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# Processing State of the Industry Report

Insights and analysis into the  
US market for food & beverage  
processing machinery.

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# ABOUT THIS REPORT

## Introduction to Research

This report was developed through a collaboration between The Association for Packaging and Processing Technologies (PMMI) and the Food Production Solutions Association (FPSA) to establish a baseline view of the US food and beverage processing machinery market. As the inaugural edition of this study, the objective is to size the market, identify key structural drivers, and provide directional insight into growth and investment trends across major industry and equipment segments.

## Data Collection & Methodology

To produce this first edition, Interact Analysis combined primary and secondary research. Primary research consisted of a quantitative survey issued to **PMMI & FPSA** members. Additionally, interviews with processing equipment manufacturers and industry participants were conducted to understand how machinery shipments are distributed across end-markets and equipment categories, as well as the factors influencing demand. These interviews were supplemented with historical market datasets, proprietary industry trackers, and publicly available sources to inform market sizing and forecasting.

Given the foundational nature of this edition, data coverage varies by segment. In areas with limited direct reporting, additional datasets and proxy indicators were used to support estimates where appropriate. Forecasts reflect a combination of historical trends, interview insights, and broader macroeconomic assumptions.

Future editions of this report will continue to refine market sizing, expand segmentation detail, and incorporate additional supplier input as data coverage improves.

We thank all contributors for their participation and insights, and hope this report provides a valuable reference for understanding the US food and beverage processing machinery market.

## What Does This Report Contain?

This report provides a high-level view of the US food & beverage processing machinery market. It is designed to help OEMs, and industry stakeholders understand overall market performance, key trends, and the projected outlook by industry and major machine categories.

What the Report Covers:

- Total shipment values and growth forecasts for the US market
- Breakdowns by major industries (e.g., alcoholic beverages, dairy, fruits & vegetables)
- Shipment values by primary machine categories
- Market drivers and demand signals influencing investment decisions

## Processing Data Explorer Dashboard Highlight

Looking for more detailed insights? The Processing State of the Industry Dashboard complements this report by offering interactive access to the full dataset—with significantly more granularity.

Available to PMMI/FPSA members, the dashboard allows users to:

- View shipment values and growth projections by main machine types.
- Filter by specific industry sectors to view only relevant machine shipments and projections.
- Compare shipment values by industry and subcategory side by side.

To access the dashboard, visit the Processing State of the Industry Dashboard at: [pmmi.org/content/soti-dashboard](https://pmmi.org/content/soti-dashboard)

# CONTENTS

## 6 • EXECUTIVE SUMMARY

- 6 Summary of Processing Machinery Industry**
- 7 Macro-Economic Environment**
- 7 US machinery production remains outpaced by new orders
- 8 New facility construction is lagging new orders
- 9 Our forecast in context
- 10 Market Sector Overview**
- 10 Industry breakdown
- 12 Industry forecast
- 13 Processing Equipment Overview**
- 13 Machinery breakdown
- 15 US Machinery Forecast**

## 16 • MARKET TRENDS

- 16 Market Trends Explored in Detail in this Section**
- 17 The Changing US Health Narrative**
- 17 Health consciousness
- 18 GLP-1 adoption as an accelerant
- 19 How food companies are responding
- 20 Implications for food and beverage processing machinery
- 20 Workforce**
- 20 Machine builder shifts
- 22 Work Safety Design shifts
- 23 Machinery Design & Functionality**
- 24 Sanitation**
- 24 The growing challenges of sanitation as recalls take the spotlight
- 24 Recalls surpass 200 in food & beverage
- 25 Product diversifications creates challenges for producers
- 25 Integrating sanitation into system design
- 26 Sanitation considerations driving equipment upgrades
- 27 AI & Big Data**
- 27 AI's integration in processing machinery
- 28 Barriers limiting AI adoption
- 29 Sustainability**
- 29 Water reduction, energy and waste reduction take the spotlight for sustainability
- 30 Cost-driven sustainability in processing**





## 31 • INDUSTRY STATISTICS

- 31 **Market Sector Overview**
- 32 **Sector Outlook – Forecast & Trends**
- 32 Alcoholic beverages
- 34 Animal feeds & pet food
- 35 Bakery & confectionery
- 39 Cooking oils
- 40 Dairy
- 43 Fish & seafood
- 45 Fruits & Vegetables
- 47 Grains & cereals
- 48 Meat & poultry
- 51 Non-alcoholic beverages
- 52 Prepared foods

## 54 • MAJOR ANNOUNCEMENTS

## 62 • MACHINE STATISTICS

- 62 **Baseline of Processing Machinery**
- 63 **Dry Ingredient Equipment**
- 64 **Forming, Shaping, & Decorating Equipment**
- 65 **Inspection Equipment**
- 66 **Liquid, Paste, & Slurry Processing Equipment**
- 67 **Material Handling & Conveyance**
- 68 **Primary Meat Processing Equipment**
- 69 **Separating, Sorting, & Cutting Equipment**
- 70 **Specialized Equipment**
- 71 **Thermal Processing Equipment**

## 72 • APPENDIX

- 72 **Risks Associated with Forecast**
- 73 **Research Methodology**
- 75 **Segmentation for Processing Market Size and Forecasts**
- 77 **Definitions**

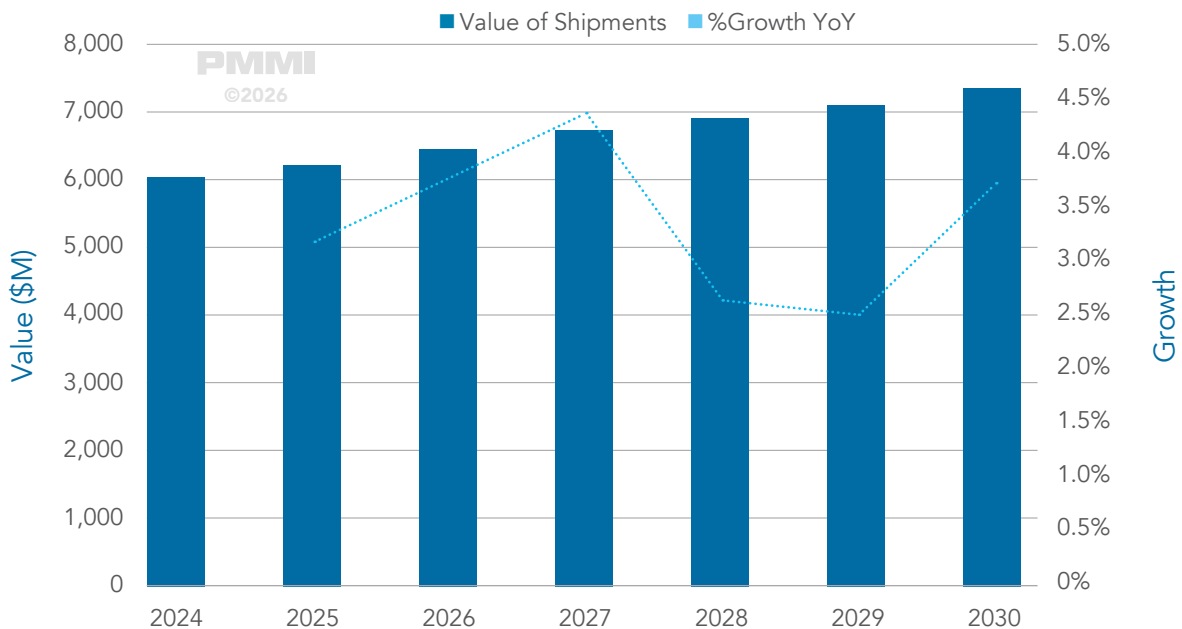
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# Executive Summary

## SUMMARY OF PROCESSING MACHINERY INDUSTRY

**US food & beverage processing machinery market expected to reach \$6.7 bn in 2027.**

Fig. 1 US Food & Beverage Processing Machinery Forecast



PMMI/FPSA members can visit <https://www.pmmi.org/content/soti-dashboard> to explore interactive forecast data by machine type, industry, and more

### A Year of Waiting

2024 marked the beginning of a slowdown in the food and beverage processing machinery market, following the post-COVID investment peak. Growth softened as customers waited for interest rates to decline and clarity around the US election cycle. As pandemic-era backlogs continued to clear, new order activity slowed noticeably across much of the market.

Entering 2025, expectations improved as interest rates started to ease. However, momentum stalled by April as the introduction, removal, and reintroduction of tariffs created significant uncertainty. The resulting policy whiplash led many customers to delay capital decisions while waiting to see which tariffs would remain in place. As the year progressed, the market gradually adjusted to this volatility, allowing order activity to resume. Overall, 2025 closed with modest growth of 3.2% following the softness seen in 2024.

Looking ahead to 2026, expectations point to moderate, continued growth as US market uncertainty begins to ease after an extended period of disruption. With delayed projects moving forward, industry participants expect order activity to recover further. Growth is expected to peak around 2027 as delayed investment is released, followed by a temporary slowdown in 2028 as the market digests that activity, with added caution around large capital purchases in an election year, before stabilizing toward the end of the decade.

