

COOL WAYS TO KEEP FOOD WITHOUT REFRIGERATION:

Fridge-free tips and tricks that work even in the tropics

by

Beth A. Leonard

When we fit out our Van de Stadt Samoa 47, *Hawk*, back in 1998, we tried to keep her as simple and bulletproof as possible to minimize maintenance and expenses. Of the equipment we left off the boat, refrigeration comes as the biggest surprise to most people. But refrigeration is the single largest energy draw on most boats, and installing it almost always means reconfiguring the electrical system. As a society, we have bought into the refrigerated supply chain, and we have lost much of the knowledge our forebears used to preserve food. Over the course of two circumnavigations and more than 12 years cruising without refrigeration, we have rediscovered many of these techniques and added a few of our own. We have learned that much of what people keep in their refrigerators does not need to be there, and a variety of things that last longer refrigerated keep for a surprisingly long time at room temperature. Fresh meat and milk are the only two things that absolutely have to be refrigerated, and there are alternatives to both available to cruising sailors. Our experiences may convince those without refrigeration to install a smaller, less energy-intensive system or to forego it altogether. For those with refrigeration, the ideas that follow can be used to free up precious space for things that really do last longer if kept cold.

KEEPING PRODUCE WITHOUT REFRIGERATION

A few basic rules will ensure that your produce lasts almost as long without refrigeration as you are used to having it last in your refrigerator at home. For maximum life, vegetables and fruits must be purchased fresh, the fresher the better, and they must never have been refrigerated. Getting your vegetables and fruits from a local produce market, farmer's market, farm stand, or, better yet, someone with a garden who will let you pick your own will double the life of the produce over what you would get if you purchased it from a supermarket. Select the freshest pieces of produce, without any bruising or discoloration. Once on the boat, stow produce in sanitized areas and keep them dry, well ventilated and out of the light. Collapsible milk crates or plastic crates, which provide good airflow and can be thoroughly sanitized with bleach, work well. We pad ours with towels to keep produce from bruising. Check produce every day and remove any fruits or vegetables that are bruised, over-ripe or starting to mold.

Three weeks is about the longest most crews will be on passage during a tropical circumnavigation. Buying the freshest possible, unrefrigerated produce and following the suggestions in Tables 1 and 2 will ensure a selection of fresh fruits and vegetables throughout a passage of up to a month. Note that the times shown in the tables are for the tropics; in the temperate or high latitudes, produce will keep up to twice as long. Previously refrigerated fruits and vegetables will last at most half as long as what is shown in the tables.

Table 1. Keeping fresh vegetables in the tropics without refrigeration

Vegetable	Will keep for...	Stowage requirements
Potatoes/yams	1-2 months	Remove eyes as they appear. Stowing with apples will retard sprouting; stowing with onions will encourage sprouting.
Onions	1-2 months	Stow uncovered and keep dry to slow sprouting. Cooking onions keep longest.
Garlic	1 month	Buy only totally dry, totally white garlic (any green or mold spots and it

		will sprout).
Winter squash	1 month	
Cabbage	1 month	Wrap in newspaper or a towel.
Beets/turnips	3-4 weeks	Stow with roots intact.
Tomatoes	3-4 weeks	Buy green and wrap individually in paper towels.
Cucumber	2-3 weeks	"English cucumbers" wrapped in cellophane without bruises last longest.
Carrots	2 weeks	Stow without tops. If rubbery, peel and soak in water to make crisp again.
Zucchini/ summer squash	2 weeks	
Green pepper	2 weeks	Green last longest – these will turn red and yellow as they ripen.
Iceberg lettuce	1-2 weeks	Remove outer leaves if they get slimy; cut away stem if it starts to rot.
Romaine hearts	1-2 weeks	Commercially packaged in plastic last longest.
Eggplant	1 week	
Cauliflower/broccoli	1 week	If broccoli wilts, soak bottoms in water to restore.
Other veggies	Less than 1 week	

We do not treat fruits and vegetables with a fruit dip. Most produce keeps best when left unwashed. In our experience, vegetable storage bags don't extend the life of fruits and veggies outside of a refrigerator unless the produce is perfectly dry when it goes into the bag. If there is any dampness at all, or if it is humid, condensation will form that will lead to rot.

Many cruisers sprout various types of beans and seeds to add some greens to their diet when the lettuce is long gone. Sprouting is easy to do and takes a minimum of equipment and supplies. Amanda Swan-Neal's *The Essential Galley Companion* provides detailed information on sprouting everything from alfalfa to chick peas.

