PIONEERING TODAY
ACADEMY

Pantry Prep: BUILD A YEAR-ROUND PANTRY FOR YOUR HOMESTEAD

Welcome!

I'm thrilled you're here and investing in food storage for yourself and your family. It's only been in the last hundred years or so that this has become an uncommon practice. Much of humanity's history includes gathering the harvest and storing it for the winter months until the next harvest season.

"Go to the ant, O sluggard; consider her ways, and be wise. Without having any chief, officer, or ruler, she prepares her bread in summer and gathers her food in harvest." Proverbs 6:6-8

This isn't a new practice, something only "preppers" or conspiracy theorists do, this is simply returning to our roots and a traditional skill set that stretches back to biblical times.

What is the definition of preparedness? According to Merriam-Webster it simply means, "the state of being prepared." That essentially means to plan ahead for some reason. Each person's reason is different.

It can be for inclement weather where food isn't able to get to the store or you aren't able to get to the store. It can be where the power is out and stores aren't able to operate (if for extended periods of time). Perhaps it's finding healthier alternatives and supporting companies who practice growing conditions you wish to support for your health and that of the planet. It may be for a job loss or finances are needed for something else other than food purchases. It could be for some unforeseen widespread issue that affects the food supply chain but that is relatively low on my list of reasons.

I don't believe in investing our time or money into things we don't use in our everyday life. Our food storage is primarily filled with what our family will use within two years.

The long-term pantry gets cycled through so that things don't get lost to the back of the pantry. We work hard for our money and it would be a waste for things to expire in the back of the pantry.

With where I live, we have at times been stuck at home, unable to get through mudslides. Additionally, we lose power a lot. This necessitates being prepared for what Mother Nature throws our way.

It's not only economical but brings great peace of mind.

I'm excited to help you on this journey!

Blessings and Mason jars,

♡Melissa

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SUGGESTED SUPPLY AMOUNTS PER PERSON

These amounts below are based on averages suggested for a standard household. If you preserve food through canning, you will need to adjust the amounts of salt, sugars, and vinegar to accommodate canning fruit, jams, jellies, pickles, etc.

	ITEM	3 MONTHS	6 MONTHS	1 YEAR
Grains	Wheat berries Flour Cornmeal Rolled Oats White Rice Pearled Barley Pasta	50 lbs 5 lbs 10 1/2 lbs 12 1/2 lbs 20 lbs 1 1/2 lbs 10 1/2 lbs	100 lbs 10 lbs 21 lb 25 lbs 40 lbs 3 lbs 21 lb	200 lbs 20 lbs 42 lbs 50 lbs 80 lbs 5 lbs 42 lbs
Legumes, Dry	Beans Lima Beans Split Peas Lentils	11 1/4 lbs 1/2 lb 1/2 lb 1/2 lb	22 1/2 lb 1 lbs 1 lbs 1 lbs	45 lbs 2 lbs 2 lbs 2 lbs
Fats & Oils	Cooking Oils (Olive, Coconut, Avocado, Sunflower, etc.) Lard Peanut Butter Mayo Butter/Ghee	1/2 gallon 1 pint 1 lb 8 oz 5 lbs	1 gallon 1 quart 2 lbs 1 pint 10 lbs	2 gallons 2 quarts 4 lbs 1 quart 20 lbs
Sugars	Sugar, Brown Sugar, White Molasses Honey	1 lb 10 lbs 1/4 lb 3/4 lb	2 lbs 20 lbs 1/2 lb 1 1/2 lbs	3 lbs 40 lbs 1 lbs 3 lbs
Miscellaneous Essentials	Yeast Baking Soda Baking Powder Vinegar Salt Milk, Dry Milk, Evaporated (12 oz. can)	1/4 lb 1/4 lb 1/4 lb 1 quart 2 lbs 3 1/2 lbs 3 cans	1/2 lb 1/2 lb 1/2 lb 1/2 gallon 4 lbs 7 lbs 6 cans	1 lb 1 lb 1 lb 1 gallon 8 lbs 14 lbs 12 cans

This is obviously not an extensive list because every family is unique (we have done for you checklists and worksheets inside the ***Pioneering Today Academy***). Each person has their likes and dislikes, available local resources, as well as space and ability to grow their own fruits, vegetables, spices and herbs. As such, meats, produce, spices and herbs are not included.

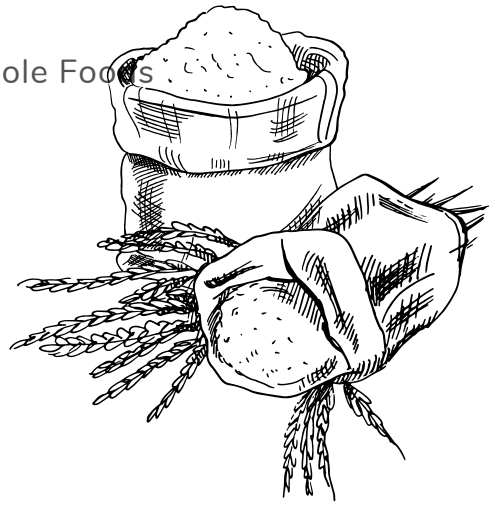
For your personalized list, you'll want to add those items that you'd like to stock, but are unable to obtain from a locally grown source. Think things like cinnamon and nutmeg, dried tropical fruits, nuts like pistachios and cashews, etc.

SOURCING PANTRY STAPLES

Knowing where to source your pantry staples is vital to keeping a well-stocked pantry/larder. It also lessens stress and time spent "hunting" for certain items.