## MACRO-ECONOMIC ENVIRONMENT

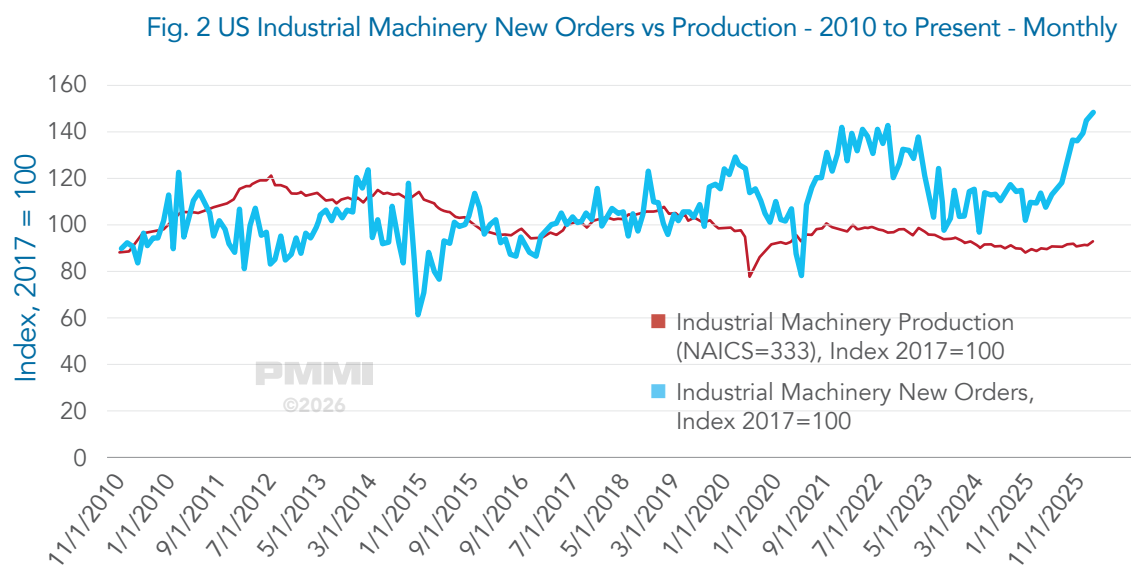
### US machinery production remains outpaced by new orders

2025 was a turbulent year for US manufacturing. A new administration brought with it sweeping policy shifts which led to widespread economic policy uncertainty. This, coupled with the Federal Reserve’s reluctance to substantially decrease interest rates amidst inflation fears, led to a lack of expansionary investment by US manufacturers. Instead, many manufacturers are looking to maximize existing capacity and invest in more nimble automation to increase productivity while avoiding large investments into greenfield sites.

### The Gap Between Production and New Orders is Widening Again

The graph below demonstrates the current state of US industrial machinery manufacturing. The blue line represents new orders of industrial machinery whereas the red represents the value of industrial machinery production. As you will note, the two series became heavily disconnected following the COVID-19 pandemic and subsequent surge in automation investment.

Since 2020, new orders for industrial machinery have consistently sat above the production value of industrial machinery. This would imply that machine builders have been consistently operating with inflated backlogs as order volume outpaces machine builders’ ability to produce. Historically when new orders outpace production, we see production levels increase to meet the growing demand. Since 2020 however, this has not been the case. A combination of uncertainty, lack of skilled labor, and unfavorable borrowing conditions have stifled expansionary activity from machine builders.



Source: Board of Governors of the Federal Reserve System (US), [IPG333S], and US Census Bureau, Manufacturers’ New Orders: Industrial Machinery Manufacturing [A33ENO], retrieved from FRED, Federal Reserve Bank of St. Louis.

## New facility construction is lagging new orders

The graph below demonstrates the current disconnect between new facility builds and new orders. Interact Analysis' Manufacturing Building Stock Tracker dataset tracks the number of facilities built or closed across many manufacturing sectors including food & beverage processing machinery.

The blue bar shows the number of new facilities added to the count of food & beverage manufacturing facilities that year. The black line shows the average annual industrial new orders index for industrial machinery. The purpose of showing this graph is to demonstrate the pent-up need for new manufacturing capacity in the US. While new orders have risen significantly in 2025, we did not see the normal increase you would expect to see in new facility builds.

There are three reasons this is the case:

1

The borrowing environment was unfavorable and there was an expectation in 2025 that interest rates would come down during the year. This led to a holding pattern for manufacturers expansion plans.

2

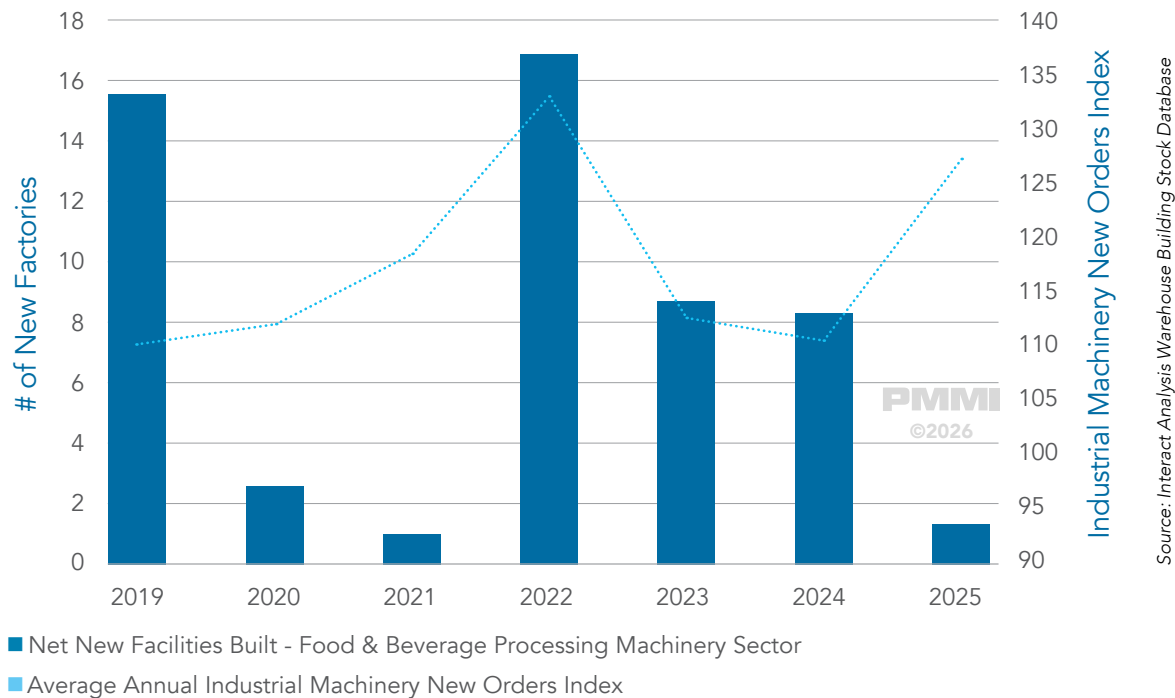
Uncertainty led to a risk-averse mentality surrounding investment timelines.

3

The lack of available skilled labor has created difficulties in staffing new facilities.

This context helps inform our expectation for 2026. As shifting tariff policy has become the new normal, uncertainty has waned. As a result, new orders have risen. While a challenging interest rate environment still exists, it has eased from earlier in the year. As we look to 2026, we can expect growth in new facility construction. However, it is likely that growth will be slightly more muted than what we would expect in a healthier economy.

Fig. 3 Net New Factories vs Industrial Machinery New Orders Index



# Our forecast in context

## Short Term View

With the context of the macroenvironment in mind, our short-to mid-term forecast becomes clearer. We are expecting growth in food & beverage machinery production in 2026 to be driven largely by rising order backlogs amidst new orders placed at the end of 2025. We expect new orders to continue on their upward trajectory through 2026.

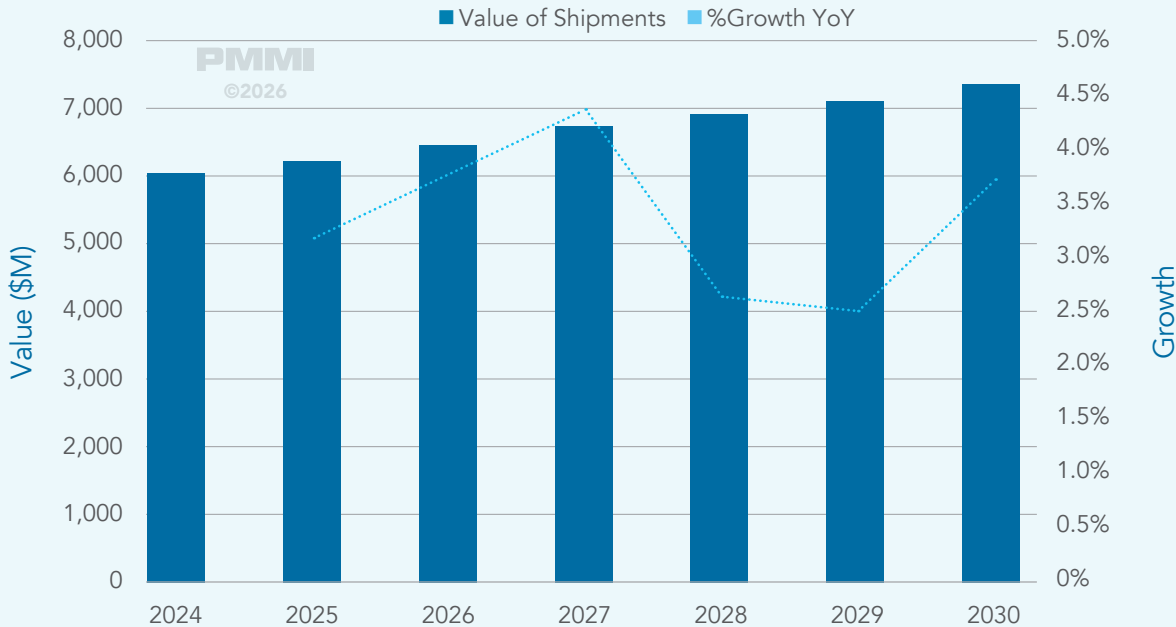
Due to relatively limited expansionary activity compared to rising demand, it is likely that demand will outstrip the industry's ability to produce machines, leading to high order backlogs. In these situations, we typically expect market growth which spreads over a longer period of time. For this reason, we are expecting 2027 to be the peak year of growth in the current market cycle, with 2026 being characterized as a ramp up year.

We are expecting new capacity to come online during 2026 which will support continued growth into 2027 before facing a slight correction in 2028 and 2029, in line with the 3 to 5 year peak to trough cycle this industry typically sees.

