



Preserving Green Chile Peppers: Freezing, Drying, Freeze Drying, and Canning

Presented By NMSU Master Food Preservers

Michelle Stizza, M.Ed.

NMSU Assistant Professor, Family and Consumer Science Agent
Santa Fe County Extension Office

Crystal L. Garcia-Anaya, MBA

NMSU Assistant Professor, Family and Consumer Science Agent, 4H
Valencia County Extension Office

Patricia Largo

NMSU Assistant Professor, Family and Consumer Science Agent, 4H
McKinley County Extension Office

Phillip Alden, MBA

NMSU Assistant Professor, Family and Consumer Science Agent, 4H
Bernalillo County Extension Office

Madeline K Gurney, MSE

NMSU Assistant Professor, Family and Consumer Science Agent, 4H
Sandoval County Extension Office

WELCOME!

- Four-part green chile presentation by NMSU FCS Agents/Master Food Preservers.
- Participants are joining from around Arizona, California, New Mexico, and Texas.
- Please let us know if you have any questions by using the chat feature or raising your hand emoji.
- A recording along with the slides will be available on our county Extension websites at the end of October.



Quick Review on Freezing

- *After roasting, skins may be removed before freezing.*
- *Chile can remain whole or chopped.*
- *Cool chile to 70°F within 2 hours and below 40°F within 4 hours of roasting. Freezing should happen within 3 days.*
- *Air is not our friend use freezer bags, vacuum sealed bags, or freezer-safe containers no more than 2" deep.*
- *Keep frozen food at or below 0°F.*
- *LABEL.*
- *For best quality eat frozen chile within a year, just in time for the new season.*



Quick Review on Drying

- When drying foods, the key is to remove moisture as quickly as possible at a temperature that does not seriously affect flavor, texture and color of the food.
- When choosing a chile for drying purposes, start with a mild to medium heat pod. The smaller the pods of chile, the higher the degree of pungency.
- Remember Green Chile that has only been roasted and peeled is **RAW FOOD**.



FUN FACT Session 1 Winner

Thank you for participating in our October 8th Session on Dehydrating Green Chile.

We are delighted to announce our winner of the session:

Carole Palmer



Photo Source: The Chile Pepper Institute

Freeze Drying Chile:





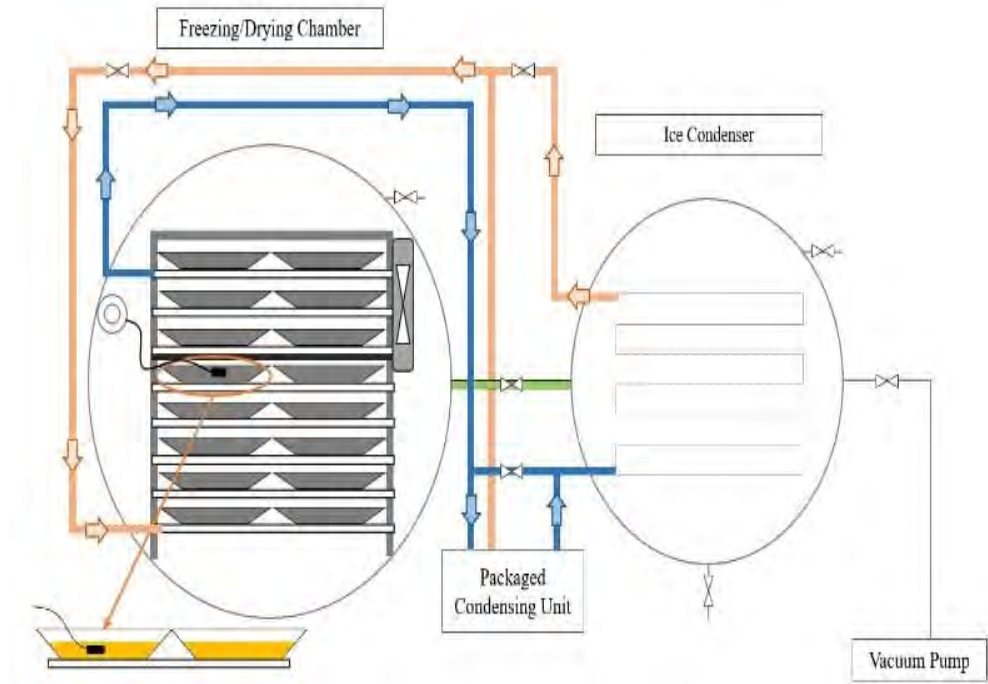
What Is freeze drying?

Freeze drying, also known as lyophilization, is a process that removes water from a material by turning it from ice directly into vapor, without passing through a liquid state. (Nowak & Jakubczyk, 2020)



What is happening when freeze drying?

