Freezing food can be quick and convenient. But there is a lot of science behind how food freezes that can affect the outcome.

After harvesting fruits and vegetables, chemical changes still occur due to enzymes naturally within the food. These enzymes can change color, texture, flavor, and some nutrients. To stop enzymatic changes, there are key steps to take.

For most vegetables, blanching is effective to inactivate enzymes. This exposes the vegetables to boiling water or steam for a brief amount of time, then rapidly chilled in ice water. Blanching is essential for high quality vegetables. It also helps destroy any microorganisms. Blanching time varies by vegetable.

For light colored fruit, such as peaches and apples, enzymes can cause browning and loss of vitamin C. Instead of blanching, fruit can be treated with ascorbic acid (vitamin C) to interfere with the chemical reaction that causes the color changes. Use pure ascorbic acid or commercial ascorbic acid mixtures.

Texture of frozen food can depend on the rate of freezing. Don’t overload your freezer as that will slow the freezing process and result in poor quality food. Typically, freezing 2 to 3 pounds at a time is best.

For more information on freezing, see the National Center for Home Food Preservation website.

Source: University of Minnesota Extension
2021 Kansas 4-H Wheat Expo

The 2021 Kansas 4-H Wheat Expo will be on Wednesday, August 11, 2021, at the Butler County Community Building in El Dorado, KS. The 2021 Wheat Expo will be one of Kansas 4-H’s first face-to-face state 4-H events since COVID-19 shut down physical face-to-face 4-H programming in March 2020. We are excited to bring the Wheat Expo back for a fun, educational and hands-on program in person for all Kansas 4-H members, siblings, parents, grandparents, and KSRE Extension staff.

There will be eight contests open to youth members with cash prizes and ribbons awarded. Youth may bring multiple exhibits in Divisions 3-9. Classes include: (1) 1 lb. bin run for crops members; or (2) 1 lb. bin run for “adopt a producer”; (3) 1 quart jar sample of cleaned wheat; (4) three standard yeast rolls; (5) three standard sized cookies; (6) three standard muffins; (7) wheat photography contest; (8) wheat educational posters and (9) Cloverbuds, (5-6-year-olds) with participation ribbons.

See details on the Kansas 4-H Wheat Expo website.

Registration https://www.kansas4-h.org/events/index.html

County Fair Food Safety Guidance

It’s almost fair time! Fairs bring together many people for fun, food, and more. Fair food stands are temporary but they still need to comply with food safety guidelines. To help reduce risks that could lead to foodborne illness issues, many resources are available to help guide food stands or other food service operations at www.ksre.k-state.edu/foodsafety/topics/4h.html.

Handing animals can also lead to foodborne illnesses if hands are not washed. Resources are also available on the above website.

Have a safe and fun fair!

Conditioning Dehydrated Fruit

Dehydrating fruit is a great way to make tasty snacks or to add fruit to a quick breakfast. When dehydrated fruit, how do you know when the fruit is dry?

Different fruits take different amounts of time to dry. The fruit pieces should be pliable but not tacky when touched. This is a visual clue that there is <20% moisture content remaining in the fruit. Cut open a piece and squeeze it, there should not be any remaining moisture. Let the fruit cool completely and package in an airtight container.

Allow the fruit condition about 7-10 days. This helps distribute the 20% moisture evenly. Shake the package each day and look for any visible moisture.

Learn more from Penn State Extension Food Preservation.
What is Freeze Drying?

Freeze drying food is another form of preserving food. Food can last longer and is very lightweight. Freeze-dried food also retains the color and shape of the food better. It is possible to freeze dry complete meals. But, the machine required to do this is expensive, takes up a lot of space, is heavy, noisy and uses more electricity. This machine works best in a room temperature range between 45-75°F and takes about 24-48 hours drying time.

Fruits and vegetables still need to be pretreated as in traditional dehydration. Fruit color should be protected using ascorbic acid or ascorbic acid mixtures. Vegetables should be blanched. These steps help control enzyme activity that can change color, texture, flavor, and some nutrients.

It is important to note that raw and cooked meat and eggs can be freeze dried. This process does not kill harmful microorganisms that can cause foodborne illness. Care must be taken in handling and labeling these foods.

Learn more from Let’s Preserve: Freeze Drying from Penn State Extension Food Preservation.

Restaurants Struggle During Pandemic

The food service industry, as well as others, took a big hit during the pandemic. You may know a favorite establishment that had to close its doors.

Research shows that 10.2% of U.S. food establishments will permanently close. This is not just one type of restaurant, it includes fast food, casual dining, fine dining and food trucks.

In fact, 22.5% of food trucks are permanently off the road. Among chain restaurants, those with 51-100 locations suffered a 16.2% closure rate. Thai and burger restaurants had the lowest closure rate.

Source: Food Technology, June 2021

The data for this research was from Datassential.

What is Freezer Burn?

Have you opened a frozen food to find it has dry, grayish/brown spots on the surface? This is freezer burn. While not harmful, it’s not very appetizing. This defect is most notable on frozen meats.

Freezer burn happens when food is not adequately wrapped to remove oxygen, which has a bleaching effect on the food surface. It cause poor texture, color, flavor, and aroma.

To prevent freezer burn, package food tightly in packaging designed for freezing. Remove as much air as possible. Check your freezer temperature is zero degrees F or lower to help freeze food fast. If using freezer containers, crumple a piece of waterproof paper on top of the food to help minimize headspace. This helps prevent freezer burn, ice crystal formation and keeps food pieces from drying out.

Source: Understanding the Process of Freezing, Penn State Extension Food Preservation
A walk down the food packaging aisle reveals many choices for storing food. Which ones are best for freezing food? Not all of them are the same.

For freezing, look for the word “freezer” on the package. Plastic containers for freezing are made of thicker material to resist tearing, moisture migration and protect from off-flavors and odors. Rigid plastic containers for freezing are also good choices. Freezer paper is best for wrapping meat products. Use a freezer safe tape to hold the package together.

Always label and date the package so you know the contents and how long it has been in the freezer.

Never use packaging not designated for food storage, such as garbage bags.

For more information, see Preserve It Fresh, Preserve It Safe—Freezing.

Reference to any specific commercial products, process, service, manufacturer, or company does not constitute its endorsement or recommendation.

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