## Risks to Forecast: Skilled Workforce Availability

While food & beverage machinery is generally viewed as more stable than other machinery sectors, there are structural factors which could tamp down production long term. Touched on throughout this report is the lack of skilled labor for OEMs. This is one of the contributing factors to the disconnect between machine orders and machine production shown earlier. This issue is difficult to overcome and could manifest as slower average growth within the food and beverage machinery space. While we have taken this into account in our forecast, a lack of available labor for machine builders could tamp down growth long term.

Fig. 4 US Food & Beverage Processing Machinery Forecast

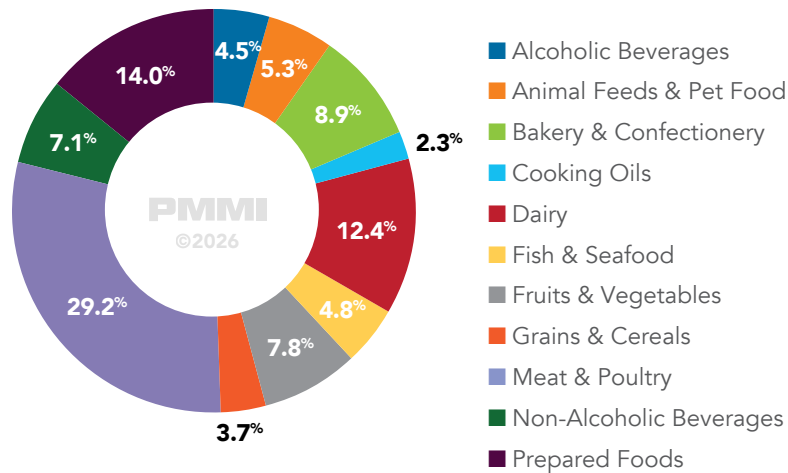


PMMI/FPSA members can visit <https://www.pmmi.org/content/soti-dashboards> to explore interactive forecast data by machine type, industry, and more

# MARKET SECTOR OVERVIEW

## Industry breakdown

Fig. 5 US Food & Beverage Processing Machinery Value by Industry - 2025 (\$6.2B)



PMMI/FPSA members can visit <https://www.pmmi.org/content/soti-dashboard> to explore interactive forecast data by machine type, industry, and more



### Alcoholic Beverages

Alcoholic beverages remains one of the smaller end-markets for food and beverage processing machinery, accounting for approximately 4.5% of total US shipment value in 2025. Growth is expected to remain moderate over the forecast period, with the sector projected to add approximately \$57 million in shipment value by 2030 from 2024. (see Figure 6). While overall demand remains stable, capital spending is increasingly directed toward efficiency upgrades and flexible processing systems, as premium segments soften and product formats continue to diversify.



### Animal Feeds & Pet Food

Representing 5.3% of total shipment value in 2025, animal feeds and pet food remains a relatively small but structurally resilient segment. The sector continues to benefit from elevated pet ownership established during the COVID-19 period, alongside sustained investment in premium pet food production. Shipment value is projected to reach approximately \$402 million by 2030, supported by capacity expansion and product differentiation within higher-margin formulations.



### Bakery & Confectionery

Just under 9%, in 2025 bakery & confection is seeing capital spending supported by the need for greater versatility and sanitation upgrades. This sector is expected to gain over \$100 million in shipment value from 2024, bringing the sector up to \$641 million by 2030.





### Cooking Oils

Cooking oils represent the smallest end market at approximately 2.3% of total shipment value in 2025. The segment is mature and relatively stable, with limited large-scale capacity expansion. Investment levels trail the industry average, with a projected CAGR 2.5% for the 2024 to 2030, and an expected shipment value increase of approximately \$23 million from 2024 to 2030.



### Dairy

Representing roughly 12% of total shipment value in 2025 and growing at 4.0% CAGR for 2024-2030, dairy remains one of the stronger mid-to-large segments. Growth is supported by sustained demand for high-protein products as well as a stabilization of milk in the US.



### Fish & Seafood

At 4.8% of 2025 shipment value, fish & seafood remains a smaller but consistently active segment. Labor constraints and food-safety requirements are supporting targeted investment in automation, inspection, and yield-protection technologies. We anticipate this market to gain \$67 million from 2024 raising the value of shipments to \$364 million by 2030.



### Fruits & Vegetables

Representing approximately 7.8% of 2025 shipment value, fruits & vegetables sits in the middle tier of end markets. Steady growth supported by rising automation demand and consumers preferences for health foods, we anticipate this market to reach an estimated \$547 million by 2030.



### Grains & Cereals

Representing 3.7% of shipment value, the grains and cereals sector is expected to have the flattest growth in our forecast. Investment is slowed by the shift in consumer preferences while the grains sector is also impacted by weather patterns in the US. The total value of shipments for this sector is expected to reach \$238 million by 2030.



### Meat & Poultry

Meat & poultry remains the largest end-market for food and beverage processing machinery at 29.2% share of US shipment value in 2024. Investment activity is driven by an increased need for automation, as processors contend with tight labor availability and elevated livestock costs. This sector is expected to reach over \$2 billion by 2030, reflecting a CAGR of 3.2% for 2024-2030.



### Non-Alcoholic Beverages

Larger than alcoholic beverages, this sector sits at 7.1% of the shipment value of 2025. This sector is anticipated to see growth driven by growing consumer preferences for health-oriented beverages. The total value of shipments for this sector is expected to reach \$514 million by 2030.



### Prepared Foods

The second largest sector at 14% represents the fastest-growing segment in our forecast, supported by the complexity and demand for ready-to-eat meals. We anticipate this market to gain \$263 million from 2024 to 2030 raising the value of shipments to over \$1 billion by 2030.

# MARKET SECTOR OVERVIEW

## Industry forecast

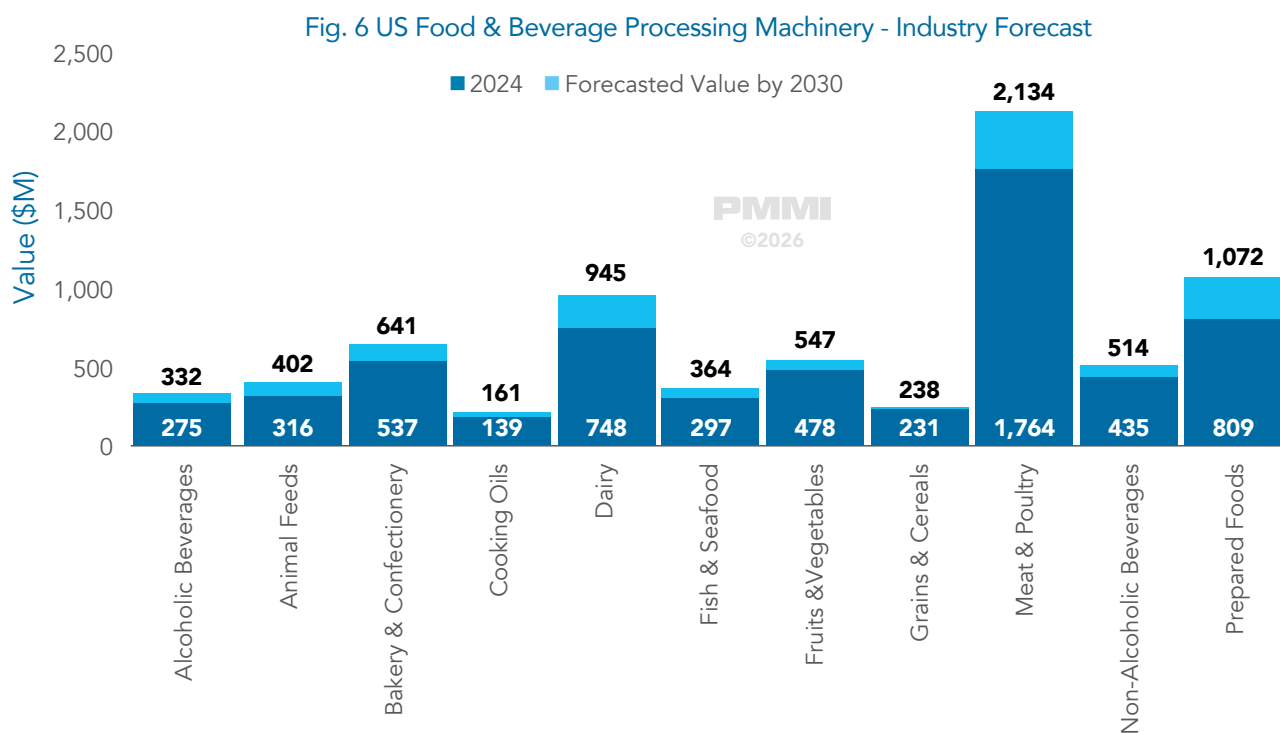


Table 1: US Food & Beverage Processing Machinery Value by End-user Sector (\$M)

	2024	2025	2026	2027	2028	2029	2030	CAGR (2024 - 2030)
Alcoholic Beverages	\$275	\$282	\$289	\$301	\$310	\$320	\$332	3.2%
		2.7%	2.6%	4.2%	2.9%	3.1%	3.7%	
Animal Feeds & Pet Food	\$316	\$329	\$344	\$362	\$373	\$384	\$402	4.1%
		3.9%	4.6%	5.2%	3.0%	3.2%	4.6%	
Bakery & Confectionery	\$537	\$551	\$568	\$587	\$602	\$619	\$641	3.0%
		2.7%	3.1%	3.5%	2.5%	2.8%	3.6%	
Cooking Oils	\$139	\$143	\$146	\$151	\$153	\$156	\$161	2.5%
		2.7%	2.5%	3.2%	1.7%	1.9%	3.2%	
Dairy	\$748	\$773	\$810	\$850	\$870	\$901	\$945	4.0%
		3.3%	4.7%	5.1%	2.3%	3.5%	4.9%	
Fish & Seafood	\$297	\$299	\$307	\$324	\$336	\$347	\$364	3.4%
		0.9%	2.5%	5.6%	3.5%	3.5%	4.7%	