Table 2. Keeping fresh fruit in the tropics without refrigeration

Fruit	Will keep for...	Stowage requirements
Apples	4-5 weeks	The tarter the apple, the longer it will last. Granny Smiths are widely available and last the longest. Storing with citrus causes over-ripening and bruising.
Citrus	4-5 weeks	Wash with mild chlorine solution if any sign of mold; do not store with apples.
Pineapples	2-3 weeks	Buy green, stow upright.
Avocado	2 weeks	Buy green (rock hard) and without bruises.
Mangoes	2 weeks	Buy rock hard, green. Store in separate container – ripening mangoes secrete sticky resin.
Pears	10-14 days	Buy rock hard, wrap in tissue paper or paper towels
Pamplemousse	10 days	Softball-sized, green, piney-tasting grapefruit of the Pacific.
Bananas	7-10 days	Buy green. Will all ripen at same time no matter what, so don't buy too many.
Melons	1 week	Buy unripe – to tell how ripe it is, press on end and smell. The stronger the smell, the riper it is.
Papaya	1 week	Buy green. Use grated in salad while green.
Other fruit	Less than 1 week	

THINGS THAT DON'T NEED TO BE REFRIGERATED

Table 3 shows a variety of things that most people keep in the refrigerator that do almost as well if left unrefrigerated. Using the suggestions in Table 3, all of the items shown can be kept for a minimum of two weeks, which means that almost all of these things will keep throughout a long ocean passage.

Table 3. Things that don't need to be refrigerated

Category	Including...	Will keep for...	Special notes
Condiments	<ul style="list-style-type: none"> Catsup, mustard, relish Mayonnaise 	Minimum of several months	Mayonnaise will keep indefinitely so long as no bacteria get into the container. Always use a

	<ul style="list-style-type: none"> Oil-based salad dressing Vinegar, oil of all types 		clean spoon to serve it, or buy squeeze bottles or single-serving packets.
Spreads	<ul style="list-style-type: none"> Jelly/jam Peanut butter Honey Maple syrup Molasses 	Minimum of 2-4 weeks; peanut butter, even all-natural and without preservatives, will keep for months	Small containers prevent spoilage, particularly of jelly/jam and maple syrup which will mold after a few weeks. Honey will sometimes crystallize after a month or more. Putting the container in boiling water for ten minutes or so will liquefy it again.
Dairy products	<ul style="list-style-type: none"> Butter (margarine) Cheese Yogurt/sour cream 	Minimum 2-4 weeks kept in coolest place on the boat – usually in the bilge	Butter does better than poor-quality margarine , which turns soupy in a week. Store in plastic container as oil will leach through other packaging. Purchase small, sealed plastic packages of cheese . Harder cheeses keep longest.
Meat and eggs	<ul style="list-style-type: none"> Fresh meat Packaged cold cuts Dried salami, pepperoni, etc. in links Eggs 	Up to 1 week for fresh meat if deep-frozen; 1-2 weeks for cold cuts; 2 months or more for eggs and dried meats	Buy fresh meat from a gourmet butcher and ask them to vacuum-bag and deep freeze it. Purchase small, sealed plastic packages of cold cuts . Vacuum-sealed salami-type meats keep almost as long as dried meats sold in links. Buy eggs fresh, unwashed and unrefrigerated and turn every other day. Stow in Styrofoam cartons.
Other	<ul style="list-style-type: none"> Yeast Bread 	2-4 months for yeast; 1 week for bread	Jars of yeast will not keep once opened unless refrigerated; buy individual foil packages and check expiration dates. Lightly coat whole-grain bread in vinegar and wrap in aluminum foil. After a week at sea, most cruisers bake their own.

Mayonnaise may be the most surprising item in Table 1. In fact, many marine refrigerators do not maintain the temperature as well as a home refrigerator, so keeping mayonnaise in them can be unsafe. We have kept mayonnaise for months in tropical temperatures without any ill effects simply by making sure it remains uncontaminated.

Dairy products other than fresh milk do surprisingly well unrefrigerated. Semi-soft **cheeses** like mozzarella will get very soft, but they usually won't spoil or mold until opened. Hard cheeses vacuum-sealed in plastic or packaged in wax keep indefinitely. If the only thing available is unpackaged cheese, coat it lightly in vinegar, wrap it in aluminum foil, and store it in a plastic bag. This retards mold on hard cheese for a week or more. Regular commercial **yogurt** purchased out of the dairy case lasts a surprising amount of time unrefrigerated. We keep unopened containers for three weeks or more in the bilge, even in the tropics. We prefer single-serving size containers as large containers will mold after a couple of days once opened.

To get the freshest **eggs**, go to a farmer or a farmer's market. Eggs go bad when the air sac inside the egg settles against the shell, eventually causing the shell to become porous. Turning the eggs every other day prevents the air sac from settling. We stow them in Styrofoam egg cartons and turn the whole carton. After a couple of weeks in tropical heat, it will be hard to separate the yolks from the whites and the consistency will be a bit soupy, but they still taste fine. We have kept farm-fresh eggs for over two months this way. If the only eggs you can get have been refrigerated, turning them every day will keep them from spoiling for at least ten days.

