFETY PRECAUTIONS.

- Keep open fires away from flammable materials such as the kitchen curtains or piles of dead leaves.
- Store fuel cans away from heat or the possibility of being spilled.
- Provide protection from flying sparks from wood fires.
- Keep a fire extinguisher handy and know how to use it.
- Provide adequate ventilation when cooking with wood or camp stove fuels indoors.
- Don't use outdoor cooking methods indoors, particularly charcoal which produces carbon monoxide as it burns.