BULK FOOD SOURCES

1. Azure Standard - https://www.azurestandard.com/?a_aid=bf5ddcdac5
    - **Coupon code: Melissa15** for 15% off an order of $100 (for first-time customers only)
2. Local Grain Mills and Farms
3. Local Cooperative
4. https://www.nationalco-opdirectory.com/
5. https://www.grocery.coop/all-coops
6. https://www.localharvest.org/food-coops/
7. Costco, Sam's Club or other large "membership" warehouse
8. Amish and Mennonite stores - http://www.simplyprepared.com/the-basics/food-sources-for-food-storage/amish-and-mennonite-stores/
9. Einkorn.com/direct from the source
10. Grocery Store with a Bulk Food section: i.e. Whole Foods
11. Amazon



STORAGE CONTAINERS, LIDS, MYLAR BAGS AND MORE

Check with local bakeries and drive-ins for food grade 2-, 3- and 5-gallon buckets, many will sell them to you for just a few dollars. Drive-ins buy pickles in 5-gallon buckets and many bakeries purchase frosting in 2- or 3-gallon buckets. You want to make sure that you are purchasing “food grade” containers.

- Azure - https://www.azurestandard.com/shop/category/household-family/emergency-preparedness/22120
- Lehman’s - https://www.lehmans.com/category/emergency-supplies/?utm_source=pepperjam&utm_medium=affiliate&utm_campaign=279683&clickId=4636037058
- Uline - https://www.uline.com/BL_8150/Plastic-Pails-and-Lids?keywords=lids and https://www.uline.com/Product/AdvSearchResult?keywords=mylar
- USA Emergency Supply- https://www.usaemergencysupply.com/
- Amazon- Mylar Bags and Oxygen Absorbers and Gamma Lids

PRESERVING SUPPLIES

- Lehman’s - https://www.lehmans.com/category/canning//?utm_source=pepperjam&utm_medium=affiliate&utm_campaign=279683&clickId=4636037058
- Azure - https://www.azurestandard.com/shop/search/canning
- Denali - https://denalicanning.com/
- Harvest Guard Reusable Canning Lids - https://canninglids.com/
- Tattler Reusable Canning Lids - https://www.reusablecanninglids.com/
- ForJars Bulk Canning Lids - https://forjars.co?sca_ref=2195304.2kwlXXZ7Yw 10% off with coupon code "Modern10"
- Re-Cap lids- https://masonjars.com/reCAP?product_list_limit=30 (not for canning)
- Mason tops - https://www.masontops.com/collections/all (not for canning)
- Pressure canner spare parts - https://www.redhillgeneralstore.com/housewares/kitchen/kitacc/Pressure-Cooker-Part.htm
- Excalibur Dehydrator spare parts - https://excaliburdehydrator.com/collections/replacement-parts

- Nesco Dehydrator spare parts - https://www.nesco.com/product-category/dehydrating/dehydrating-accessories/
- All American Pressure Canners - https://www.allamerican1930.com/?ref=nzk0mdv
- Check with your locally owned hardware, farm/feed and grocery stores. If you ask, they may do a bulk order for you if you pay in advance.
- You can also check big box stores like Target and Walmart, Tractor Supply, Ace Hardware, Lowe's and Home Depot. If you can't find them in store, check their websites.

HOME FOOD PRESERVATION

I sincerely hope home food preservation plays a role in your pantry preparedness and food storage. A large majority of our larder consists of foods we've grown and preserved at home. Regardless if you have a garden, learning the skills of home food preservation will serve you and your family well.

There are 9 ways to preserve food at home:

1. Cold storage (aka freezer)
2. Water bath/steam canning
3. Pressure canning
4. Dehydrating
5. Fermenting
6. Freeze-drying
7. Root cellar
8. Infusion
9. Salt/curing

The basic mechanisms of food preservation are below (and many of the 9 ways employ multiple mechanisms together):

- Acidity (pH levels)
- Moisture
- Temperature
- Oxygen

Food can be safely preserved by reducing the enzyme activity and growth of microorganisms when we manipulate conditions such as pH levels, moisture, and temperature. Some methods will slow down this activity, while others will halt and even destroy it.

Let's take a closer look:

Acidity (pH Levels)—Microorganisms, such as botulism, cannot grow at a pH of 4.6 or lower. Changing the acidity of food (as in fermentation) or via pickling vegetables with appropriate brine ratios will halt the growth of microorganisms.

Moisture—Microorganisms need moisture to grow. Depending on how much moisture is removed (as in dehydration or curing), the growth of microorganisms is drastically reduced or halted.

Temperature—Temperature can either be increased (as in pressure canning) or decreased (as in freezing) to affect the growth of microorganisms. When raised high enough, the temperature can destroy the microorganisms, and when lowered it will halt the growth.

Oxygen—Microbial growth can be slowed down when placed in an anaerobic state (removal of oxygen) in methods such as canning and submersion in oil (botulism is an exception; it grows in an anaerobic state, which is why we use carefully tested methods when canning or using anaerobic techniques).

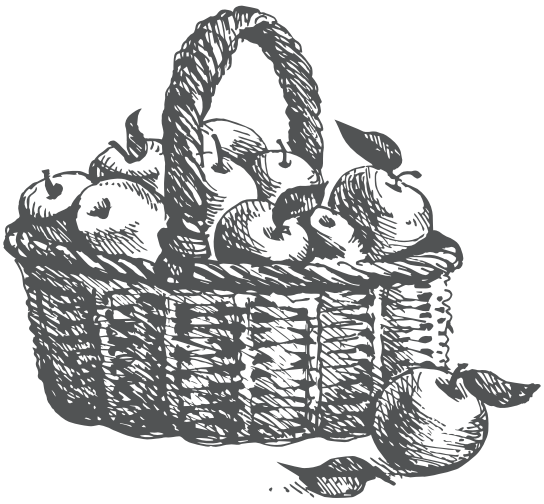
If you are new to home food preservation, I have entire courses but highly recommend you educate yourself in order to stay safe, especially with canning. I have a free Canning Safety Course here.

