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## Freeze-Dried Foods



**Freeze-dried salmon cubes in a salad**  
Photo: USDA ARS

Freeze-drying was invented in 1906 in Paris, France. Since then, it has been used in a variety of ways from preserving blood serum during World War II to preserving food, pharmaceuticals, and more.

Today, the global freeze-dried food market is growing at 7.4% per year. Fruit makes up 32% of the market share. North America produces the most freeze-dried foods.

The technical term for freeze-drying is lyophilization. A solvent (water) and/or a suspension medium is crystallized at a low temperature and removed by sublimation. This means the water moves from a solid state to a gaseous state without melting. The food freezes quickly and at low temperatures. Pressure is applied with some heat. This removes about 95% of the moisture. Another drying phase removes excess unfrozen water molecules. The entire process can take a couple days.

Freeze-drying produces high quality foods. But the method and equipment are expensive. The energy required is almost double that required in conventional drying. The equipment is four to eight times higher than conventional drying equipment.

Source: [www.ift.org/food-technology/past-issues/2018/february/columns/processing-freeze-drying-foods.aspx](http://www.ift.org/food-technology/past-issues/2018/february/columns/processing-freeze-drying-foods.aspx)

## Private Water Well Information

Many rural areas have private water wells. It is important to maintain them to keep water safe.

The Kansas Department of Health and Environment has many resources at [www.kdheks.gov/waterwell/index.html](http://www.kdheks.gov/waterwell/index.html).

Topics include lists of contractors, water well owner training and fact sheets, and certified laboratories. For more information, contact:

Pam Chaffee  
785-296-3565  
[Pam.Chaffee@ks.gov](mailto:Pam.Chaffee@ks.gov)

More resources are available at [www.cdc.gov/nceh/ehs/activities/private-well-resources.html](http://www.cdc.gov/nceh/ehs/activities/private-well-resources.html).



## Spring Break Food Safety

Don't ruin your Spring Break fun by leaving your healthy habits at home. While tempted to take risks, be smart and play it safe with your health.

Be careful when indulging in the local cuisine. In developing countries, eat only food that has been fully cooked and served hot. Do not eat fresh vegetables or fruits

unless you can peel them yourself. Drink only bottled, sealed beverages, and steer clear of ice—it was probably made with tap water.

Get food and water advice in CDC's [Can I Eat This?](#) app to avoid spending your vacation in the bathroom. Select the country you're in and answer a few simple questions about what

you're thinking about eating or drinking, and *Can I Eat This?* will tell you whether it's likely to be safe. With *Can I Eat This?*, you can be more confident that your food and drink choices won't make you spend your international trip in the bathroom. Learn more at [www.cdc.gov/Features/SpringBreakTravel/index.html](http://www.cdc.gov/Features/SpringBreakTravel/index.html).



## How to Store Honey



Honey can last a long time at room temperature. It is best kept in a sealed container in a cool, dry, dark location.

Refrigeration is fine, but it will cause the honey to develop a grainy texture and become semi-solid.

Freezing can preserve honey well, with little to no graininess, but will be very thick to dispense. Freezer temperatures slow glucose molecule migration and crystal formation.

Avoid temperatures higher than room temperature to prevent flavor changes and color changes.

Source: <https://siouxhoney.com/our-honey/faqs/>

## Long-Term Health Effects of Foodborne Illness

Foodborne illness can affect you any time and can be associated with any food. It is not selective, but it can be prevented. If you do get foodborne illness, are there long-term effects? In some cases, recovery takes a long time and can lead to other issues.

To help understand these effects, the Partnership for Food Safety Education is offering a free webinar on March 21 from Noon-1:00pm CST. Guest speakers are Dr. Barbara Kowalczyk of The Ohio State University and the Center for Foodborne Illness Research & Prevention, and Michael Batz of the U.S. Food and Drug Administration. Register NOW at <http://bit.ly/2FAKyZ0>.



## Food Preservation Classes Scheduled

The following dates and locations are now scheduled to help you learn about home food preservation. Contacts are listed for more information and registration.