- The freezing of the product, most often under atmospheric pressure.
- Primary drying—proper freeze-drying—ice sublimation, most often at reduced pressure.
- Secondary drying—desorption drying—drying the product to the required final humidity.



What Areas Uses Freeze Drying

- Pharmaceutical
- Medical
- Outdoor Enthusiast (light packing for long trips)
- Food Manufacturing, (cerials, shelf stable products containing fruit, Starbucks)
- Emergency Prep
- YOU!

What Can You Freeze Dry?

Freeze drying works great for

- fruits and vegetables,
- preserves meat, fish, dairy, eggs,
- ice cream
- fully-cooked meals
- dried desserts and snacks
- gummy bears and the very favorite – Skittles!

How Does It Differ From Other Methods

- Because of the process used, foods freeze dried:
 1. Can keep 80 to 95 Percent of all nutrients contained within what you are freeze dry.
 2. If kept in airtight containers can be shelf stable for 5-15 years.(closer to 10)
 3. Becomes super light weight and reconstitutes into almost the same condition when combined with water.



Food Safety Concerns for Freeze Drying Green Chile

- Always wash your hands thoroughly before and after handling chile.
- Use clean equipment and utensils.
- **RAW FOOD**- even packages you buy at the store now have a warning label that the green chile is raw. Roasting is NOT cooking.
- **freeze drying DOES NOT equal cooking.** You will either need to cook before or after freeze drying.



PREPARING CHILE

With roasting

- Chile has a tough outer skin, one reason to roast and peel chile.
- When preparing chile, practice food safety.
 - Oven Broiler: 450°F for 6-8 minutes or until skins are blistered.
 - Stove Top: Use cast iron on medium heat until skins are blistered.
 - Grilling: 450°F on a grate over the open flame until the skins are blistered.
 - For large quantities use commercial roasting
 - Remember to freeze, cook, refrigerate, or dry your roasted chiles within 2 hours of roasting.
 - Roasting is not considered cooking, to be cooked, chile needs to reach an internal temperature of 135°F.
- Remember to protect yourself when peeling the skin of the chiles by wearing gloves, washing hands, and not touching your eyes or skin. When changing tasks, you should change your gloves too.

Without roasting

1. Gather your chiles and clean them well. This is a food that gets touched often from harvest to home, so I like to take a bit of extra time to get them clean.
2. Remove the top from the whole , and cut the peppers into pieces. The cutting is a very necessary step! They carry a lot of water in them and the freeze-drying process will make them explode if they aren't cut. The shape and size of the pieces aren't as important as the fact that they must be cut.
3. You can begin the freeze dry process once they are cut into a shape and size that you like. Flash freeze on parchment paper. You can layer them on a cookie sheet fairly thick. The frozen peppers break off easily into the cut pieces.
4. Using the freeze dryer pans, start by making a thin layer of the frozen bell peppers onto each of my five pans.



QUESTION OF THE DAY

The question of the day is brought to us from last week's webinar.

Do Chile's heat content get Hotter when Freeze dried?



ANSWER

YES!

Freeze drying condenses the flavors of what you freeze dry. For fruits, the sugars condense which is why they taste so strong and sweet. This means that the hotter the chile the hotter it will condense to.

This means BEWEARE eating them after freeze drying straight. You may need to re constitute and dilute.





Other Chile Products That Can Be Freeze Dried

- Sauces
- Soups
- Candy
- Spice blends
- Anything with a water content



Storage

- Air is not our friend!
- Store in vacuum-sealed bags with moisture wicking packs
- Store out of direct sunlight.
- To protect from rodents and insects, it would be ideal to store bags in a tin or jar.
- Do not forget to label your preserves.
- For best quality, use within 5 to 10 years.



QUESTIONS?



THANK YOU!

Please take a few moments to complete our survey. There are two ways to take the survey:

Access the link:

https://acesnmsu.az1.qualtrics.com/jfe/form/SV_3TTYFAZI003qJi6

Scan the QR code:



RESOURCES

Nowak, D., & Jakubczyk, E. (2020, October 18). *The freeze-drying of foods-the characteristic of the process course and the effect of its parameters on the physical properties of food materials*. Foods (Basel, Switzerland).

What is freeze dryer ?. SED Pharma. (n.d.).
<https://sedpharma.com/news-events/what-is-freeze-dryer/>

Kristen, Dawna, R., - Deen, Elsie, - Ross and, Tyler, - Michelle and, Gary, & Dan. (2021, July 14). *How freeze drying works: Harvest right™: Home freeze dryers: Freeze dried food storage*. Harvest Right™ | Home Freeze Dryers | Freeze Dried Food Storage.
<https://harvestright.com/how-it-works>