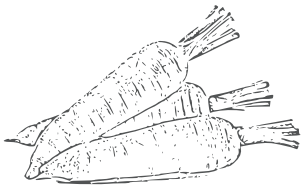
HOW MUCH TO PLANT PER PERSON FOR A YEAR

HOW MUCH FRUIT TO PLANT

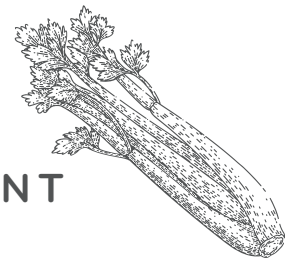
FRUITS	FRESH VOLUME	YIELD PROCESSED			YIELD PER PLANT
		CANNED	FROZEN	OTHER	
Apples	1 bushel (42-48 lbs)	12 - 16 quarts	28 - 36 pints	Root cellar storage	Dwarf 5-6 bushels Semi-Dwarf 10-15 bushels Standard 15-20 bushels
	3 lbs	1 quart	2 pints		
	1 peck = 10 to 14 lbs				
Apricots	1 bushel (50 lbs)	20 - 25 quarts			Miniature 1-2 pecks Dwarf 1-2 bushels Standard 3-4 bushels
	16 lbs	7 quarts			
	10 lbs	9 pints			
Berries (general) except strawberries	24-quart crate	12 - 18 quarts	32 - 36 pints		1 - 2 plants
	5 - 8 cups	1 quart	2 - 3 pints		
Blackberries	1 quart (2 pints)	1 pint	3/4 quart		2 - 4 plants per person 1 - 2 quarts per plant
Blueberries	1 quart	1 pint	1 quart		2 plants per person 3 - 4 quarts per plant
	3lbs	1 quart			
Cherries	1 quart	1 quart, unpitted	1quart, unpitted		**Sweet:** Dwarf 8-10 gallons Semi-Dwarf 10- 15 gallons Standard 15-20 gallons **Sour:** Dwarf 3-5 gallons Semi-Dwarf 12- 18 gallons
	2 to 2 ½ lb	1 quart, unpitted			
Grapes	1 bushel (44-50 lbs with stems)	16 qt. of juice			5-15 pounds per vine
	2 quarts	1 quart			

FRUITS	FRESH VOLUME	YIELD PROCESSED			YIELD PER PLANT
		CANNED	FROZEN	OTHER	
Peaches	1 bushel (48 lbs)	18-24 quarts	32 - 48 pints		Miniature 1-2 pecks Dwarf 3-4 bushels Standard 6-10 bushels
	2-2.5 lbs		2 pints		
Pears	1 bushel (56 lbs)	20 - 25 quarts	40-50 pints		Dwarf 6-8 bushels Standard 12-15 bushels
	2-2.5 lbs	1 quart	2 pints		
Plums	1 bushel	24 - 30 qt. canned			**European:** Dwarf 0.5-1 bushel Standard 1-2 bushels **Japanese:** Dwarf 3-4 bushels Semi-Dwarf 4-5 bushels Standard 5-6 bushels
	2-2.5 lbs	1 quart			
Raspberries	*See Berries*				10 - 25 plants per person 1-2 quarts per plant
Rhubarb	1 bunch = 2 - 2 ½ lbs			1 lb cooked = ¾ cup	2 - 3 crowns per person 2 lbs per crown
Blueberries	24 quart crate	12-16 quarts	38 pints		20 - 25 plants per person 1lb or 1 pint per plant
	6-8 cups	1 quart	2 pints		



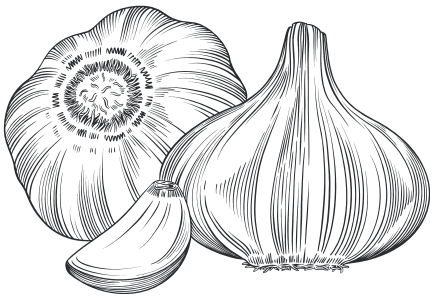


HOW MANY VEGETABLES TO PLANT



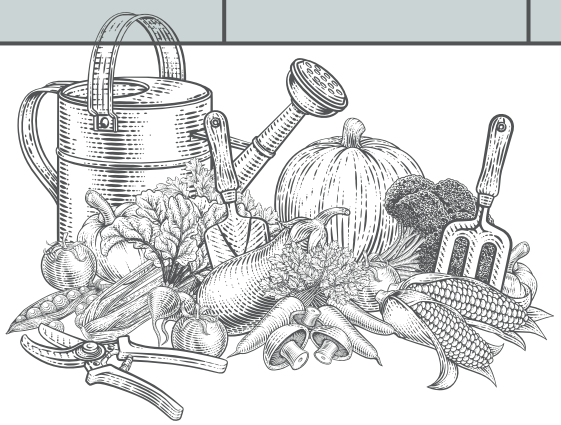
VEGETABLES	FRESH VOLUME	YIELD PROCESSED			YIELD PER PLANT
		CANNED	FROZEN	OTHER	
Asparagus	3 - 4 lbs	1 quart	3 pints		10 - 15 per person average 2 - 3 pounds per plant
Beans, Dry	5 lbs	7 quarts			15 plants per person avg. of ¼ - ½ lbs per plant
Beets	3lbs	1 qt. canned			36 - 40 per person 1/4 lb per beet
Beans, Snap	1 bushel (30 lbs)	15 - 20 quarts	30 - 45 pints		**Bush:** 15 - 20 plants per person ½ lb per plant **Pole: 1**0 - 15 plants per person ½ - 1 pound per plant
	1.5 - 2 lbs	1 quart	2 pints		
Broccoli	1 bushel (23 lbs)				3 - 5 plants per person 1 pound per plant
	1 lb		1 pint		
Brussel Sprouts	quart (1 ½ lbs)		1 pint		2 - 3 plants per person ¾ - 1lb per plant
Cabbage *(Fermented Sauerkraut)*	25 lbs	9 quarts			3 - 5 plants per person 2 - 4 lbs per plant
Cauliflower	2 medium heads		3 pints		2 - 3 plants per person 2 lbs per plant
Carrots	2-3 lb	1 quart		root cellar storage	25 - 30 per person 1/4 lb per carrot
	1/2 bushel (25 lbs)	10 quarts	16-20 pints		
Celery	1 plant = 7-9 stalks			2 -3 stalks = 1 c. sliced or chopped	3 - 5 per person ½ lb per plant

