

Food – Dehydrated/Freeze Dried to Fresh Equivalents and Rehydration Tables

Wondering how much dehydrated or freeze dried food to use in place of fresh, is an ongoing issue for most backpackers and campers. Now it is an issue for people new to preparedness too!

*“In the house of the wise are stores of choice food and oil,
but a foolish man devours all he has.”*

Proverb

Most of us know that when it comes to fresh and dried herbs that it is usually at a 1 to 3 ratio or in more simpler terms; if you have 1 *tablespoon* of fresh, say parsley, then you only need 1 *teaspoon* of the dried version (since there are 3 teaspoons to a tablespoon).



As a general rule of thumb to rehydrate freeze dried or dehydrated foods you, place the product in a dish or bowl and cover with warm water for 10-15 minutes. Once the food has completely rehydrated, drain off any remaining liquid and for faster rehydration, use hot or boiling water. Yet again there are exceptions to this rule depending on the method and skill used to dehydrate or freeze dry the item in the first place to the general temperature and altitude you are attempting to rehydrate it in. Also, having been an avid backpacker I can tell you that you can cold water rehydrate too.



Remember for preparedness food storage it pays to:

- Store single ingredients vs. the ‘meal in a packet’ type
- Be sure these ingredients are in various food preservation methods: canned (commercial & home); dehydrated (commercial & home); freeze dried; frozen; cured and the like.
- Don’t purchase or make all of an item at one time or your shelf life will run out all at the same time.
- Store whole, unground grain and NOT flour (flour has a max of 2 yr shelf life; unground grain can go for 20+yrs).
- Repackage bulk items (like dried beans or rice) into smaller family sized portions.

Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued

- Use only food grade storage containers and liners for anything that actually touches the actual food item.
- When stored properly most food stores lose their nutritional value *before* they look or taste bad or get contaminated by some ‘bad for humans’ organism.
- Only store what you actually eat and can effectively rotate.
- Don’t forget treats, comfort food, spices, herbs and condiments.
- MRE’s are NOT recommended as the *primary* food source for more than 10 days. They are ‘What You See Is What You Get’, as well as, ‘meals in a packet’.
- What is great for the garden is bad for food storage. You want low-no light; low to no moisture and a cool even temperature (between 45-70 degrees F) and as insect and rodent proof/free as possible.



Anyway I went through all my old backpacker notes, went to the library, browsed my cookbooks and surfed the web to see if there were any set times or formulas – There are NOT!!!

*“Eat breakfast like a king, lunch like a prince,
and dinner like a pauper.”*

Adelle Davis (1904 - 1974)

I did find some really good information at a couple of sites and you will find them listed in the ‘Resources’ at the end of this document. In the mean time I took all this information and entered it into a spreadsheet I could sort and manipulate. The results are these two tables. ‘Fresh to Preserved’ and ‘Rehydration’ Ratios.



Fresh to Preserved Ratio

Item	Fresh/Canned	Dehydrated/Freeze Dried	Rehydration
Apple Chips	1 medium apple	1 cup	1 cup water
Apple Slices	1 medium apple	1 cup	1 cup water

Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued

Item	Fresh/Canned	Dehydrated/Freeze Dried	Rehydration
Apricots	1 apricot	1 cup (FD)	1 cup water
Bacon, TVP (Textured Vegetable Protein)	1 lb. bacon	1 1/2 cups	1 cup water
Banana Chips	1 banana	1 cup	1 cup water
Banana Slices	1 banana	1 cup (FD)	1 cup water

Dehydrated...



Green Beans

Rehydrated, cooked and ready to eat...



Beans, Green	1 cup green beans	1 cup (FD)	1/2 cup water
Beef, Ground	1 lb. ground beef	2 1/2 cups (FD)	2 cups water
Beef, Roast	1 lb. roast beef	2 1/3 cups (FD)	2 cups water
Beef, TVP (Textured Vegetable Protein)	1 lb. ground beef	1 1/2 cups	1 1/2 cups
Blackberries	1 cup	1 cup (FD)	1 cup water
Blueberries	1 cup	1 cup (FD)	1 cup water
Broccoli	1 cup broccoli	1 cup (FD)	1 cup water

Dehydrated...