**Table 1: US Food & Beverage Processing Machinery Value by End-user Sector (\$M)** (continued)

	2024	2025	2026	2027	2028	2029	2030	CAGR (2024 - 2030)
Fruits & Vegetables	\$478	\$486	\$493	\$516	\$525	\$535	\$547	2.3%
		1.7%	1.4%	4.6%	1.7%	1.9%	2.3%	
Grains & Cereals	\$231	\$230	\$230	\$234	\$234	\$235	\$238	0.5%
		-0.7%	0.0%	1.8%	0.2%	0.3%	1.5%	
Meat & Poultry	\$1,764	\$1,815	\$1,912	\$1,994	\$2,028	\$2,066	\$2,134	3.2%
		2.9%	5.3%	4.3%	1.7%	1.9%	3.3%	
Non-Alcoholic Beverages	\$435	\$442	\$457	\$478	\$488	\$498	\$514	2.8%
		1.8%	3.3%	4.6%	2.0%	2.2%	3.2%	
Prepared Foods	\$809	\$870	\$900	\$940	\$996	\$1,027	\$1,072	4.8%
		7.6%	3.5%	4.4%	6.0%	3.0%	4.4%	
<b>Grand total</b>	<b>\$6,029</b>	<b>\$6,220</b>	<b>\$6,456</b>	<b>\$6,737</b>	<b>\$6,914</b>	<b>\$7,088</b>	<b>\$7,350</b>	<b>3.4%</b>
		3.2%	3.8%	4.4%	2.6%	2.5%	3.7%	

## PROCESSING EQUIPMENT OVERVIEW

### Machinery breakdown

#### Dry Ingredient Equipment

Projected to reach \$621 million by 2030, dry ingredient equipment is expected to see modest growth throughout our forecast period with a CAGR of 2.8% for the 2024-2030 period.

#### Forming, Shaping, & Decorating Equipment

Slightly larger than the dry ingredient sector, this area is expected to gain \$143 million by 2030, bringing this sector to an estimated value of \$706 million by 2030.

#### Inspection Equipment

With one of the highest CAGRs for our forecast period at 4.0%, inspection equipment is projected to grow to \$763 million by 2030. This sector is seeing significant gains driven by rising recall anxiety, allergen control requirements, and the need to verify batch/serial data across more complex product formulations.

#### Liquid, Paste, & Slurry Processing Equipment

Our smallest sector of our equipment breakdown at an estimated \$379 million in 2025 is expected to grow to an estimated \$457 million by 2030, with a CAGR of 3.7% for 2024-2030. This segment is benefiting from the demand for nut butters, and alternative milks where high-precision comminution and texture control are needed.

#### Material Handling & Conveyance

This category represents the highest value of equipment shipped in the US for 2025, with an estimated value just over \$1 billion. The sector is projected to grow to \$1.2 billion by 2030. This sector continues to experience strong demand as processors require more sophisticated flow-control capabilities, including variable-speed systems, and multi-lane merging.

## Machinery breakdown *(continued)*

### Primary Meat Processing Equipment

This category has a CAGR of 2.9% for the 2024–2030 period. It is expected to have a value of \$990 million by 2030. The growth is largely driven by strong poultry growth, and processors prioritizing equipment that increases throughput while maintaining yield under tight profit margins.

### Separating, Sorting, & Cutting Equipment

The second-largest category of processing equipment is estimated at \$993 million in 2025. This sector is expected to grow to nearly \$1.2 billion by 2030. This sector is largely being impacted by cyclical replacement patterns and strong growth in prepared and frozen foods, where processors are competing on product quality and consistency.

### Specialized Equipment

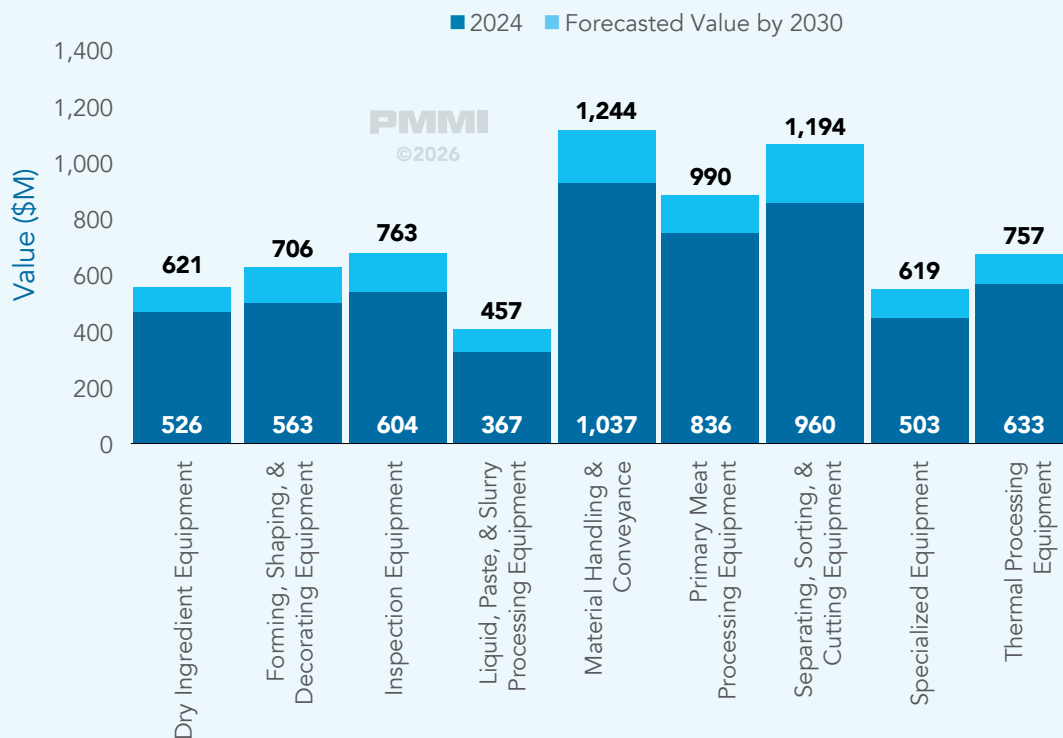
This category is represented by equipment such as retort & sterilization, as well as robotic processing equipment, and is poised to see moderate growth with a CAGR of 3.5% for 2024-2030. This sector is projected to grow to \$619 million by 2030. This sector is seeing influence from automation of repetitive manual tasks, as processors seek labor savings and more consistent throughput.

### Thermal Processing Equipment

Projected to reach \$757 million by 2030, thermal processing equipment is expected to see modest growth throughout our forecast period with a CAGR of 3.0% for the 2024-2030 period. This sector is benefiting from diversification and expanded capacity requests.

## Forecasted machinery growth

Fig. 7 US Food & Beverage Processing Machinery - Machinery Forecast



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# US MACHINERY FORECAST

**Table 2: US Food & Beverage Processing Machinery Value by Equipment Type (\$M)**

	2024	2025	2026	2027	2028	2029	2030	CAGR (2024 - 2030)
Dry Ingredient Equipment	<b>\$526</b>	<b>\$542</b>	<b>\$557</b>	<b>\$576</b>	<b>\$590</b>	<b>\$603</b>	<b>\$621</b>	2.8%
		3.0%	2.8%	3.5%	2.4%	2.1%	2.9%	
Forming, Shaping, & Decorating Equipment	<b>\$563</b>	<b>\$582</b>	<b>\$609</b>	<b>\$639</b>	<b>\$657</b>	<b>\$676</b>	<b>\$706</b>	3.8%
		3.4%	4.5%	5.0%	2.8%	2.9%	4.4%	
Inspection Equipment	<b>\$604</b>	<b>\$630</b>	<b>\$657</b>	<b>\$686</b>	<b>\$711</b>	<b>\$735</b>	<b>\$763</b>	4.0%
		4.4%	4.2%	4.5%	3.7%	3.4%	3.8%	
Liquid, Paste, & Slurry Processing Equipment	<b>\$367</b>	<b>\$379</b>	<b>\$394</b>	<b>\$413</b>	<b>\$425</b>	<b>\$438</b>	<b>\$457</b>	3.7%
		3.4%	3.7%	4.9%	3.0%	3.0%	4.3%	
Material Handling & Conveyance	<b>\$1,037</b>	<b>\$1,071</b>	<b>\$1,106</b>	<b>\$1,148</b>	<b>\$1,178</b>	<b>\$1,206</b>	<b>\$1,244</b>	3.1%
		3.2%	3.3%	3.8%	2.6%	2.3%	3.2%	
Primary Meat Processing Equipment	<b>\$836</b>	<b>\$854</b>	<b>\$892</b>	<b>\$929</b>	<b>\$943</b>	<b>\$958</b>	<b>\$990</b>	2.9%
		2.2%	4.4%	4.2%	1.5%	1.6%	3.3%	
Separating, Sorting, & Cutting Equipment	<b>\$960</b>	<b>\$993</b>	<b>\$1,032</b>	<b>\$1,082</b>	<b>\$1,114</b>	<b>\$1,145</b>	<b>\$1,194</b>	3.7%
		3.4%	3.9%	4.9%	3.0%	2.8%	4.2%	
Specialized Equipment	<b>\$503</b>	<b>\$516</b>	<b>\$536</b>	<b>\$564</b>	<b>\$578</b>	<b>\$593</b>	<b>\$619</b>	3.5%
		2.7%	3.8%	5.2%	2.5%	2.6%	4.5%	
Thermal Processing Equipment	<b>\$633</b>	<b>\$652</b>	<b>\$674</b>	<b>\$700</b>	<b>\$717</b>	<b>\$734</b>	<b>\$757</b>	3.0%
		3.1%	3.3%	3.8%	2.5%	2.3%	3.2%	
<b>Grand total</b>	<b>\$6,029</b>	<b>\$6,220</b>	<b>\$6,456</b>	<b>\$6,737</b>	<b>\$6,914</b>	<b>\$7,088</b>	<b>\$7,350</b>	3.4%
		3.2%	3.8%	4.4%	2.6%	2.5%	3.7%	

Source: Interact Analysis

# 2

# Market Trends

HEALTH • WORKFORCE • MACHINE DESIGN • SANITATION  
AI & BIG DATA • SUSTAINABILITY

## MARKET TRENDS EXPLORED IN DETAIL IN THIS SECTION

### A short summary of the key themes derived from interviews with suppliers

As this is the inaugural edition of this report, our objective was to identify the structural forces shaping the US food and beverage processing machinery market. Across interviews with industry participants, several recurring themes emerged: health-driven portfolio shifts, persistent workforce constraints, heightened sanitation scrutiny, growing interest in data-enabled systems, and cost-oriented sustainability initiatives. The sections below highlight each of these dynamics.