Fresh meat will keep longest if bought fresh from a gourmet butcher shop that will vacuum-bag (Cryovac) and deep-freeze it. Bring an insulated bag to the butcher to take the meat back to the boat frozen. Vacuum-bagged, deep-frozen meat will last for up to a week in the tropics in an insulated bag with a block of ice.

LONG-LIFE SOLUTIONS

Though few ocean passages are longer than three weeks, we often have to go significantly longer than that between provisioning ports for certain fresh products like butter and yogurt which are only available where there is a local dairy industry. In many small tropical islands, there will be very little in the way of refrigerated or frozen foods available; almost everything will be shelf-stable or canned. But there are a number of alternative solutions for preserving the foods we would like to bring along for much longer periods, as shown in Table 4.

Table 4. Long-life solutions

Category	Including...	Will keep for...	Special notes
Milk	<ul style="list-style-type: none"> • UHT milk – whole or skim • Dried milk – whole or skim 	Minimum of several months; use within 24 hours once mixed/opened	<p>UHT milk usually comes in liter packages; we prefer the 250 ml size when we can get it as that is just enough for two bowls of cereal or several cups of coffee.</p> <p>Dried milk is much less expensive than UHT and can be used for cooking, making yogurt, etc.</p>
Juice	<ul style="list-style-type: none"> • UHT juice • Plastic or glass bottles of juice 	Minimum of several months; use within 2-3 days once opened	UHT juice lasts the longest and the empty packaging is the easiest to stow when garbage facilities are few and far between.
Butter/margarine	<ul style="list-style-type: none"> • Canned butter • Canned margarine 	Minimum of several months; use within a few days of opening	<p>Canned butter tastes as good as fresh and can be purchased on many tropical islands.</p> <p>Canned margarine tastes oily; we much prefer the butter.</p>
Yogurt	<ul style="list-style-type: none"> • UHT yogurt • Homemade yogurt 	Minimum of a month for UHT; use immediately once made/opened	<p>UHT yogurt can be purchased on many tropical islands.</p> <p>Kits for homemade yogurt can be purchased in developed countries, or get some directions off the internet and use a thermos, some yogurt culture and dried milk.</p>
Meat/fish and one-pot meals	<ul style="list-style-type: none"> • Canned meats/fish • Canned soups, stews, etc. • Freeze-dried soups, stews, etc. • Pressure-cooker canned meat, fish and one-pot meals 	Indefinitely	<p>Brinkman Turkey Farms has been supplying high quality canned turkey, beef and chicken for 20 years: www.brinkmanfarms.com.</p> <p>Search on the Internet for freeze-dried foods to find dozens of vendors. Make sure to try them before buying in bulk.</p> <p>For information on pressure cooker canning, go to the “articles” tab on our website: www.bethandevans.com.</p>
Fruits and vegetables	<ul style="list-style-type: none"> • Canned fruit/vegetables • Dried fruit/vegetables • Pressure-cooker canned vegetables 	Indefinitely	<p>American Harvest and Mister Coffee make inexpensive dehydrators for preparing your own dried fruits and vegetables.</p> <p>For information on pressure cooker canning, go to the “articles” tab on our website: www.bethandevans.com.</p>

Ultra-heat treated (UHT) products are sterilized using very high heat. The contents will keep for two months to six months, depending on the expiration date shown on the packaging. Outside of the US, **UHT milk and juice** can be found in just about every grocery store. On tropical islands, **UHT yogurt** and **UHT tomato sauce** are also common.

Canned goods – corned beef, hot dogs, pork and beans, baked beans – are common in many stores in lesser developed countries, but the quality varies tremendously. We prefer to can our own meat, soups and stews using a pressure cooker. Similarly, many cruisers prefer to use a dehydrator to dry their own vegetables and fruits. A dehydrator takes a good deal of electricity,

and pressure-cooker canning takes a good deal of propane, so both are best done while in a developed port with access to shore power and propane supplies.

Our one-quart canning jars hold too much for one meal, as do many commercially packaged cans of soups or stews. It is possible to keep the leftovers from spoiling for a couple of days by bringing the food to a hard boil once every 24 hours in the tropics. When we open a quart jar of chicken, pork or beef, we'll eat the meat straight the first night and, the following day, make any leftovers into a curry or a stew with strong flavorings and simmer it for an hour or more before eating.

These tips and tricks, in conjunction with galley skills like sprouting, bread baking, yogurt-making, pressure cooker canning and drying foods, make it possible to live quite comfortably without a refrigerator aboard. The only thing we have to do without most of the time is ice and cold drinks, a sacrifice we're willing to make – at least for now – to avoid the cost and complexity of adding refrigeration.

© 2007 Beth A. Leonard