Feeding a Nation: Food Manufacturing and Processing

By Wendy Williamson

In This Issue

In this issue, we explore processing equipment within the US food manufacturing space. The industry as a whole remains dynamic and powerful, generating billions of dollars in revenue and economic activity every year. Consumer and business trends in food processing, coupled with industry priorities and initiatives, are driving changes in the food manufacturing industry and creating a variety of value drivers. Understanding the changing regulatory environment and shifting consumer preferences can provide opportunities for capitalizing on the long-term value of food processing equipment.

WHAT IS DRIVING CHANGE IN FOOD PROCESSING?
The US food manufacturing industry faced economic headwinds in 2015, which impacted consumer spending habits. Amid these challenges comes a host of industry priorities impacting production and sales. The effort to address food labeling for products containing genetically modified organisms (GMOs) continues. A law was passed in Vermont that will require labeling any products that contain GMOs beginning in July 2016. This has prompted several large food companies—including ConAgra Foods, General Mills, Kellogg’s and Mars—to begin labeling products nationwide.

These changes in product labeling align with growing consumer desire for transparency in food production. A survey titled “A Clear View of Transparency and How it Builds Consumer Trust” from the not-for-profit The Center for Food Integrity found that consumers expect transparency from food companies in terms of food safety, health impact, production issues and business ethics. This is particularly important in the wake of food recalls that have shaken consumer confidence. According to analysis from Food Safety Magazine, there were 626 food recalls in 2015—many of which were due to contamination from allergens, like dairy, peanuts and gluten. In response, the US Department of Agriculture’s Food Safety and Inspection Service released new guidelines to address the rising volume of preventable allergen recalls.

Meanwhile, in June 2015, the US Food and Drug Administration (FDA) announced a ban on partially hydrogenated oils (PHOs), the primary dietary source for artificial trans fat. The industry has three years to comply with the mandate to remove PHOs from products. This comes alongside other updates in understanding healthy food intake—including the 2015–2020 edition of the Dietary Guidelines from the US Department of Health and Human Services (HHS) and the US Department of Agriculture (USDA), which provided five broad priorities to encourage healthy eating that will likely impact consumer tastes and demand.

DRIVING ECONOMIC ACTIVITY: PAST, PRESENT AND FUTURE

The United States has a long-established food manufacturing industry, in which businesses collect raw food materials and process them into edible products. The five largest subsectors in the food manufacturing industry are meat products, dairy products, specialty food manufacturing, fruits and vegetables, and other foods, according to the US Department of Commerce Industry Report on Food Manufacturing.
Food manufacturing has a crosscutting economic impact, generating significant revenue in other industries—namely transportation. For example, the US Department of Commerce’s Economics and Statistics Administration found that food manufacturing made up $738.5 billion (12.9 percent) of all US manufacturing shipments in 2012, the latest year for which data is available. Beverages and tobacco products accounted for $142.5 billion (2.5 percent) in shipments. Because these two industries’ products are perishable, their manufacturing data are often combined, and together, these manufacturers generated $881 billion in shipments in 2012, the largest of any industry in the US manufacturing sector.

The food industry also impacts technology innovation and deployment. Recent developments in food processing have been in the areas of machine automation and food preservation. Automation is essential to rapid production, which impacts competitiveness. Assembly Magazine highlighted the fact that snack foods, for example, can be packaged at more than 100 bags per minute and beverages at more than 2,000 cans per minute—throughput that requires finely calibrated machines. Increasing automation requires new equipment to be integrated with other machines, processes and the plant’s networked systems, creating plant-wide adjustments through equipment acquisition and upgrades.

At the same time, there is a growing consumer demand for fresh food. The 2015 Nielsen survey “We Are What We Eat: Healthy Eating Trends Around the World” found that 43 percent of consumers believe it is “very important” for food to be made with natural ingredients and without GMOs, and 42 percent believe that the absence of artificial colors and flavors is “very important.” Responding to consumer demand, manufacturers are striving to achieve preservation through organic additives, irradiation and hyperbaric processing (rather than with chemical additives), which raises new technological and infrastructure needs.

**TYPES OF FOOD PROCESSING EQUIPMENT**

As the food manufacturing industry looks forward to a stronger year, the global demand for food processing machinery is growing. According to an estimate from the market research company Freedonia Group, sales will rise 7.6 percent annually through 2019, reaching $53.3 billion. Food processing equipment can be divided into three categories based on the production cycle: raw material preparation, processing equipment and packaging equipment.

**Raw Material Preparation**

Each manufacturing plant contains a collection of industry-standard equipment and customized models configured to best suit a specific process. Animal preparation is largely done by automated equipment specific to the industry, while vegetable preparation includes washing and chopping, sorting by color, adding preservatives or other processes prior to packaging. Liquids preparation requires storage tanks (jacketed and nonjacketed for heating and/or cooling), pumps and piping, and heat exchangers. And dairy preparation includes receiving, piping, storage tanks, pumps, pasteurizers, separators and dryers.

**Processing Equipment**

Food processing is unique in that there are several ways to accomplish the same process. The conversion of meat products into finished goods can be done through grinding, cooking, blending, stuffing and trimming. Vegetable processing consists of color sorting, shucking, mixing, cooking and chilling.

Processing liquids, such as soups and oils, requires heating and fractionating equipment, as well as vessels, many of which are jacketed to allow steam heating or cold water cooling. Dairy processing involves pasteurization, separation, drying, mixing and cheese-making storage. Clean-in-place (CIP) systems are installed primarily in liquid processes, like dairy, for the purpose of cleaning the interior of the equipment without disassembling it. All food processing equipment must meet FDA cleanliness standards.

**Packaging Equipment**

Meat can be packaged fresh or frozen. Although most modern packaging equipment has digital controls and operates at high speed, meat packaging remains labor-intensive. Vegetable packaging is similar and also includes canning and freezing. Canning equipment has a strong secondary market due to its versatility, and spiral-type freezers are also desirable. Liquids are canned, boxed or bagged, and packaging for milk products varies depending on the end product.

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Trends in automation and preservation are driving opportunity in an industry inherently resilient against economic fluctuations. Food processing is not as sensitive to economic conditions as other industries, as food demand is relatively stable, even during recessions. This makes sales of food manufacturing products and supplies, such as food processing equipment, resilient as well.

About the Author:

Wendy Williamson is a Senior Asset Evaluator in Equipment Finance, where she is responsible for equipment research, valuation and appraisal activities in support of equipment financing transactions. With more than 20 years of experience in the financial services industry, Wendy has served in a variety of roles including asset evaluation, lease end negotiations and client service. She is an expert on asset categories including healthcare, food processing, transportation and construction. Wendy is a member of the American Society of Appraisers and graduated from Otterbein University.

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