THINK COOKING – MARCH 2013

Let's say you all have food storage. Some may have several weeks. Some may have an entire year's worth. Now let's say that the electricity goes out for an extended period. This could be from a natural disaster, or some kind of electrical grid problem. What are you going to eat? If you have a lot of packaged, prepared food like cold cereal or crackers, you are okay without any kind of extra preparation for as long as those foods last. Then what? If you have canned foods, then at the bare minimum you had better have a manually operated can opener! Some foods may not be the best tasting cold, but could be safely eaten out of the can. Others, particularly those with meat in them would be better heated. Do you have a way to do that without electricity? Or if your food storage is mainly grains and beans, do you have a way to cook them to make them digestible? (It is possible to soak and sprout them, and they would give you some great nutrition, but do you know how to do that?) And it would probably not be pleasant for most people to live only on sprouts. It would be a much better idea to have a way, (or better yet several ways) to be able to cook that food without electricity. Note: If only the electricity is out, you may be able to use your natural gas stovetop and oven. It depends on if you have any electric switches in your unit.

Many people cannot even comprehend the idea of not having access to a microwave, stovetop or oven. We have access to them in our homes, cafeterias and even convenience stores. So unless you have camping experience, chances are good that you don't know how or even what your options are to cook without electricity. That is our focus this month. We want to explore any CAPABILITY we may have and then to increase our CAPACITY to be able to cook and prepare food in an emergency situation.

To determine what your needs would be, you need to look at the type of food you have stored. Some things are fine to prepare in a pot on top of a stovetop and others require some type of oven for baking. If you are just getting started on your food storage, then "one-pot" meals that can be cooked on top of some type of burner would be a great idea to focus on. This will simplify your food preparation, save fuel, save on washing dishes and simplify your emergency preparedness planning. Many of the meals you normally eat probably fall into this category. You make soups or stews or crockpot dinners. Even spaghetti can be "one pot" by partially cooking the noodles first and then adding the sauce for the final cooking. If you choose to store this type of menu for the three months of food that you normally use, it will be second nature to use them in an emergency. And you will know that your family is familiar with them and likes them. Determine what your needs would be and then explore the appropriate options.

IMPORTANT CONSIDERATION: WE ARE NOT USED TO BEING AROUND OPEN FLAME!!! WITH MOST OF THESE OPTIONS YOU HAVE A VERY REAL FIRE DANGER. PLEASE TAKE CARE OF SAFETY FIRST. MAKE SURE YOU HAVE **FIRE EXTINGUISHERS AND BATTERY OPERATED SMOKE AND CARBON MONOXIDE DETECTORS**. ALSO BE SURE TO PROVIDE ADEQUATE VENTILATION WHENEVER YOU ARE BURNING ANY TYPE OF FUEL. FOR SAFE FUEL STORAGE GUIDELINES SEE THE FIRST RESOURCE LISTED UNDER FUEL STORAGE.

STOVETOP COOKING OPTIONS

You have several options for stovetop cooking. Probably the first thing you think of is a **propane campstove or a burner on your propane barbecue grill.** Those are fine plans for summertime. But you shouldn't use them in the house. (Propane is often used safely in campers, but our homes are so well insulated that they don't allow the ventilation necessary to use propane safely inside them.) Standing outside cooking in the winter doesn't sound like very much fun. It will also take more time and fuel to heat your food because of the air temperature. For the wintertime you should also have another option. (One 20 lb. Propane tank provides about 15 hrs. cooking time on a single burner.)

A much better all-around option is a **butane stove.** They have tabletop models that you can use indoors. You still will need to have some ventilation for oxygen replacement, but it is better than running in and out of doors when it is cold outside. It works great outside too. You can get a one burner model for under $20, and the butane canisters are about $2 each. Look for one with a push button ignition. It is convenient and cooks just like a regular gas stovetop burner so you are familiar with how it cooks. This would be important in an emergency where you would have enough things on your mind without having to learn a new way of cooking. Butane *does not work well at freezing temperatures*, so you may need to warm up the canister inside your jacket before using it. The butane canisters will run anywhere from 1–3 hours depending on how high a flame you are using.

