

# Do It Yourself Mixes

*Presented by the UCCE Master Food Preservers of Amador and Calaveras Counties*

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**University of California**  
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Amador and Calaveras Counties





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# Do-it-Yourself Mixes

## Potato Soup Mix

**Yield: Makes approximately 3-1/2 cups mix.**

1-3/4 cups instant mashed potato flakes  
1-1/2 cups dry milk  
2 tablespoons chicken-flavored instant bouillon  
2 teaspoons dried minced onion  
1 teaspoon dried parsley

1/4 teaspoon ground white pepper  
1/4 teaspoon dried thyme  
1/8 teaspoon turmeric  
1 teaspoon seasoning salt

Add all ingredients to bowl and mix well. Store in airtight container, 1-quart canning jar, or vacuum seal bag.

For each serving, place 1/2 cup mix in soup bowl and add 1 cup boiling water. Stir until smooth.

Source: [budget101.com](http://budget101.com)

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## Creamy Tomato and Basil Soup Mix

**Yield: 1-2 Servings**

1/4 cup tomato powder  
1/3 cup instant dried milk powder  
2 tablespoons powdered chicken-flavored instant bouillon  
1 teaspoon dried basil

1/8 teaspoon garlic powder  
1/8 teaspoon onion powder  
1/8 teaspoon ground black pepper  
salt to taste

1. Add dry ingredients to bowl that holds at least two cups.
2. Pour in 1 cup boiling water and stir well to break up any lumps.
3. Add 3/4 cup more boiling water and stir.
4. Cover and let rest for 9 to 10 minutes.

Source: *The Yummy Life*

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## Mushroom Barley Soup Mix

**Yield: Approx. 4 servings**

1/2 cup dried barley  
1/4 cup dried mushroom slices  
2 tablespoons dried minced onions  
1/4 cup dried carrot slices  
2 tablespoons dried parsley flakes

2 tablespoons dried dill  
2 bay leaves  
2 teaspoons beef-flavored instant bouillon  
salt and pepper to taste

Combine all ingredients and seal in Ziploc, vacuum seal bag, or 1-quart canning jar.

Rehydrate carrot slices in one cup boiling water for one hour. Drain.

In saucepan, add 1-quart boiling water to mix (along with rehydrated carrots, drained) and simmer until barley is tender. This takes approximately 40 to 50 minutes. Remove bay leaves. Season to taste with salt and pepper.

Source: [budget101.com](http://budget101.com)

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### Soup of Sauce (SOS) Mix

**Yield: Equal to 9 cans of cream soup**

#### Ingredients:

2 cups powdered non-fat dry milk

$\frac{3}{4}$  cup cornstarch

$\frac{1}{4}$  cup instant chicken bouillon (regular or low-sodium)

2 tablespoons dried onion flakes

2 teaspoons Italian seasoning (optional)

Combine all ingredients in a bowl or plastic bag mixing well.

Store in airtight container.

Equal to 1 can of cream soup.

#### To make soup:

- Combine  $\frac{1}{3}$  cup of dry mix with 1  $\frac{1}{4}$  cups of cold water. Whisk until well blended.
- Cook and stir on stove top or in microwave until thickened.
- Add thickened mixture to casseroles as you would a can of soup.

Note: May want to leave Italian seasoning out depending on use.

Source: *Utah State University Cooperative Extension*

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### Cornmeal Master Mix

**Yield: 14 cups**

#### Ingredients:

7 cups cornmeal

2 cups unsifted regular flour

4 tablespoons baking powder

1  $\frac{1}{3}$  cups nonfat dry milk

1 tablespoon salt

$\frac{1}{4}$  cup sugar

1 cup shortening

#### Preparation:

- Combine all dry ingredients and stir carefully to blend.
- Add shortening and use a fork, two knives or pastry blender to blend the shortening into dry ingredients. The mixture should look like cornmeal.
- Label with date and store in covered container in a cool, dry place (or in refrigerator) for up to 8 weeks.

Source: *North Dakota State University Extension*

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**Cornbread:****Yield: 8 servings****Ingredients:**

2 cups Cornmeal Master Mix  
2 eggs, beaten

1 cup water

**Directions:**

1. Preheat oven to 400 degrees.
2. Measure Cornbread Master Mix into bowl. Combine eggs and water in large measuring cup.
3. Pour ½ of water-egg mixture over cornmeal mix and stir to blend. Add remaining ½ cup of water-egg mixture and beat until smooth.
4. Pour into well-greased 8x8 inch pan or 10-inch iron skillet.
5. Bake at 400 degrees for 20 to 25 minutes.

**Variations:**

Add 1/3 cup of chopped onion and ½ cup shredded cheddar cheese to mixture.

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**Corn Muffins:****Yield: 12 muffins**

2 cups Cornmeal Master Mix  
2 eggs beaten  
1 tablespoon melted shortening or butter

1 tablespoon sugar  
1 cup water

**Directions:**

1. Preheat oven to 400 degrees
  2. Combine Cornmeal Master mix and sugar in bowl.
  3. Combine eggs, water and shortening in separate bowl.
  4. Pour half of the liquid into the mix; blend. Add remainder of liquid and beat.
  5. Fill greased muffin tins 2/3 full and bake for 20 minutes.
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**Ty's Herbed Beer Bread Mix****Yield: 1 quart of mix****Ingredients:**

3 cups all-purpose flour  
3 tablespoons granulated sugar  
1 ½ tablespoons baking powder  
1 tablespoon dried parsley flakes  
1 tablespoon dried sage

1 tablespoon dried rosemary  
1 tablespoon dried thyme  
1 ½ teaspoons salt

- Combine all dry ingredients in a medium bowl and gently whisk to combine.
- Pour mix into a clean 1-quart jar. Store in airtight container in cool, dry place until ready to use or give as a gift.

To use the mix:

1. Preheat oven to 350 degrees.
2. Butter a 9x5" loaf pan
3. In a medium bowl combine the bread mix with 12 ounces of warm beer and stir until just combined (a few lumps are ok).
4. Pour into prepared pan and dot with 2 tablespoons butter (cut into small pieces).
5. Bake for 45-50 minutes, until crust is golden brown.

Suggestion: Top the batter with about 1 tablespoon of parmesan cheese.

Source: Food in Jars by Marisa McClellan

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### Seasoned Couscous

**Yield: approx. 4 packets**

2 cups uncooked couscous	1 teaspoon dried rosemary, crushed
1 tablespoon chicken-flavored instant bouillon	1/2 teaspoon dried marjoram
1 tablespoon dried parsley	1/2 teaspoon garlic powder
1 tablespoon dried onion flakes	1/4 teaspoon pepper

In medium bowl, combine couscous, bouillon, dried parsley, onion flakes, rosemary, marjoram, garlic powder, and pepper. Mix well. Store in airtight container.

1. For two servings of cooked couscous, use 1/2 cup of the mix (stir before measuring).
2. In a small saucepan, bring 3/4 cup water to a boil; stir in couscous mix.
3. Remove from heat; cover and let stand five minutes. Fluff with a fork before serving.

Source: [budget101.com](http://budget101.com)

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### Herb Rice

**Yield: 1 recipe of seasoning**

Ingredients:

1 cup uncooked rice, white or brown	1/2 teaspoon thyme leaves
1/2 teaspoon marjoram leaves	1 teaspoon dry green onion flakes
2 beef bouillon cubes (or 2 teaspoons beef bouillon granules)	1/4 teaspoon rosemary
	1/4 teaspoon salt (optional)

Combine all ingredients and store in airtight sealed container.

To cook rice:

Yields: 4-6 servings

1. Combine 1 recipe of rice mix with 2 cups of cold water (3 cups of cold water for brown rice) and 1 tablespoon margarine.
2. Bring to a boil; reduce heat.
3. Cover tightly and simmer over low heat for 15-20 minutes (1 hour for brown rice) or until water is absorbed.

Source: University of Alaska, Fairbanks, PUB FNH-00060

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**Rice-a-Roni Mix****Yield: 3 cups of dry mix**

2 cups uncooked rice  
1 cup broken angel hair, vermicelli or thin spaghetti  
(1/2 inch pieces)  
1/4 cup dried parsley

6 tablespoons chicken bouillon powder  
2 teaspoons onion powder  
1/2 teaspoon garlic powder  
1/4 teaspoon dried thyme

Combine all ingredients and mix well. Store in airtight container.

**To make rice-a-roni**

Melt 2 tablespoons of butter in a 12-inch skillet.

Add 1 cup of rice mix and stir. Sauté for about 1 minute or until pasta starts to turn golden brown.

Add 2 1/4 cups water and bring to a boil.

Reduce heat, cover and simmer for 15 minutes or until all water is absorbed.

Note: reduce amount of bouillon powder if too strong or salty.

