**Freeze-dried foods can be prepared in a variety of sizes, making them useful for snacks, seasonings, soup ingredients, backpacking meals, and even pet foods and treats.**

# Freeze Drying Offers Profitable, Produce-Saving Benefits

A WWII medical invention might help today's farmers get more value from their harvests. Freeze-drying, also known as lyophilization or cryodesiccation, uses extreme cold followed by heat to turn water in food products into vapor. The vapor is removed by a vacuum pump, and the food then undergoes a secondary drying process called desorption to remove up to 99% of any remaining moisture, creating a shelf-stable product.

Rehydrate your freeze-dried foods, and they'll retain their shape, color and taste better than dehydrated foods. Most foods can be freeze-dried, including dairy and meat. Foods high in both fat and sugar (like baked goods) are the exception.

Freeze drying is a complex process that requires specialized equipment costing hundreds, even thousands, of dollars per unit. For this reason, many growers hesitate to invest in the technology, despite its profit potential. Shari Gallup, an Assistant Professor with Ohio State University Extension, has set out to find evidence-based information on freeze drying to help growers looking to expand their operations.

"Freeze-drying is unique because it removes water without heat damage, preserving food closer to its original state than almost any other method," Gallup says. "That's why it's widely used for space food, emergency supplies, and high-quality backpacking meals."

Freeze-dried foods are lightweight, shelf-stable, and portable. Commercial options can have a shelf life of 25 years. Home-scale freeze-dryers are likely to perform similarly, but they're new enough that the research isn't yet conclusive.

"Freeze-drying can be a powerful tool for farmers, especially as markets shift toward value-added products, longer shelf life, and reduced waste," says Gallup. "Fresh produce is fragile and time-sensitive. Freeze-drying lets farmers convert it into premium snacks, ingredients for cereals, smoothies, soups, and specialty products like pet treats."

Gallup notes that freeze-dried goods sell at much higher margins than raw produce.

"Instead of selling raw commodities, farmers can build brands. Farm-grown freeze-dried snacks, anyone?"

Freeze-dried foods can be prepared in a variety of sizes, making them useful as whole-vegetable snacks all the way to fine seasoning powders. These raw ingredients can be used to make backpacking meals, toddler foods, instant soups, and even pet foods and treats.

Still, she's quick to clarify that freeze-drying isn't a magic solution for profitability.

"Freeze dryers cost hundreds, even thousands, for commercial units, and their energy use is significant. Processing time is slow, often 24 to 48 hrs. per batch."

Likewise, a lack of heat treatment means microorganisms aren't killed, so they might become active when moisture is reintroduced. The shelf life of any product is related to its moisture content, because removing water eliminates the potential for microbial growth. Overall moisture levels can vary, but they average around 3% for freeze-dried products.

Gallup suggests that farmers take their time and conduct thorough research before venturing into freeze-drying.

"Start with the market, not the machine. Consider who will buy your product. Will you sell direct-to-consumer or wholesale? And after the initial (expensive) unit cost, are you prepared to pay for the ongoing electricity, packaging, labor and time costs? Premium pricing is necessary to make this worthwhile."

All freeze-dried food should be stored in moisture-proof, hermetically sealed containers. Mylar bags, PETE resealable pouches, and vacuum-sealed Mason-style jars work well. For long-term storage, consider adding oxygen absorbers to extend shelf life by preventing color changes and reducing microorganism growth.

To maximize safety, wash all produce before peeling and cutting, and cut it into uniform pieces to ensure even moisture removal. Thinner pieces freeze-dry more quickly. Determining when freeze-dried foods are done takes trial and error. Home units may process unevenly, so it's important to verify multiple samples. You can cut pieces in half and inspect them for moisture or "dark spots" in the middle, which indicate they aren't done. If you find them, return all trays to the freeze dryer.

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**"Our vision is to continue building Walker Homestead as a destination that puts this region on the map — something akin to a 'Napa Valley of the Midwest,'" says Walker.**

# Farm & Winery Offers Unique Escape

The Walker Homestead Farm & Winery in Iowa City, Iowa, aims to bring the atmosphere of Napa to the heart of the Midwest.

"Bob Walker and I are the co-owners of Walker Homestead Farm and Winery," says Kristy Walker. "I grew up on a farm and always felt called to return to the land. After a 40-year career in healthcare IT, I retired into my encore career — building Walker Homestead."

The pair purchased the farm's first five acres in 2012 and added the adjacent 80 acres in 2017. They trialed the farm-to-table dinner concept throughout the summer of 2019 and officially opened to the public in April 2020.

"Bob, a city boy by birth, has proven his love by joining the adventure. We joke that this farm is my dream and his nightmare."

The farm currently tends 22 acres of alfalfa, 22 acres in a corn-soybean rotation, 3 acres of grapes, 3 acres of vegetables, 1 acre of berries, 1 acre of lavender, 1 acre of orchard and nut trees, and 10 acres of pasture. The farm raises Highland cattle, sheep, goats, bees, chickens and a rogue turkey. Operations focus on sustainable farming through no-till practices and organically grown vegetables and orchard crops.

Since its founding, The Walker Homestead has been built around a simple mission: to build community through agricultural education and culinary celebration.

"Starting a winery requires both education and a strong support network," says Walker. "We took vineyard management and winemaking courses through Kirkwood Community College and became active members of the Iowa Wine Growers Association. Guidance from the Iowa State University Extension's viticulturist and the Midwest Grape & Wine Industry Institute has also proven invaluable."

She also emphasizes the importance of patience and persistence.

"You're investing years into something before you fully see the results, all while building the hospitality and guest experience alongside it."

The farm considers its diversity one of its greatest strengths.

"On any given day, we might be hosting a wedding, preparing for a chef-driven dinner, tending the land, or welcoming guests for a casual evening on the farm," says Walker. "The joy comes from creating experiences that feel alive and ever-changing — no two days are the same."

Still, that level of complexity can pose challenges.

"You're balancing agriculture, winemaking, culinary operations, hospitality, open hours and private events all at once," Walker says. "It requires a strong team, clear systems, and a willingness to adapt constantly. But ultimately, that diversity is what allows us to be resilient and to connect with people in meaningful ways."

The Walker Homestead has built a reputation for its garden, sunset views and exceptional wine and service.

"Whether it's a farm-to-table dinner, a seasonal event or open hours, guests come here to connect with the land, the food and drink, and each other," Walker shares. "We often hear that it feels like a hidden gem or a place that transports them somewhere else for the evening."

Despite these successes, the team remains committed to pushing the farm in new directions.

"Our vision is to continue building Walker Homestead as a destination that puts this region on the map — something akin to a 'Napa Valley of the Midwest.'"

Plans include expanding winery operations, opening a year-round tasting room, deepening culinary programming, and continuing collaboration with other local farms and producers.

"It's easy to get caught up in trends, but the most successful operations are grounded in authenticity," Walker says. "Be prepared for a long runway. This kind of work doesn't happen overnight. Invest in your team because people are at the center of everything. And don't be afraid to evolve. The most important thing we've learned is that you don't have to have it all figured out at the start. You have to be willing to keep building, learning and adapting along the way."

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