VEGETABLES	FRESH VOLUME	YIELD PROCESSED			YIELD PER PLANT
		CANNED	FROZEN	OTHER	
Cucumbers (3-5" pickling cukes)	1 bushel (48 lbs)				2 - 4 plants per person 3 - 5 pounds per plant
	8 lbs	7-9 pints			
Eggplant	5 lbs	7 quarts			1 - 2 plants per person 8 - 10 eggplant per plant
Garlic	40-60 bulbs per 10' row			root cellar storage	15 bulbs per person
Kale	4 lbs	1 quart			5 plants per person ½ - 1 lb per plant
Greens	1 bushel (18 lbs)	6 - 9 quarts	8 - 12 pints		**Spinach:** 15 per person ¼ lb per plant **Lettuce:** 5 - 10 per person ¼ - 2 lbs per plant
	2 - 3 lbs	1 quart	2 pints		
Leeks	1 lb 2 large=1 ¼ lb			2 cups chopped	12 - 15 plants per person ¼ lb per plant
Onions, storage	1 bushel (57 Pounds)			root cellar storage	15 bulbs per person
Parsnip	1 bushel (50 lbs)			1 ½ medium = 1 c. chopped	10 - 12 per person 1/3 pound per plant
	1 lb = 4 med. or 5-6 small				
Peas, Field	1 bushel (30 lbs)	6-7 quarts	12 - 15 pints		30 per person ⅛ - ¼ lb per plant
	4-5 lbs	1 quart	2 pints		
Peppers	**Hot Pepper:** 1 bushel (25 lbs)		⅔ lb =1 pint frozen		**Hot:** 1 - 2 per person 1 - 4 lbs per plant **Sweet:** 3 - 4 per person 1 - 4 lbs per plant
	Green Pepper: sold by count (80 - 85 per bushel)				



HOW MANY VEGETABLES TO PLANT

VEGETABLES	FRESH VOLUME	YIELD PROCESSED			YIELD PER PLANT
		CANNED	FROZEN	OTHER	
Potatoes	10lbs	7 quarts, cubed		root cellar storage	10 - 15 per person 2 lbs per plant
	1 bushel (60 pounds)				
Pumpkins	one 10-lb pumpkin	2 quarts			1 - 2 plants per person 4 - 10 lb per plant
Rutabaga	1 bushel (56 lbs)			1 lb - 2 ⅔ cups diced	5 - 10 per person 1 - 3 lbs per plant
	peck (15 lbs)				
Squash (winter) (Hubbard, banana, Acorn, Butternut, Buttercup)	1 bushel (40 lbs)	16 - 20 quarts	32 - 40 pints	root cellar storage	1 - 2 per person 10 - 15 lbs per plant
	3 lbs	1 quart			
Squash (summer) (patty pan, yellow, zucchini)					1 - 2 plants per person 5 - 20 lb per plant
Sweet Potatoes	2-3 lb	1 quart		root cellar storage	5 plants per person 2 lbs per plant
	1/2 bushel (25 lbs)	10 quarts			
Tomatoes	1 bushel (53 lbs)	15-20 pints or 10-12 quarts juice			5 plants per person 5 - 15 lbs per plant
	2.5-3 lbs	1 quart canned			
Turnips	1 bushel (50 lbs)			1 lb - 2 ⅔ cups diced	5 - 10 per person ½ lb per plant



LONG TERM FOOD STORAGE

Long term food storage can be a bit overwhelming; here is a breakdown of what types of containers and items you can use to extend the life of your dry goods.

If you have begun looking into long-term food storage you have heard the terms; gamma lid, mylar bags, and oxygen absorbers. What are they and what do they do?

- Gamma lids create an air and moisture tight seal using a two-piece lid system on buckets ranging from 3.5-7 gallons. The outside piece snaps onto the top of the bucket while the inner piece screws into the outer piece sealing with a gasket. These lids make accessing your stored food easier compared to a standard snap-on lid that requires a bucket wrench to remove.
- Mylar-type bags are food safe foil pouches sealed with a heat impulse sealer or zip top to protect food from moisture, oxygen, and light. They range in size from snack size to 5 gallon and are often used in conjunction with oxygen absorbers.
- Oxygen absorbers are packages of iron powder, sodium, and activated charcoal. When placed in a sealed container, the iron powder reacts with oxygen when exposed to air, causing it to oxidize and form rust. This chemical process reduces the oxygen levels within the packaging, creating an environment that is unfavorable for aerobic microorganisms (bacteria, mold, and yeast) and any insect infestation. They also help preserve the quality, taste and nutritional value of the food. Oxygen absorbers are generally sized 100cc, 300cc, 500cc, 1000cc and 2000cc. The correct number of absorbers must be used for the package size to be effective. The goal is to reduce oxygen to 0.01% or less. This is achieved through using the correct number of packets for the size of container. The chart below lists the size of absorber followed by the number needed for that size container.