#### Health-Driven Consumption Shifts

Consumer preferences are shifting toward simplified ingredients, higher protein density, and perceived nutritional quality, reinforcing a clean-label phase in US food consumption. Emerging factors such as GLP-1 adoption may further influence portion size and nutrient prioritization, introducing potential volume headwinds while reinforcing demand for protein - and vegetable-forward products. Rather than triggering broad capacity expansion, these dynamics are reshaping formulation strategy and increasing operational complexity through more frequent changeovers and heightened sanitation and inspection requirements.



#### Workforce

Persistent labor shortages remain a defining structural constraint across the processing landscape. While conditions have moderated from peak disruption levels,

skilled-technician gaps, high turnover, and hiring volatility continue to influence capital planning and operating models. Processors are prioritizing automation that stabilizes throughput with fewer operators, while OEMs are expanding aftermarket services, strengthening technician retention efforts, and designing equipment that reduces manual intervention and maintenance complexity.



#### Machinery Design & Functionality

Equipment design is increasingly shaped by workforce constraints and integration demands. Processors are prioritizing intuitive controls, reduced manual intervention, and systems that require less internal engineering oversight. At the same time, demand for turnkey, fully integrated solutions is rising as companies seek suppliers capable of delivering coordinated, ready-for-production systems.



### Sanitation

Sanitation has moved from a secondary consideration to a core investment driver. Rising recall visibility, higher SKU complexity, and formulation changes are elevating the importance of hygienic design, cleanability, and repeatable sanitation workflows.



### AI and Big Data

AI adoption in processing remains gradual and risk-weighted, with current use focused on data monitoring, inspection enhancement, and decision support rather than autonomous control. Reliability, accountability, cybersecurity, and ROI discipline continue to govern deployment pace as processors prioritize validated, repeatable performance.



### Sustainability

Sustainability efforts are increasingly framed around cost reduction and efficiency. Water use, energy consumption, and waste minimization are influencing equipment upgrades, sanitation practices, and system design decisions.

## THE CHANGING US HEALTH NARRATIVE

### Health consciousness

In recent years, the United States has seen a shift in consumer preferences toward ingredient simplification, higher protein density, and perceived nutritional quality. While “health” has long affected food demand, the current cycle is notable for its impact on formulation decisions and its cultural visibility.

Public discourse around food quality has increased, driven by a combination of mainstream media coverage, evolving public health conversations, and the amplification effects of social platforms. Health-oriented initiatives and messaging, including the use of “Make America Healthy Again,” reflect how food and nutrition have entered broader public dialogue, reinforcing growing skepticism toward ‘highly processed’ foods and increasing attention on how foods are formulated. Alongside this, influencers have further accelerated the shift by promoting recognizable ingredient lists, transparency, and minimal processing, reinforcing the perception that simpler formulations are healthier.

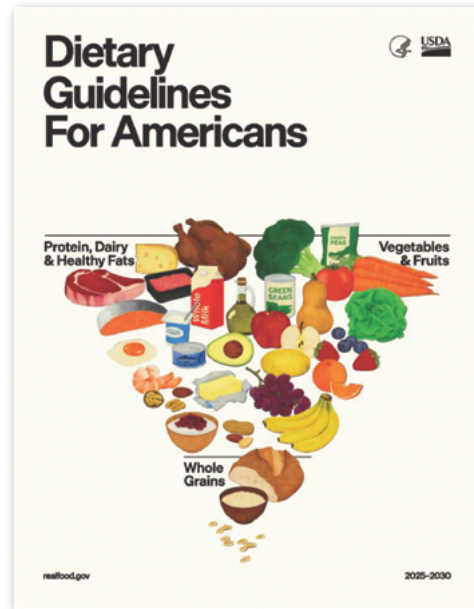
This transition fits within a recurring five- to ten-year pattern of evolving US health priorities. Earlier phases emphasized low-fat diets, followed by organic and non-GMO ingredients. The current phase is defined by clean-label positioning, shaped by heightened skepticism around food processing and a preference for simplified formulations. Consumers are increasingly responding to visible cues such



as recognizable ingredients, “real ingredient” messaging, and protein-forward labeling as shorthand indicators of health and quality.

Federal nutrition guidance has also reinforced this clean-label phase. The 2025–2030 Dietary Guidelines for Americans place renewed emphasis on “real food,” prioritizing protein, dairy, fruits, vegetables, healthy fats, and whole grains while explicitly calling for a reduction in highly processed foods. While these guidelines are not prescriptive for the broader consumer market, they directly inform school meal standards and other federally funded food programs. As a result, ingredient simplification and protein-forward positioning are being reinforced within large-volume institutional channels, adding durability to trends already visible across retail and foodservice.

Interview insights strongly align with these broader cultural trends. Processing-equipment suppliers reported sustained growth in categories consumers associate with health, including nutraceuticals, perceived healthier beverages, and fruits and vegetables. These segments were reported as expanding faster, indicating that wellness-oriented formulations are influencing portfolio shifts across the industry.



## GLP-1 adoption as an accelerant

Alongside these broader clean-label and protein-forward shifts, pharmaceutical appetite regulators are emerging as an additional factor reshaping food consumption patterns. According to the [Gallup National Health and Well-Being Index](#), roughly one in eight US adults now report using a GLP-1 drug, a share that has increased sharply over a short period. With oral GLP-1 formulations entering the market, penetration is expected to continue expanding.

While there is still debate around the ultimate ceiling for GLP-1 adoption, their impact on eating behavior is already evident. These medications primarily influence consumption through volume reduction, as users report smaller portions and lower overall caloric intake. If adoption continues to scale, this dynamic has the potential to weigh on aggregate food consumption, introducing a structural headwind to categories that have historically benefited from steady volume growth. This is particularly notable given that US food production has trended upward for decades (as illustrated in Figure 8), a pattern that could face pressure if a meaningful share of consumers consistently eat less.

At the same time, GLP-1 use is shaping how remaining calories are allocated. Patients are commonly advised to prioritize protein and vegetables to maintain muscle mass and nutritional balance while eating fewer total calories. As a result, GLP-1s are reinforcing demand for foods that deliver higher nutrient density per calorie rather than simply lower calories, aligning closely with the broader clean-label and protein-forward messaging now visible across the market.

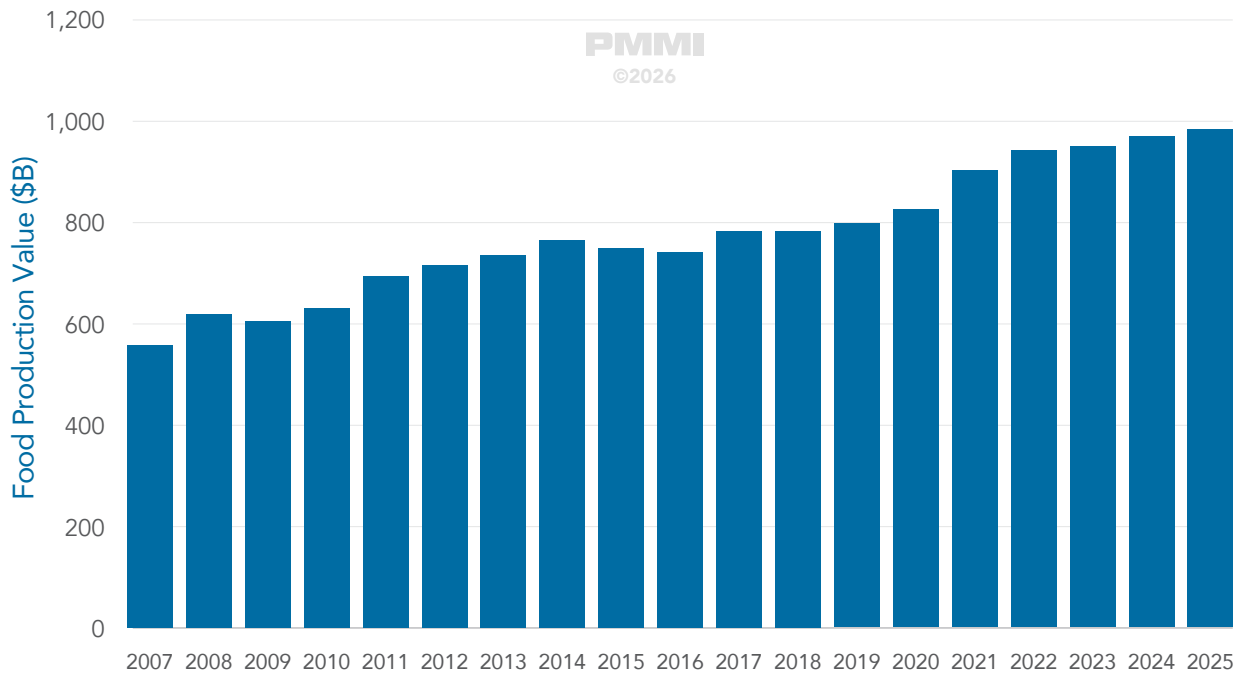
Approximately  
1 in 8



US Adults Report  
GLP-1 Use

Source: Gallup National Health and Well-Being Index

Fig. 8 US Food Manufacturing Output Has Trended Upward Over the Long Term



Source: Interact Analysis: Manufacturing Industry Output Tracker

## How food companies are responding

Food companies are responding to these shifts through a combination of product reformulation, portfolio reframing, and marketing emphasis rather than wholesale category reinvention. One of the clearest signals of how far health-oriented messaging has penetrated the market is the extent to which traditionally indulgent brands are now adopting protein-forward positioning.

