

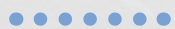


FROZEN FOOD
FOUNDATION

2024

Annual Report

The Frozen Food Foundation (FFF) supports research and education intended to **improve and benefit the broader frozen food industry**. Its research initiatives and collaborations are rooted in principles of scientific excellence and transparency and its goals are aligned with the American Frozen Food Institute's (AFFI) strategic initiatives.



Throughout 2024, the Foundation supported research and projects in support of **food safety, sustainability** and **nutrition**.



New this year, the Foundation secured more than **\$1 million in additional grant funding** to collaborate on these efforts with its research partners.

Research and Training Programs

The Foundation fosters scientific research and drives industry education and consumer awareness in fields such as food safety, nutrition and sustainability. Through strong partnerships within the research community, the Foundation identifies opportunities and collaborates to address the critical issues relevant to the frozen food industry.



Food Safety

The Foundation holds a purposeful and concerted role in advancing food safety research. The body of scientific evidence generated represents seminal research and an unprecedented effort to support frozen food companies and their supply chains. Together with frozen food industry professionals, the Foundation created best food safety practices that are now widely used across the food manufacturing sector. Combined with its outreach on scientific developments, the Foundation strives to advance current science, risk-based food safety principles, and practical approaches. Highlights in 2024 include:

***Listeria monocytogenes* – Creating a Framework for Sampling and Testing**

The Foundation collaborated with food safety experts to design a framework to support the coupling of food contact surfaces (environmental monitoring) with novel three-class microbiological sampling plans to evaluate the presence of *Listeria monocytogenes* in frozen foods. The Foundation also supported the convening of several experts to speak about these scientific developments at international food safety conferences, including the International Association of Food Protection and ISOPOL – An International *Listeria* conference.

Enteric Viruses – A Supply Chain Risk Management System (EViews)

The Foundation funded the development and pilot evaluation of a real-time enteric virus (EV) risk management tool. Data is collected at IQF processing/blending/repacking facilities and berry growing farms to evaluate key EV risk factors. In addition, the tool combines other risk-related information obtained from relevant external datasets. These data are together compiled in a digital platform with a graphic user interface to visualize the assessments. Separately, AFFI's scientific team and industry food safety experts developed a risk scoring method to inform a supply chain decision tree allowing entities to take mitigatory steps. Importantly, the comprehensive tool may preclude routine finished product testing and focus resources on areas where risk is greatest and drive improvements in the supply chain.

The Foundation shared the tool with various entities in the supply chain such as Aneberries, the Mexican Growers Association, Chilealimentos, the Chilean Food Processors Association and other stakeholders. In addition to collaborating with industry, the Foundation also engaged the U.S. Food and Drug Administration (FDA) to assist with reviewing the tool and providing advisement. The Foundation anticipates greater adoption of comprehensive risk management strategies such as EViews to address food safety concerns in burgeoning and complex produce supply chains. By laying the path for EViews implementation, the Foundation and the frozen berry segment have demonstrated a leadership role across the global produce sector.



Sustainability



In 2024, the Foundation fostered industry development in the areas of sustainability and decarbonization.

Frozen Food and Food Waste

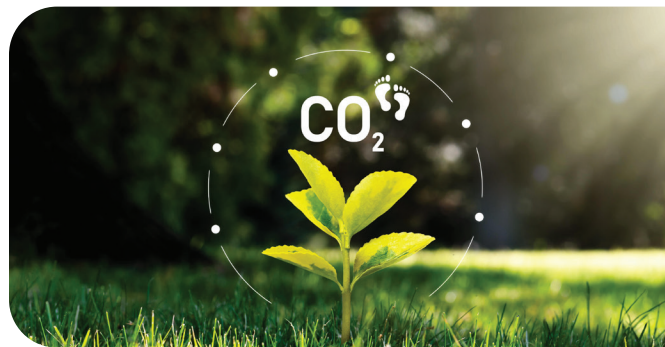
A partnership with Ohio State University researchers led to a better understanding of U.S. household practices and quantification of frozen food waste. Entitled “Frozen Food Purchasing and Home Freezing of Fresh Foods: Associations with Household Food Waste.” the study revealed that foods that were once frozen (either frozen at home or purchased as frozen) comprised only 6% of the total per person per week waste in U.S. households. The research is of significance as we continue to promote the role of frozen foods in addressing food waste reduction among consumers

