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# FOOD INNOVATION CENTERS

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Paper finalized in 2024 with staff input from the Agricultural Marketing Resource Center, [www.agmrc.org](http://www.agmrc.org).

The United States ranks in the top five of the global agricultural producers and ranks first in the number of agricultural exports by country.<sup>1</sup>

While the U.S. produces significant amounts of commodity products, food imports within the U.S. are on the rise. More than 50 percent of agricultural imports to the United States fall into the horticultural crops category.<sup>2</sup>

Compounding the increased importation of food, farmers now receive less than 15 cents of every dollar spent on food in 2022 at 14.9 cents, according to the United States Department of Agriculture statistics. This creates instability for consumers looking for fresh products, dependence on a large-scale food system and decreased economic development opportunities for farmers. The development of value-added products creates an opportunity for producers to capitalize on a larger portion of the food dollar, stimulate rural economies with additional jobs and promote a culture around food as an economic development driver.

While value-added products and processing may be an avenue for producers to explore food entrepreneurship, navigating regulatory compliance, food safety and business development is complex and challenging. Licensing to process and sell food products falls under different departments for each state. Additionally, crossing state lines can involve Federal levels of inspections. In addition to regulatory compliance, food safety at all levels is critical to the development of successful food entrepreneurs.

Food innovation centers that provide education and coaching to food entrepreneurs may be a solution to this problem, but food innovation centers are scattered throughout the United States.

The research included in this paper is a study of food innovation centers across the country. Within this paper, a food innovation center is a program that offers facilities for a combination of food processing and testing services and includes technical assistance for business development, marketing, and regulatory compliance. These centers across the United States are called different things and include different services, but all have components to further develop food entrepreneurship and education to clients.

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<sup>1</sup> Investopedia, <https://www.investopedia.com/financial-edge/0712/top-agricultural-producing-countries.aspx>

<sup>2</sup> Visual Capitalist, <https://www.visualcapitalist.com/cp/us-food-imports-by-country/>

## Demand

In 2017, there were 130,056 U.S. farms selling food directly to consumers totaling almost \$3 billion in sales. Just over 28,000 farms sold product directly to retail markets, institutions, and food hubs for \$9 billion in sales. Almost 33,000 farms sold value-added products at just over \$4 billion in sales.<sup>3</sup>

Within the United States, sales of locally produced food totaled \$11.8 billion, or three percent of all agricultural sales in 2017, up from \$8.7 billion in 2015.<sup>4</sup>

Nationally, sales in the specialty food and beverage category hit \$194 billion in 2022, up more than 9 percent over 2021 and were expected to hit \$207 billion in 2023, according to the Specialty Food Associations annual state of the industry report.<sup>5</sup> Top specialty food and beverage categories were:

1. Chips, pretzels and snacks
2. Meat, poultry and seafood
3. Cheese and plant-based cheese
4. Bread and baked goods
5. Coffee and hot cocoa
6. Refrigerated entrees
7. Chocolate and other confectionery
8. Water
9. Desserts
10. Frozen entrees

Organic food sales surpassed \$60 billion in 2022. Certified organic now accounts for six percent of total food sales in the United States. Organic product was the top seller and organic beverages was in second, followed by dairy and eggs.<sup>6</sup> This growth rate, estimated at more than eight percent annually, outpaces the overall food industry, which is closer to four percent.<sup>7</sup>

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<sup>3</sup> Market Value of Agricultural Products Sold, Census of Agriculture, [https://www.nass.usda.gov/Publications/AgCensus/2017/Full\\_Report/Volume\\_1, Chapter\\_1\\_US/st99\\_1\\_0002\\_00\\_02.pdf](https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/st99_1_0002_00_02.pdf)

<sup>4</sup> USDA National Agricultural Statistics Service (NASS), <https://www.ers.usda.gov/amber-waves/2021/october/local-food-sales-continue-to-grow-through-a-variety-of-marketing-channels/>