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**Ranch Dressing Mix****Yield: 1 cup of mix**

Ingredients:

3/4 cup dry buttermilk powder  
2 tablespoons dried parsley  
2 teaspoons dried dill weed  
1 tablespoon onion powder  
1 tablespoon garlic powder

1 tablespoon dried minced onion  
1/2 teaspoon ground pepper  
1/4 teaspoon salt or salt substitute  
2 teaspoons freeze dried chives (optional)

Put all ingredients in a blender or coffee grinder and blend until it is a fine powder.

Store in a sealed container, jar or bag in a cool, dark place.

Ingredients to make the dressing:

1/2 cup mayonnaise  
1/2 cup sour cream  
1/4 cup milk or buttermilk

1 to 2 tablespoons of mix (depending on strength wanted)

Combine mayonnaise, sour cream and mix until blended. Refrigerate for at least 30 minutes to let flavors blend.

For a thinner dip, add more milk to desired consistency.

**Basic BBQ Rub****Yield: 2 ¼ cups****Ingredients:**

1 cup turbinado sugar	1 teaspoon finely ground black pepper
½ cup granulated sugar	2 teaspoons dry mustard
½ cup kosher salt	¼ cup light chili powder
1 tablespoon onion powder	1 teaspoon ground cumin
2 tablespoons granulated garlic	¼ cup plus 2 tablespoons paprika
1 ½ teaspoons cayenne	

**Preparation:**

1. Place the turbinado sugar in a coffee grinder and pulse until lightly powdered. Transfer to a small mixing bowl and add all remaining ingredients.
2. Stir until well incorporated.
3. Store in an airtight container for up to 1 month.

Note: Could easily make half (or even a quarter of) the recipe depending on how often you would use it.

**Source:** Smokin' in the Boys' Room by Melissa Cookston

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**Onion Soup Mix**

(Think Lipton Onion Soup mix)

**Yield: 4 batches of mix**

Approximately 20 tablespoons

**Ingredients:**

¾ cup dried minced onions	¼ teaspoon granulated sugar
1/3 cup beef bouillon powder	¼ teaspoon freshly ground pepper
1 tablespoon plus 1 teaspoon onion powder	1/8 teaspoon paprika
¼ teaspoon celery seeds	¼ teaspoon parsley flakes (optional)

**Instructions:**

1. Chop or grind the celery seeds to break them up.
2. Mix all ingredients together until well blended.
3. Store in airtight container in cool, dark space.

**To make dip:**

Combine ¼ cup of mix with 2 cups of sour cream. Blend well and chill.

**To make roasted potatoes:**

2 pounds of potatoes, cut up into 1/2 cubes	Yields 6 servings
1/3 cup olive or canola oil	¼ cup onion soup mix

Toss all ingredients and transfer to baking sheet and bake at 450 degrees for 35-40 minutes, stirring occasionally.



**Taco Seasoning****Yield: Equal to 6 packets****Ingredients:**

¼ cup chili powder	1 ½ teaspoons garlic powder
3 Tablespoons ground cumin	1 ½ teaspoons onion powder
1 Tablespoon paprika	1 ½ teaspoons dried oregano
1 Tablespoon crushed red pepper	1 ½ teaspoons black pepper
1 Tablespoon salt	

**Preparation:**

Measure out all ingredients into a small bowl. Mix well. Taste and adjust the salt or spices to your taste. Store in an airtight container until ready to use.

To prepare tacos use 1 tablespoon of mix to 1 pound of ground beef. Adjust seasoning mix to taste.

*Source: The Pioneer Woman*

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**“Southwestern” Fiesta Dry Dip Mix****Yield: 2 cups mix****Ingredients:**

½ cup dried parsley	1/3 cup chili powder
1/3 cup dried onion, minced	¼ cup ground cumin
¼ cup dried chives	¼ cup salt (optional)

Combine all dry ingredients in a bowl.  
Store in airtight container.

**Dip Recipe:**

- 1 cup mayonnaise
  - 1 cup sour cream
  - 3 tablespoons fiesta dip mix
1. Whisk the mixture together until smooth. Check to see if you like the taste or want more mix.
  2. Refrigerator for 2-4 hours or overnight.
  3. Serve with tortilla chips or fresh veggies.

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**Holy Trinity Powder**

4 tablespoons onion powder  
4 tablespoons celery powder  
4 tablespoons green pepper powder

1. Combine all ingredients and pulse in a spice grinder.
2. Store in airtight container.
3. Adjust the ratios to suit your taste.

**Mirepoix Powder**

4 tablespoons onion powder  
2 tablespoons carrot powder

2 tablespoons celery powder

Combine and store in airtight container.

Or, if using pieces

2 cups dried onion pieces  
¼ cup carrot pieces

1/4 cup dried celery pieces

Use 1 to 2 teaspoons in soups, stews, sauces, rice dishes, etc. This is concentrated so a little goes a long way.

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**Zesty Italian Dry Seasoning**

Ingredients:

1 tablespoon onion powder  
1 tablespoon garlic salt  
1 tablespoon salt  
1 tablespoon dried oregano

1 teaspoon dried thyme  
1 tablespoon parsley flakes  
1 teaspoon pepper  
¼ teaspoon celery seed

Combine all dry ingredients together.

To make dressing:

Mix 2 tablespoons of mixture with ½ cup red wine vinegar, 2/3 cup extra virgin olive oil and 2 tablespoons water. Shake until well mixed.

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**Pudding Master Mix**

**Yield: 10 cups of mix**

Ingredients:

½ cup all-purpose flour  
2 2/3 cups sugar  
1 1/3 cups cornstarch

6 cups nonfat dry milk  
2 teaspoons salt (optional)

Mix well and store in an airtight container.

**Vanilla Pudding**

**Yield: 6 – ½ cup servings**

Ingredients:

1 cup Pudding Master Mix, well packed  
2 ½ cups water

¼ cup margarine  
1 teaspoon vanilla

1. Combine Pudding Master Mix and water in a medium saucepan.
2. Cook, stirring constantly until mixture boils.
3. Add margarine and boil for 2 minutes.
4. Remove from heat and add vanilla extract.

## Chocolate Pudding

1. Use Vanilla pudding recipe and add 4 tablespoons cocoa and 3 tablespoons sugar to the dry mix.
2. Cook as indicated above for vanilla pudding.

Source: University of Alaska, Fairbanks, PUB FNH-00060

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## Cranberry-Oatmeal Cookie Mix

**Yield: 1 quart jar of mix**

### Ingredients:

1 cup plus 2 tablespoons all-purpose flour	¼ cup brown sugar
1 cup rolled oats	¼ cup white granulated sugar
½ teaspoon baking soda	½ cup dried cranberries
½ teaspoon salt	½ cup white chocolate chips

### Instructions:

Layer the ingredients into a clean quart-sized jar.

Cover jar tightly with a lid, decorate, if desired, and attach a copy of the recipe card.

To make the cookies:

### Additional ingredients:

½ cup butter	1 egg
1 teaspoon vanilla	

Preheat oven to 350 degrees.

- In a large bowl, mix butter, vanilla and egg together until smooth.
- Add cookie mix and mix well.
- Place by the spoonful onto a greased cookie sheet and bake for 8-10 minutes until golden brown.

Source: North Dakota State University Extension Service

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## Oatmeal Cookies in a Jar

**Yield: Approx. 2 Quart Jars of mix**

### Ingredients:

3 cups old fashioned rolled oats	1 teaspoon baking soda
1 cup chips/nuts/dried fruit (See variations/options)	½ teaspoon baking powder
½ cup sugar	½ teaspoon salt
1 cup brown sugar	
2 cups all-purpose flour	

### Directions:

1. Combine baking soda, baking powder, salt and flour. Place in quart jar as bottom layer.
2. Layer the remaining ingredients putting the rolled oats on top.

This makes more than 1 jar so split the ingredients as above.

To make cookies:

- Preheat oven to 350 degrees
- Beat 1 cup butter, 2 eggs and 1 tablespoon vanilla. Add contents of one jar.
- Place by the spoonful onto a lightly greased cookie sheet and bake for 10-12 minutes.
- Cool on wire rack.

Add-in options:

**Cranberry/Orange Oatmeal Cookie Mix variation**

1 teaspoon cinnamon

½ cup dried cranberries

¼ teaspoon nutmeg

½ cup chopped walnuts

Zest from 1 orange

**Spiced Pecan Oatmeal Cookie Mix variation**

2 teaspoons cinnamon

1 cup chopped pecans

1 teaspoon allspice



## SPRING CLEAN YOUR SPICE CABINET



When was the last time you took a peek – and we mean really looked at – the herbs and spices in your cabinet? Herbs and spices don't spoil like fresh food. But they do lose their flavor and potency after a period of time. To ensure your herbs and spices are making a flavorful impact on your favorite dishes:

- Aroma should be strong
- Taste should be potent
- Color should be vibrant

If your spice or herb doesn't meet these freshness standards, check the "best by" date on the bottle. It may be time to toss and replace. You'll notice a powerful flavor difference in your dishes instantly!