Supplier Leadership on Climate Training (Guidehouse)

The Foundation partnered with third-party consulting group Guidehouse to support industry decarbonization training. The training program assists AFFI members in understanding the greenhouse gas (GHG) emissions protocols, particularly measurement of Scope 1, 2 and 3 emissions and setting targets. In 2024, more than 15 AFFI members were enrolled in the Spring and Fall sessions.

Product Carbon Footprint (HowGood)

The Foundation partnered with third-party consulting group HowGood to bring training to understand and develop a Product Carbon Footprint for various frozen foods. Launching in 2025, the partnership is with the Guidehouse program and will be available to all AFFI member participants that are undertaking the Guidehouse decarbonization training.



Nutrition

- Nutrition and health equity are important topics driving
- the dialogue about today’s food system. The Foundation
- is invested in research to help further drive understanding
- of frozen food’s role in promoting nutrition access.

Frozen Food in SNAP

The Foundation funded an exploratory study with South Dakota State University to assess the role of frozen foods in providing year-round nutrition for participants in the Supplemental Nutrition Assistance Program (SNAP) and understand frozen produce shopping habits among SNAP-eligible consumers. Household surveys were used to learn about sociodemographic factors and their association with purchasing habits. Given the many benefits of frozen fruits and vegetables such as convenience, reduced food waste, nutritional and cost parities, etc., results from this study will inform targeted nutrition education interventions. The manuscript, “Sociodemographic Factors Associated with Purchasing Frozen, Fresh, Canned, and Dried Produce in a Nationally Representative Sample of United States Households.” is published in *Current Developments in Nutrition*.

NEW! 2024 Grant Program

In the 2023-24 cycle, the Foundation pursued multiple competitive research grants in support of the scientific and technical needs of the frozen food industry. This resulted in **\$1.3 million** in additional resources that support the Foundation's research supporting the industry.

U.S. Department of Agriculture (USDA) – National Institute of Food and Agriculture (NIFA) (\$799,997 for 3 years)

A comprehensive approach to mitigate long-standing challenges in public health risks of human enteric viruses on produce (Emory University, University of Delaware)

Cross-Border Threat Screening and Supply Chain Defense (CBTS) (\$499,900 for 2 years)

Using the frozen berry supply chain as a model to make real-time decisions to assess and mitigate the risk of biological threats through the development of a novel AI-powered software system – EViews (Baylor University, Cornell University, University of Minnesota)

USDA Specialty Crop Research Initiative (\$3.6 million for 4 years)

(Submitted pre-proposal)

Modernizing risk management approaches for enteric viral safety, climate change resilience, and profitability in the global berry supply chain



2024 Frozen Food Foundation Freezing Research Award

The Frozen Food Foundation presented Dr. Marcel Zwietering with the 15th annual Freezing Research Award. This award is presented in conjunction with the International Association for Food Protection (IAFP) and specifically recognizes individuals or organizations whose research contributes to the continued enhancement of food quality and safety through freezing. Dr. Zwietering, professor of food microbiology at Wageningen University, has long been acclaimed for his work on microbiological sampling and testing in the food system and for improved risk management strategies.

Dr. Zwietering was selected for this year's award considering his contributions in shaping novel approaches to support management of *Listeria monocytogenes* in frozen foods. The mixed three-class sampling plan outlined by him is now a central tenet in AFFI's *Listeria* policy recommendations and is likely to transform the broader food industry's ability to control the prevalence of the pathogen in food production environments. His contributions were the result of deliberations by AFFI's *Listeria* Expert Panel and are published in its white paper, "Alternative Approaches to the Risk Management of *Listeria Monocytogenes* in Low-Risk Foods."