Many of us may also have a **Coleman campstove** that uses white gas or Coleman fuel. This is probably my least preferred of the customary ways to cook in an emergency. It does give off a high heat *regardless of the outside temperature*, and it is easy to use and familiar like the butane and propane, but the fuel is very expensive, flammable and evaporates relatively quickly. Chances are if you have an *unopened* can you have stored, when you go to use it, it will be less than half full! That's not a happy surprise in an emergency. It also produces carbon monoxide, so it **must be used outside**. There is one thing that might make it useful in a prolonged emergency. Some of them are "Duel Fuel" meaning that besides the Coleman Fuel, they will also work with unleaded gas. That would probably be more available in an emergency. If you have one of that type, you will want to hang onto it, but if you are starting out from nothing, there are many other better options to invest in for cooking. There are attachments that you can buy that will allow you to convert some Coleman stoves to use propane. It's a nice option that makes something you already have more useable, but again, if you're just starting out, there are better options. You would also need to store spare pump parts, etc.

Kerosene cookers, like kerosene heaters have several drawbacks. They do have an odor when you light or extinguish them. And they do produce some carbon monoxide and other gases, so they must be used in a well ventilated area and **you must have a battery operated carbon monoxide detector nearby to warn of dangerous levels.** It is usually a single burner that you use just like a gas stove burner by raising the flame to produce more heat. As with any flame, it cannot be left unattended. Kerosene stores fairly well, is relatively inexpensive, and the cooker will burn for about 13 hours per gallon. (Nitro-Pak $100)

Now, if you're a guy, or otherwise think anything involving fire is fun, these options are for you. If you haven't ever seen a **Rocket Stove**, go to www.rocketstoves.org to see an amazing way to cook using twigs and sticks that heats up fast and can be made at home. The site shows a small stove you can buy, a video with step-by-step instructions on how to build a larger one, and a booklet you can download and print with many different stove types. If money is tight and talent is fair to good, you can make a highly efficient way to heat water and cook that uses fuel that you can gather from dead branches. It must be used outdoors and it does make your pot or pan very black, but it definitely gets the job done. Stove Tec has a commercial brand of rocket stove that runs $85 - 115.

A **Zip Stove** uses a small battery operated fan that forces air up through burning wood chips, pinecones, or anything that burns that is small enough to put in the chamber. It is a favorite of backpackers because they don't have to pack in extra fuel. They just use whatever they pick up along the trail. It is not large enough or heavy duty enough to cook food for a family, but it could be an option for heating water or cooking small amounts of food where fuel is scarce. There are multiple youtube videos that show you how it works.

You are probably all familiar with the **Sterno stoves** that use some brand of "canned heat." It is usually an alcohol based gel that you open the can and light the fumes coming off it. To extinguish it, you simply replace the lid. It is the same fuel used in chafing dishes at restaurants to keep buffet tables warm, so it can be used safely indoors. It is good in 72 hour kits because the stove and fuel are small and lightweight. It produces plenty of heat for warming food or boiling water, but is not very efficient at cooking large quantities. In fact, heating smaller quantities at a time and doing it in multiple batches will actually take less fuel than trying to cook a large quantity at once.

The **MSR Whisperlite stove** captured my attention because the canister that holds fuel can be filled with gasoline, kerosene or white gas. This would be very helpful and give you more options depending on fuel availabilty. You need to make sure you get the Universal model with the fuel jet that will work with each fuel or have multiple fuel jets. You fill the canister with the fuel of your choice and screw on the cap with the pump attached. Then you pump it to pressurize it, connect it to the stove tubing, open the valve to let fuel flow into the priming cup and burner ring, turn off the fuel flow valve, light it and wait for the initial flame to turn into the burning flame ring at the top. Then you turn back on the fuel flow valve and adjust the flow rate for how high you want the flame. Those who have used it say it is very hot and very fuel efficient. It can be used to cook for a small group of people.

Then there are the **small, fold-up stoves** that are often seen at military surplus stores that you burn bits of **Trioxane Fuel** bars, **Esbit solid fuel** cubes, or a squirt of some type of **gel fuel** in. These are all highly portable, give a quick, intense heat, and are fairly simple to use. The fuel is expensive, but it stores indefinitely, and will give you 10 – 15 minutes of burn time depending on how much of it you use. Again, probably not a good long term option to plan on cooking for your whole family, but great for 72 hour kits.

There are also **MRE heaters** which are designed for the Meals Ready to Eat (MRE's) that our military uses out in the field. If you have stored this type of food then these heaters are pretty convenient. You just add water to the pouch, place your unopened MRE inside a compartment of it and wait for the chemical reaction to take place and heat the food. They are a fairly expensive option, but would be great for the first few meals in an emergency where you were busy doing other things. They are also great for 72 hour kits.