Broccoli

Rehydrated, cooked and ready to eat...



Butter, Powder	1 stick of butter (1/2 cup)	1/2 cup	1/2 cup water
Carrot Diced	2 cups carrots, diced	1 cup	1 cup water

Dehydrated...



Carrots

Rehydrated, cooked and ready to eat...

Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued

Item	Fresh/Canned	Dehydrated/Freeze Dried	Rehydration
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Cauliflower	1 cup cauliflower	1 cup (FD)	1/2 cup water
Celery	1 cup celery, diced	1 cup (FD)	1/2 cup water

Dehydrated...



Celery

Rehydrated, cooked and ready to eat...



Cheese, Monterey-Jack Shredded	12 oz (¾ lbs)	3 oz (FD)	Use 4 parts cheese to 1 part water. Apx 9oz cheese to ½ cup water
Chicken	1 lb. chicken	2 1/2 cups (FD)	2 cups water
Chicken, TVP (Textured Vegetable Protein)	1 lb. chicken	2 cups	2 cups water
Corn, Sweet	1 cup corn	1 cup (FD)	1 cup water (Approx. 20 min to rehydrate)
Ham	1 lb. ham	2 1/2 cups (FD)	2 cups water
Ham, TVP (Textured Vegetable Protein)	1 lb. ham	1 2/3 cups	1 2/3 cups water
Herbs, Dried	1 Tablespoon	1 Teaspoon	
Mangoes	1 mango, sliced	1 cup (FD)	1 cup water
Milk, Powdered	1 cup milk	3 Tablespoons	1 cup water
Milk, Instant	1 cup milk	2 Tablespoons	1 cup water
Mushroom Pieces	1 cup mushrooms, chopped	1 cup (FD)	1/2 cup water

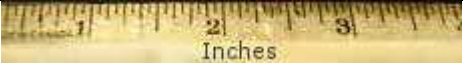

Dehydrated...



Mushrooms

Rehydrated Raw...

Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued

Item	Fresh/Canned	Dehydrated/Freeze Dried	Rehydration
			

Onions	1 medium onion	1/3 cup	1/3 cup water
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Dehydrated...

Onions

Rehydrated Raw...



Onions	1 small white onion	1 cup (FD)	1 cup water
Oranges Mandarin	8 oz. can	1 cup (FD)	1 cup water
Peaches	1 peach, sliced	1 cup (FD)	1 cup water
Pears	1 pear, sliced	1 cup (FD)	1 cup water
Peas, Green	1 cup green peas	1 cup (FD)	1/2 cup water

Dehydrated...

Sweet Peas

Rehydrated, cooked and ready to eat...



Peas, Green Split	1 cup split peas	1 cup	
Peppers, Bell	1 bell pepper	1/2 cup	1 cup water

Dehydrated...

Bell Pepper Mixed

Rehydrated Raw...



Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued

Item	Fresh/Canned	Dehydrated/Freeze Dried	Rehydration
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Pineapple	1 cup pineapple	1 cup	1 cup water
Pineapple Chunks	1 cup pineapple	1 cup (FD)	1 cup water
Potato, Chunks	1 cup medium potato, boiled	2/3 cup	1 cup water
Potato, Diced	1 cup potatoes, diced	1 cup	1 cup water
Potato, mashed	3 1/4 cup mashed potatoes	2 cups (FD beads)	2/3 cup milk + 3 T butter + 2 cups water
Potato, Sweet	1 medium potato, boiled	2/3 cup	1 cup water
Raspberries	1 cup raspberries	1 cup (FD)	1 cup water
Sausage	1 lb. sausage	2 1/2 cups (FD)	2 cups water
Sausage, TVP (Textured Vegetable Protein)	1 lb. sausage	2 1/2 cups	2 1/2 cups water
Shortening	1 cup shortening	1 cup	1/4 cup water
Sloppy Joe, TVP (Textured Vegetable Protein)	1 lb. ground beef + seasoning	2 cups	2 cups water
Sour Cream	1 cup sour cream	1 cup	1 cup water
Spinach	1 cup spinach, cooked	1 cup (FD)	3/4 cup water
Taco, TVP (Textured Vegetable Protein)	1 lb. ground beef + seasoning	1 1/4 cups	1 1/4 cups water
Tomato Powder	6 oz. or 3/4 cup tomato paste	1/4 cup	1/2 cup water
Turkey	1 lb. turkey	2 1/2 cups (FD)	2 cups water
Yeast	One .6 ounce cake Fresh Active Yeast	1 envelope dry yeast	