## TIP 1:

Check the freshness date on the bottom or side of the bottle to help keep track of when it's time to Toss Out Stale Spices.



**Do you know the signs of aging? Except for black pepper, McCormick spices in rectangular tins are at least 25 years old!**

**TIP 2:** Aroma = Flavor. Rub or crush the spice or herb in your hand. Is the aroma weak? Is the flavor apparent? If not, it's time to replace.



**TIP 3:** Storage = Flavor. Store herbs and spices in tightly capped containers and keep away from heat, moisture and direct sunlight. Replace bottle lids tightly, immediately after use.



Check the "best by" date. McCormick products are dated to ensure you get the most flavor in your dishes.

**TIP 4:** Color = Flavor. Is the color of your herbs and spices vibrant? If it has faded, chances are, so has the flavor.



# AGE OF SPICES

Organizing the cupboards? Don't forget to check your spices and herbs.

## SIGHT

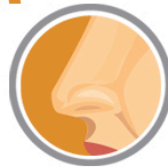
look for bright, vibrant colors



faded hues  
=  
faded flavor

## AROMA

rub the spice in your hand



weak aroma  
=  
time to toss

## TASTE

taste the spice or herb

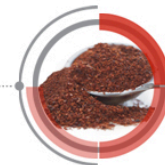


lacking flavor  
=  
past its prime

## COOK WITH FRESH FLAVOR

2-3

YEARS



WHOLE SPICES

3-4

YEARS



SEASONING BLENDS

1-2

YEARS



HERBS

1-3

YEARS



## CHECK THE BEST BY DATE



ALL MCCORMICK PRODUCTS ARE DATED TO ENSURE FRESH FLAVOR.

FOR MORE INFORMATION AND RECIPES, VISIT: [McCormick.com](http://McCormick.com), [Facebook.com/McCormickSpice](https://Facebook.com/McCormickSpice) and [Pinterest.com/McCormickSpice](https://Pinterest.com/McCormickSpice)

## FRESH INGREDIENTS = THE FRESHEST FLAVOR

To ensure all of your dishes delight friends and family year-round, take a few minutes to check the freshness of your herbs and spices once a year.





# Do Spices Go Bad?

## Best Way to Store Spices



### Do spices go bad and what is the best way to store them?

Spices, like all foods, have a distinct shelf life and will go bad. The length of that shelf life depends on how the spices are cared for.

Heat, humidity, air, and sunlight all have detrimental effects: they break down the chemical compounds (also known as essential oils) that give spices their flavors and aromas. When these chemical compounds break down the flavors lose potency. In some spices, flavors, and aromas can become rancid, moldy, musty, or dirty at which point the spices should be thrown away.

We get asked many questions about the storage and shelf life of our spices and herbs. Here are just a few of the most frequently asked questions:

## How long do spices and herbs last?

Kept at ideal conditions, spices and herbs can live long, fragrant lives:

- Dried herbs will keep for 1 year.
- Ground spices will keep for 1 year.
- Whole spices will keep for 3 years.
- Salts will keep indefinitely.
- Flavored salts will keep for 3 years, and though the infused flavors might vanish the salt itself is still usable.
- Poppy seeds, sesame seeds, nuts and truffle products— unique to the spice world in regards to storage – only keep for 3 to 6 months.

Keeping this in mind, we generally encourage customers to purchase whole spices as they possess higher potency and longer shelf life.

## What is the best way to store spices?

Spices and herbs should be kept in airtight containers in dark, cool places. Glass jars with tight fitting lids are perfect if you plan to store your spices in a cupboard. However, if the layout of your home doesn't allow for this use tins to ensure that sunlight can't reach the spices.

## Can I store spices in a refrigerator or freezer?

Some people insist that a refrigerator provides an ideal environment to store spices due to its dark and cold nature. Unfortunately, humidity can cause the flavor of various spices to alter or for the spices to even grow mold or bacteria. For this reason we do not encourage storing spices in a freezer or refrigerator unless they have been vacuum sealed.

In addition, avoid storing spices in cupboards above heating elements as ambient heat can cause spices to spoil more quickly.



Where do you keep your spices? Do you prefer the spice cabinet? Maybe a spice rack on the counter? You might have heard that keeping them in the refrigerator or even the freezer is best. If you want to get the most shelf life from your spices and have them give you optimum flavor where your store them is critical.

While keeping your spice jars in your "spice cabinet" located above the stove might be convenient, it is not the best place to keep them. This is because spices and herbs will begin to break down when exposed to the moisture and heat from the stove.

The spice rack on the counter is not ideal especially if the spot the rack sits gets any direct sunlight. And the magnetic backboard that looks so cute? Same problem as with the spice rack. Direct sunlight will cause the spices to breakdown quicker.

What about the fridge or the freezer? Every time you take them out they have to warm to room temperature. Or when they were first added to the fridge they had to "cool down". These temperature changes often cause the spices to pick up moisture and condensation. Both will shorten the life of your spices.

### **Ideal Spice Storage**

The ideal storage temperature for your spices and herbs is one that remains fairly constant and right around 70° F. So for optimum flavor and shelf life you should store these away from the heat of the stove, heaters or the direct sunlight.

A good storage system will also keep your spices and herbs in the dark and dry. Some folks prefer amber glass jars with airtight lids for this reason. You can also keep them in a cupboard or drawer (as long as the temperature in the kitchen is relatively cool) but be sure that they are not exposed to light and not too close to the stove.

You should also be aware that temperature fluctuations may cause unwanted condensation, and possibly mold, for that reason I am not a big fan of storing my spices in the refrigerator or freezer.

### **Be Careful How You Add Spices, Too**

As a final word of caution on condensation build up, be aware of how you use your spices around the stove. Don't shake directly into a pot or pan over direct heat as the moisture goes right into the bottle. It is better to shake the amount you want to add into the palm of your hand and then add that to the pot or pan.

# What is the Shelf Life of Spices and Herbs?



Dried herbs and spices add a lot of flavor to our dishes and they're so readily available and convenient to use. When we're able to blend a combination of spices and herbs the end result usually leads to a wonderful meal. Preserving the quality, freshness and flavor of your spices and seasonings will give you great tasting dishes and help to eliminate boring meals.

Spices don't spoil but over time they do lose their strength. When stored properly spices retain their potency longer than you might think. Whole peppercorns, nutmegs, cloves, cinnamon sticks and whole seeds, such as coriander, cumin, and cardamom all last longer than their ground counterparts.

## Proper Storage

There are two critical keys to maintaining the optimum flavor and in getting the greatest value out of your herbs and spices. Store your spices and seasoning blends in air tight containers and keep them in a cool dark place. Keeping containers tightly closed will protect them from moisture and oxidation. Keeping them away from direct light will keep their color from fading. We've also found that when spices are stored in glass jars they tend to retain more of their essential oil content (this is where the flavor is).

Never store your spices above your stove as the additional heat will more quickly lead to degradation of their quality. Also don't store them directly above your dishwasher as the increased humidity will also shorten their shelf life. Stored spices do best in temperatures below 70° and in lower humidity environments. While achieving both of these may be impractical in your kitchen the closer you can get to the ideal storage of them the better off you'll be.

If you have ever heard it's good to freeze spices and herbs forget it! Condensation will be a problem each time the jar or bag of spice comes out of the freezer and is likely to introduce unwanted moisture to the spices. We also do not recommend shaking herbs or spices out of the bottle directly into something you're cooking as any steam/ moisture rising up from the cooking dish will introduce moisture into your jar of spices. Instead it's better to shake the spice into the palm of your hand and then add it to the dish you're cooking.

Some people like to store red spices like chili powder, cayenne pepper and paprika in the refrigerator to prevent loss of color and flavor. As mentioned in the freezer scenario above I think that it does more potential harm than good.

Whole spices keep the longest because they have not been cracked or ground which would expose their volatile oils to the air which speeds up the breakdown of their flavor. This is why ground spices have a shorter shelf life than whole spices or seeds.

## **So Many Different Recommendations - Which is Correct?**

The government recommendations for freshness dating is four years for whole spices and two years for ground and you may hear people say that spices should be replaced every six months. But most spices are only harvested once a year, so it certainly doesn't make sense to replace these every six months.

If spices and herbs are kept as we have discussed the shelf life will be as follows:

- Whole spices and dried herbs, leaves and flowers will keep 1 - 2 years.
- Seeds will keep 2 - 3 years and whole roots (i.e. ginger root or galangal root) will keep 3 years.
- Ground spices and herb leaves keep 1 year.
- Ground roots will keep for 2 years.

Just because a spice or seasoning blends is outside the date range listed above doesn't mean that the spice needs to be tossed in the trash. To determine if a spice or seasoning is still good you have to remember "appearance" and "aroma". A spice that is no longer acceptable will have lost much of its vibrant color and will instead appear dull and faded. The bigger key though is smell. To determine whether or not a ground spice is still good gently shake the container with the cap on. Remove the cap and smell the spice to see if the potent aroma of the spice is still present. If it is then your spice is still in good shape.

