

## The Oil Drum: Campfire

### Discussions about Energy and Our Future

#### Energy-Conscious Cuisine

Posted by [Jason Bradford](#) on April 15, 2009 - 6:48pm in [The Oil Drum: Campfire](#)

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I tend to think of food in terms of the food system, which is the whole enchillada from farm to fork. What fascinated me when studying food from this perspective was that the greatest use of food system energy occurs at the household level. Therefore, I have spent a bit of time considering how to lower energy consumption in food storage and preparation.

If I wasn't taking a food system approach and was only interested in lowering energy the consumption at household level I might suggest buying highly processed foods that can be reheated in the microwave, or precooked grains such as parboiled rice and instant oats. But with a wide-boundary perspective I am starting with the premise that the household is buying foods that are primarily local, seasonal and in raw or whole forms. (In a previous posts I went over strategies to [store whole foods](#) and low energy methods to [preserve foods](#)). Just last week Craig Bergland discussed some of the equipment and techniques used to [cook stored food](#) without your typical modern kitchen. I thought this post would be a nice addition to those previous articles.

Much of what I discuss below probably describes how folks got by with little income, as in [Great Depression Cooking with Clara](#). Might it be possible during energy descent, the Long Emergency, or a simple bout of under employment to save energy, learn useful skills, and eat healthier than ever?



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First I'll give a little bit more background on energy in the food system. The graphic below shows that a high proportion of energy use happens in the home. Think of all the electricity the fridge/freezer uses and how hot ovens and stoves get.

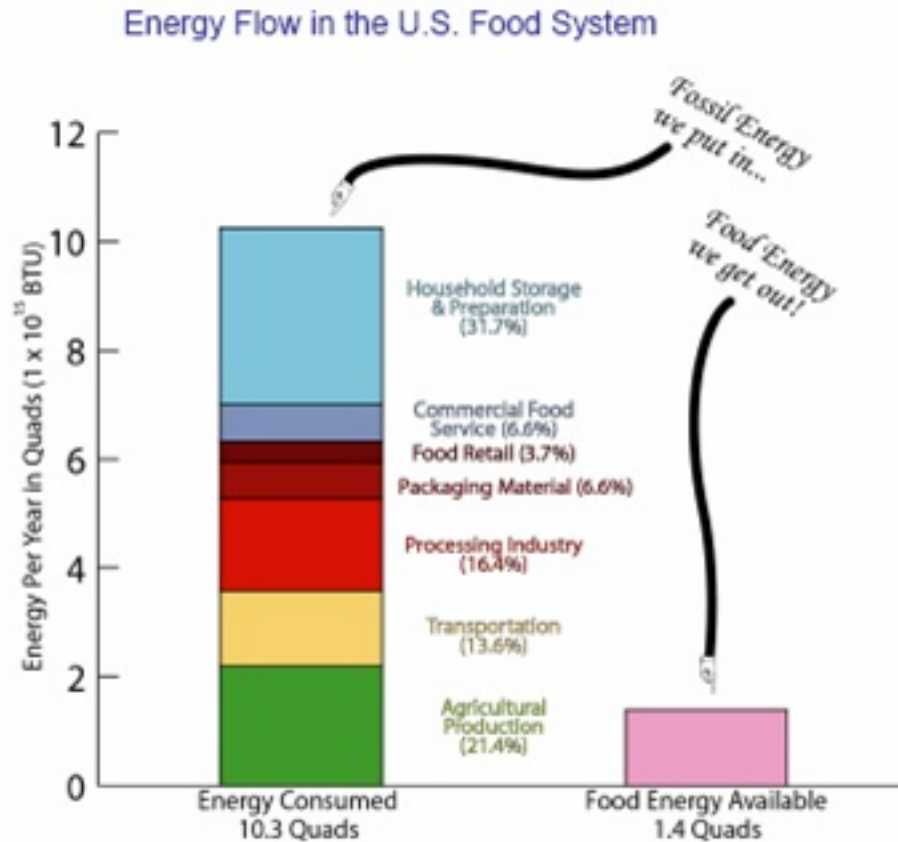


Image source: [http://css.snre.umich.edu/css\\_doc/CSSo1-06.pdf](http://css.snre.umich.edu/css_doc/CSSo1-06.pdf)

An average adult needs about 2400 food calories each day to maintain a healthy weight with modest activity. These calories come in many forms, including carbohydrates, proteins, and oils. Vitamins and minerals are also important parts of foods. But instead of dissecting food into nutritional parts, it is much easier to eat different kinds of whole, minimally processed foods because then nutrient deficiencies will rarely be a problem.

This article will help families plan meals using whole grains and beans starting from their dried form. Because many of us have relied on the modern food system for so long, including highly processed grains and beans, traditional techniques for preparing meals often need to be learned.