<sup>5</sup> State of the Specialty Food Industry Report, 2022, [https://drive.google.com/file/d/1p6VEcXds9YAZ5c8\\_zx1QE51uKz9AUZsJ/view?pli=1](https://drive.google.com/file/d/1p6VEcXds9YAZ5c8_zx1QE51uKz9AUZsJ/view?pli=1)

<sup>6</sup> 2023 Organic Industry Survey, Organic Trade Association, <https://ota.com/news/press-releases/22820>

<sup>7</sup> BlueWeave Consulting and Research, <https://www.globenewswire.com/news-release/2022/01/25/2372820/0/en/United-State-Organic-Food-Market-Retains-Robust-Growth-Amid-the-Pandemic-Projected-to-Grow-at-a-CAGR-of-8-7-during-2021-2027-BlueWeave.html>

## Existing Centers

Much of the work of this paper focused on the study of existing food innovation centers. Because there is not one source of regulations or funding for food innovation centers, a comprehensive list was difficult to obtain. In addition to interviews and email correspondence, a Qualtrics survey was conducted of national food innovation centers to better understand how centers functioned, financial models, clients, and current challenges. Survey questions included the following:

- Name, address, city, state.
- Years in operation.
- Employee numbers.
- Primary affiliation of the center.
- Typical client requests of the center.
- Types of funding received for the center.
- Percentage of each type of funding received.
- Total number of clients per year.
  - Direct technical assistance.
  - Classes/workshops.
  - Incubator space.
- Trends and commonalities seen in clients.
- Participation in one of the USDA Regional Food Business Centers across the U.S.
- Client fee structure.
- Range in operating expenses.
- Services provided through the center.
- Biggest challenges facing food entrepreneurs.
- Biggest opportunities facing food entrepreneurs.
- Biggest challenges facing food innovation centers.
- Biggest opportunities facing food innovation centers.

All survey and interview/case study respondents indicated a mix of funding streams for their center. A state budget contribution of at least 60 percent was seen in the majority of them, with a high of 80 percent. Grant funding ranged from 10-20 percent. Private funding contributed an average of 10 percent to the total. An average of 20-40 clients were served annually in an incubator space. Additional visitors and tours to the innovation center spaces brought an average of 500 people through annually.

All centers have technical assistance to clients, workshops, and incubator space. Technical assistance client relationships averaged 100 per year. An average additional 300 clients were served through workshops.

Employees ranged from 3 to 20+ with student and temporary employees counted.

Centers were asked about the current trends seen from clients and current client inquiries. Responses included:

- Acidified foods
- Baked goods

- Co-packing assistance
- Education needs in regulations and food safety
- Ethnic cuisine
- Freeze-dried foods
- Fermented foods
- Formulations, labeling and shelf-life testing
- HACCP and food safety plans
- Plant-based products
- Sauces, salad dressings
- Scale from farmers markets to retail
- Small to medium-sized quantities of production
- Spicy honey products or oil products
- Value-added dairy

Centers were mixed on participation in the USDA Food Business Centers, with half having an active role and half not participating.

All centers studied charge fees for their services. Income ranged from \$100,000 to more than \$1 million. Operating expenses had the same range.

Centers did have ancillary businesses with their innovation centers. Most common were retail markets and café/bakery components.

Centers were asked about the challenges facing entrepreneurs. Responses were summarized into the following categories:

- Cash flow.
- Lack of food safety implications for the products they want to make and sell.
- Lack of understanding as to how to build a small business or who to talk to about getting a business plan developed.
- Market access.
- Regulatory compliance.
- Scaling up too fast.

On the flip side, centers were asked about opportunities for entrepreneurs. Responses were summarized into the following categories:

- Access to equipment through the food innovation center.
- Consumers' ever-changing tastes and preferences - always looking for new/next.
- Empowering more local food producers and building local economic development.
- Voids on healthy, nutritional foods and beverages.