Spices don't just all of a sudden go from good one day to bad the next. From the time they're harvested they slowly begin to deteriorate and what you want to do is to prolong their optimum flavor for as long as possible with proper grinding and storage.

A good overall practice to follow is to only purchase high quality dried herbs and spices, from reliable suppliers, in small quantities so that you can easily use them up in reasonable period of time.

## **How to Grind Spices**

When I am talking to our customers I frequently find myself gauging where they are in their spice usage journey. By that I mean they are four basic types of customers depending on their knowledge and experience with spices. I say four types but that is assuming that they have already made their way out of the wilderness (also known as the grocery store spice isle) and are looking for better quality and fresher spices.

### **The Four Stages of Spice Use**

When most Americans start out looking to add more flavor to their food they tend to be somewhat intimidated with spices and go with spice blends. This is less risky and they can get the best and most consistent flavor profiles using this method. Other cultures tend to cook with pinches and dashes. A pinch of this and a dash of that.

The second stage is when you decide to start making your own seasoning blends or adding a little of this to go with just a bit of that. For this stage you tend to go for spices that are already ground.

The third stage is when you've gained the knowledge of how spectacular spices are when they are ground fresh just before they are added to the recipe or dish. This is truly the big "aha" moment and

once you get here you never want to go back.

The fourth stage is when you begin to roast spices to release the volatile oils. Once you've started down this path (which is very common in other cultures) you leave mere mortals light years behind. I'll talk more about this stage in another post.

For stages three and four you are going to need to grind your own spices. Here the choices are many and will depend on your own unique style, the amount of time you have and how much needs to be ground.

### **Time to Crush or Grind Your Spices**

There is absolutely nothing wrong with using a mortar and pestle. We have several in our kitchen and they are great for small grinding projects. But for ease of use and for a more efficient use of your time just get a good quality electric coffee type grinder. These don't have to be fancy (mine run about \$20). I've researched online and tested probably 10 different kinds over the years and my favorite is the blade grinder from Krups.

### **Blade Grinders**

Now there are certainly some tricks to using the blade grinders. They spin at a high speed and if you don't have a whole lot of spices in them the spices will fly to the top and won't get ground evenly. This certainly happens when you're only grinding a few teaspoons or less. Grind a slightly larger amount than you need and store the rest for a later use or add other dry ingredients from your recipe.

You do want to be careful of stripping out the blade on these grinders which can occur if a larger seed or berry gets stuck under the blade. One trick that I've learned is if I'm grinding cinnamon sticks, allspice berries or peppercorns is to turn the grinding upside down, turn it on and let the blades get up to speed and then turn the grinder upright to finish the job.

Now you should never use the same grinder for coffee that you do for spices. There's nothing worse than coffee tasting like chile peppers or your cumin tasting like coffee. But I take this a step further and have several electric spice grinders in our kitchen. One for earthy spices (i.e. cumin, coriander and mustards), one for chiles, one for the baking spices (i.e. cinnamon sticks and star anise) and one for herbs. This makes clean up easier and you don't have to worry as much about picking up strong flavors in unwanted places.

Now while we love to grind spices fresh one spice we never grind in our blade style coffee grinders is whole cloves. These just wreak havoc on a grinder the oil content really does a number on them. They tend to bog down the grinder a bit and really shorten the life of the grinder motors.

To clean my spice grinders I usually just wipe them out with a dry towel. If I need a better clean a few tablespoons of dry rice really do the trick.

### **Mortars and Pestles**

As I mentioned we do have several mortar and pestles in our kitchen and they do have their place in any well equipped kitchen. I like using them when I want a coarser texture or when I just need a small

amount. A pinch of this spice, a dash of that one and just a little of another and they can grind up quickly and easily.

You'll want to choose a mortar that has a rough bottom. The material it is made of can also make a big difference depending on what you're grinding. Granite works best for hard spices, Ceramic if you tend to grind small amounts and Wood for bruising herbs. Wood is my least favorite due to its porous nature as it tends to hold flavors long after their gone.

Now of course I would be remiss if I didn't mention the handy peppermill grinder. We also keep several of these on hand for different peppercorns and mixed peppercorn blends. Enjoy your journey to getting the most flavor out of your food and start grinding your own spices!

## **Roasting Spices**

Roasting spices is not a very common technique in this country, but is used with great regularity in many cultures around the world. Dry roasting your spices is a simple way to bring an almost magical flavor to your cooking. Best of all, you don't need to be a culinary trained chef to get the most out of roasting spices and in fact, you'll find that it is as much an art as it is a science.

You'll have to train your senses and develop a good understanding of the ideal timing, but once you get it down you'll be amazed at the difference. As you master this skill, you'll find that the proper use of heat and the right amount of time will draw out the aroma while releasing the oils that are trapped inside the raw seeds, chiles and peppercorns. While you can certainly enhance the flavor, you've got to be careful with some spices, as you can actually alter their flavor by over roasting as well.

So, while it's part art, you will also need to take a methodical approach to this – the science. What about the meal you're preparing and the spices you're using? Are you cooking low and slow or fast and hot? Will your tubers and root vegetables benefit from a deep roast or are you doing a quick stir fry? Spices used in slower cooked dishes may have time to allow their seeds to soften and have may benefit from the slower release of the flavors. On the other hand, dry roasting spices for a sauté or stir fry provides an explosion of additional flavor that can send your dish from good to amazing!

### **What Happens During Roasting?**

When you're roasting spices you are releasing the oils of the spices. Spices have two primary types of oils – one is the non-volatile oils which are a series of oleoresins which provide the aroma of the spice. The second is the volatile or essential oils which provide the flavor of the spice. It is most common to roast whole spices (instead of ground) as these better retain their natural oils making them better suited to dry roasting.

### **How to Roast Spices**

I prefer using a heavier small pan or skillet and cast iron works very well, as does a wok. Now, part of the art is that there is no one best way to roast spices – you'll have some choices to make the first couple of times you roast and then as you gain experience you'll develop the roasting philosophy that works best for you.



Some home chefs prefer preheating their pan while others choose to start with a cold pan. I fall in the camp of pre-heating. There are also several schools of thought on using a little oil when you roast your spices and others prefer to dry roast. I lean more towards dry roasting most of the time. No matter which combination of techniques becomes your own unique style, the goal of roasting is it to enhance the character of the spice by releasing the spice's deeper flavor.

Using a heavy skillet spreads the heat evenly and keeps the temperature consistent. Roasting is not something that you want to rush, so avoid using high heat and keep in mind "low and slow". I like to use the heat on low or low-medium. You want to heat your spices slowly so that they warm deep into the center of the spice while not burning the outer edges.

### **When You're Done Roasting**

As soon as you feel that you're done roasting your spices you'll want to remove them from the heat and put them on a plate to cool. Leaving them in the pan and just removing from the heat source will allow your spices to continue cooking and often leads to burning or scorching (negating all your work).

Let your spices cool completely and then grind them either with either a mortar and pestle or with an electric coffee or spice grinder. Roasted spices tend to be easier to grind than unroasted spices. You'll get maximum flavor if you use your spices the same day that you roast them (after allowing them to properly cool) but you can also store them in an air tight jar for several weeks before using them without much degradation. If I go this route I like to leave the whole roasted seed intact and then grind as needed for maximum flavor.

### **Other Things to Consider**

There is another way to roast spices, although it is not near as efficient and a whole lot less fun. This method consists of roasting your spices in the oven on a cookie sheet or a stone wear baking sheet. This is less efficient, as you have to pre-heat the oven and it will also be harder to gauge when the spices are fully roasted. And less fun, as it is much more enjoyable to move the spices around with your wooden spoon and soak in the amazing aroma as the oils are released!

You don't have to only roast one spice at a time if you are using whole seeds for one particular recipe or homemade seasoning blend. But you should be aware that not all spices roast in the same time period and since, especially at first, you're relying on the aroma to help you determine when the spices are done roasting you should stick to roast your spices separately.

As you gain experience you may want to experiment further by roasting your "blend" of spices together. After you've gained the knowledge of approximately how long each spice takes to roast you can add the various spices at different times so that they are all finished roasting at the same time. Be aware that this takes a good deal of practice to get the timing down just right. Also if you're going to add any ground spices to this cocktail of roasting spices be sure to add them at the very end, as ground spices have less volatile and non-volatile oils and only need seconds to roast.

This is an advanced technique for sure, but it is also the natural evolution as you become more familiar with how amazing spices can be when used to their fullest capability.





Whole spices are a favorite of cooks everywhere who like to have the freshest, most vibrant flavor in their foods. Whole spices are great. They usually keep for longer than their ground counterparts, since they lose less oil to the air than ground spices. This is because ground spices have more surface area exposed to the air, so their oils evaporate more rapidly. Pre-ground spices that you will find at the grocery store may also be exposed to the light and have become stale. You should always store spices in a cool, dark place. Usually the grocery store is rife with bright artificial lighting that actually damages the spices. If you are ready to begin your own spice grinding, the first move you should make is buying fresh, whole spices.