Alcohol stoves come in all different configurations. They are fairly simply constructed, but differ on how the alcohol fumes (which is what burns) are supplied to the flame. There is the "**Stove in a Can**" that is made from a (new) quart paint can with a roll of toilet paper (tube removed) stuffed inside. When you are ready to use it, you pour alcohol in to cover the paper. You then light the alcohol fumes and the toilet paper acts as a wick and doesn't burn if you keep it covered by adding more alcohol as needed. You can use regular rubbing alcohol, but 30% of it is water and it doesn't burn as well as the **denatured alcohol** you find in the paint section of the store. Two ounces should burn 10-15 minutes. A good alcohol stove is called a **Trangia Swedish Alcohol Stove**. There are youtube videos showing how it works. It is compact, all the parts fit together in a canteen size container and it has an efficient way of supplying the alcohol fumes at multiple points to be burned. You can get them at military surplus stores. You don't want to blow on *any* alcohol stove to extinguish them. Put on a lid to smother the flame. Alcohol stoves are good for heating water or cooking smaller quantities of food.

If you have a **wood burning stove**, it is also possible to use it to cook on. It would be more useful in the wintertime since you would probably already be using it to help heat your home. In the summertime it might not be quite so convenient or comfortable. It is possible to obtain and store a large quantity of wood, so fuel wouldn't be a problem, but it also has a steep learning curve to learn to cook food efficiently and well. You would also **want to have a supply of heavy pans, long oven mitts, a good fire extinguisher, a shovel and a metal ash bucket for cleaning out the stove periodically.**

BAKING OPTIONS

What if you want to *bake* something? There is a very simple and inexpensive solution to that. It is called an **Apple Box Oven**. It is simply a large cardboard box that apples are shipped in that is completely covered with heavy duty aluminum foil and foil tape. It is inverted over a cookie cooling rack that is held up by 4 cans. You put burning charcoal underneath the rack on a cookie sheet covered with foil. Each briquette will give about 35 degrees of heat. If you want 350 degrees, you use 10 pieces of charcoal. It will give you this temperature for about 25 -30 minutes. **Burning charcoal gives off substantial Carbon Monoxide, so it must never be used indoors, or even in an enclosed garage!** If it is very cold outside, it may take a few more

charcoals to get up to the desired temperature. You can invert the cookie sheet underneath it to get the charcoal up off the cold ground and put a folded wool blanket on top of the oven to help get the temperature up higher. If what you are baking takes longer than 30 minutes, you can add more charcoal to the oven before the first charcoal goes out. Place the new pieces next to the burning ones. It takes about half again as much charcoal to extend your time another 20 – 25 minutes.

You want to conserve the heat inside the Apple Box oven, so unless you put a window made from an oven bag into your oven, checking on the food is a two person job. Have one person lift straight up off the coals while the other person checks the food. This keeps most of the heat inside the box. Then they simply put the box back down over the baking food. The outside of the box isn't hot, so I've found that it is much more trouble to put in the window than to just use this method to check the food. You can also set an oven thermometer in with the food if you want to keep track of the temperature inside. This method of baking takes about half as much charcoal as baking in a Dutch Oven. Charcoal stores indefinitely if you keep it dry and it isn't extremely flammable so it is safe to store. You need to buy a good brand like Kingsford and then store it in a sealed container like a plastic tote or garbage can to keep it dry. Then it will keep its BTU value (ability to produce heat) indefinitely. If you want to bake for one hour per day for a year you would need sixteen 20 lb. bags. 17 briquettes = 1 pound.

When using charcoal, you need to have some way to light it. If you don't want to store lighter fluid, you should invest in a **charcoal starter.** These look like an 8" diameter stovepipe with a handle. You can find them by the barbecue supplies during the summer. The "stovepipe" has a metal grate about 1/3 of the way up that you set your charcoal on. Then you wad up a sheet of newspaper underneath the grate and light it with a match. In 10 – 15 minutes your charcoal is ready to be placed into your Apple Box Oven or on your Dutch Oven. Also, you need to make sure charcoal is *completely cool* before disposing of it. That may take a surprisingly long time. Trust this advice from someone who almost caught a shed on fire by putting the charcoal ashes in a garbage can before they were completely cool! Also plan to store **matches** or some type of **lighter** to ignite the newspaper.

A **Dutch Oven** is a tried and true method of cooking and baking from pioneer times. The food is cooked in a large, heavy cast iron pot with a heavy lid and uses charcoal or a wood fire as a heat source. If you are an expert Dutch Oven cook, by all means put your talent to use in an emergency. You will be one of the most popular people on the block! It definitely is a skill that takes time and practice, so if this is your preferred method of cooking in an emergency, you need to put in the time to learn *now.* An emergency is not the time to waste food on mistakes.