Challenges facing the centers themselves fell under a few categories, funding being the largest challenge. Others included manpower to meet individual client needs, continually updating equipment and the ability to

mentor/coach multiple stages of businesses. Opportunities for centers included the ability to meet client needs, build economic development and work with underserved populations.

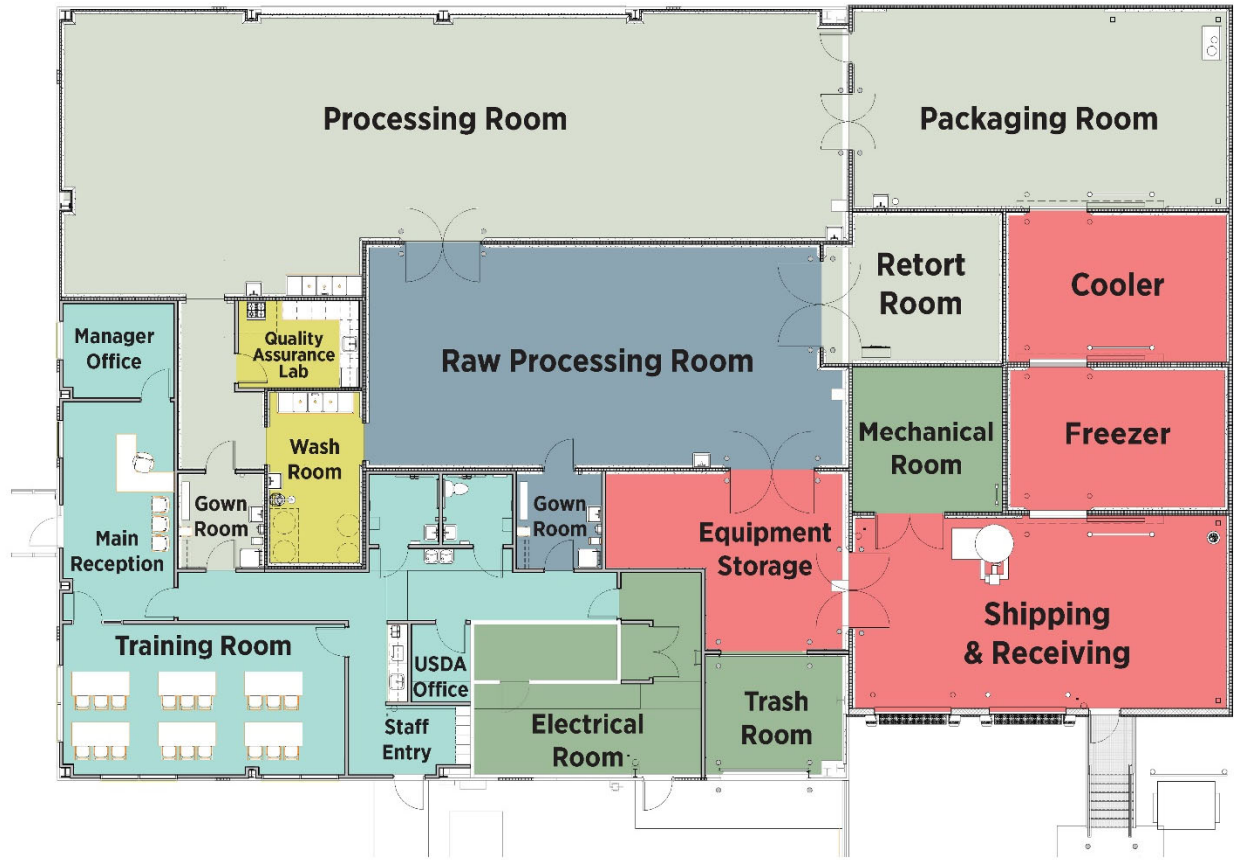
Specific centers were studied with interviews on their services, clients, funding, and longevity. A brief snapshot of each is included.