In packaged foods, this is evident in Kellogg's' introduction of higher-protein Pop-Tarts variants. Historically positioned as a convenience treat, Pop-Tarts are not a category consumers associate with functional nutrition. The decision to elevate protein content in this product underscores how broadly protein signaling is now being applied, even in formats where incremental nutritional improvements are unlikely to fundamentally change consumption behavior. From an industry standpoint, this reflects an effort to retain relevance and shelf space as consumers reassess everyday food choices through a health-oriented lens rather than eliminate indulgent products entirely.

In foodservice, similar dynamics are playing out at scale. Starbucks has expanded protein-forward offerings across both beverages and food items, while increasingly highlighting protein content in its marketing. Given Starbucks' role as a high-frequency, convenience-driven chain, these moves signal that health and protein messaging are no longer confined to specialty or performance-focused consumers. Instead, they are being integrated into mainstream consumption occasions, including snacks and beverages traditionally chosen for convenience rather than nutrition.



## Implications for food and beverage processing machinery

Despite the evolution in consumer preferences, interviews made clear that health-driven trends are not prompting broad greenfield investment. Instead, processors are introducing more health-aligned SKUs by adjusting recipes and parameters on existing processing lines. This approach allows manufacturers to respond to shifting demand without replacing core equipment.

### Increased Frequency of Changeovers

As product portfolios expand to include a wider range of health-oriented formulations, facilities are experiencing greater batch-to-batch variability. Interviewees highlighted rising demand for faster sanitation, more efficient line purging, and flexible batching systems, particularly in plants running shorter production runs, multiple flavors, or seasonal SKUs.

### Heightened Emphasis on Hygiene and Cleanability

More frequent product switching has elevated the importance of hygienic design and cleanability. Processors are placing greater value on equipment that supports tool-less cleaning, minimizes downtime, and reduces contamination risk, especially when switching between products with different allergen or nutritional profiles. These considerations are increasingly influencing purchasing decisions even in the absence of major capacity expansion.

### Greater Sensitivity in Inspection and Quality Control

Health-oriented formulations often differ in density, moisture content, or ingredient composition, placing additional demands on inspection and quality-control systems. Interviewees noted more frequent calibration and adjustment to maintain detection accuracy as formulations evolve, increasing the value of inspection equipment that can perform reliably across a broader range of product characteristics.

## WORKFORCE

### Machine builder shifts

Persistent labor constraints in US manufacturing have become a structural force in food and beverage processing. Workforce availability influences how processors operate, as well as how OEMs design, service, and commercialize equipment. In the processing machinery market, workforce shortages are reshaping equipment specifications, aftermarket strategies, integration demand, and talent retention priorities. The sections that follow examine these impacts across both machine builders and end users.

#### Aftermarket Support Expands

Widespread labor shortages, especially among skilled maintenance technicians, are causing processing plants to increasingly rely on machine builders for ongoing service support. Instead of maintaining in-house teams capable of regular troubleshooting and upkeep, many plants now prefer to outsource this work directly to OEMs. This shift has led to a notable rise in requests for OEM-provided service visits, technician support, and maintenance programs.

Across the industry, service programs are expanding in several ways:

**More frequent OEM service visits:** Plants with shrinking technical staff are increasingly asking OEMs to perform routine maintenance and system checks. They are willing to rely on OEM technicians to prevent downtime and maintain machine health.

**Growth in formal service contracts:** Some OEMs are offering structured service agreements that include scheduled inspections, performance verification, and documentation support to help customers remain compliant with audit requirements. These programs ensure machines remain in optimal condition without requiring the plant to train or staff specialized maintenance personnel.

**Expansion of predictive and preventative maintenance offerings:** Several OEMs are developing or promoting advanced maintenance programs aimed at early detection of equipment issues. While customer adoption varies due to ROI uncertainty, OEMs increasingly view these offerings as a strategic aftermarket revenue stream and are piloting them in the field to build credibility.

#### Aftermarket activity rising when new equipment sales slow:

In periods of reduced capital spending, customers often shift investment toward rebuilding or maintaining existing machinery. Some OEMs benefit from this counter-cyclical pattern, especially those whose consumables or service parts are proprietary and therefore consistently in demand.

Overall, aftermarket support is becoming a more important pillar of processing OEM business models. For machine users, it reduces operational risk, ensures regular machine upkeep, and alleviates the need for scarce technical talent. For machine builders, it provides a steady revenue source, strengthens customer relationships, and helps stabilize the business during economic slowdowns or pauses in capital expenditure.

### Employee Retention and Technician Constraints

Although the labor disruption experienced in 2020 has partially eased, workforce strain remains a defining challenge for processing OEMs. Interviews with OEMs consistently indicated that competition for skilled labor remains an important factor. Several organizations reported raising wages above local norms to remain competitive in attracting and retaining technical talent. In some cases, employee-ownership structures were noted as contributing to longer-term workforce stability, helping reduce turnover and maintain continuity within production teams.

Retention pressures are especially visible in field-service and commissioning roles. Demand for installation support, troubleshooting assistance, and maintenance expertise has grown as processors struggle to staff these functions internally. Many OEMs described the difficulty of expanding their technician teams in line with customer needs, noting that the same labor shortages affecting processors are also constraining their own hiring pipelines. This is particularly impactful in roles requiring frequent travel, which can contribute to employee fatigue and reduce long-term retention.

Some manufacturers have responded by strengthening their technician-retention strategies—offering more structured work-hour policies, attempting to balance travel schedules, or widening recruitment efforts through training partnerships and technical-school engagement. Others emphasized that broader economic conditions, including a softening labor market, have temporarily improved retention, though structural shortages persist for high-skill roles.

Given the growing reliance on OEM-delivered support, technician recruitment and retention are likely to remain critical differentiators in the processing-machinery sector.

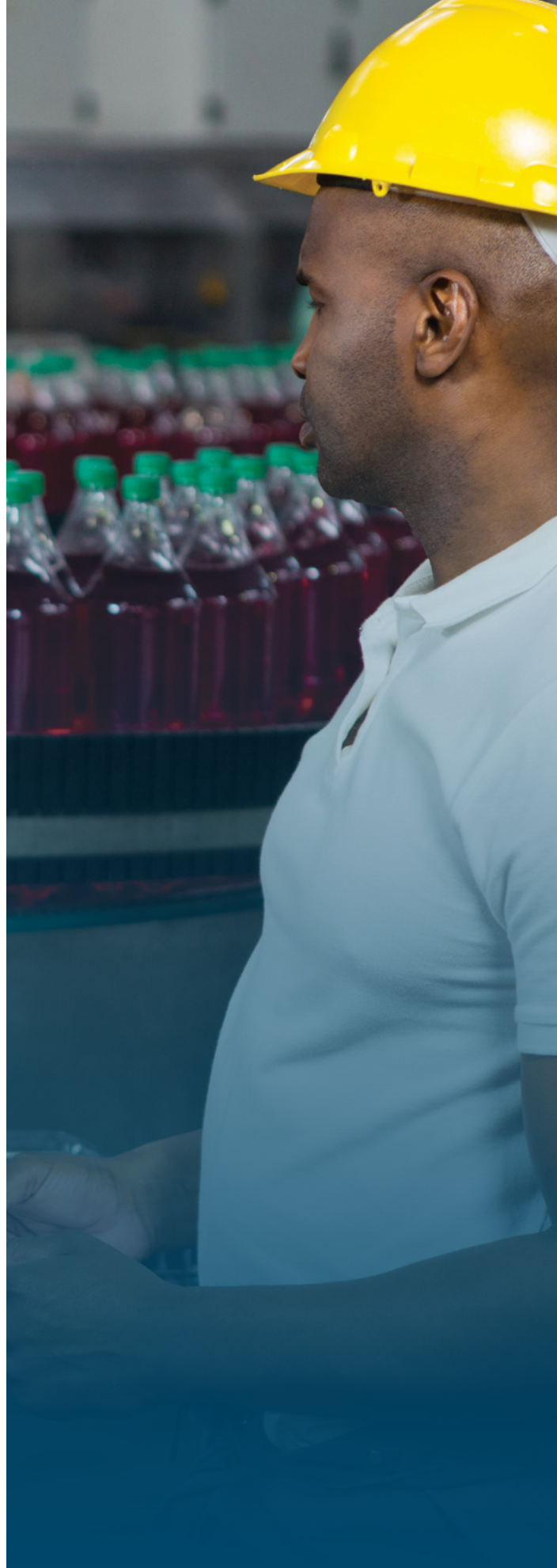
### Maximizing Output Per Labor Hour

Across multiple interviews, processors were described as pushing to increase throughput without expanding their labor footprint. In many facilities, adding shifts is no longer feasible due to the difficulty of hiring and retaining workers. As a result, plants are seeking to increase output with existing staffing levels.

For some facilities, this means scaling mechanical capacity. Interviewees cited larger batch sizes, higher-speed lines, and even upgraded components such as larger valves to reduce offload time in production cycles.

Beyond scaling equipment, processors are also targeting labor-intensive transfer points within the line. Rather than relying on operators to manually move product between stages, facilities are investing in automated transfer and repositioning solutions that reduce touchpoints and shorten cycle time. These changes help protect throughput when staffing remains thin.

Higher-capacity equipment, speed-enhancing retrofits, and integration upgrades therefore remain in high demand. Rather than simply pursuing speed, facilities are investing in systems that improve output per labor hour and protect production levels in a constrained workforce environment.



