

FOOD PREPARATION 101

Ed Boyd – Hill Country Survivalist

Are you also coordinating with other people who are also obtaining survival foodstuffs? If that's the case then you might consider fabricating a Nitrogen Packaging System to share among the group. It will cost you about \$200 to \$250 to do this, but divided between several people it is worth the effort. I will explain this option in detail in just a minute. First, let's cover the other options for bulk-grain purchases.

There are many outlets available (mostly online) which allow you to purchase pre-packaged bulk grains. One of the least expensive I've found for certain bulk items is from the *Church of Jesus Christ of Latter Day Saints* (or LDS for short). The LDS has, as part of their teachings, the requirement of their followers of stockpiling food for emergencies. A very wise tenet; and even if you might not agree with their religious views, you should greatly respect this facet of their doctrine. There are however only a few very basic items which can be had from their sales department: Hard Red Wheat, Long Grain White Rice, Pinto Beans and Rolled Oats, to be specific. They do have a few other items for sale that can be purchased "in person" but these are the four which are available online. They sell these products already packaged in #10 cans (about 1 gallon) with six cans to the case. They can only be purchased *by the case*, but their case price is very reasonable. If you wish to order these most basic of items from the LDS Online Catalog, you can find them at www.ldscatalog.com. At this writing the products are selling for the following price-per-case: Wheat = \$30.50, Rice = \$43.50, Oats = \$23.25 and Pinto Beans = \$36.75. Just a scant few months ago when I was making purchases from them, they were quite a bit cheaper, so these prices will obviously reflect the current market for these items and thus can be expected to increase rather than decrease at least for the foreseeable future.

One important note: if you have an outlet for purchasing such items locally, then by all means make use of it. With the increases in fuel prices also comes drastic increases in shipping costs. Especially with such bulky, heavy items, you're liable to experience an enormous shipping cost and it will also likely have to be truck-shipped rather than shipped via standard methods such as UPS or FedEx. Try to buy locally if at all possible.

One caution needs to be considered with any purchase; be it local or distant. Check to make sure your grains and other foodstuffs are not genetically modified (non GMO). GMO products might save your life in a pinch and frankly, with the current panic and great upswing of other people purchasing such items it might be unavoidable, but always attempt to go non-GMO if at all possible.

The only other truly important item to add to your storage regimen is seeds and equipment for growing sprouts. *Sprouting Kits* can be purchased from any of the same online stores that sell bulk items. Get some. *Get several per person*. Sprouts of many different plants can be used. Alfalfa and Mung Beans are but a couple of examples. Sprouts are *extremely nutritious* and will help you retain your overall health when other supplements are not available. They also happen to taste good, which is a nice perk. There really is nothing fancy about a Sprout Kit. It's simply a pint-sized greenhouse, for lack of a better term. Just add some potting soil and water and voila!

Your sprouts will begin to pop up within a couple of days. They can be harvested over and over again too.

Food Preparation Equipment

The first-and-foremost item to consider is a grain mill; and I mean a good grain mill. I don't care if you have a zillion pounds of stored grains and beans, if you don't have a dependable means of processing them then you're in trouble. The lower end mills run less than \$100, but the ones which can serve you really well can be expected to cost you in the \$350 range and up. The one I own and highly recommend is the *Country Living Grain Mill*. It is of very high quality and will serve you well for generations. It's also upgradeable for operating with an electric motor if you so choose. With this or any other grain mill, you should also seriously consider purchasing the critical spare parts too. With mine, I purchased a spare parts kit which contains all such critical parts. I also purchased a special (larger) auger for processing corn and beans and other larger seeds. I also made sure to get an extension handle which drastically reduces the effort necessary to operate the crank (and it's *still* quite taxing!) Lastly, I also made sure to get a set of spare burrs (the grinding plates) since, being cast and hence brittle, they can break and/or wear out from extensive usage. Without these spare parts you would have a \$350 paperweight if it ever broke down! The spare burrs and other extra parts brought my total to about \$500 for the whole package. Expensive – yes – but an expense that's every bit as important as the food itself! Something to consider once again is to possibly get together with other prepared individuals you know and pool your resources for a really good mill.