**Michigan State University Product Center.** The Product Center offers business counseling and venture development, economic and market research, specialized services, and accelerated growth services. The Product Center coordinates the Making it in Michigan Conference and has a food processing and innovation center space. In 2022, the MSU Product Center assists more than 676 clients has assisted in business expansions resulting in investments of \$30 million. More than 201 jobs were estimated to be added in 2022 because of their work. Services include product development, packaging, process authority review, labeling and nutrition facts, food science and food processing. Food safety and food regulations are also covered. The center is closely aligned with the Making it in Michigan brand program. ringing the FPIC to fruition has taken many years of planning and design involving multiple groups including MSU's expertise from across campus, private and public sector agencies, food and agricultural leaders, and government regulatory agencies. The center is funded and supported by MSU Extension as part of the Universities commitment to outreach and engagement and economic development.

The FPIC has the regulatory and equipment capabilities to produce these categories of products:

- Low Acid Foods
- Meat & Seafood
- Fruits & Vegetables
- Refrigerated Products
- Frozen Products and Meals
- Snack Foods
- Bakery & Confectioneries
- Sauces & Condiments
- Desserts & IQF Products
- Drinks (non-carbonated)

Main production components at the FPIC:



- 65' Large Processing Room for large scale equipment lines
- Medium Raw USDA/FDA Room (Temperature controlled)
- Freezers & Coolers
- Equipment storage and receiving area
- Dedicated Packaging and freezing area
- Dry storage and pallet racking
- Full size loading/receiving dock and fork lift

**The Nebraska Food Processing Center.** The FPC was established in 1983 at the University of Nebraska - Lincoln as a food processing and applied research hub that integrates applied research with state-of-the-art pilot plants, laboratory facilities, product developers and business coaches. Originally, components of the center were scattered in buildings across campus. The food industry complex was established on the east campus in 1990 and re-dedicated as a part of the Nebraska Innovation Campus in 2015. The core buildings now open include:

- **Innovation Commons**, a state-of-the-art office complex and the hub of the campus;
- **The Food Innovation Center**, a world-class structure that is all about food on every dimension, from taste and texture, to human health and digestion; and

- **The Greenhouse Innovation Center**, with a high-tech phenotyping system that allows researchers to gather useful information about individual plants throughout their growth cycle.

Nebraska Innovation Studio, a new maker space, occupies part of the first floor of the commons. Manufacturing-grade equipment in this new maker space provides membership access for UNL students, faculty, staff, and community members as well as workshops and training.

The FPC includes coaching, workshops, distance training and seven pilot plant areas. Pilot plants include extrusion, high pressure processing, canning, dehydration & drying, liquid processing, baking, brewing, vegetable processing, milling, pasta, meat processing, dairy processing, shelf-life chambers, packaging and confectionery. Their Recipe to Reality workshop is one of their most popular workshops, with a cost of \$250. UNL's FPC does not underwrite client services with significant state investment; instead, fees are assessed for all services.

**Robert M. Kerr Food and Agricultural Products Center.** This center was established in 1997 at Oklahoma State University. The center is a 96,000 square-foot facility with animal harvesting, food manufacturing, grain milling, sensory profiling, food microbiology and application laboratories for demonstration and prototype testing, as well as education and training capabilities. In the past 10 years, the FAP Center has worked on 1,454 food projects with \$75 million in economic impacts. This has included to 137 start-ups in 53 communities. Clients can work directly with consultants on a business plan, cost analysis, label reviews and marketing. Specific testing and processing is done in the pilot-scale processing center. Food safety experts provide training and in-plant audits and assistance. There is a retail store on site to sell products. Staff include three business/marketing consultants, a meat plant manager, a milling & baking manager, a food technologist, quality control expert, culinary technologies, food process engineer, oilseed specialist, an agricultural economist, and food safety experts. Students provide much of the laboratory labor and most staff members have a teaching component, as well. The initial investment for the center came from the state at \$18.2 million. OSU utilized donations and auctions to purchase used R&D equipment. There is a separate line item for the center from the state at an annual \$2.3 million.