### **Types of Whole Foods**

This is not a recipe book, but a guide to thinking about food that will help families use whole and seasonal foods. Grains are primarily the seeds of grasses and include wheat, rice, and corn, as well as exotic non-grass seeds such as quinoa and amaranth. Dry beans, such as pintos and lentils, provide nutritional balance to the grains, especially with respect to protein. Sprouting is a way to get more vitamins out of easy to store items, such as wheat berries. Oils include animal fats and plant derivatives and are necessary for health. Sugars are calorie dense and improve the flavor of many foods. Fruits and vegetables are a broad category where the calorie dense crops such as potatoes are mixed with the likes of celery. Fruits and vegetables do not usually constitute significant caloric additions to the diet but are needed for vitamins, minerals, and fiber, as well as flavor and textures that make food interesting. The vegetarians among us show that eggs, meats and dairy products are not always necessary for good health, but they are a very dense form of balanced proteins, calories and fats.

This guide will not tell you how much to eat of what, but instead describes how to prepare and incorporate whole grains and beans into complete meals. This [previous article](#) would be useful for planning how much food a family eats. After mastering basic whole grain and bean preparation methods, it is then fairly easy to add variety and flavoring in the form of other types of food. Some included recipes can show you how.

## Cooking Whole Grains and Beans

Grains and beans provide the foundation of many diets. The approximate soaking and cooking times for a variety of grains and legumes is given in the table below. For all food items, the amount of dry grains and legumes in this chart is 1 cup and the yield is from 2 to 2.5 cups. 1 cup of dry grains or beans weighs about 6 oz and has between 550 and 600 calories.

Food	Water amount	Presoak time	Stove top time	Pressure cooker time	Solar oven time (ca. 250 F)
white rice	2 cups	none	20 minutes	n/a	1 hour
brown rice	2 cups	none	50 minutes	30 minutes	2 hours
wild rice	2 cups	none	50 minutes	30 minutes	2 hours
wheat	2 cups	none	1 hour	40 minutes	3 hours
hulled barley	3 cups	none	1 hour	40 minutes	3 hours
lentils	2.5 cups	none	1/2 hour	n/a	2 hours
chick peas	3 cups	6 hours	1 1/2 hours	10 minutes	5 hours
pintos	3 cups	6 hours	2 hours	3 minutes	6 hours
split peas	3 cups	6 hours	1/2 hour	n/a	2 hours
split peas	3 cups	none	n/a	8 minutes	3 hours

Rinse and replace the water of presoaked legumes. Place in a cooking container filled no more than 1/2 capacity. Cook in optional 1/2 to 1 teaspoon of salt for grains and 1 to 2 teaspoons of salt for presoaked beans. Always add 1 tablespoon of oil while cooking in a pressure cooker, which is optional on a stovetop or in a solar oven. Occasionally stir stovetop foods cooking 1 hour or longer.

Stovetop times are for simmering and do not include time to bring water to boil. Likewise, pressure cooker time is for the period at maximum pressure. Solar oven time is for the period spent in the oven and includes getting the pot to boiling temperature. Cloudy conditions that cause the oven to drop below 250 degrees F may lengthen cooking time.

In general, keep pots covered with lids unless stirring. White rice will finish cooking after being brought to a boil and then removed from heat. Foods that cook on a stovetop under 1 hour can be removed from heat at boil and placed in an insulated container to cook, such as a thermos or a pot wrapped in a thick towel. The cooking time is then similar to the solar cooker. Heat retaining

methods trap enough energy to maintain boiling temperatures long enough to finish the cooking process without fuel.

One method to reduce cooking times is to sprout grains and beans to the point where the root tip just emerges, which takes about 2 days. (More on sprouting below).

Older beans may take much longer to cook. An alternate use for old beans is to grind into flour. Add bean flour to bread recipes and as a soup and stew thickener.

### Sprouting Seeds

Sprouting seeds is a great way to obtain vitamins, enjoy grains and legumes without using cooking fuel, and create “fresh vegetables” even in the winter. Live seeds will begin germinating when given enough moisture and proper temperature. This converts starches to sugars, making seeds soft and easily digested.

**Steps to Sprout.** Begin by cleaning and rinsing seeds in a mason jar (about 1 quart works well). Refill jar with lukewarm drinking water and soak for the hours given in the chart on the next page. Cover the jar with a breathable lid, such as plastic mesh lid, nylon netting, or thin fabric held on with rubber band or a jar rim lid. Drain the soaking water (it should not be foamy). Let the seeds begin growing in the jar or spread on a tray. Keep in a warm place at about 65 to 80 degrees F. Rinse the seeds two to three times a day and drain excess water. Expose to sunlight, such as a window sill, as the seeds approach harvest time. Store in high humidity in the refrigerator and eat within 5 days.