For more information and additional classes, see [www.rrc.k-state.edu/preservation/index.html](http://www.rrc.k-state.edu/preservation/index.html)



- April 12, 2018—Scott county, Carol Ann Crouch, [ccrouch@ksu.edu](mailto:ccrouch@ksu.edu), 620-872-2930
- April 13, 2018—Hamilton county, Lora Horton, [ljhorton@ksu.edu](mailto:ljhorton@ksu.edu), 620-384-5225
- April 17, 2018—Greenwood county, Jayne Whitson, [jwhitson@ksu.edu](mailto:jwhitson@ksu.edu), 620-583-7455
- April 27, 2018—Riley county, Megan Dougherty, [mcdough92@ksu.edu](mailto:mcdough92@ksu.edu), 785-537-6350
- June 19-20, 2018—Sedgwick county, Sara Sawyer, [sarasawer@ksu.edu](mailto:sarasawer@ksu.edu), 316-660-0100
- June 27, 2018—Meadowlark District, Cindy Williams, [csw@ksu.edu](mailto:csw@ksu.edu), 785-863-2212 or Brown county, Matt Young, [mayoung@ksu.edu](mailto:mayoung@ksu.edu), 785-742-7871

## Explore the NORS Dashboard

Tracking disease outbreaks, including food-borne illness, is difficult. The Centers for Disease Control and Prevention (CDC) has the National Outbreak Reporting System (NORS) to help track

outbreaks nationally and by state. This system has been online about 20 years and now includes water-borne, person-to-person, animal contact, environmental contamination, as well as food outbreaks.

Here are links to more information:

- [Using NORS Dashboard](#)
- [Explore the NORS Dashboard](#)

**Data for NORS comes from local, state and territorial public health agencies.**



Learn more at [www.ksre.k-state.edu/foodsafety/topics/holiday.html](http://www.ksre.k-state.edu/foodsafety/topics/holiday.html)

## Keep the Egg Hunt Safe!

Eggs are one food that has been consumed for millions of years. Roman meals often began with an egg dish and the shells were crushed to hide evil spirits. Today, the evil spirit that causes problems is *Salmonella* if eggs are mishandled. As Easter egg hunts are being planned, remember these egg safety tips:

- Keep raw eggs refrigerated. After boiling and decorating, refrigerate eggs until the hunt. Only allow eggs to be out of refrigeration up to two hours.
- If eggs get cracked and damaged during the hunt, do not eat them.
- Another option, keep eggs for the hunt separate from other eggs. Or, use plastic eggs with fun treats for kids of all ages to enjoy.

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30, 1914, as amended. Kansas State  
University, County Extension Councils,  
Extension Districts, and United States  
Department of Agriculture Cooperating,  
John Floros, Director.

## Add Crunch with Celery!



The original form of celery, called  
smallage, was bitter and very stringy.

Do you like celery? It is often used  
as an ingredient in many recipes  
from soup, salad, main dish,  
snacks and more. It is available  
throughout the year which makes  
it an affordable addition to many  
meals.

Select celery that is light green,  
with fresh leaves, and free of  
bruises and discoloration. A bunch

of celery should feel heavy and  
when you squeeze the bunch of  
celery, it should “squeak.” Avoid  
celery that is limp, easily bends  
and spreads out.

Separate each stalk, trim ends and  
damaged spots, and wash under  
running water with a scrub brush.  
Store celery in a plastic bag in the  
vegetable crisper drawer of the  
refrigerator. It is best used in 1-2  
weeks. It can be frozen, but will  
lose its crunch due to high water  
content.

Celery is a low calorie vegetable  
but high in vitamin C, A, and K,  
folate and potassium.

Sources: [http://extension.usu.edu/files/  
publications/publication/FN\\_FoodSense\\_2012  
-04pr.pdf](http://extension.usu.edu/files/publications/publication/FN_FoodSense_2012-04pr.pdf) and  
[www.fruitsandveggiesmorematters.org/  
celery](http://www.fruitsandveggiesmorematters.org/celery)



Karen Blakeslee, M.S.



On the Web at  
[www.rrc.ksu.edu](http://www.rrc.ksu.edu)



## New Items for Food Preservation

This year, jars for canning are  
going retro again! Ball® jars  
are now available in the amber



color. They are in  
wide mouth pint,  
wide mouth  
quart, and wide  
mouth half-  
gallon sizes. The  
first amber col-  
ored jars date  
back to the late  
1800s. The color  
was made be-  
cause emissions from the coal  
furnace permeated the glass

pots causing clear glass to be-  
come amber in color.

Lots of accessories are available  
to transform jars into many non-  
canning uses. There are also  
accessories for adding decora-  
tion or for transforming jars into  
beverage containers and special  
lighting. Replacement parts for  
Ball® appliances are also avail-  
able.

While some of these items may  
be available at your local store,  
all items can be found at  
[www.freshpreserving.com](http://www.freshpreserving.com).