**The Food Innovation Center at Rutgers.** The FIC is a business incubator as part of the Rutgers New Jersey Agricultural Experiment Station and established a model of a central facility, but several other facilities within the state. The center supports start-ups as well as established food businesses both domestically and internationally. The FIC has the resources to support clients from idea to market. The center has FDA- and USDA-certified facilities, enabling clients to manufacture sellable products. There is comprehensive product and process capabilities and the ability to transfer technology from proof of concept to proof of commercialization stages. The center was chosen by the Specialty Food Association as the selection team for the SOFI awards and has been recognized by the U.S. Small Business Administration as a winner of its first Growth Accelerator Fund competition, and one of only 50 programs so recognized in the nation. The impossible burger was developed at the FIC. The Italian-based company of Dr. Schar, a gluten-free bread, utilized FIC as R&D facilities when determining how to expand to the United States.

**The Mission Mountain Food Enterprise Center**, Montana. Located directly in the heart of Ronan, Montana and covering over a ¼ of a city block, Lake County Community Development's Mission Mountain Food Enterprise Center is a fully functioning food processing, research, and development facility. The food processing facility is inspected by the United States Department of Agriculture (USDA), United States Food and Drug Administration (FDA), and Montana Department of Agriculture Organic Program.

The mission is to enhance regional and state economic opportunities by providing client services to value added agriculture and specialty food businesses through the management and operation of a viable community-based food processing center.

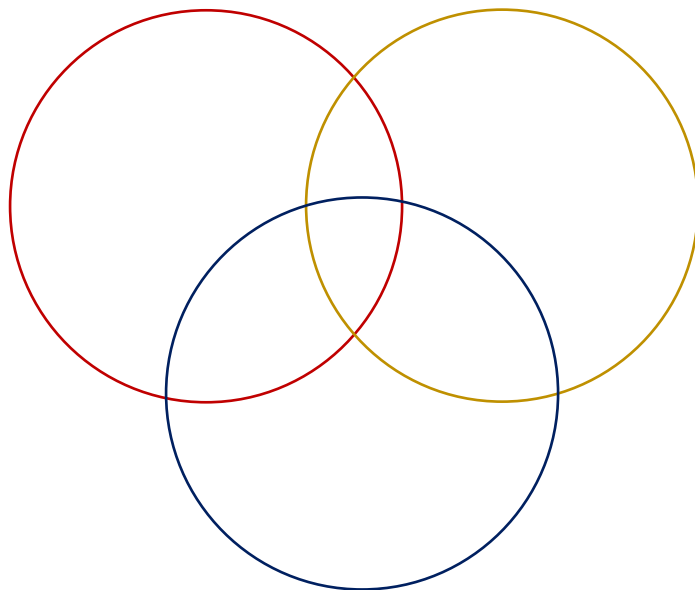
The staff of Mission Mountain Food Enterprise Center is committed to providing a food processing facility and retail kitchen to wholesale/retail food businesses, caterers, and mobile food units in the area. The processing facility is shared use and priority is given to those who schedule in advance. The retail kitchen is a licensed facility separate from the processing facility that is available for rent to be used in the preparation of food for retail sales or personal consumption only.

The following equipment is available in the food processing facility:

- Auger Filler and Ribbon Blender for Dry Products
- Cherry Pitter
- Industrial chopper/dicer Fruit & vegetable Peeler
- 30 and 90 Gallon Steam & Water Jacketed Kettles
- USDA Meat Room Smokers Meat Grinders and Vacuum Tumblers
- Commercial Bottling Fillers
- Vacuum Packaging Machines
- Freezer, Cooler and Dry Storage Rental
- Loading Dock and Forklift
- Retail/Commissary Kitchen
- VEMAG Stuffers & Portioner with guillotine attachments
- 1 stoves with oven
- Triple Sink for washing produce
- Dishwasher w/sink
- 2 stainless steel tables for food preparation
- Cooler/freezer storage on pallets



## Description of Services



Based on the collected research, the ideal center combines 1) Product Development, 2) Business Development and 3) Food Safety components. For study purposes, let's look at the potential impacts of a food innovation center in Iowa.