OXYGEN ABSORBER CHART

CONTAINER TYPE	GRAINS/RICE/FLOUR (DENSER/LESS AIR)	PASTA/BEANS (LESS DENSE/MORE AIR*)
6-Gallon Food Storage Bucket	100cc: 20 500cc: 4 1000cc: 2 2000cc: 1	100cc: 25-30 500cc: 5-6 1000cc: 3 2000cc: 2
5-Gallon Food Storage Bucket	100cc: 20 500cc: 4 1000cc: 1 2000cc: 2	100cc: 25-30 500cc: 5-6 1000cc: 3 2000cc: 2
Mylar Bag 20in. x 30in. (4.25, 5 and 6 gallons)	100cc: 20 500cc: 4 1000cc: 2 2000cc: 1	100cc: 25-30 500cc: 5-6 1000cc: 3 2000cc: 2
Mylar Bag/Ziplock 18in. x 28in. (4.25, 5 and 6 gallons)	100cc: 20 500cc: 4 1000cc: 1 2000cc: 2	100cc: 25-30 500cc: 5-6 1000cc: 3 2000cc: 2
Mylar Bag 14in. x 20in. (2.0 gallons)	100cc: 10 500cc: 3 1000cc: 1 2000cc: 1	100cc: 15-20 500cc: 3-4 1000cc: 2 2000cc: 1
Mylar Bag with Ziplock 14in x .18in. x 6in (2.0 gallons)	100cc: 10 500cc: 3 1000cc: 1 2000cc: 1	100cc: 15-20 500cc: 3-4 1000cc: 2 2000cc: 1
Mylar Bag 12in. x 18in. (1.5 gallons)	100cc: 5-8 500cc: 1-2 1000cc: 1 2000cc: 1	100cc: 10-12 500cc: 2-3 1000cc: 1-2 2000cc: 1
Mylar Bag with Ziplock 12in. x 16in. x 6in. (1.5 gallons)	100cc: 5-8 500cc: 1-2 1000cc: 1 2000cc: 1	100cc: 10-12 500cc: 2-3 1000cc: 1-2 2000cc: 1
Mylar Bag 10in. x 14in. (1 gallon)	100cc: 3-4 500cc: 1 1000cc: 1 2000cc: 1	100cc: 4 500cc: 1 1000cc: 1 2000cc: 1

CONTAINER TYPE	GRAINS/RICE/FLOUR (DENSER/LESS AIR)	PASTA/BEANS (LESS DENSE/MORE AIR*)
Mylar Bag with Ziplock 10in. x 14in. x 4in. (1 gallon)	100cc: 3-4 500cc: 1 1000cc: 1 2000cc: 1	100cc: 4 500cc: 1 1000cc: 1 2000cc: 1
Mylar Bag 8in. x 12in. (1/2 gallon)	100cc: 1-2 500cc: 1 1000cc: 1 2000cc: 1	100cc: 2-4 500cc: 1 1000cc: 1 2000cc: 1
Mason Jar ½ Gallon	100cc: 1-2 500cc: 1 1000cc: 1 2000cc: 1	100cc: 2-4 500cc: 1 1000cc: 1 2000cc: 1
Mylar Bag with Ziplock 8in. x 12in. x 4in. (1/2 gallon)	100cc: 1-2 500cc: 1 1000cc: 1 2000cc: 1	100cc: 2-4 500cc: 1 1000cc: 1 2000cc: 1
Mylar Bag 6in. x 10in. (1/4 gallon)	100cc: 1 500cc: 1 1000cc: 1 2000cc: 1	100cc: 1-2 500cc: 1 1000cc: 1 2000cc: 1
Mylar Bag with Ziplock 6in. x 8in. x 2in. (1/4 gallon)	100cc: 1 500cc: 1 1000cc: 1 2000cc: 1	100cc: 1-2 500cc: 1 1000cc: 1 2000cc: 1
Quart Jar	300cc	300cc
Pint Jar	100cc	100cc
1/2 Pint Jar	50cc	50cc

Note: These are average amounts at sea level. You may need more or less depending on your individual conditions and the remaining residual volume of air. There is no danger in adding too many as this does not affect the food.

*Dehydrated and freeze-dried foods fall under this category.

When NOT to use Oxygen Absorbers and Safety Note: Never use oxygen absorbers with high moisture items **(moisture content exceeding 10%)** such as sticky dried fruits (think prunes), brown rice, and brown sugar. When you have moisture with no oxygen, there is always ***the chance of botulism***. Additionally, dry foods such as sugar, baking soda, baking powder, salt, and powdered foods (such as certain spices, pancake mixes, yeast, and powdered drinks) do not require oxygen absorbers. They'll turn into bricks if used. Never use them with fresh produce or cheese.

What Types of Foods Can Be Stored? Almost any dry and low-fat food can be stored with oxygen absorbers. Foods like:

- Flour
- Whole grains
- Pasta
- Dried beans
- Powdered milk
- Cereal
- Freeze-dried foods
- Dehydrated foods**
- Nuts and seeds

**Dehydrated foods must be dry enough that they snap when bent and round foods like corn and peas should shatter when pressed with a spoon.

ADDITIONAL TIPS

Food with vacuum packaging do not need oxygen absorbers because the vacuum process has already removed oxygen from the package.

To determine if an O2 absorber is fresh, simply hold the packet in your hand. If you can feel the loose powder, that's a good sign that it's ready to use. If it's hard or solid, that usually means the contents have been used up already, and you should dispose of it.

There is no need to freeze foods before storing them with an O2 absorber. Freezing foods is done to kill insect eggs in the food. However, insect eggs cannot hatch without oxygen so there's no reason to freeze when using oxygen absorbers.

USING OXYGEN ABSORBERS

1. Before you open that packet of oxygen absorbers get everything setup*** first so that once you open the oxygen absorber bag you are ready to seal things quickly. The key is to work fast and efficiently to limit the amount of time the absorber is exposed to the air. As soon as they are exposed to oxygen they start absorbing. To make sure everything is set-up have at the ready the following:
    - Jars/cans/buckets/mylar bags (whatever you plan to pack the food into). Don't use an oxygen absorber in a bucket not lined with a mylar bag. It will cause the bucket to collapse.
    - Heat sealer (iron and ironing board, impulse sealer, or flat iron)
    - Food to preserve
2. Resealing the unused packets in a bag with a vacuum sealer or impulse sealer works the best. A Ziplock bag with all the air squeezed out can be used for the short-term (about an hour), like when you're packaging up food. Otherwise, store them in their original packaging resealed, in a mylar bag, or Mason jar with a brand-new lid (to ensure gasket seals well). Pack as much as possible into the containers to prevent as much excess air as possible.
3. Once the food has been put into the storage vessel, add the correct size and number of oxygen absorbers as necessary for that size vessel and type of food.
4. Remove as much air as possible, heat seal the bag and then label it.
5. Once the bag shows signs of a slight vacuum seal look, put it in long-term storage. Store in a dark, dry place.