Notes on Rehydration Ratios & Times

- The water amounts and times given are intended to return your dried ingredients as closely as possible to "fresh."
- There should not be much remaining leftover water - just enough to allow the item to fully 'come-back'.
- All of the items listed in the table are commercially dehydrated or freeze-dried - water ratios and rehydration times may vary with food dehydrated at home.
- Most seasoning powders are intended to be added when mixed into a recipe rather than trying to reconstitute the powder back into its original liquid form. Many of these powders do come very close to their original form - for example Maple Syrup Powder, Chicken Stock Powder, Beef Stock Powder and others come back nearly perfectly. Others, like Wine Powder and Yogurt Powder never return to their original form but do add a fantastic flavor when used in a recipe.

Dehydrated...



Tomato Powder

Rehydrated to Tomato Paste...



- Powder Rehydration time given *requires* near constant stirring when not mixed directly into a recipe. When mixed/cooked into a recipe rehydration time can be disregarded.
- Reduce the cook-time with dehydrated vegetables by pre-soaking in cool water prior to cooking.
- Reduce the cook-time with dehydrated beans by pre-soaking in cool water prior to cooking.
- Temperature and elevation/altitude can cause water ratios and rehydration times to vary.



Rehydration Ratio & Time

Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued

Item	Water Ratio	Rehydration Time
Apple, Diced (FD)	3 parts apples : 1 part water	Cool Water: 2-3 minutes Hot Water: Instant
Asparagus, Pieces	2 parts asparagus : 1 part water	Cool Water: 2-3 minutes Hot Water: 1-2 minutes
Banana, Diced (FD)	2 parts bananas : 1 part water	Cool Water: 7-10 minutes Hot Water: 3-5 minutes
Beans, Black Flakes (Organic)	2 parts bean flakes : 1 part water	Cool Water: 3-5 minutes Hot Water: 1-2 minutes
Beans, Black Whole	1 part black beans : 1 part water	Cool Water: 45-60 minutes Simmer: 10-15 minutes
Beans, Garbanzo Whole	1 part garbanzo beans : 1 part water	Cool Water: 90-100 minutes Simmer: 10-15 minutes
Beans, Great Northern Whole	1 part great northern beans : 1 part water	Cool Water: 45-60 minutes Simmer: 10-15 minutes
Beans, Green	2 parts green beans : 1 part water	Cool Water: 3-5 minutes Hot Water: 1-2 minutes
Beans, Kidney Whole	1 part kidney beans : 1 part water	Cool Water: 30-35 minutes Simmer: 10-15 minutes
Beans, Navy Whole	1 part navy beans : 1 part water	Cool Water: 30-35 minutes Simmer: 10-15 minutes
Beans, Pinto Flakes (Organic)	2 parts bean flakes : 1 part water	Cool Water: 3-5 minutes Hot Water: 1-2 minutes
Beans, Pinto Whole	1 part pinto beans : 1½ parts water	Cool Water: 45-60 minutes Simmer: 10-15 minutes
Beans, Red Whole	1 part red beans : 1 part water	Cool Water: 30-35 minutes Simmer: 10-15 minutes
Beef Stock Powder	1 part stock powder : 16 parts water	Cool Water: 7-10 minutes Hot Water: 3-5 minutes
Beef, Ground (FD)	3 parts ground beef : 1 part water	Cool Water: 3-5 minutes Hot Water: 1 minute
Beef, Roast Diced (FD)	1.5 parts roast beef : 1 part water	Cool Water: 3-5 minutes Hot Water: 1 minute
Beet, Powder	Add water to desired consistency.	Hot Water: Instant
Blueberries, Whole (FD)	3 parts blueberries : 1 part water	Cool Water: 5 minutes Hot Water: 1-2 minutes
Broccoli, Florets	3 parts broccoli : 1 part water	Cool Water: 3-5 minutes Hot Water: 1 minute
Butter Powder	2.5 parts butter powder : 1 part water <i>Makes a thick spreadable butter</i>	Cool Water: 3-5 minutes Warm Water: 2-3 minutes
Cabbage Shreds	2 parts cabbage : 1 part water	Cool Water: 10-12 minutes Hot Water: 3-5 minutes