A **Volcano Cooker** is an apparatus that allows you to use less charcoal with your Dutch Oven. It conserves the fuel by placing your Dutch Oven inside it to cook. It uses about half as much charcoal as the Dutch Oven alone. It allows you to use charcoal or pieces of wood as fuel. There is a new version called the **Volcano II** that is collapsible so it isn't as big and bulky as the original and it has an optional propane attachment, so you have the choice of three fuels. It runs about $140 with the propane attachment. It looks like a good all around choice for cooking and baking but it also **must be used outside.**

If you have a Coleman Campstove, they make a **folding Camp Oven** that sits on top of the stove and provides a compact oven to do small baking jobs. You can't fit a cookie sheet, but you can fit two small loaf pans. You can't use it in the house, but it would provide a *baking* option if you already have the Campstove.

There are **Propane Ovens** in most campers or trailers. You can also get a stand-alone combination propane cookstove with an oven. (Campchef Outdoor Camping Oven $190) They are more like gas ovens than electric ones. Just be aware that it cooks a little differently. I tend to burn things in them more easily and much prefer baking in my Apple Box oven or my SunOven.

SOLAR COOKING

Solar cooking is absolutely awesome. How can anything with free fuel be anything else? And harnessing the power of the sun directly without going through solar panels, charge controllers, batteries and invertors is simpler than you think. Solar cookers require three things: something to COLLECT the sun's rays, something to ABSORB them, and something to RETAIN them.

Collecting and concentrating the rays requires some type of reflective material like mylar or aluminum foil which can be backed with cardboard and then shaped into a cone-like structure. To help *absorb* the sun's rays you need the food to be in a **black or almost black container like a thin walled, dark colored pan with a lid or a mason jar spray painted black (the lid as well.)** Then to help *retain* the heat you need to place the pot or jar in a sealed, see-thru oven bag or inside a box covered with a pane of glass. All three components are necessary, and the more efficient each one is, the higher the temperature you will be able to reach. Note: if you plan to spray paint your cooking containers, it needs to be Barbecue Safe Black paint to withstand the high temperatures.

As you cook, you must also keep checking the cooker and facing it towards the sun as it makes its way across the sky. The best time for solar cooking is between 10 a.m. and 4 p.m. so you have to plan ahead. With my homemade solar cooker, the best I have been able to do is cook some minute rice, but for February, that was not too bad. If you are just planning to warm up some canned soups or water, it takes a while, but it works

The absolute Cadillac of solar cooking is the **SunOven**. It has been so efficiently designed that it will reach temperatures of 300 – 350 degrees on a sunny day here in January! That is plenty hot for baking at close to the normal times suggested in recipes. Other than fried foods, anything normally cooked on a stovetop or in an oven can be cooked in a SunOven. The SunOven's solar collecting array is highly reflective and wind resistant and the inside of the box is painted black so when the glass door is closed, it seals tightly and the temperature comes up very quickly. It has a thermometer mounted inside so you can tell what the temperature is, and a leveling tray that swings so the food is always upright even when you are tipping the oven to "catch the best rays." It weighs about 20 pounds, and carries like a suitcase when folded up for storage.

You can cook everything from a roast with potatoes, to bread and cookies. It may take a while longer, but because the oven and food are heating together, it is very hard to burn things. If you stop facing the oven directly towards the sun, it just stays warm until you want to eat. To turn the oven off, you simply turn it away from the sun. The reflectors and the outside of the oven box stay cool to the touch, but the glass and inside the oven get hot just like an oven so you need to use hotpads. You probably also want to wear sunglasses to protect your eyes when checking on the food or turning the oven. Because you can see thru the glass, you don't need to open it to check the food as often. That is good, since each time you open it to check it, you lose heat and prolong the cooking time. This method does require practice, but you have free fuel for at least part of the day for most of the year. This would be a first choice for cooking whenever the sun was shining to conserve your other fuels. The SunOven also enables you to keep your house cooler in the summer by doing your baking outside. (Runs $250 - $300. Watch for frequent specials that offer free cookware and other items.)

HEAT RETENTION COOKING

When deciding on cooking options, an important consideration is the use of fuel. You want to get the most bang for your buck. A wonderful way of extending your fuel is by using a butane or propane stove *in conjunction* with a **Wonderbox, Haybox, or Heat Retention Box Cooker.** They are all different names of an old-fashioned way of cooking that uses much less fuel. It is kind of the predecessor of today's crockpots or slowcookers. In the olden days, a box would literally be filled with hay to insulate the food and allow it to continue cooking even while off of the heat source. You would make a nest in the insulation and settle the pan down inside it. Then you would cover it with more insulating material. This way of cooking works best with

recipes with a large amount of liquid like a soup or a stew, or when boiling something until tender. It is *not* like a crockpot where you can just throw the ingredients in cold. All the ingredients are brought to a boil, simmered a few minutes on a stovetop, and then placed (with a tight-fitting lid) inside the box filled with insulation. It is then covered with a pillow or 4" or more of blankets or some other insulating material. (Regardless of whether or not you are using a heat retention cooker, you should always use a lid when cooking to help conserve fuel.)