***The chemical reaction that absorbs the oxygen releases minor amounts of heat. The amount is trivial when it's one packet, but if you pile them on top of each other when using them, they warm each other and speed up the absorption reaction. This reduces the absorbing capacity so it's best to spread out the packets for immediate use so they don't touch each other. When in storage and they're not exposed to air having them close together is not a problem. It's when they're exposed to open air and clumped together when it speeds up the absorption process.

Note: It can take several days to several weeks for the oxygen absorbers to remove the oxygen. It depends on how tightly packed the food is. When in doubt, if you don't see a slight reduction in the amount of air in the bag, then do it again by placing a small slit in the bag, put a new absorber through the slight and then heat seal where the slit was. No need to remove the old absorber.

Keep in mind that air is approximately 78% nitrogen and 21% oxygen. Oxygen absorbers only remove the oxygen so the nitrogen (doesn't cause food spoilage) will remain. Because the nitrogen is still in the container, it might not look "sucked down" even though the O2 absorbers are working.

ADVANTAGES OF OXYGEN ABSORBERS

- Extend the shelf life of products
- Prevent oxidation
- Prevent food damage from insect infestation
- Inhibit growth of molds, mildew and bacteria
- Improve quality of polyunsaturated fats and oils
- Delay food discoloration
- Eliminates the need for additives such as sulfur dioxide, BHA, BHT, sorbates, etc.
- Foods are not crushed or squeezed
- Prevents oxidation of vitamins A, C and E

USING DESICCANTS

When to use Desiccants and NOT Oxygen Absorbers: Desiccants are useful for perishable food items such as dried fruits, nuts, jerky and spices. They also help reduce clumps in items such as powdered spices, sugar (NOT brown sugar though!), and salt. Desiccants are a great tool to use with freeze-dried goods that are currently being eaten from. For example, a #10 can of freeze-dried sliced strawberries is opened to use some sliced strawberries on cereal. Now that the container is opened moisture can get into it causing them to soften and clump together. By using a desiccant, you're making it last longer and have a better texture and taste over time.

They're also helpful on high humidity days when unloading freeze-dryer trays. Pop the food in a baggie, add a desiccant and keep like that for several hours until the humidity is lower and you can package up the food.

CAN OXYGEN ABSORBERS AND DESICCANTS BE USED TOGETHER?

Some desiccants reduce humidity to approximately 40% which should not interfere with the oxygen absorber reaction. However, other desiccants are capable of reducing moisture to very low levels. This might adversely affect the ability for the oxygen absorber to work by removing moisture that is necessary to complete the oxidation reaction. If you choose to use a desiccant and oxygen absorber in the same package, place the desiccant on the bottom of the package and the oxygen absorber on top of the food just before sealing the container.

Remember: oxygen absorber packets absorb oxygen, not air or moisture. Desiccants are used to absorb moisture.

STORAGE LIFE BEST PRACTICES

Storage life is affected by four factors:

1. temperature
2. moisture content
3. oxygen content
4. the container it's stored in

We've already covered removing oxygen using oxygen absorbers and why removing moisture content is important, as well as types of storage containers, however, we need to talk about best storage temperature.

Temperature has more to do with how long dried foods store than anything else. Even with the best packaging method, foods stored in a warm environment will last only a fraction of the time it would have if it had been stored in a cool, dry place.

It's important for the temperature to remain as constant as possible. Frequent temperature changes shorten storage life. If you don't have a cool, dry place for your food storage, we encourage you to rotate your stock quickly to prevent food loss. 50-70˚ F (10-21˚ C) is the ideal temperature range for storing non-refrigerated, non-frozen foods for best quality.

Products with a high oil content (like nuts, seeds, and whole grains) will have a shorter shelf life than other products. Cooler temperatures will prolong their shelf life. High oil content products will go rancid quicker in warmer temperatures. Cold-pressed oils will store longer in cooler temperatures than an oil that was extracted with heat, pressure, and chemical additives. Certain oils, such as safflower and flaxseed soil, oxidize rapidly and are not good candidates for storage.

Always check oils and high oil content products for rancidity before using. Refer to the list below to determine shelf life of each product. This chart uses a stable temperature of 70˚ F, if the food is kept at cooler temperatures, it will keep longer.

STORAGE LIFE FOR DRY GOODS

(with or without O2 absorbers)

ITEM	ITEM DETAILS	NOTES	STORAGE LIFE*
Soft Grains	Barley, Hulled or Pearled Oat, Groats, Rolled Oats, Quinoa, Rye	These have a soft outer shell which means it doesn't protect the seed as well as on hard grains	8 years
Hard Grains	Buckwheat, Dry corn, Flax, Kamut, Millet, Durum wheat, Hard red wheat, Hard white wheat, Soft wheat, Special bake wheat, Spelt, Triticale	Removing the hard outer shell causes the contents to rapidly deteriorate. Otherwise, it stores really well for a long time.	10-12 years
Beans & Legumes	Adzuki, Blackeye, Black Turtle, Garbanzo, Great Northern, Kidney, Lima, Mung, Pink, Pinto, Small Red, Soy beans, and Lentils, Split peas, Chickpeas	Beans lose their oils as they age. They also become resistant to water absorption. When they get old, it's best to grind them to be used. Storing properly will decrease the loss of their oils.	8-10 years
Coffee		To store coffee beans for long-term they must be unroasted green coffee beans. Usually, coffee will lose flavor before it fully goes bad.	Instant coffee: 25+ years Green coffee beans: 20+ years Ground coffee, unopened: 5 months past best-by date Roasted coffee beans, unopened: 12-24 months past best-by date
Dehydrated or Freeze-Dried Vegetables	Broccoli, Cabbage, Carrots, Celery, Onions, Peppers, Potatoes	Home dehydrated vegetables need to be so dry that it snaps when bent or if it's round like a pea or corn, it should shatter when pressed with a spoon. If it bends or doesn't shatter, don't store with an O2 absorber because the moisture content is too high.	2-5 years (see note) Professionally dehydrated: 10-20 years Freeze Dried: 25 years
Dehydrated Dairy Products	Cheese powder, Cocoa powder, Powdered freeze dried eggs, Butter powder, Powdered milk, Whey powder		15 years