Dehydrated...

Cabbage Raw ...

Rehydrated, cooked and ready to eat...

Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued

Item	Water Ratio	Rehydration Time
		
Carrot, Flakes	2 parts carrots : 1 part water	Cool Water: 5-7 minutes Hot Water: 2-3 minutes
Cauliflower, Florets	3 parts cauliflower : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Celery, Pieces	3 parts celery : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Cheese, Blue Powder	4 parts cheese powder : 1 part water <i>Makes a thick spreadable cheese</i>	Cool Water: 3-5 minutes Warm Water: 2-3 minutes
Cheese, Cheddar Shreds (FD)	4 parts cheddar : 1 part water	Cool Water: 12-15 minutes Hot Water: 3-5 minutes
Cheese, Monterey Jack Shreds (FD)	4 parts Monterey jack : 1 part water	Cool Water: 12-15 minutes Hot Water: 3-5 minutes
Cheese, Mozzarella Shreds (FD)	4 parts mozzarella : 1 part water	Cool Water: 12-15 minutes Hot Water: 3-5 minutes
Cheese, Parmesan Powder	2 parts cheese powder : 1 part water <i>Makes a thick spreadable cheese</i>	Cool Water: 3-5 minutes Warm Water: 2-3 minutes
Chicken Stock Powder	1 part stock powder : 16 parts water	Cool Water: 7-10 minutes Hot Water: 3-5 minutes
Chicken, White Chunks (FD)	2 parts chicken : 1 part water	Cool Water: 3-5 minutes Hot Water: Instant
Cilantro Flakes	2 parts cilantro : 1 part water	Cool Water: 5-7 minutes Hot Water: 2-4 minutes
Corn, Sweet	3 parts corn : 1 part water	Cool Water: 3-5 minutes Hot Water: 1-2 minutes

Dehydrated...

Sweet Corn

Rehydrated, cooked and ready to eat...



Garlic Granules	2 parts garlic : 1 part water	Cool Water: 10-12 minutes Hot Water: 4-6 minutes
Honey Powder	4 parts honey powder : 1 part water	Cool Water: 3-5 minutes

Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued



Item	Water Ratio	Rehydration Time
	<i>Makes a thin pourable honey</i>	Warm Water: 2-3 minutes
Jalapeño Dices	2 parts jalapeños : 1 part water	Cool Water: 7-10 minutes Hot Water: 3-5 minutes
Leeks, Green & White Mixed	3 parts leeks : 1 part water	Cool Water: 8-10 minutes Hot Water: 2-4 minutes
Lentils	1 part lentils : 1 part water	Cool Water: 10-12 minutes Hot Water: 3-5 minutes
Mango, Chunks (FD)	2 parts mangoes : 1 part water	Cool Water: 5-7 minutes Hot Water: 3-5 minutes
Maple Syrup Powder	2 parts maple syrup powder : 1 part water	Cool Water: 12-15 minutes Hot Water: 5-7 minutes
Molasses Powder	2 parts molasses powder : 1 part water <i>Makes a thin pourable molasses</i>	Cool Water: 12-15 minutes Hot Water: 7-10 minutes
Mushroom, Slices	2 parts mushrooms : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Okra, Slices	3 parts okra : 1 part water	Cool Water: 2-3 minutes Hot Water: 1-2 minutes
Olive, Black Slices	4 parts olives : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Onion, White Diced	2 parts onion : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Onion, White Flakes (Sautéed)	2 parts onion : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Onions, Green Chopped	2 parts green onion : 1 part water	Cool Water: 3-5 minutes Hot Water: Instant
Onions, White Chopped	2 parts onion : 1 part water	Cool Water: 3-5 minutes Hot Water: Instant
Orange, Segments (FD)	4 parts oranges : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Peach, Diced (FD)	3 parts peaches : 1 part water	Warm Water: 5 minutes
Peas, Garden	2 parts peas : 1 part water	Cool Water: 3-5 minutes Hot Water: 1-2 minutes
Peas, Split	1 part split peas : 1 part water	Cool Water: 25-30 minutes Simmer: 10-15 minutes
Pepper, Green Bell Diced	3 parts bell peppers : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Peppers, Bell Red & Green Mixed	2 parts bell peppers : 1 part water	Cool Water: 5-7 minutes Hot Water: 2-3 minutes
Pineapple, Diced (FD)	2 parts pineapple : 1 part water	Cool Water: 3-5 minutes Hot Water: 1-2 minutes
Potato, Diced	2 parts potatoes : 1 part water	Cool Water: 10 minutes Hot Water: 5 minutes

Dehydrated...

Hash Browns

Rehydrated, fried and ready to eat...

Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued

Item	Water Ratio	Rehydration Time
		

Sausage, Crumbles (FD)	4 parts sausage : 1 part water	Cool Water: 8-10 minutes Hot Water: 3-5 minute
Shallots, Chopped	1 part shallots : 1 part water	Cool Water: 3-5 minutes Hot Water: Instant
Sour Cream Powder	2 parts sour cream powder : 1 part water <i>Makes a thick spreadable cheese</i>	Cool Water: 3-5 minutes Warm Water: 2-3 minutes
Soy Sauce Powder	6 parts soy sauce powder : 1 part water <i>Makes a pourable soy sauce</i>	Cool Water: 3-5 minutes Warm Water: 2-3 minutes
Spinach Flakes	2 parts spinach : 1 part water	Cool Water: 3-5 minutes Hot Water: 1-2 minutes
Spinach, Chopped	2 parts spinach : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Strawberry, Slices (FD)	3 parts strawberries : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Tomato, Chunks	3 parts tomatoes : 1 part water	Cool Water: 1-2 minutes Hot Water: Instant
Tomato, Diced	2 parts tomatoes : 1 part water	Cool Water: 3-5 minutes Hot Water: 1 minute
Tomato, Powder	Add water to desired consistency.	Hot Water: Instant
Vegetable Blend with Potatoes & Corn	3 parts veggie blend : 2 parts water	Cool Water: 8-10 minutes Hot Water: 3-5 minutes
Vegetable Blend with Tomatoes	3 parts veggie blend : 2 parts water	Cool Water: 8-10 minutes Hot Water: 3-5 minutes
Vinegar Powder	1 part vinegar powder : 2 parts water <i>Makes a thin pourable vinegar</i>	Cool Water: 3-5 minutes Warm Water: 2-3 minutes
Wine, Burgundy Powder	1 part wine powder : 1 part water	Cool Water: 12-15 minutes Warm Water: 5-7 minutes
Wine, Chablis Powder	1 part wine powder : 1 part water	Cool Water: 12-15 minutes Warm Water: 5-7 minutes
Worcestershire Powder	1 part Worcestershire powder : 2 parts water <i>Makes a thin pourable Worcestershire sauce</i>	Cool Water: 3-5 minutes Warm Water: 2-3 minutes
Yogurt Powder	3 parts yogurt powder : 1 part water <i>Makes a thick creamy yogurt</i>	Cool Water: 3-5 minutes Warm Water: 2-3 minutes
Zucchini, Diced	2 parts zucchini : 1 part water	Cool Water: 7-10 minutes Hot Water: 3-5 minutes
Zucchini, Slices	2 parts zucchini : 1 part water	Cool Water: 3-5 minutes Hot Water: 1-2 minutes