Iowa State University is well poised for such a center with a central Iowa location, easy access to major metropolitan centers in Des Moines, Kansas City, Minneapolis and Omaha and technical service providers at the University.

- 1) **Product Development.** This provides an opportunity for Iowa State University to further work with food entrepreneurs across the state and region. Classes and education are needed on product & process controls, labeling & regulatory compliance. Laboratory services, sensory analysis, and nutrition labeling consultations are regarded as top priorities for food entrepreneurs in accessing services. Specialists could conduct product development assessments and assist clients in real-world pilot plant/incubator work. Outreach staff could conduct facility design consultations. Infrastructure is needed for processing and broader support for product development through testing, trials, and pilots.
- 2) **Business Development.** ISU is the Iowa partner in the Heartland Regional Food Business Center, a \$25 million dollar investment by USDA, to provide direct services to farm and food entrepreneurs, including training and technical assistance, one-on-one business counseling, help accessing financing, and building supply chain connections. Building Business Grants will be available directly to producers in year two, after technical assistance consultations with staff. FFED provides feasibility studies and financial reviews for food businesses for a fee. These feasibility studies are a requirement of USDA loan guarantees and

have been done for meat processing facilities, further processing facilities and other food entrepreneurs. FFED leads, in partnership with IDALS, the Iowa Local Food and Farm Initiative with dollars from the legislature for local food work. FFED also sat on both the Farm to Table Taskforce and the Iowa Butchery Task Force during COVID to help with recommendations around our local and regional food system. Staff currently sit on the Resilient Food Systems Infrastructure task force, the Farm to School Coalition, the Regional Food Systems Working Group and the Iowa Food Systems Coalition.

- 3) **Food Safety.** ISU already has established teams to conduct education on the FDA Produce Food Safety Rule through the North Central Food Safety Modernization Act Center and a statewide contract through the Iowa Department of Agriculture and Land Stewardship. The Safe Produce Team conducts on-farm food safety audits, provides produce food safety classes and workshops to meet the FDA Produce Food Safety Rule. Food Science specialists at ISU has courses on food safety for value-added entrepreneurs. ISU HS has a new in-person course with food entrepreneur curriculum to partner with shared use kitchens throughout Iowa.

## Clients

What would food businesses could expect from the center as impacts: Increased profitability through the creation of new products for new markets, better management and financial operations and improved regulatory compliance. For the state, the center would be revitalizing Iowa's communities by turning Iowa commodities into Iowa products for Iowa consumers and beyond.

Within Iowa, there are 467 actively licensed Home Food Processing Establishments. This now includes both non-perishable and perishable food items. There are an additional 134 Home Food Processing Establishment licenses are pending due to lack of knowledge. This is not uncommon to have many pending, but inspectors see this as a high percentage<sup>8</sup>, indicating that the licensing issuing agency is waiting for information before issuing a license. This gap in knowledge is a new opportunity that a center could fill and be a good resource for one-on-one technical assistance with these producers.

Beyond Iowa's food entrepreneurs, there are several entities that a food innovation center could serve. In 2023, 135 schools were awarded almost \$840,000 for local food sales. Each of these school districts works with procurement coaching to adequately reach out to local producers and food hubs for assistance. Round two in 2024 is expected to reach at least that many districts again.

ISU FFED works with the 10 food hubs around Iowa, facilitating their strategic planning, regular meetings and opportunities to partner together on food sales routes between the hubs.

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<sup>8</sup> Anecdotal information from inspectors with the Iowa Department of Inspections and Appeals.

## What could this mean?

If a minimum of 300 clients made a \$10,000 investment in their business because of services received, that means \$3 million invested in the Iowa economy.

If those 300 businesses made \$30,000 in sales, that's a return of \$9 million to Iowa food entrepreneurs.

No Center currently exists in Iowa that supports this area of need in a cohesive space with dedicated individuals.