ITEM	ITEM DETAILS	NOTES	STORAGE LIFE*
Flours & Other Products made from Cracked/Ground Seed	All-purpose flour, Bakers flour, Unbleached flour, White flour, Whole wheat flour, Cornmeal, Refried beans, Cracked Wheat, Farina/Cream of Wheat, Gluten, Granola, Wheat flakes	Unprotected flours should not be stored longer than a year. Granola has a high oil content so won't store as long.	5 years Granola: 6-9 months. Don't use O2 absorber.
Pasta	Macaroni, Noodles, Ribbons, Spaghetti	If kept dry, pasta will store longer than flour.	8-10 years
Dehydrated or Freeze-Dried Fruit		Doesn't keep as well as other dehydrated products. Home dehydrated fruits need to be so dry that it snaps when bent. If it bends, don't store with an O2 absorber because the moisture content is too high.	2-5 years (see note) Professionally dehydrated: 10-15 years Freeze Dried: 25 years
Honey, Salt & Sugar		Be careful with honey. If it has additives, it won't last as long. Get pure honey for the longest lasting product. It will crystalize but still be good.	Kept free of moisture will keep indefinitely. Don't store it with an O2 absorber.
Peanut Butter Powder		Won't store as long as wheat flour.	4-5 years
Potato Flakes			30 years
Brown and White Rice		Brown rice contains more fatty acids than white rice so won't store long. These oils in brown rice go rancid as they oxidize. Brown rice lasts longest if stored in a fridge or freezer. White rice has the outer shell removed which means the fats have also been removed. It's not nearly as good for you, but it'll store longer.	White rice: 8-10 years Brown rice: 2 years (store it as cool as possible. If you can decrease it by another 10 degrees to 60˚ F, it will double the storage life).
Seeds	Chia, Sunflower, Pumpkin, Flax	High oil content which means it will go rancid quickly.	2 years Keeps longer if kept in the refrigerator or freezer.

ITEM	ITEM DETAILS	NOTES	STORAGE LIFE*
Garden or Sprouting Seed		Viable seeds need moisture and warmth to sprout so it's no surprise that if they're kept cool and dry, they'll last longest. They do best if stored in air (so no O2 absorbers). Packed in nitrogen (using O2 absorbers) affects the viability of some seeds. Alfalfa is unique as it germinates better when it's 2 to 3 years old. Should have best germination up until it's 8 years old.	4 years except Alfalfa (see notes) Don't use O2 absorbers
Yeast, baking soda, baking powder		Has a short storage life on the shelf, unless frozen or refrigerated.	Don't store with O2 absorber. Shelf (sealed): 2 years Fridge: 5 years Frozen: Long time
Nuts	Almonds, Cashews, Chestnuts, Hazelnuts, Peanuts, Pecans, Macadamia Nuts, Pine nuts, Pistachio, Walnuts	Due to the high oil content these won't last long in storage, however, the lower the temperature, the longer they'll store. Unshelled nuts will last approximately 20-50% longer than shelled nuts. It should be no surprise that whole nuts store longer than pieces because there is less surface area exposed to air. Roasted nuts will have the shortest shelf life because the roasting process breaks down the oils and starts the rancidity process. Nuts that go bad quickly include pistachios, pine nuts, and chestnuts. Nuts that are better for long-term storage are cashews, hazelnuts, and unshelled walnuts. Nuts harvested yourself will need to be dried before storing. Nuts are best stored in a freezer for long-term.	2 years (longer if frozen)

Store foods in food-grade plastic, metal, or glass containers. Containers should not contain chemicals that could be transferred to food and harmful to health. If reusing previous food containers, particularly those that are plastic, be aware that plastic can absorb molecules and contains smells and flavors of its previous contents that can be transferred to currently stored foods. Opaque containers will reduce the amount of light reaching the food, thus protecting its quality, even food that is stored in a pantry. For best storage life, use containers with an airtight seal.

CONTAINERS WITH AIRTIGHT SEALS ARE:

- Sealable food storage buckets (gamma lids are easy to take on and off)
- Sealable food quality metal (lined) or plastic drums
- Foil pouches

HOW MUCH FOOD FITS IN A CONTAINER

		1 GAL.	1.5 GAL.	2 GAL.	5 GAL.	6 GAL.
WHOLE GRAINS*	Cracked Red Wheat	5.83	8.75	11.66	29.15	35
	Hard Red Wheat	7.5	11.25	15	37.5	45
	Hard White Wheat	7.5	11.25	15	37.5	45
	Pearled Barley	7.33	11	14.66	36.67	44
	Whole Corn	7.5	11.25	15	37.5	45
	Hulled Buckwheat	7	10.5	14	35	42
	Flax	6.33	9.5	12.66	31.67	38
	Long Grain White Rice	7.33	11	14.66	36.67	44
	Long Grain Brown Rice	7.17	10.75	14.34	35.83	43
	Par Boiled Rice	7	10.5	14	35	42
	Rolled Oats	4.17	6.25	8.34	20.83	25
	Oat Groats	7	10.5	14	35	42
	Oat Bran (Fine)	5	7	10	25	30
	Rye	7	10.5	14	35	42
	9-Grain Cereal	6.33	9.5	12.66	31.67	38
	Hulled Millet	7.17	10.75	14.34	35.83	43