*If more of us valued food and cheer and song above hoarded gold,
it would be a merrier world.*

J. R. R. Tolkien (1892 - 1973)

Resources

All About Dehydrated Vegetables	https://www.usaemergencysupply.com/information_center/all_about_dehydrated_vegetables.htm
Cookin' With Beans and Rice	Book – by Peggy Layton http://peggylayton.net/index.php?app=ccp0&ns=catshow&ref=books&sid=qjr6mq7hb722d958h19r3twdff666l7i
Cookin' With Dired Eggs	Book – by Peggy Layton http://peggylayton.net/index.php?app=ccp0&ns=catshow&ref=books&sid=qjr6mq7hb722d958h19r3twdff666l7i
Cookin' With Home Storage	Book – by Peggy Layton http://peggylayton.net/index.php?app=ccp0&ns=catshow&ref=books&sid=qjr6mq7hb722d958h19r3twdff666l7i
Cookin' With Potatoes	Book – by Peggy Layton http://peggylayton.net/index.php?app=ccp0&ns=catshow&ref=books&sid=qjr6mq7hb722d958h19r3twdff666l7i
Cookin' With Powdered Milk	Book – by Peggy Layton http://peggylayton.net/index.php?app=ccp0&ns=catshow&ref=books&sid=qjr6mq7hb722d958h19r3twdff666l7i
Dehydrated Vegetables Q & A	http://www.disaster necessities.com/site/542519/page/2354037
Freeze dried or dehydrated foods equivalents to fresh	http://www.shelfreliance.com/pdf/parties/Equivalents.pdf
Growing and Canning Your Own Food	Book - by Jackie Clay http://www.backwoodshome.com/store/files/books.html
Guidelines for Use of Dehydrated Cheeses	http://www.quartermaster.army.mil/jccoe/publications/recipes/section_a/a028.pdf
How Do I Use Dehydrated Vegetables	http://www.harmonyhousefoods.com/assets/images/default/Other/UsingDehy2.pdf
Making & Using Dried Foods	Book - By Phyllis Hobson http://www.countrysidemag.com/store/bookstore.html
Making the Best of Basics	Book – by James T. Stevens "Dr. Prepper" and James Talmage Stevens
Mary Bell's Complete Dehydrator Cookbook	Book - by Mary Bell Great book but don't know where I got it ;-}

Dehydrated-Freeze Dried to Fresh Equivalents and Rehydration Tables - Continued

Mix A Meal Cookbook	Book – by by Deanna Bean
Pantry Cookbook	Book – by Jackie Clay http://www.backwoodshome.com/store/files/books.html
Putting Food By	Book - by Ruth Hertzberg, Beatrice Vaughan, and Janet Greene 2nd edition 1975, updated in 1992
Rehydration Ratios	http://www.packitgourmet.com/RehydrationRatios-sp108.html
Self-reliance Recession-proof your pantry	Book – A guide from Backwoods Home Magazine http://www.backwoodshome.com/store/files/books.html
Substituting Dried Herbs for Fresh	http://www.ochef.com/704.htm
The Big Book of Preserving the Harvest	Book - By Carol W. Costenbader http://www.backwoodshome.com/store/files/books.html
The Dehydrator Bible	Book - by Jennifer MacKenzie, Jay Nutt, & Don Mercer http://www.backwoodshome.com/store/files/books.html
The Herbal Quarterly	Magazine several articles http://www.herbquarterly.com/
Yeast - Fresh Active vs Dry	http://www.breadworld.com/FAQ.aspx

*“A prudent man foresees the difficulties ahead and prepares for them;
the simpleton goes blindly on and suffers the consequences.”*
Proverbs 22:3

TNT