The Country Living Grain Mill (Note that the large wheel has a v-groove for using a belt for electric operation)

So what other considerations are there for your food preparation tools? The next system to consider is *Canning*. It's actually not all that expensive to get started, but there are important parts of the system that you must purchase in order to can foods in a safe and successful manner. The name “canning” implies that you will be

using cans, which is misleading in and of itself. You will in fact be using special jars which are used specifically for this purpose. Canning jars come in many sizes and brands, but the standard is from the *Kerr Co.* and are commonly referred to as *Mason Jars*. They can be purchased in sizes ranging from ¼ pint all the way to 1 gallon, but there are typically only two sizes of lids: regular and wide-mouth. The wide-mouth type have the advantage of being, well, wider and hence easier to get larger items inside them. The only real disadvantage to this is that the tops are a bit larger and therefore a bit more expensive (but the extra expense is almost negligible). The standard jar – if there is one – would have to be the quart sized jar. These jars and lids can be purchased at just about any department store (even Walmart has them). The lids are in two parts: the ring (which has the screw-on part) and the seals (which have a plastic gasket that tightly adheres to the top of the jar). These lids are intended to be used only once and then discarded, so make sure to get many more lids than you have jars. Technically the jars themselves are meant to be used only once and the jar manufacturers state that for legal reasons, but in reality, with a bit of caution, you should be able to reuse them over and over without any problem. Now that you've secured several cases (usually a dozen per case) of jars, you'll now need either a large pot for canning via the *Water Bath Method* or a *Pressure Cooker* for using that method. I can't stress enough that you should opt for the latter as it is a much better method. Pressure canning is not only safer, but also you'll have far fewer “misses” with respect to your success in sealing the lids.



An assortment of Mason jars



Presto brand Pressure Cooker

There are many more incidental items you can and probably should purchase for assisting you in canning your food easily and successfully. Some of these include tongs for removing the jars from the hot water, a special basket for holding several jars at once and which perfectly fits within the pressure cooker, a wide-mouthed funnel for help in pouring your liquid ingredients into your jars, etc. If you have a garden – and you certainly should if you expect to survive without having to tap into your valuable long-term stored food unless it becomes absolutely necessary – then you should definitely purchase a decent supply of canning equipment; especially since it is

relatively inexpensive and easy to utilize.

There are of course many other methods for preserving foods, such as drying (both vegetables, fruits and meats) and pickling (which actually falls into the realm of canning as well). Just a few necessary items will get you the capability to make use of these techniques for very little expense. Get some books on these processes and educate yourself. You won't be sorry you did.

Nitrogen-Packaging Gear

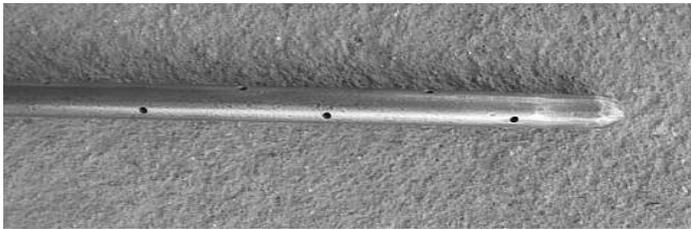
Now to discuss what is the most involved process to consider, but should be considered if you are pooling your resources with a group of several other survivalists. Now I'll walk you through the process of *Nitrogen Packaging* your own dry goods. First I'll describe one method for constructing a nitrogen packaging "rig." At almost any welding supply shop, you can also either purchase or rent (I suggest renting – it's much cheaper) a bottle of nitrogen. Typically, it's about \$100+ per year to rent the bottle and at current prices it's about \$38 to fill a 230-pound bottle with nitrogen. If you run out of gas at some point all you have to do is return the empty bottle and "swap it out" with one that is already filled; at least this is the usual method. Just ask your welding supply representative for the details particular to their shop. Once you've secured your bottle, you can likely also order an appropriate regulator from the same shop. *The regulator must be for inert gas* (which includes nitrogen) and must be able to be regulated within the 0 -to- 100 pound range of pressure accurately. If the secondary gauge (ie, the pressure at the wand) has a range of 0 -to- several-hundred pounds, that should serve just fine, as long as you can easily and accurately set the pressure to between 0-psi and 70-psi, then the regulator will work. Next, you'll have to do a bit of fabrication in order to make the "wand" for inserting into the buckets you'll be using for packaging.