### **How to Use Whole Spices**

Once you have bought your own whole spices there are a menagerie of ways to use them, depending on the type of spice and the type of dish you are making. You can keep your spices whole in some cases, though this usually works best if the dish is one that must simmer for a long time. We recommend adding whole spices early when cooking because it allows the full depth of their flavor to permeate the dish. If you are afraid of leaving whole spices in food or you think they will be hard to find, you could tie them up in a cheesecloth for easier removal.

If you are looking for a earthier flavor in your spices, you can try toasting them. Toasting spices brings out a different, deeper flavor. You want to make sure you don't burn them, because they won't taste very good at all if they are burnt. You can save some foods after charring them, but not spices. Toast spices on a pan on low heat. After they have become fragrant, as in you can smell them noticeably, you should remove them from the pan even if they appear physically unchanged. Only toast one kind of a spice at a time. Each spice has a unique cook time and you don't want to burn your nutmeg while trying to scoop coriander seeds out of the pan.

### **How to Grind Whole Spices**

When it comes to grinding your spices, you have a few options. If you only need a small amount, go for a mortar and pestle. We recommend using one that would hold 2-3 cups of ground spices so that you don't have ground spices flying all over the place. If you are planning on grinding a big amount or you've decided that grinding spices in your home will happen on a more regular basis, you may want to go for an electric spice grinder. Coffee grinders or nut grinders used specifically for spices will work, too. Some spices require they be ground, some require they remain whole. So, which spices do you grind?

## Whole Spices to Keep on Hand & Grind When Needed

Don't cheat yourself out of the best flavor possible. If you use these spices, you could be grinding them and experiencing the most vibrant flavors your dishes can offer.

Cloves - Cloves are very intense. Most frequently found in their whole form, studding savory dishes like pork or ham roasts, they can also be used in sweets when ground up and mixed with nutmeg, cinnamon, and ginger. They are very flavorful, even when used with other spices, so use sparingly!

- Fennel Seed - Fennel seed is at its best when it is added at the end of cooking a dish so it can give optimum flavor. It goes well with beets, lentils, potatoes, and stews. Meat dishes are also complimented by fennel seed. You will find that it also works quite well in combination with cinnamon, cumin, fenugreek and Sichuan peppercorns.
- Black Cardamom - This is a spice with a lot of popularity in Indian dishes, like rice pilafs or curries of all varieties. It has an intense smoky flavor which does well in dishes that require a long cooking time.
- Nutmeg - Nutmeg is often one of the first spices to cross a person's mind when they think about grinding spices. They are perfectly sized to fit in the hand and can even be grated on special nutmeg graters. When ground, nutmeg is used in many different baked goods such as cakes, cookies, and fruit pies. It can also be used to compliment soups and cheese dishes.
- Black Peppercorns - Whole black peppercorn produces a distinctly spicy flavor which is slightly hot and biting with a just a hint of sweetness. This is one of the most popular, most frequently used spices in the world. Once ground, black pepper goes well with eggs, fish, pork, chicken, salads, soup, strawberries and tomatoes.

## Grinding Conversions

If you are grinding your own spices, you may find that you end up with more than you bargained for, especially if you have never ground spices before. Below we have listed some of the most commonly ground spices and their ground conversion rate, so you can have a general idea of what you'll be getting when you grind your spices for the first time.

- Allspice: One teaspoon of whole Allspice will yield about one teaspoon of ground allspice.
- Black Pepper: One teaspoon of peppercorns will yield about one and a half teaspoons of ground pepper.
- Cardamom: Twelve pods or so will yield one teaspoon of ground cardamom. The pods must be dehusked first, which means the pod has to be broken open to reveal the seeds inside. Usually there are about seven, and you should grind these seeds for the best flavor.
- Cinnamon: One stick that is about one and a half inches long will yield about one teaspoon of ground cinnamon.
- Cloves: Roughly twelve cloves will yield about a teaspoon of ground cloves.
- Coriander: One teaspoon of coriander seeds will yield roughly one and a quarter teaspoons of ground coriander.
- Cumin: One teaspoon of cumin seeds will yield approximately one and a quarter teaspoons of ground cumin.
- Fennel Seeds: One teaspoon will yield about one and a quarter teaspoons of ground fennel.
- Nutmeg: Half of the average sized nutmeg will yield about a teaspoon of ground nutmeg.
- Mustard Seeds: One teaspoon of mustard seeds will yield about one and a half teaspoons of ground mustard.

### **How to Clean a Grinder**

To clean your grinder, pour a tiny amount of rice in, one to two tablespoons should do the trick, and grind it down to a powder. Wipe out the grinder with a damp cloth and let it air dry. If you do use a coffee grinder for your spices, keep a separate one for coffee. The flavor of coffee can often linger in a grinder and will alter the flavor of your spices drastically. Alternatively, the coffee beans may have a different flavor from the strong spices, too! Grinding spices is the best way to ensure you are getting the most flavor in your dish every time, so you want to maintain your grinder to ensure you will be able to use it for many moons to come. Now you have been thoroughly informed about the spices you can grind, so get to grinding!



## *Preserving Food:* Drying Fruits *and* Vegetables

Food drying is one of the oldest methods of preserving food for later use. It can either be an alternative to canning or freezing, or compliment these methods. Drying foods is simple, safe and easy to learn. With modern food dehydrators, fruit leathers, banana chips and beef jerky can all be dried year round at home.

### ***How Drying Preserves Food***

Drying removes the moisture from the food so bacteria, yeast and mold cannot grow and spoil the food. Drying also slows down the action of enzymes (naturally occurring substances which cause foods to ripen), but does not inactivate them.

Because drying removes moisture, the food becomes smaller and lighter in weight. When the food is ready for use, the water is added back, and the food returns to its original shape.

Foods can be dried in the sun, in an oven or in a food dehydrator by using the right combination of warm temperatures, low humidity and air current.

In drying, warm temperatures cause the moisture to evaporate. Low humidity allows moisture to move quickly from the food to the air. Air current speeds up drying by moving the surrounding moist air away from the food.

### ***Drying Foods Out-of-Doors***

#### **Sun Drying**

The high sugar and acid content of fruits make them safe to dry in the sun. Vegetables and meats are not recommended for sun drying. Vegetables are low in sugar and acid. This increases the risks for food spoilage. Meats are high in protein making them ideal for microbial growth when heat and humidity cannot be controlled.

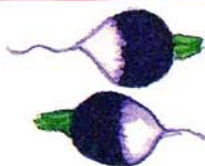
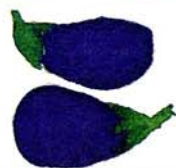
To dry in the sun, hot, dry, breezy days are best. A minimum temperature of 86°F is needed with higher temperatures being better. It takes several days to dry foods out-of-doors. Because the weather is uncontrollable, sun drying can be risky.

Also, the high humidity in the South is a problem. A humidity below 60 percent is best for sun drying. Often these ideal conditions are not available when fruit ripens.

Fruits dried in the sun are placed on trays made of screen or wooden dowels. Screens need to be safe for contact with food. The best screens are stainless steel, teflon coated fiberglass or plastic. Avoid screens made from "hardware cloth." This is galvanized metal cloth that is coated with cadmium or zinc. These materials can oxidize, leaving harmful residues on the food. Also avoid copper and aluminum screening. Copper destroys vitamin C and increases oxidation. Aluminum tends to discolor and corrode.



**Outdoor Drying Rack**

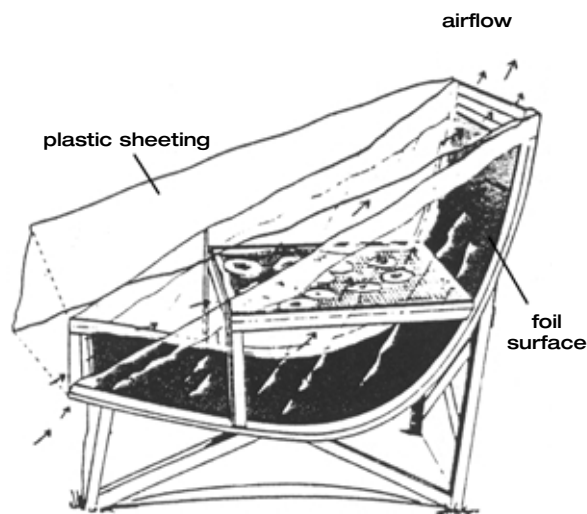


Most woods are fine for making trays. However, do not use green wood, pine, cedar, oak or redwood. These woods warp, stain the food or cause off-flavors in the food.