Some of your recipes will need to be adjusted when you cook this way. This type of cooking will not need quite as much liquid as the usual recipe because you don't lose as much through evaporation during cooking. Also, spices will concentrate so you may need to use less, or you can use whole spices rather than ground ones. If you use meats, then brown them first and cut them in smaller chunks so they will cook thoroughly. You will want to have a **good thermometer** to check and make sure your box cooker does not get below 150 degrees. If it does drop below that before the food is done, simply bring the food back to boiling and put it back in the box. Cooking this way takes about 4 times longer than simmering on a stove, but *you are using only the fuel it takes to bring the food to a boil for a few minutes*. This is a major fuel savings! (If a recipe says to simmer 1 hour, it will take 4+ hours or if it says 30 minutes, check at 2 hours. Each time you open it up to check it, it loses heat. Pasta needs to be added about 15 minutes before it should be done and checked sooner rather than later or you may end up with mush!) It is the concept of retaining the heat to allow the food to continue cooking that is important. You can even take a commercial cooler or ice chest, pad it with blankets or pillows and place your pot inside that. Then place a couple of pillows on top and don't close the lid tightly, or it gets very wet inside from the escaping steam condensing. Remember, to work properly, you must have **at least 4" of insulation on all sides, top and bottom of the pot.**

Using a pressure cooker will also decrease the amount of fuel you use. A **pressure cooker will cook up to 10 times faster** and will even soften old beans. I know a lady who uses a pressure cooker and then puts it *inside* her Haybox cooker. She's one smart lady! (You do have to be careful not to tip off your pressure relief valve when you add the top pillows or insulation.)

Fuel is the weak link in any long term emergency. Most appliances you purchase only once, but without enough fuel to power them for as long as you may need them, they are useless to you. **You can significantly decrease your fuel needs by using these techniques.**

As you can see, there are numerous ways to cook your food that don't require electricity. I was not even able to cover every single way. This month will involve thinking about what would work best for your family and your situation and then trying out several options. If it helps to get enthused about this, think of what it would take to cook for your family on an extended camping trip. It is always best not to "put all your eggs in one basket." Having a back-up plan – or several back-up plans is always a good idea. Remember, our goal is to assess the CAPABILITY you already have and then to increase your CAPACITY.

Resources:

These websites give you pictures and more detailed info. This newsletter is the condensed version.

yourfamilyark.org - look under Cooking without Power and Fuel Storage

peaceofpreparedness.com - look in the Resource Library under Emergency Cookers

Alcohol - Swedish Army Trangia http://www.youtube.com/watch?v=mRXY_qKchVw&feature=related

Source – General Army/Navy Store or Online Army/Navy Surplus sites. Ebay

Butane stove – demo http://foodstoragemadeeasy.net/2012/01/26/indoor-powerless-cooking-butane-stoves/

Camp Chef Stove/Oven Source - General Army Navy Store – Salt Lake

http://www.generalarmynavy.com/CampChefOutdoorCampOven2BurnerStove-idv-52-96.html

Coleman Folding Camp Oven

http://www.coleman.com/coleman/ColemanCom/detail.asp?CategoryID=5150&product_id=2000009191#.T1N_YfX8mZQ

Kerosene Stove Source -Nitro-Pak – Heber City http://www.nitro-pak.com/alpaca-kerosene-stove

MSR WhisperLite Universal Stove Scheel's – Sandy, Utah

http://www.youtube.com/watch?v=TXXaIU0VNx0&feature=player_embedded

Rocket Stove

http://www.stovetec.net/us/index.php

http://www.youtube.com/watch?v=H7BcZD_IzCQ&feature=related

Sun Oven Source – Kitchen Kneads – West Jordan

http://www.sunoven.com/

(If ordering 5 or more you can become a group buy coordinator and get a lower price.)

Zip Stove

http://www.youtube.com/watch?v=k6qT8QAd0TM&feature=related

Local stores that have a variety of cooking appliances:

Grandma's Country Foods in Sandy

Emergency Essentials in South Jordan

Recreation Outlet in Salt Lake and Orem

General Army Navy Store in West Jordan