Frozen Food Foundation Award Recipient



Dr. Marcel Zwietering
Professor of Food Microbiology,
Wageningen University



Partnerships

The Frozen Food Foundation continues to foster strong relationships with and engage key stakeholders in the nutrition, food safety and education arenas. The Foundation is involved with outreach efforts and provides financial support to the following organizations:



Produce for Better Health Foundation



A consumer education foundation whose purpose is to motivate people to eat more fruits and vegetables to improve public health.



Portion Balance Coalition



A multisector working group, facilitated through Georgetown University, that published in 2024 the Power of Portions report which detailed how portion balance is an important tool in supporting public health.



Partnership for Food Safety Education



Supports the development and promotion of effective education programs to reduce foodborne illness risk for consumers.



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Sanjay Gummalla
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Make a Donation

Individuals or organizations interested in making a donation to the Frozen Food Foundation can visit www.affi.org/FFFoundation or contact Dr. Sanjay Gummalla at sgummalla@affi.com



2024 Contributions

The Frozen Food Foundation received \$100,000 in generous contributions in 2024. The Foundation would like to thank the following organizations and individuals for their support in 2024.

\$5,000+

Cavendish Farms Corporation
J.R. Simplot Company
Lamb Weston
McCain Foods USA, Inc.
Washington Red Raspberry Commission

\$1,000-\$4,999

Ajinomoto Foods North America
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Muzzi Family Farms, LLC
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Riviana Foods Inc

Rite Stuff Foods, Inc.
Seabrook Bros. & Sons Inc.
Adrienne Seiling
Sovos Brands
Strong Roots
Superior Foods
SupHerb Farms
The J.M. Smucker Co.

The Mushroom Company/South
Mill Champs
Van Drunen Farms
Viru S.A.

Wawona Frozen Foods

Up to \$199

Agritrade International
Alex Ingredients
Altex USA Corp.
Amcor
American Halal Co., Inc. dba
Saffron Road Foods
American Packaging Corporation
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ASC Co., LTD
Asia Frozen Food Corp.
ASPEN SALES GROUP LLC
BC Frozen Foods Ltd.
BLEUETS MISTASSINI LTEE.
Blount Fine Foods
Boardman Foods, Inc.
Brecon Foods, Inc.
Brothers International
Buhler Inc.
California Custom Fruits &
Flavors, Inc.
CanAM Fresh
Cape Cod Select LLC
Cardinal Foods, LLC
Cascade International Foods, Inc.
Clear Smith FFF
Congeladora Horticola S.A de CV.
/ CH FOODS INC
Congelados de Navarra SAU
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Diversifood Associates, Inc.
Dr. Oetker USA

DuPak Inc.
Ecofroz S.A.
Emblem Cranberry
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F&S Produce Company
Firestone Pacific Foods, Inc.
Flagship Food Group
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Hanline Frozen Foods
Hillphoenix
HUNG PHAT FRUIT
IDecisionSciences, LLC.
Innovative Cold Storage
Enterprises, Inc.
Interamerican Quality Foods, Inc.
Isik Organic Co
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JML INGREDIENTS INC.
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MarBrand, USA
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Messem International B.V.
MFI Foods
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MRB Food Sources
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NewCold USA Services LLC
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OctoFrost

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PIP Innovations
Paris Foods Corp.
Partner's Produce, LLC
Patagonia Foods LLC
Phillips Gourmet
Polproduct Netherlands B.V.
Pro Ingredients Inc
ProAmpac
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Quebec Wild Blueberries, Inc.
Quirch Foods
Rahal Fruits & Flavors, Inc.
RAYA FOODS EGYPT
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Reddy-Raw, Inc.
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Rigby Frozen Fo
RUN CHLODNIA SP
Russet House
SVZ USA Washington, Inc.
Sclta Mushrooms BV
Scenic Fruit Co.
Shoreline Fruit
Sierra Pacific Warehouse Group
Smeltzer Orchard Co.
SnoTemp Cold Storage
Testo, Inc.
The Perfect Puree of Napa Valley,
LLC.
TOMRA Sorting Solutions
TS Food company
Twin City Foods, Inc.
U.S. Cold Storage, Inc.
Val-Mex Frozen
Val-Mex Frozen Foods, LLC
Vidalia Brands Inc.
VISAfruit LLC
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