Place trays on blocks to allow for better air movement around the food. Because the ground may be moist, it is best to place the racks or screens on a concrete driveway or if possible over a sheet of aluminum or tin. The reflection of the sun on the metal increases the drying temperature. Cover the trays with cheesecloth to help protect the fruit from birds or insects. Fruits dried in the sun must be covered or brought under shelter at night. The cool night air condenses and could add moisture back to the food, thus slowing down the drying process.

### **Solar Drying**

Recent efforts to improve on sun drying have led to solar drying. Solar drying also uses the sun as the heat source. A foil surface inside the dehydrator helps to increase the temperature. Ventilation speeds up the drying time. Shorter drying times reduce the risks of food spoilage or mold growth.



**Homemade Solar Dryer**

### **Pasteurization**

Sun or solar dried fruits and vine dried beans need treatment to kill any insect and their eggs that might be on the food. Unless destroyed, the insects will eat the dried food. There are two recommended pasteurization methods:

1. **Freezer Method** - Seal the food in freezer-type plastic bags. Place the bags in a freezer set at 0°F or below and leave them at least 48 hours.
2. **Oven Method** - Place the food in a single layer on a tray or in a shallow pan. Place in an oven preheated to 160°F for 30 minutes.

After either of these treatments the dried fruit is ready to be conditioned and stored.

### **Drying Foods Indoors**

Most foods can be dried indoors using modern dehydrators, convection ovens or conventional ovens. Microwave ovens are recommended only for drying herbs, because there is no way to create airflow in them.

### **Food Dehydrators**

A food dehydrator is a small electrical appliance for drying food indoors. A food dehydrator has an electric element for heat and a fan and vents for air circulation. Dehydrators are efficiently designed to dry foods quickly at 140°F.

Food dehydrators are a relatively new item and are available from department stores, mail-order catalogs, natural food stores, seed catalogs and garden supply stores. Costs vary from \$40 to \$350 or above depending on features. Some models are expandable and additional trays can be purchased later. Twelve square feet of drying space dries about a half-bushel of produce.

### **Oven Drying**

Everyone who has an oven has a dehydrator. By combining the factors of heat, low humidity and air flow, an oven can be used as a dehydrator.

An oven is ideal for occasional drying of meat jerkies, fruit leathers, banana chips or for preserving excess produce like celery or mushrooms. Because the oven is needed for every day cooking, it may not be satisfactory for preserving abundant garden produce.

Oven drying is slower than dehydrators because it does not have a built-in fan for the air movement. (However, some convection ovens do have a fan). It takes about two times longer to dry food in an oven than it does in a dehydrator. Thus, the oven is not as efficient as a dehydrator and uses more energy.

**To Use Your Oven** - First, check the dial and see if it can register as low as 140°F. If your oven does not go this low, then your food will cook instead of dry. Use a thermometer to check the temperature at the "warm" setting.

For air circulation, leave the oven door propped open two to six inches. Circulation can be improved by placing a fan outside the oven near the door. CAUTION: This is not a safe practice for a home with small children.

Because the door is left open, the temperature will vary. An oven thermometer placed near the food gives an accurate reading. Adjust the temperature dial to achieve the needed 140°F.

Drying trays should be narrow enough to clear the sides of the oven and should be 3 to 4 inches shorter than the oven from front to back. Cake cooling racks placed on top of cookie sheets work well for some foods. The oven racks, holding the trays, should be two to three inches apart for air circulation.

## DRYING FRUITS

Dried fruits are unique, tasty and nutritious. Begin by washing the fruit and coring it, if needed. For drying, fruits can be cut in half or sliced. Some can be left whole. See the table "Drying Fruits at Home" later in this publication for specific directions for preparing each fruit.

Thin, uniform, peeled slices dry the fastest. The peel can be left on the fruit, but unpeeled fruit takes the longer to dry. Apples can be cored and sliced in rings, wedges, or chips. Bananas can be sliced in coins, chips or sticks.

Fruits dried whole take the longest to dry. Before drying, skins need to be "checked" or cracked to speed drying. To "check" the fruit place it in boiling water and then in cold water.

Because fruits contain sugar and are sticky, spray the drying trays with nonstick cooking spray before placing the fruit on the trays. After the fruit dries for one to two hours, lift each piece gently with a spatula and turn.

## Pretreating the Fruit

Pretreatments prevent fruits from darkening. Many light-colored fruits, such as apples, darken rapidly when cut and exposed to air. If not pretreated, these fruits will continue to darken after they have dried.

For long-term storage of dried fruit, sulfuring or using a sulfite dip are the best pretreatments. However, sulfites found in the food after either of these treatments have been found to cause asthmatic reactions in a small portion of the asthmatic population. Thus, some people may want to use the alternative shorter-term pretreatments. If home dried foods are eaten within a short time, there may be little difference in the long- and short-term pretreatments.

**Sulfuring** - Sulfuring is an old method of pretreating fruits. Sublimed sulfur is ignited and burned in an enclosed box with the fruit. The sulfur fumes penetrate the fruit and act as a pretreatment by retarding spoilage and darkening of the fruit. Fruits must be sulfured out-of-doors where there is adequate air circulation. (For more information contact your county Extension office.)

**Sulfite Dip** - Sulfite dips can achieve the same long-term anti-darkening effect as sulfuring, but more quickly and easily. Either sodium bisulfite, sodium sulfite or sodium meta-bisulfite that are USP (food grade) or Reagent grade (pure) can be used. To locate these, check with your local drugstores or hobby shops, where wine-making supplies are sold.

*Directions for Use* - Dissolve 3/4 to 1 1/2 teaspoons sodium bisulfite per quart of water. (If using sodium sulfite, use 1 1/2 to 3 teaspoons. If using sodium metabisulfite, use 1 to 2 tablespoons.) Place the prepared fruit in the mixture and soak 5 minutes for slices, 15 minutes for halves. Remove fruit, rinse lightly under cold water and place on drying trays. Sulfited foods can be dried indoors or outdoors. (This solution can be used only once. Make a new one for the next batch.)

**Ascorbic Acid** - Ascorbic acid (vitamin C) mixed with water is a safe way to prevent fruit browning. However, its protection does not last as long as sulfuring or sulfiting. Ascorbic acid is available in the powdered or tablet form, from drugstores or grocery stores. One teaspoon of powdered ascorbic acid is equal to 3000 mg



of ascorbic acid in tablet form. (If you buy 500 mg tablets, this would be six tablets).

*Directions for Use* - Mix 1 teaspoon of powdered ascorbic acid (or 3000 mg of ascorbic acid tablets, crushed) in 2 cups water. Place the fruit in the solution for 3 to 5 minutes. Remove fruit, drain well and place on dryer trays. After this solution is used twice, add more acid.

**Ascorbic Acid Mixtures** - Ascorbic acid mixtures are a mixture of ascorbic acid and sugar sold for use on fresh fruits and in canning or freezing. It is more expensive and not as effective as using pure ascorbic acid.

*Directions for Use* - Mix 1 1/2 tablespoons of ascorbic acid mixture with one quart of water. Place the fruit in the mixture and soak 3 to 5 minutes. Drain the fruit well and place on dryer trays. After this solution is used twice, add more ascorbic acid mixture.

**Fruit Juice Dip** - A fruit juice that is high in vitamin C can also be used as a pretreatment, though it is not as effective as pure ascorbic acid. Juices high in vitamin C include orange, lemon, pineapple, grape and cranberry. Each juice adds its own color and flavor to the fruit.

*Directions for Use* - Place enough juice to cover fruit in a bowl. Add cut fruit. Soak 3 to 5 minutes, remove fruit, drain well and place on dryer trays. This solution may be used twice, before being replaced. (The used juice can be consumed.)

**Honey Dip** - Many store-bought dried fruits have been dipped in a honey solution. A similar dip can be made at home. Honey dipped fruit is much higher in calories.

*Directions for Use* - Mix 1/2 cup sugar with 1 1/2 cups boiling water. Cool to lukewarm and add 1/2 cup honey. Place fruit in dip and soak 3 to 5 minutes. Remove, drain well and place on dryer trays.

**Syrup Blanching** - Blanching fruit in syrup helps it retain color fairly well during drying and storage. The resulting product is similar to candied fruit. Fruits that can be syrup blanched include apples, apricots, figs, nectarines, peaches, pears, plums and prunes.

*Directions for Use* - Combine 1 cup sugar, 1 cup light corn syrup and 2 cups water in a saucepot. Bring to a

boil. Add 1 pound of prepared fruit and simmer 10 minutes. Remove heat and let fruit stand in hot syrup for 30 minutes. Lift fruit out of syrup, rinse lightly in cold water, drain on paper toweling and place on dryer trays.

**Steam Blanching** - Steam blanching also helps retain color and slow oxidation. However, the flavor and texture of the fruit is changed.

*Directions* - Place several inches of water in a large saucepot with a tight fitting lid. Heat to boiling. Place fruit not more than 2 inches deep, in a steamer pan or wire basket over boiling water. Cover tightly with lid and begin timing immediately. See below for blanching times. Check for even blanching half way through the blanching time. Some fruit may need to be stirred. When done, remove excess moisture using paper towels and place on dryer trays.