## Ergonomics and Assisted Material Handling

Labor shortages are also accelerating automation in physically demanding and repetitive material-handling tasks. Across interviews, processors described reducing ergonomic strain and reallocating limited labor by shifting manual movement to automated systems.

Examples included autonomous mobile robots (AMRs) transporting ingredient combos or bulk materials across facilities, as well as automated guided systems moving vats, totes, or product between upstream and downstream steps. Targeted upgrades—such as redesigned transfer points or automated repositioning devices—are eliminating roles historically dedicated to manual lifting, pushing, or sorting.

Although applications vary by facility, the underlying driver is consistent: reducing repetitive, difficult-to-staff tasks while maintaining steady material flow. Automation in this context is not solely about speed; it is about sustaining operational continuity and a safe environment with fewer available workers.

While these deployments are currently more common in larger or highly automated facilities, interviewees suggested that similar solutions may become more prevalent as labor constraints persist and ROI calculations increasingly factor in workforce availability rather than labor cost alone.

For OEMs, this shift presents opportunities to integrate material-handling automation into broader system offerings or provide modular upgrades that reduce ergonomic strain. As workforce pressures continue, solutions that lower physical labor requirements may capture incremental demand, particularly among processors seeking to stabilize operations without expanding headcount.

## Worker Safety Design Shifts

Interviews highlighted several ways equipment design is evolving to better protect workers, particularly in environments facing high turnover, reduced operator experience, and increased automation demands.

### Reduction of Hazardous Manual Tasks

Machine builders are redesigning equipment to reduce the need for operators to lift, reach into, or physically interact with machinery. Examples include externalized maintenance points—such as seal replacements that can be performed without removing heavy components—as well as simplified mechanisms that limit exposure to moving parts. These changes reflect shrinking maintenance teams and a need to reduce ergonomic strain and injury risk during routine service.

### Minimizing Operator Exposure to Confined or Dangerous Spaces

Interviewees noted that many safety incidents occur when workers must enter equipment for cleaning or maintenance. In response, OEMs and sanitation-system partners are collaborating earlier in the design process to ensure machines can be cleaned or serviced with minimal physical entry. Automated or semi-automated cleaning approaches are increasingly used to keep workers out of confined or potentially re-energized areas.

### Embedded Safety Controls and Interlocks

Modern machines incorporate more durable, washdown-capable safety switches and interlocks designed to remain functional in demanding environments. Equipment is increasingly configured to stop automatically, or prevent operation altogether, when guards or access panels are opened. While these protections are now standard in many applications, interviewees emphasized that newer generations of equipment offer improved reliability compared to legacy systems, reducing both injury risk and unplanned downtime associated with safety component failure.



# MACHINERY DESIGN & FUNCTIONALITY

## Simplification and turnkey solutions in high demand

### HMI Simplification

A recurring theme across interviews was the need to simplify machine operation for a changing workforce. As roles become harder to fill, plants increasingly rely on teams with varied experience and technical proficiency, elevating the importance of intuitive equipment design. Similar trends were noted in previous PMMI Packaging Machinery State of the Industry reports, interviews for this report indicate that the same workforce-driven design shifts are also prominent in the processing space.

Simplification comes in the forms of:



#### Simplified User Interfaces

The incorporation of app-like icons and images to reduce training time.



#### Lockout Systems

Password or key card restrictions to prevent accidental changes.



#### Mistake Proofing

Restricting recipe changes from exceeding a maximum number.



#### Multi-language HMIs

Various languages available for the operator to choose from.

We expect continued investment in user-friendly controls and simplified workflows. OEMs that prioritize intuitive design may see advantages in both initial sales and long-term customer retention.

### Growing Demand for Turnkey Solutions

A theme across the interviews is the accelerating shift toward turnkey, fully integrated solutions. As staffing constraints persist, processors are seeking suppliers who can deliver systems requiring minimal internal engineering or coordination.

Interviewees reported increasing preference for equipment suppliers who can assume greater responsibility for system-level performance. In particular, some described customers who no longer want to maintain internal technical expertise and instead want their equipment to arrive largely ready for production, with limited need for onsite integration or engineering oversight. This has driven a noticeable rise in demand for packages that include installation, configuration, and broader operational support, rather than isolated machine purchases. This trend places advantages on OEMs with broader product portfolios or established integration capabilities, including those who can deliver complete process cells, coordinated line sections, or end-to-end mechanical and automation solutions.

The move toward turnkey solutions has implications across the supplier landscape. OEMs already positioned with strong integration capabilities may benefit from a greater share of wallet as customers shift spending toward bundled offerings. Conversely, more specialized or single-machine vendors may experience pressure to expand into system-level offerings or form partnerships with complementary suppliers to remain competitive as customers consolidate their vendor interactions.

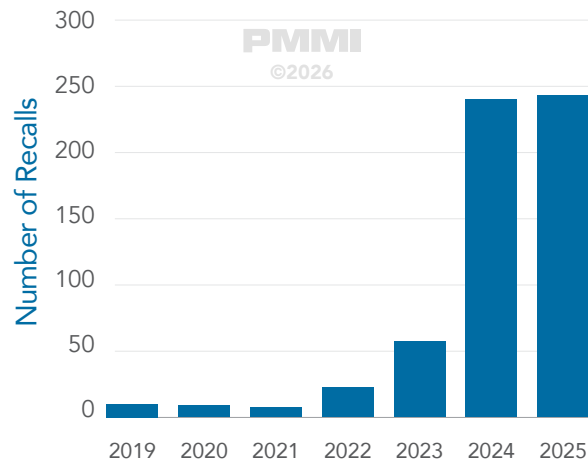
# SANITATION

## The growing challenges of sanitation as recalls take the spotlight

Throughout our research process, interviewees consistently referenced the rising visibility of product recalls in the United States. Compared to a few years ago, recall activity has become more frequent and more prominent in public exposure. One OEM pointed to the digital environment as an amplifying factor. Incidents that once remained localized can now circulate nationally within hours, increasing companies' reputational risk and intensifying scrutiny of food safety practices.

While digital virality may amplify recall visibility, interviewees emphasized that underlying drivers are operational. In the following sections, we examine the types of recalls being observed, how equipment design influences cleanability, and where sanitation considerations are directly shaping capital investment decisions.

Fig. 9 US FDA Food & Beverage Recalls



Source: US FDA

## Recalls surpass 200 in food & beverage

### Recalls Reinforce Sanitation as a Systemic Risk

Recent FDA recall data illustrates the scale and persistence of food safety incidents in the current operating environment. Recall activity across 2024 and 2025 remains elevated relative to pre-2020 levels, particularly in categories characterized by high SKU complexity and frequent changeovers, including prepared foods, fruits and vegetables, bakery and confectionery, dairy, and protein-related products. As shown in the accompanying figures, undeclared allergens and pathogen-related contamination continue to account for the majority of recall events. These causes are closely linked to cross-contact control, residue removal, and execution consistency during sanitation cycles.

The persistence of these recall drivers across multiple years suggests that sanitation challenges are structural rather than episodic. For equipment suppliers, this reinforces the importance of machine designs and cleaning architectures that reduce variability, improve cleanability, and support repeatable sanitation workflows under real-world operating conditions.

Fig. 10 US FDA Food & Beverage Recalls - 2025

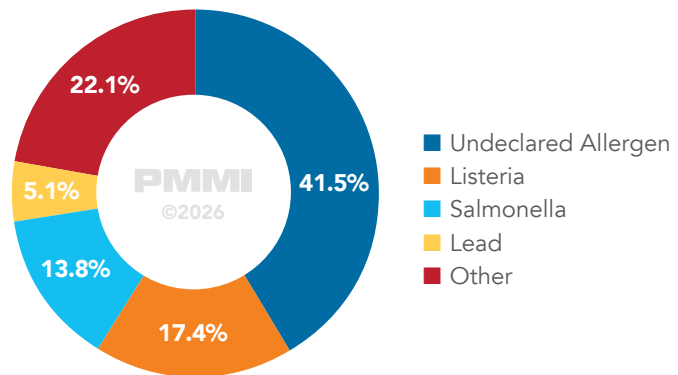


Fig. 11 US FDA Food & Beverage Recalls by Industry



Source: US FDA

## Product diversifications creates challenges for producers

### Formula Changes Introduce Additional Sanitation Variables

Beyond recall data, interviewees highlighted formulation changes as an emerging sanitation variable. Shifts in ingredient behavior, such as residues that harden, crystallize, or adhere more aggressively during production or cooling, can strain legacy equipment designs that contain hollow structures or inaccessible surfaces. What was once cleanable under prior product specifications may no longer perform to the same level under new formulations.

One example involved a facility that switched to iron-fortified flour. The system included magnets intended to capture metal debris from upstream milling processes. However, once the fortified flour was introduced, the magnets began pulling the fortification iron itself out of the mix, causing unexpected buildup and clogging throughout the system. This required significant troubleshooting and highlighted how seemingly minor formulation changes can disrupt both sanitation practices and mechanical operation.

Such cases highlight the importance of early collaboration between processors and equipment suppliers when formulation changes are under consideration. Even minor ingredient adjustments can have unintended consequences for residue behavior, cleanability, and mechanical interaction. OEMs that engage proactively during product-development or reformulation phases may be better positioned to identify potential sanitation risks before they manifest operationally. As product portfolios continue to evolve, earlier technical alignment between process engineers and machine builders could help mitigate costly troubleshooting and unplanned equipment modifications.

Sanitation demands are increasingly shaped by evolving product characteristics and expanding SKU portfolios. Shorter production runs and more frequent changeovers are compressing production windows, while formulation shifts introduce new residue behaviors that challenge legacy equipment designs.

## Integrating sanitation into system design

### Coordination Between Sanitation Providers and Machine OEMs

Interviewees noted that some OEMs now coordinate earlier with sanitation-system providers to define cleaning architecture during the equipment purchasing stage. By aligning equipment geometry, spray coverage, drainage, and material compatibility upfront, suppliers can reduce the need for retrofitted cleaning solutions after installation. This early alignment becomes increasingly important as plants seek to limit manual cleaning labor and avoid confined-space entry.