"Volunteer" whomever you might know who knows about welding, because you'll not only need their services for a small job, but also it's wise to consult with them since you are after all dealing with a high-pressure system (2,000psi to 2,500psi with a full bottle!) and they can help make sure you do everything safely. I only had to weld one part of the entire outfit and it was a no-brainer. What I did was to weld a steel ball-bearing onto the end of a 3 foot length of 1/4 inch steel pipe and then ground it and sanded the entire pipe (but especially the end) down until it was very smooth. Thread the end opposite the rounded tip and then drill several small (1/16th inch or so) holes in various directions along about an 8" portion starting at the rounded tip and working your way up the pipe. Purchase a small brass ball-valve (1/4 inch threads) and screw it onto the threaded end of the pipe. This will serve as your "on/off" valve. Then, use a readily available air-hose and appropriate fittings in order to attach the wand to the output point of the regulator. I've included some photos of my own rig in order to help you construct your own setup. Once you get your "community rig" fabricated, then you'll be ready to get the remaining items you'll need for successfully nitrogen-packaging all of your bulk items. One important tip: Always turn off the nitrogen supply main valve (between the bottle and the regulator) after you're done with each packaging session, as it will almost definitely leak out slowly. You'd hate to have to come back to an empty bottle after a day or two; especially if you just filled it. Tip #2: Always remove the regulator and replace the screw-on cap onto the bottle before

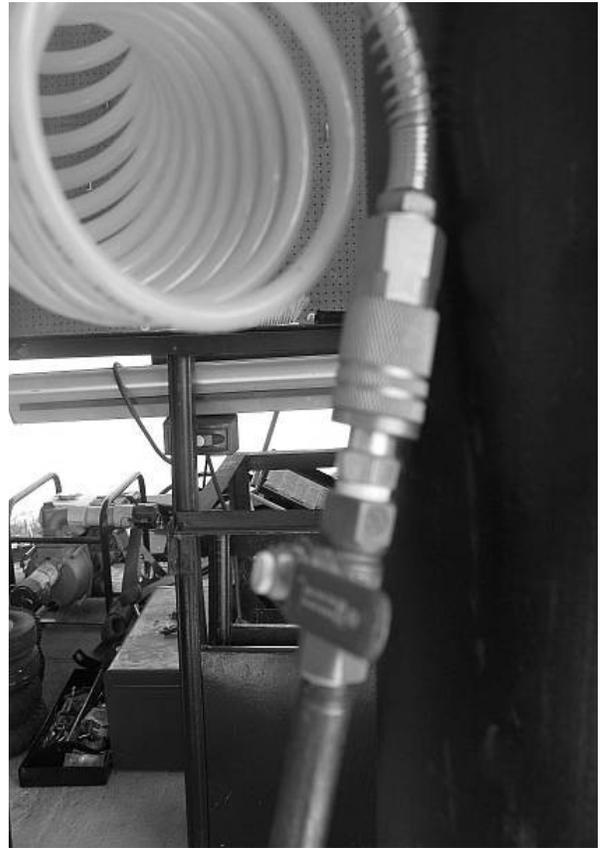
transporting it – or even moving it around your packaging area. If it falls over and the valve breaks off, you'll know what it's like to watch a 200lb “torpedo” shooting around the room!



Regulator detail



Wand tip detail



Top of wand showing ball-valve (for on/off control while in use)



The Completed Rig



ALWAYS CAP YOUR BOTTLE prior to moving it!

Now that you have your (or your “community”) rig assembled and ready for service, it's time to begin gathering the necessary materials for packaging your bulk items into some appropriate containers. This of course begs the question, “just what comprises an 'appropriate' container?” Well, any container used should parallel the durability of the nitrogen packaging process itself. Buckets are available in sizes ranging from one to seven gallons. Five and six gallon buckets are the preferred size, since they are the most common and therefore generally speaking the least expensive. There are usually a few (or many in a larger city) resources for obtaining used buckets. Look for food service industries which receive their supplies in five and six gallon buckets. *Never* use buckets which have been used for anything other than food; such as paint or other such chemicals. Oftentimes, these companies will sell their used buckets to you for far less than you can purchase new buckets. In fact, sometimes they'll even give them to you for free, since their alternative might be to pay in order to dispose of them. It's wise to offer to give them a small fee for their kindness however, since this will serve to ingratiate them to you and hopefully your fellow preparedness crew. It's always nice to have such “friendly suppliers” available to you and your group.