### ***Drying the Prepared Fruit***

Whichever drying method you choose-sun drying, solar drying, oven drying or dehydrator drying-be sure to place the fruit in a single layer on the drying trays. The pieces should not touch or overlap. Follow the directions for the drying method you choose and dry until the food tests dry. Approximate drying times are given below. Food dries much faster at the end of the drying period, so watch it closely.

### ***Determining Dryness of Fruits***

Since dried fruits are generally eaten without being rehydrated, they should not be dehydrated to the point of brittleness. Most fruits should have about 20 percent moisture content when dried.

To test for dryness, cut several cooled pieces in half. There should be no visible moisture and you should not be able to squeeze any moisture from the fruit. Some fruits may remain pliable, but are not sticky or tacky. If a piece is folded in half, it should not stick to itself. Berries should be dried until they rattle when shaken.

After drying, cool fruit 30 to 60 minutes before packaging. Packaging food warm can lead to sweating and moisture buildup. However, excessive delays in packaging could allow moisture to re-enter food. Remember, if you have dried fruit in the sun, it must be pasteurized before it is packaged.



## ***Conditioning Fruits***

When dried fruit is taken from the dehydrator or oven, the remaining moisture may not be distributed equally among the pieces because of their size or their location in the dehydrator. Conditioning is a process used to equalize the moisture and reduce the risk of mold growth.

To condition the fruit, take the dried fruit that has cooled and pack it loosely in plastic or glass jars. Seal the containers and let them stand for seven to ten days. The excess moisture in some pieces will be absorbed by the drier pieces. Shake the jars daily to separate the pieces and check the moisture condensation. If condensation develops in the jar, return the fruit to the dehydrator for more drying. After conditioning, package and store the fruit.

## **DRYING VEGETABLES**

Vegetables can also be preserved by drying. Because they contain less acid than fruits, vegetables are dried until they are brittle. At this stage, only 10% moisture remains and no microorganism can grow.

### ***Preparing Vegetables***

To prepare vegetables for drying, wash in cool water to remove soil and chemical residues. Trim, peel, cut, slice or shred vegetables according to the directions for each vegetable in the chart below. Remove any fibrous or woody portions and core when necessary, removing all decayed and bruised areas. Keep pieces uniform in size so they will dry at the same rate. A food slicer or food processor can be used. Prepare only as many as can be dried at one time.

### ***Pretreating Vegetables***

Blanching is a necessary step in preparing vegetables for drying. By definition, blanching is the process of heating vegetables to a temperature high enough to destroy enzymes present in tissue. Blanching stops the enzyme action which could cause loss of color and flavor during drying and storage. It also shortens the drying and rehydration time by relaxing the tissue walls so moisture can escape and later re-enter more rapidly.

Vegetables can be water blanched or steam blanched. Water blanching usually results in a greater loss of nutrients, but it takes less time than steam blanching.

**Water Blanching** - Fill a large pot 2/3 full of water, cover and bring to a rolling boil. Place the vegetables in a wire basket or a colander and submerge them in the

water. Cover and blanch according to directions. Begin timing when water returns to boiling. If it takes longer than one minute for the water to come back to boiling, too many vegetables were added. Reduce the amount in the next batch.

**Steam Blanching** - Use a deep pot with a tight fitting lid and a wire basket, colander or sieve placed so the steam will circulate freely around the vegetables. Add water to the pot and bring to a rolling boil. Place the vegetables loosely in the basket no more than 2 inches deep. Place the basket of vegetables in the pot, making sure the water does not come in contact with the vegetables. Cover and steam according to the directions.

### ***Cooling and Drying the Prepared Vegetables***

After blanching, dip the vegetables briefly in cold water. When they feel only slightly hot to the touch, drain the vegetables by pouring them directly onto the drying tray held over the sink. Wipe the excess water from underneath the tray and arrange the vegetables in a single layer. Then place the tray immediately in the dehydrator or oven. The heat left in the vegetables from blanching will cause the drying process to begin more quickly. Watch the vegetables closely at the end of the drying period. They dry much more quickly at the end and could scorch.

### ***Determining Dryness of Vegetables***

Vegetables should be dried until they are brittle or "crisp." Some vegetables would actually shatter if hit

with a hammer. At this stage, they should contain about 10 percent moisture. Because they are so dry, they do not need conditioning like fruits.

## **DRYING FRUIT LEATHER**

Fruit leather is a tasty, chewy, dried fruit product. Fruit leathers are made by pouring puréed fruit onto a flat surface for drying. When dried, the fruit is pulled from the surface and rolled. It gets the name "leather" from the fact that when puréed fruit is dried, it is shiny and has the texture of leather.

### ***Leather From Fresh Fruit***

- \* Select ripe or slightly overripe fruit.
- \* Wash fresh fruit or berries in cool water. Remove peel, seeds and stem.
- \* Cut fruit into chunks. Use 2 cups of fruit for each 13" x 15" inch fruit leather. Purée fruit until smooth.
- \* Add 2 teaspoons of lemon juice or 1/8 teaspoon

ascorbic acid (375 mg) for each 2 cups of light colored fruit to prevent darkening.

- \* Optional: To sweeten, add corn syrup, honey or sugar. Corn syrup or honey is best for longer storage because it prevents crystals. Sugar is fine for immediate use or short storage. Use 1/4 to 1/2 cup sugar, corn syrup or honey for each 2 cups of fruit. Saccharin-based sweeteners could also be used to reduce tartness without adding calories. Aspartame sweeteners may lose sweetness during drying.

### ***Leathers From Canned or Frozen Fruits***

- \* Home preserved or store bought canned or frozen fruit can be used.
- \* Drain fruit, save liquid.
- \* Use 1 pint of fruit for each 13" x 15" leather.
- \* Purée fruit until smooth. If thick, add liquid.
- \* Add 2 teaspoons of lemon juice or 1/8 teaspoon ascorbic acid (375 mg) for each 2 cups of light colored fruit to prevent darkening.
- \* If desired, sweeten as directed above for leathers from fresh fruit.
- \* Applesauce can be dried alone or added to any fresh fruit purée as an extender. It decreases tartness and makes leather smoother and more pliable.

### ***Drying the Leather***

For drying in the oven or sun, line cookie sheets with plastic wrap. In a dehydrator, use plastic wrap or the specially designed plastic sheets that come with the dehydrator. Pour the leather onto the lined cookie sheets or tray. Spread it evenly to a thickness of 1/8 inch.

Dry the fruit leather at 140° F until no indentation is left when you touch the center with your finger. This could take about 6 to 8 hours in the dehydrator, up to 18 hours in the oven and 1 to 2 days in the sun. While still warm, peel from the plastic wrap. Cool and rewrap in plastic and store.

### **PACKAGING AND STORING DRIED FOODS**

After foods are dried, cool them completely. Then package them in clean moisture-vapor-resistant containers. Glass jars, metal cans or freezer containers are good storage containers, if they have tight-fitting lids. Plastic freezer bags are acceptable, but they are not insect and

rodent proof. Fruit that has been sulfured or sulfited should not touch metal. Place the fruit in a plastic bag before storing it in a metal can.

Dried food should be stored in a cool, dry, dark place. Most dried fruits can be stored for 1 year at 60° F, 6 months at 80° F. Dried vegetables have about half the shelf-life of fruits. Fruit leathers should keep for up to 1 month at room temperature. To store any dried product longer, place it in the freezer.

### **USING DRIED FOODS**

Dried fruits can be eaten as is or reconstituted. Dried vegetables must be reconstituted. Once reconstituted, dried fruits or vegetables are treated as fresh. Fruit leathers and meat jerky are eaten as is.

To reconstitute dried fruits or vegetables, add water to the fruit or vegetable and soak until the desired volume is restored. (See the chart on rehydrating dried food, for the amount of water to add and minimum soaking time.) Do not over-soak the food. Over-soaking produces loss of flavor and a mushy, water-logged texture.

For soups and stews, add the dehydrated vegetables, without rehydrating them. They will rehydrate as the soup or stew cooks. Also, leafy vegetables and tomatoes do not need soaking. Add enough water to cover and simmer until tender. CAUTION! If soaking takes more than 2 hours, refrigerate the product for the remainder of the time.

## Rehydrating Dried Foods

Product	Water to Add to 1 Cup Dried Food (Cups)	Minimum Soaking Time (Hours)
<b>Fruits*</b>		
Apples	1 1/2	1/2
Pears	1 3/4	1 1/4
Peaches	2	1 1/4
<b>Vegetables**</b>		
Asparagus	2 1/4	1 1/2
Beans, lima	2 1/2	1 1/2
Beans, green snap	2 1/2	1
Beets	2 3/4	1 1/2
Carrots	2 1/4	1
Cabbage	3	1
Corn	2 1/4	1/2
Okra	3	1/2
Onions	2	3/4
Peas	2 1/2	1/2
Pumpkin	3	1
Squash	1 3/4	1
Spinach	1	1/2
Sweet Potatoes	1 1/2	1/2
Turnip Greens and other greens	1	3/4

\* Fruits – Water is at room temperature.