HOW MUCH FOOD FITS IN A CONTAINER

		1 GAL.	1.5 GAL.	2 GAL.	5 GAL.	6 GAL.
FLOUR*	Wheat Bran	2.5	3.75	5	12.5	15
	All Purpose Flour	6.67	10	13.34	33.33	40
	Cornmeal	6.67	10	13.34	33.33	40
BEANS*	Beans	7	10.5	14	35	42
	Anasazi	6.67	10	13.34	33.33	40
	Black Turtle	7	10.5	14	35	42
	Black Eye	6.33	9.5	12.66	31.67	38
	Garbanzo	6.67	10	13.34	33.33	40
	Great Northern	7	10.5	14	35	42
	Green	1.67	2.5	3.33	8.33	10
	Green Peas	6.67	10	13.34	33.33	40
	Kidney	6.67	10	13.34	33.33	40
	Lentils	7.17	10.75	14.34	35.83	43
	Lima	7.17	10.75	14.34	35.83	43
	Mung	7.5	11.25	15	37.5	45
	Pink	6.83	10.25	13.66	34.17	41
	Pinto	6.83	10.25	13.66	34.17	41
	Refried	4.17	6.25	8.34	20.83	25
	Small Red	6.83	10.25	13.66	34.17	41
	Small White Navy	7.5	11.25	15	37.5	45
	Soy	6.67	10	13.34	33.33	40

		1 GAL.	1.5 GAL.	2 GAL.	5 GAL.	6 GAL.
PASTA*	Pasta- Macaroni	4.17	6.25	8.34	20.83	25
	Pasta- Egg Noodles	2.67	4	5.34	13.33	16
	Pasta- Spaghetti	5.83	8.75	11.66	29.17	35
SPROUTING SEEDS*	Alfalfa Sprouting Seeds	7.5	11.25	15	37.5	45
DEHYDRATED VEGETABLES*	Diced Carrots	3.33	5	6.66	16.67	20
	Cross-cut Celery	1.33	2	2.66	6.67	8
	Chopped Onions	3	4.5	6	15	18
	Potato Dices	2.67	4	5.34	13.33	16
	Potato Flakes	2.5	3.75	5	12.5	15
	Potato Granules	7.5	11.25	15	37.5	45
	Potato Slices	1.67	2.5	3.34	8.33	10
	Split Green Peas	7.5	11.25	15	37.5	45
	Tomato Powder	5.83	8.75	11.66	29.17	35
DEHYDRATED FRUIT*	Applesauce	3.33	5	6.66	16.67	20
	Apple Slices	1.67	2.5	3.34	8.33	10
	Banana	2.33	3.5	4.66	11.67	14
DEHYDRATED MILK/DAIRY*	Butter Powder	4.17	6.25	8.34	20.83	25
	Margarine	4.17	6.25	8.34	20.83	25
	Cheese Blend	4.17	6.25	8.34	20.83	25
	Non-Fat Milk	5.83	8.75	11.66	29.17	35
EGGS	Powdered Eggs	4.17	6.25	8.34	20.83	25

*All volumes are in pounds

FINDING STORAGE SPACE

One of the challenges when storing food is finding the space for it. Many of you are like me and don't have a ton of space for long-term food storage. Even though we live on a fifteen-acre homestead, I actually have very little storage space. We don't have a barn, garage, basement crawl space or attic.

Our home isn't huge by any means. So, if you're like me, you might be thinking there's no way you can store a few months' worth of food, let alone up to six months or even a years' worth.

Let me assure you, it's possible and with less space than you think.

For many, many years the majority of our long-term food storage and pantry, we used a converted coat/broom closet as our walk-in pantry. To convert it, we used plain metal shelf brackets and sheets of plywood (after a quick paint job with white paint) and installed shelving along the back and sides of the closet.

A few years ago, we added onto our home, adding a ten foot by ten foot walk-in pantry. It's still not a huge space but does give us a little more space.

Even if you don't have that type of space, all is not lost. You just have to get creative. But first, maximize your kitchen storage by decluttering and organizing it. We have a full module inside the ***Pioneering Today Academy*** that walks you through how to declutter and organize successfully. You'll be surprised how much space you might find.

Some folks will slide things underneath their bed. If you want to go the extra mile, elevate your bed on blocks for additional space.

Use the space behind your couch. Or if you have it, use storage furniture like armoires, benches, dining room hutches, buffets, and beds with drawers.

Add bookcases with doors or use decorative boxes or baskets to store your stockpile.
Make a table with 5-gallon buckets, pieces of wood and a decorative tablecloth.
Use vertical space. Add a shelving unit or the tops of your cabinets. Use the high shelf in your kid's bedroom closet. If you're one that doesn't like a lot of clutter, decorative boxes and baskets are your friend.

FINDING STORAGE SPACE

If you have stairs, create some simple shelving in that awkward space under the stairs.

Do you have luggage? If it doesn't get used often, try storing some of your long-term food storage inside it. Now you're doubling up on the space that you would normally just have the luggage.

Just make sure to keep notes of what you have and practice rotation. Keep in mind that when storing food, it will last longer when kept cool and in the dark. Light will degrade your food and significantly shorten its shelf life.

If you repackage bulk foods, be sure to label them. You might think you'll remember, but trust me, you're likely to forget a year from now.

Congratulations!

You are well on your way to having a well-stocked pantry to feed you and your family year-round.

There is no greater peace of mind than knowing no matter what may come, you have the supplies on hand and are ready.

If you're looking for further guidance, a community of folks living this lifestyle, and guided help with step-by-step tutorials and full master classes, I invite you to check out the Pioneering Today Academy.

May your Mason jars be full,

♡ *Melissa*