Food	Amount	Soaking time	Sprouting time	End Volume
wheat	2/3 cup	12 hours	5 days	2 cups
lentils	1/2 cup	12 hours	3-4 days	2 cups
chick peas	1/2 cup	12 hours	2-3 days	2 cups
pintos	2/3 cup	12 hours	3-5 days	2 cups
alfalfa	2 tablespoons	4 hours	5-7 days	2 cups
clover	8 tablespoons	4-6 hours	3-5 days	2 cups
sunflower	1/4 cup	12 hours	3-4 days	2 cups
mustard	2 tablespoons	4-6 hours	3-4 days	2 cups

Some seeds sold for farming have been treated with pesticides and shouldn't be used for sprouting. Most seeds are healthy as sprouts, but those in the potato and tomato family are poisonous.

### Basic Recipes

Prepared grains and beans can form the base of many great meals. Some simple recipe ideas are given below. Instead of being specific, these recipes use general terms as much as possible. For example, "1 cup cereal" could be composed of any combination of cracked grains. The same is true of "flour" although gluten-containing flour, such as wheat or triticale, is needed for bread to rise substantially and not be crumbly. Nuts, dried fruits and seasonal vegetables can be whatever kinds you prefer or can obtain.

**Hot breakfast cereal.** This is simply coarsely ground grains and water, plus dairy, fruit, nuts and sugars. A general recipe for hot cereal is as follows:

3 cups water  
1 cup cereal  
1/2 teaspoon salt  
Honey, milk, fruit, nuts and spices to taste

Bring water and salt to boil. Stir in cereal and simmer for 5 minutes uncovered, stirring occasionally. Remove from heat, cover, and let sit for 7 minutes. Serve in bowls and add other ingredients to taste.

**Bread.** In its most basic form, bread combines finely ground grains (flour) with water and a leavening agent. Other liquids, fruits, nuts and a variety of flours may be used. A general bread recipe for one loaf is:

- 12 oz water (preferably warm)
- 1.5 teaspoons salt
- 1.5 tablespoons oil
- 2 tablespoons sugar or honey
- 4 cups flour
- 2 teaspoons yeast

Add all ingredients to a bread maker and run on the basic, whole wheat setting. Or, mix ingredients in large bowl and knead to form a large ball of dough. Cover bowl with cloth, set in a warm place and let rise to about double its volume (ca. 2 hours). Punch down the risen dough and form into a loaf (e.g., in a bread pan). Cover and let the bread rise again. Bake in oven at 350 degrees F for 40 to 60 minutes. Bread crust should be browned and sound hollow when tapped. Remove from pans and let cool.

**Energy bars.** Many people appreciate having small snacks throughout the day. These energy bars will store for weeks at room temperature. With a food processor this is a quick recipe.

- 1 cup finely chopped nuts and seeds
- 3 cups rolled oats
- 1 1/4 cups dried fruit, half finely chopped (size of small raisin or less) other half pureed.
- 1 1/2 cups cereal
- 1 1/2 cups water
- 3/4 cup honey
- 1/2 teaspoon salt
- 3 tablespoons vegetable oil
- 2 teaspoons of seasonings (e.g., vanilla extract, cinnamon, etc.)

Lightly toast the nuts and rolled oats. Combine toasted nuts and oats with chopped dried fruit. Boil water, add cereal, stir and then let sit for 3 minutes. Mix pureed fruit, honey, oil, salt and spices into hot cereal and keep on low heat for 7 minutes. Combine all ingredients, press into ca. 9 x 13 inch pan and let sit for 3 hours. Cut into bars and store in covered container.

**Seasonal stir fry.** Begin by cooking grains as described in the section above. While grains are cooking, chop seasonal vegetables into bite-size pieces. Try to include some alliums (i.e., onion, garlic, chive or leek) for a flavor base. Add chunks of meat if desired. When all ingredients are chopped, oil a large pan and place on high heat. Begin by stir frying meat, then add vegetables according to their hardness (e.g., carrots first, cabbage and sprouts last). Cook until just softened, and add whatever seasoning you prefer when nearly cooked. For meal planning purposes, 1 cup of grain will cook into 2-2.5 cups and be enough for about 2-3 people. Start with about 4 cups of raw vegetables, which will be nearly reduced in volume by half to become 2 cups of cooked vegetables, and the proportion of grains to vegetables will be about right.

**Seasonal soups and stews.** A great way to use leftovers or vegetables beyond their prime is to make a stew. Combine cooked grains and beans with chopped vegetables in pot. Add broth, water, seasonings, and any meat, and then simmer for about an hour to allow flavors to combine. Another option is to keep the grains and cooked meat out of the stew and then puree to make a smooth soup. At this point milk and cream can be added. Lastly, add the grains and meat to the soup and return to a brief simmer, or combine when serving. Consider topping with nuts, cheese, ground pepper or croutons.

*Note. This post was based on this handout, which was produced by Jason Bradford for North Coast Opportunities, Inc. and Willits Action Group for the Mendo Food Futures Project through a grant from the California Endowment, and with the collaboration of Willits Economic Localization (WELL). Permission to copy and distribute freely is explicitly given. A copy is [available here](#) as a pdf.*



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