One key point is to make sure and check not only the physical integrity of the bucket, but also especially the top rim. Check for cracks and roughness along the top edge, since if it's too rough, you won't be able to make a good seal with your lids. If the edge is just a bit rough, you can likely smooth it out using a bit of sandpaper (an electric sander makes quick work of this problem).

There's always the alternative of using new buckets of course, but as long as you're diligent in your inspection of used buckets and as long as they are “food service” buckets to begin with, you should be just fine utilizing used buckets.

Now, you'll of course need to get some lids for them as well. As with most other things, buckets and lids are manufactured by many, many different companies and you must use a bit of trial-and-error to see which lids will fit onto which buckets. I highly recommend that you use new lids, since they will have a new seal. Almost all used lids that I've ever seen have been removed by less-than-careful methods. The typical method is to use a utility knife to cut the built-in thin slots and then by using a screwdriver or other prying mechanism to pop them off. This pretty much guarantees that the lid will be compromised, especially when the seal must be trusted for the next few decades. Bottom line: use new lids!

I've used many used and many new buckets. After a while, you will learn to differentiate which buckets will work for the new lids you have purchased. There seems to be somewhat of an “industry standard” with respect to buckets, but you just need to be able to determine which buckets are of this “standard” variety and which ones are not. Just for the record, almost all such “standard” lids will fit the five, six and seven gallon varieties of the “standard” buckets.

If you plan on filling a lot of buckets, it would also be wise to purchase a “lid lifter” which is specifically designed for removing bucket lids. If for whatever reason you need to remove a sealed lid, you can do so with one of the devices without damaging the lid (or the seal underneath). This device is like a large can opener. The one I own even has a built-in “bung wrench” for removing the bung-plugs on drums,

which is also quite handy. They can be purchased for about ten dollars at any place that sells buckets (and at some bulk food places as well).

Some of the other tools you'll need in your nitrogen-packaging toolbox are a medium-sized rubber mallet, plenty of electrical tape, a handful of large markers, a supply of food-grade desiccant (to control humidity) and oxygen-absorbers (to counter any remaining oxygen that might be present) and some appropriately sized mylar bags.

The mallet, tape and markers are a no-brainer, but the desiccant/O₂ absorbers and bags need to be explained further.

First, the desiccant and oxygen-absorbers may be purchased at the many of the bulk food supply sources. They are sized according to their volumetric capacity.

Sources for the mylar bags can also frequently be purchased from bulk food suppliers and elsewhere on the web (I use the 4.3-mil 20" x 30" bags from *Impak Corporation* at www.sorbentsystems.com). These mylar bags should be thick enough to consider "food grade" (4-mil to 7-mil range) and sized appropriately to the containers you plan to use. Note that the thicker bags (7-mil, etc.) are – at least in my experience – too thick and "stiff" to seal properly, which is why I stick with the 4.3-mil bags. Bear in mind that the bags will be quite a bit larger than the actual dimensions of a bucket due to the fact that they must be cinched-up at the top and sealed with the electrical tape prior to sealing the lid; hence they are taller than the bucket. The "mylar" part simply means that these are plastic bags which have been "metalized" with a very thin layer of aluminum. This completely eliminates any permeability through the bag which locks the nitrogen in and keeps any oxygen out. These bags are similar to the shiny, helium-filled "birthday balloons" you've seen in discount stores, except that they are quite a bit thicker.