\*\* Vegetables – Boiling water used.

## Drying Fruits at Home

		Pretreatment (Choose One)				Drying Times Dehydrator* (hours)
Fruit	Preparation	Sulfur (hours)	Blanch		Other	
			Steam (minutes)	Syrup (minutes)		
Apples	Peel and core, cut into slices or rings about 1/8 inch thick.	3/4	3-5 min, depending on texture	10	-ascorbic acid mixture -ascorbic acid solution -fruit juice dip -sulfite dip	6-12
Apricots	Pit and halve. May slice if desired.	2	3-4	10	-ascorbic acid mixture -ascorbic acid solution -fruit juice dip -sulfite dip	24-36**
Bananas	Use solid yellow or slightly brown-flecked bananas. Avoid bruised or overripe bananas. Peel and slice 1/4-inch to 3/8-inch thick, crosswise or lengthwise.				-honey dip -ascorbic acid solution -ascorbic acid mixture -fruit juice dip -sulfite dip	8-10
Berries						
Firm	Wash and drain berries with waxy coating (blueberries, cranberries, currants, gooseberries, huckleberries).				-plunge into boiling water 15-30 seconds to "check" skins. Stop cooking action by placing fruit in ice water. Drain on paper towels.	24-36
Soft	Wash and drain. (boysenberries, strawberries)				-No pretreatment necessary.	
Cherries	Stem, wash, drain and pit fully ripe cherries. Cut in half, chop, or leave whole.			10 (for sour cherries)	-Whole: dip in boiling water 30 seconds or more to check skins. -Cut and pitted: No -Pretreatment necessary.	24-36
Citrus Peel	Peels of citron, grapefruit, kumquat, lime, lemon, tangelo and tangerine can be dried. Thick-skinned navel orange peel dries better than thin-skinned Valencia peel. Wash thoroughly. Remove outer 1/6 to 1/8 inch of peel. Avoid white bitter pith.				-No pretreatment necessary.	8-12
Figs	Select fully ripe fruit. Immature fruit may sour before drying. Wash or clean whole fruit with damp cloth. Leave small fruit whole, otherwise cut in half.	1 (whole)			-Whole: Dip in boiling water 30 seconds or more to check skins. Plunge in ice water to stop further cooking. Drain on paper towels.	6-12**
Grapes						
Seedless	Leave whole.				-Whole: Dip in boiling water 30 seconds or more to check skins. Plunge in ice water to stop further cooking. Drain on paper towels.	12-20
With seeds	Cut in half and remove seeds.				-Halves: no pretreatment necessary.	

## Drying Fruits at Home (continued)

Fruit	Preparation	Pretreatment (Choose One)				Drying Times Dehydrator* (hours)
		Sulfur (hours)	Blanch		Other	
			Steam (minutes)	Syrup (minutes)		
Nectarines and Peaches	When sulfuring, pit and halve; if desired, remove skins. For steam and syrup blanching, leave whole, then pit and halve. May also be sliced or quartered.	2-3 (halves) 1 (slice)	8	10	-ascorbic acid solution -ascorbic acid mixture -fruit juice dip -sulfiting	36-48**
Pears	Cut in half and core. Peeling preferred. May also slice or quarter.	5 (halves) 2 (slices)	6 minutes (halves)	10	-ascorbic acid solution -ascorbic acid mixture -fruit juice dip -sulfiting	24-36**
Persimmons	Use firm fruit of long, soft varieties and fully ripe fruit of round drier varieties. Peel and slice using stainless steel knife.				-may syrup blanch	12-15**
Pineapple	Use fully ripe, fresh pineapple. Wash, peel and remove thorny eyes. Slice lengthwise and remove core. Cut in 1/2-inch slices, crosswise.				No pretreatment necessary	24-36
Plums (Prunes)	Leave whole or if sulfuring, halve the fruit.	1			-Sun drying: (whole) dip in boiling water 30 seconds or more to check skins. -Oven or dehydrator drying: rinse in hot tap water.	24-36**

\* Because of variations in air circulation, drying times in conventional ovens could be up to twice as long. Drying times for sun drying could range from 2 to 6 days, depending on temperature and humidity.

\*\* Drying times are shorter for slices and other cuts of fruit.

## Drying Vegetables at Home

Vegetable	Preparation	Blanching Time		Drying Time Dehydrator* (hours)
		Steam (minutes)	Water (minutes)	
<b>Artichokes-Globe</b>	Cut hearts into 1/8-inch strips. Heat in boiling solution of 3/4 cups water and 1 tablespoon lemon juice.		6-8	4-6
<b>Asparagus</b>	Wash thoroughly. Cut large tips in half.	4-5	3 1/2 - 4 1/2	4-6
<b>Beans, green</b>	Wash thoroughly. Cut in short pieces or lengthwise. (May freeze for 30 to 40 minutes after blanching for better texture.)	2-2 1/2	2	8-14
<b>Beets</b>	Cook as usual. Cool; peel. Cut into shoestring strips 1/8-inch thick.	Already cooked no further blanching required.		10-12
<b>Broccoli</b>	Trim, cut as for serving. Wash thoroughly. Quarter stalks lengthwise.	3-3 1/2	2	12-15
<b>Brussels Sprouts</b>	Cut in half lengthwise through stem.	6-7	4 1/2 - 5 1/2	12-18
<b>Cabbage</b>	Remove outer leaves; quarter and core. Cut into strips 1/8-inch thick.	2 1/2-3**	1 1/2-2	10-12
<b>Carrots</b>	Use only crisp, tender carrots. Wash thoroughly. Cut off roots and tops; preferably peel, cut in slices or strips 1/8-inch thick.	3-3 1/2	3 1/2	10-12
<b>Cauliflower</b>	Prepare as for serving.	4-5	3-4	12-15
<b>Celery</b>	Trim stalks. Wash stalks and leaves thoroughly. Slice stalks.	2	2	10-16
<b>Corn, cut</b>	Husk, trim and blanch until milk does not exude from kernel when cut. Cut the kernels from the cob after blanching.	2-2 1/2	1 1/2	6-10
<b>Eggplant</b>	Use the same directions as for summer squash	3 1/2	3	12-14
<b>Garlic</b>	Peel and finely chop garlic bulbs. No other pretreatment is needed. Odor is pungent.	No blanching is needed.		6-8
<b>Greens</b> (chard, kale, turnip, spinach)	Use only young tender leaves. Wash and trim very thoroughly.	2-2 1/2**	1 1/2	8-10
<b>Horseradish</b>	Wash; remove small rootlets and stubs. Peel or scrape roots. Grate.	none		4-10
<b>Mushrooms</b> (WARNING, see footnote***)	Scrub thoroughly. Discard any tough, woody stalks. Cut tender stalks into short sections. Do not peel small mushrooms or "buttons." Peel large mushrooms, slice.	none		8-10

## Drying Vegetables at Home (continued)


Vegetable	Preparation	Blanching Time		Drying Time Dehydrator* (hours)
		Steam (minutes)	Water (minutes)	
<b>Okra</b>	Wash, trim, slice crosswise in 1/8- to 1/4-inch disks.		none	8-10
<b>Onions</b>	Wash, remove outer "paper shells." Remove tops and root ends, slice 1/8- to 1/4-inch thick.		none	3-9
<b>Parsley</b>	Wash thoroughly. Separate clusters. Discard long or tough stems.		none	1-2
<b>Peas, Green</b>	Shell	3	2	8-10
<b>Peppers, and Pimientos</b>	Wash, stem, core. Remove "partitions." Cut into disks about 3/8 by 3/8 inch.		none	8-12
<b>Potatoes</b>	Wash, peel. Cut into shoestring strips 1/4-inch thick, or cut in slices 1/8-inch thick.	6-8	5-6	8-12
<b>Pumpkin and Hubbard Squash</b>	Cut or break into pieces. Remove seeds and cavity pulp. Cut into 1-inch wide strips. Peel rind. Cut strips crosswise into pieces about 1/8-inch thick.	2 1/2-3	1	10-16
<b>Squash: Summer</b>	Wash, trim, cut into 1/4-inch slices.	2 1/2-3	1 1/2	10-12
<b>Tomatoes, for stewing</b>	Steam or dip in boiling water to loosen skins. Chill in cold water. Peel. Cut into sections about 3/4-inch wide, or slice. Cut small pear or plum tomatoes in half.	3	1	10-18

\* Drying times in a conventional oven could be up to twice as long, depending on air circulation.

\*\* Steam until wilted.

\*\*\* WARNING: The toxins in poisonous varieties of mushrooms are not destroyed by drying or by cooking. Only an expert can differentiate between poisonous and edible varieties.

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