The DIRT Society

Introduction to Dehydrating Foods

One of the simplest, safest methods of preserving produce also happens to be one of the best at reducing total nutrient degradation over time. The process of removing moisture from fresh fruits and vegetables, known as dehydration, yields light-weight food with a long shelf-life and remarkable vitamin and mineral retention.

While studies are still underway to define exact nutrient depreciation over time for many preservation methods (canning, freezing, dehydrating, refrigerating, blanching, etc.) evidence which quantified Vitamin C loss[1] leads us to believe that dehydrating may be the most efficient long-term solution.

When properly executed, dehydration of fresh foods can extend shelf-life to about one year. While there are, understandably, significant losses in texture, flavor, and nutrition, the resulting product is considerably better than food wasted, lost, decomposed, or allowed to spoil when ineffectively stored. Thus, the simple process of dehydration is a valuable tool where there is a need to store food for extended periods. As it appears to yield higher quality products than freezing, canning, or long-term refrigeration, it is an essential skill for any consumer to develop.

What foods should be dehydrated?

Most fruits and vegetables dehydrate well, though the pre-treatments and rehydrating processes may differ. The key in selecting produce to dehydrate is to choose specimens during their peak ripeness and process them while they are still very fresh. The former will ensure that the end product is tasty and palatable, while the latter serves to lock in as many nutrients as possible.

It is not recommended to dehydrate foods that you intend to eat "raw". Processed foods will never regain their fresh crispness, tenderness or flavor. Therefore, it is best to dehydrate foods that will either be cooked after rehydration (as in making a sauce with dried tomatoes) or foods that will be eaten dry (such as apple rings and raisins).

[1] Barrett, Diane M. *Maximizing the Nutritional Value of Fruits and Vegetables.* ucce.ucdavis.edu/files/datastore/234-780.pdf

Should I blanch fruits and vegetables before dehydrating?

Blanching suspends a considerable amount of enzymatic activity in otherwise raw foods. The high-heat, fast-temperature process will ensure less bacterial growth, while the cold bath treatment will halt the cooking process before significant nutrient loss occurs.

Blanching also serves to preserve the visual and structural integrity of produce; resulting in brighter colors and less physical breakdown.

While not necessary, blanching is a simple step that will greatly enhance the final product.

How do I store dehydrated foods?

All dehydrated foods should be stored with the least amount of moisture and air circulation possible. A popular method of packaging is to tightly fill a plastic bag, pressing or sucking the extra air out through an opening prior to sealing the container.

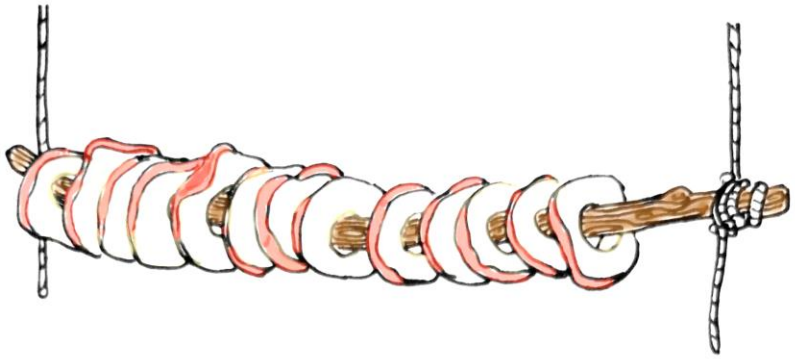
Once contained, keep dehydrated foods away from vapor, heat or light to ensure the best quality upon consumption.

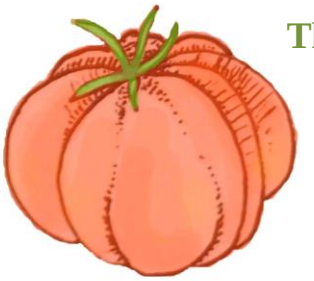
Dehydrated foods should be used within about one year of processing if adequately stored.

How are foods *re*hydrated?

Rehydration may be recipe-specific, or vary by personal preference. There are, however, some general guidelines. Leafy or tender foods can be rehydrated during the cooking process. For example, dehydrated spinach can be simmered in a pan of water without any other preparation. Thicker, tougher foods should be soaked. To do this, place dry produce in a bowl with enough water to cover well. Allow to soak in the refrigerator for about one hour.

Reconstituted fruits and vegetables will generally double in size from their dehydrated state. Therefore, 1 cup of dried strawberries will become 2 cups after being rehydrated.

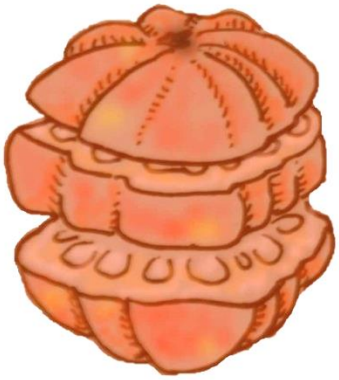




The dehydration process:

Different fruits and vegetables should be processed in the manner that preserves them the most efficiently. As moisture content, shape, density, flavor, and pre-harvest conditions very by item, it is recommended that you modify this process for each individual type of produce. The basic rules, however, are as follows:

1. Wash the fresh produce in cool water to remove soil, insects, or unwanted chemical residue.



2. Remove any cores, seeds, stems, roots or peels that may inhibit the dehydrating process.

3. If needed, cut the produce into smaller pieces. This will speed up the process and allow for more efficient storage.

4. Blanch in boiling water if desired. This should only take about four minutes, and all foods should soak in ice water for the same amount of time to decrease internal temperatures and halt cooking.

5. Spread the produce evenly on a flat surface.

6. Dehydrate at temperatures around 100-140ºF. If this level of constant heat cannot be sustained (as in the case of solar or "outdoor" dehydration) the process will still be effective, but at a slower rate. It is not recommended to increase temperatures beyond this, as produce will cook and quality will rapidly decline.

7. Cool completely.

8. You may choose to condition dehydrated fruits. This is not a necessary step, but it will serve as an indicator of any residual moisture content. To condition, place dried produce in a lidded jar or bowl. After a few days at room temperature, the container should be dry. If you see an accumulation of water droplets, continue dehydrating until the moisture content reaches the desired level.

9. Store with as little air, moisture, heat and light as possible. You may choose to pasteurize your dehydrated foods by first freezing them, but this may decrease overall nutritional value.

10. Date each container, as dehydrated produce should be consumed within one year.

Dehydrating Tips:

- If dehydrating in an oven, crack the door slightly so that air can circulate enough to move the moisture away from the produce. The process could take up to twice as long, but the results will be the same. Ovens are the least efficient method of dehydrating, but are commonly used in households that only dry seasonally or as excesses of produce accumulate.

- Fruits are typically dehydrated to about 20% moisture content as they are generally consumed without further preparation. This means that the resulting food slices will not shatter or crumble, but hold shape under moderate pressure.

- Vegetables are more routinely dehydrated to 10% moisture content, and are frequently rehydrated. If this level of dehydration is achieved, food will snap or shatter with pressure.

- Dehydrated fruits bought in markets or at grocers have most likely been dipped in fruit juice or a honey-water mixture prior to drying. Dehydrated vegetables sold as snack items are typically flavored with spices, oils or salts. The same effect can be achieved at home, though recipes vary by desired outcome.