Now that you have all your tools and equipment in order, let's get started with the packaging process:

First, insert one of the mylar bags into a bucket and "pooch it out" to fit the shape of the bucket as best you can. Open up the top that is sticking above the bucket as wide as you can (like a funnel) so that the product will be easier to pour into the bucket. **PUT YOUR DESICCANT AT THE BOTTOM FIRST.** Fill the bucket up to about one-and-a-half to two inches (you'll need a head-space) or so below the top of the bucket. Give the bucket several good taps, shakes and drops in order to settle the product down into the bucket as best you can. This will also serve to finish "pooching out" the mylar bag to mate with the bucket. Now, toss in the appropriate quantity of O₂ absorbers and you're ready to fill-and-seal the product. The handiest absorbers I've found are rated to handle one gallon of air per absorber, hence you will need to toss in five of them for a five gallon bucket. These absorbers are intended to tackle the one-to-two percent of oxygen remaining after you've purged the bucket with your nitrogen. The desiccant sizes vary, but a common one will handle two-and-a-half gallons per packet (hence, you'll need two per bucket).

On most grains and larger/heavier items I use a fill-pressure of around 70psi. With some of the "fluffier" items, you'll need to turn down the pressure to the 20-to-

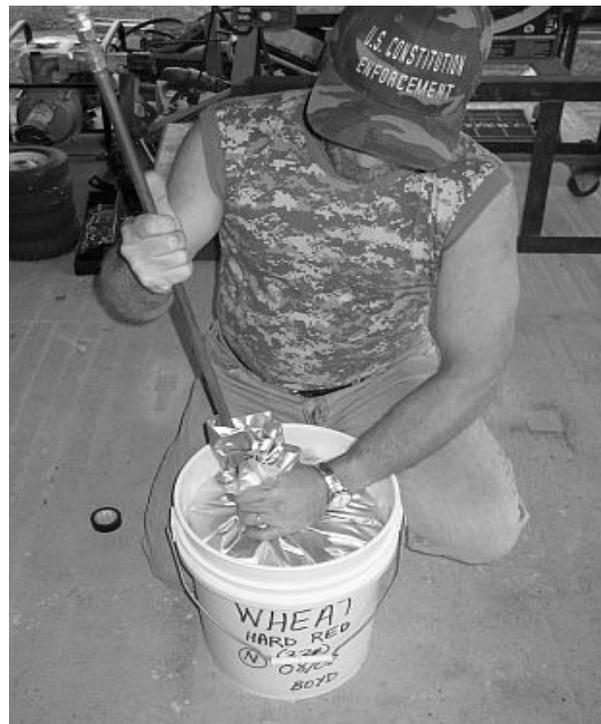
30psi range (such as for rolled oats), otherwise you'll be creating your very own *Old Faithful* in your garage! It'll take a bit of trial-and-error, but you'll get the hang of it quickly. After you've inserted your wand and prior to turning on the valve to apply nitrogen, bunch-up the mylar bag's top as tightly as possible around the wand. This will give a decent seal which will make the purging much quicker and reliable. Once you've turned on the gas, just slowly and methodically bring the wand in and out, pushing it into a different area of the product with each successive insertion. On the final insertion (ie; once you feel that all the oxygen has been purged), bring it out slowly straight up past the top and on out of the bag. Quickly give a tight-twist to the bag's top and use the electrical tape to tightly secure the twisted-up top of the bag. After this is done, all you now have to do is use the rubber mallet to hammer-on the new lid and your job is complete; well, except for marking down a description of the product inside, which is what the marker is for. Make sure that you indicate the type and weight of the product and of course the date on which you packaged it. What I like to do is put an "N" with a circle around it which serves as an indicator that it has been nitrogen packed (there will be some products that you may wish to put into buckets but which require no nitrogen-packaging; such as salt for instance).

One nice part about using buckets is that they can be stacked several containers high and this leaves a very small footprint for storage. It's truly surprising at how little space even a couple of hundred buckets takes if they are stacked up neatly.

One last tip: If you wish to be able to use your product at will with repeated resealing, it's handy to make use of the "gamma seal" type lids rather than the permanent seal type. A good example of this might be for salt and sugar.



STEP 1 - Filling & Adding Desiccant/O2-Absorbers



STEP 2 - Purging the Oxygen & Introducing Nitrogen



STEP 3 - Sealing the Mylar Bag (Note the Need for Head-space)



STEP 4 - Sealing the Lid (DON'T Do This Haphazardly - It MUST Seal Correctly!)



STEP 5 - Labeling the Product (CLEARLY!)



"Gamma Seal" Type Lid Assembly & Aluminum Lid-Lifter Tool