However, Clean-Out-of-Place (COP) remains prevalent when sanitation planning is not fully integrated into equipment selection. In many cases, plants install new machinery and only later determine how it will be cleaned within existing floor-space and time constraints. This creates operational friction, drives aftermarket modification requests, and reinforces the risk of treating sanitation as secondary during capital procurement.

### Time Constraints and System Review Gaps

Sanitation time windows vary widely. Some facilities allocate eight hours for cleaning, while others require completion within four. These constraints directly affect Clean-In-Place (CIP) system sizing, chemical dosing strategies, and workflow design. OEMs that understand a customer's sanitation window early in the specification process may reduce the likelihood of post-installation performance gaps or underperforming cleaning cycles.

Interviewees also emphasized that sanitation systems are rarely reassessed once commissioned. As throughput increases or formulations change, previously adequate CIP or COP processes may become strained. Equipment designed with flexibility, serviceability, and reviewability in mind may better accommodate evolving production demands and reduce long-term customer dissatisfaction.

In practice, effective sanitation strategy extends beyond selecting CIP or COP. It requires anticipating how cleaning systems will perform under changing product mixes, production speeds, and labor conditions. OEMs that position sanitation planning as a core element of system design—rather than an afterthought—may reduce long-term customer friction, limit retrofit exposure, and strengthen competitive positioning.

## Sanitation considerations driving equipment upgrades

### Reducing Variability in Sanitation

In response to persistent reliance on COP and workforce variability, OEMs are engineering sanitation workflows to be faster, simpler, and more repeatable.

Interviewees emphasized reducing part counts, simplifying assemblies, and improving accessibility to product-contact surfaces to minimize sanitation time and reduce the risk of improper reassembly. Examples include tool-less belt removal, tilting hoppers, simplified clamps, and sloped surfaces designed to eliminate harborage points.

Given high turnover and the frequent use of temporary sanitation crews, durability during washdown has also become a priority. OEMs are improving sealing of electronics, increasing ingress protection (IP) ratings, and reinforcing enclosures to tolerate aggressive cleaning environments and inconsistent handling.

Together, these changes reflect a shift from relying on operator precision to embedding repeatability directly into machine architecture. As sanitation frequency increases, engineered repeatability may become a more visible differentiator in equipment selection.

### Safety and Sanitation Converge in Equipment Design

Balancing sanitation access with operator safety has emerged as a persistent design challenge. As cleaning frequency increases and manual interaction remains common in COP-driven environments, plants seek solutions that improve cleanability without increasing safety exposure or downtime.

Interviewees highlighted growing demand for guards and access panels that remain attached during cleaning, reducing the risk of dropped or misplaced components. Washdown-rated safety hardware is also becoming more common to ensure protective systems remain functional under aggressive sanitation conditions.

These developments reflect a broader shift toward integrating sanitation efficiency and operator protection within the same design framework, rather than treating them as competing priorities.

### When Sanitation Triggers Capital Replacement

In some cases, sanitation limitations are directly driving capital investment decisions. Interviewees cited the replacement of legacy equipment, including older belt conveyors, painted frames, and hollow-frame designs, that could no longer meet modern cleanability expectations.

In certain facilities, aging painted components had begun to degrade, creating contamination risks as coatings flaked into product. As cleaning frequency and regulatory scrutiny increase, these vulnerabilities are accelerating the retirement of outdated assets in favor of stainless-steel, open-channel designs capable of withstanding aggressive washdown regimes.

In these environments, sanitation limitations increasingly influence capital planning decisions rather than being treated solely as maintenance issues.



For additional insight into the sanitation realities facing CPGs and OEMs, from labor and training challenges to chemical durability concerns and the next wave of hygienic machine design, see PMMI's comprehensive **Food Safety and Sanitation Trends** report.

# AI & BIG DATA

## AI's integration in processing machinery

Across food processing equipment, AI has become a prominent topic of discussion. However, interviews indicate that adoption in processing environments will likely progress more gradually than in adjacent sectors such as packaging. The primary reason is not lack of capability, but risk tolerance. Processing environments carry direct food-safety implications, regulatory oversight, and product liability exposure. As a result, AI systems must meet higher reliability and accountability thresholds before widespread deployment.

### Where AI Is Gaining Traction

AI has become a central theme in industry discussions, with increasing interest from processors and equipment suppliers alike. Interviewees noted that the term "AI" is often used broadly, encompassing a range of technologies from advanced analytics and condition monitoring to machine learning-based inspection systems.

### What Is Being Used Today?

While full AI autonomy remains limited, data-enabled systems are increasingly embedded in processing environments. Rather than autonomous decision-making, plants are leveraging:

In many current deployments, processing environments are leveraging structured data analytics and rule-enhanced automation rather than fully autonomous learning systems.



**Machine Monitoring** - Some OEMs have implemented continuous data capture systems that record operating parameters and event footage to identify faults similar to modern-day doorbell camera sensors, which record pre- and post-event footage to identify faults upstream.



**Inspection Systems** - Traditional rule-based inspection technologies remain the backbone of processing. Metal detectors, X-ray systems, checkweighers, and vision tools continue to operate at high speeds with proven reliability. AI-enhanced vision models are increasingly being tested where product variability or complex defect patterns challenge deterministic algorithms. Early use cases focus on anomaly detection, error classification, and reducing false rejects.



**Durability Simulations** - Manufacturers also have internal life-cycle testing and durability simulation tools that model wear patterns, loading conditions, and the expected lifespan of components. These systems collect and analyze large volumes of performance data, such as cycle counts, motion frequency, or load profiles, to validate designs and anticipate when components may require attention.



**Knowledge Transfer via HMIs** - One novel AI integration is the use of LLM-style AIs trained on machine documentation, service logs, and error-code libraries. These systems can translate technical alerts into plain language and provide step-by-step troubleshooting guidance. By simplifying interpretation and reducing reliance on manuals, they enable less-experienced operators to resolve issues more quickly and reduce downtime.

## Barriers limiting AI adoption

Despite growing interest, several structural barriers continue to restrict true AI deployment:



### Reliability and Accountability

Interviewees noted that while AI-supported quality and machine-adjustment tools are emerging, processors must ensure consistent and predictable outcomes before allowing systems to influence product quality or process parameters. When AI begins to make or recommend adjustments, processors need clarity on who is responsible if outputs deviate — the plant, the OEM, or the AI vendor. This creates a natural incentive for deliberate rollout.



### Cybersecurity and IT Governance

Historically, many processors have been cautious about systems requiring cloud connectivity. Internal IT teams often restrict outside data access, slowing adoption of cloud-trained AI models. Interviewees emphasized that interest in AI grows significantly when solutions can be deployed locally or with constrained data pathways, reducing cybersecurity concerns.



### Workforce Turnover and Skills Continuity

Successful AI deployment depends on stable, knowledgeable technical teams who can maintain, tune, or retrain models over time. Interviewees repeatedly referenced the broader skills gap in processing environments. Even as OEMs and larger plants move toward machine-learning experimentation, maintaining continuity is harder in high-turnover settings.



### ROI Sensitivity

Processing operates on thin margins. Interviewees stressed that AI must deliver clear, measurable gains — whether through quality improvements, labor efficiency, or reduced rework — to justify investment. Even though interest in AI is growing and data-driven tools offer promise, processors are pragmatic: high-cost tools require convincing justification before adoption.

## Looking Ahead

While AI adoption in processing is likely to remain phased and risk-weighted, interviews show building momentum. OEMs are actively integrating AI-assisted quality tools, and processors are increasingly exploring where AI can support consistency, quality, and decision-making without compromising reliability. As costs decline, data pipelines mature, and validation frameworks become more clearly defined, AI's role is expected to expand gradually but meaningfully across processing operations.

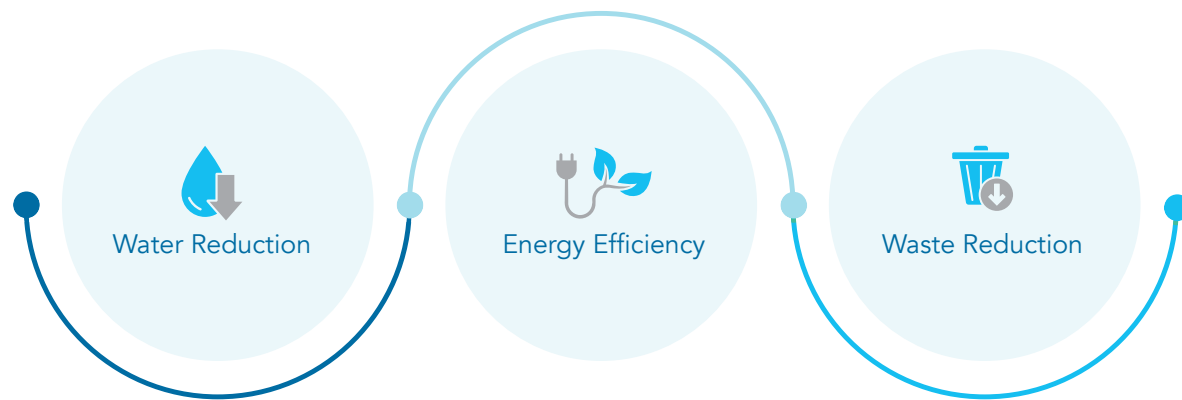
For readers seeking a deeper understanding of AI in both packaging and processing equipment, PMMI's [Building An AI Advantage In Packaging Equipment](#) provides additional analysis and use-case examples relevant to this space.



# SUSTAINABILITY

## Water reduction, energy and waste reduction take the spotlight for sustainability

Across the interviews, sustainability appeared in many forms, including water and energy reduction, waste minimization, and sanitary design that limits scrap. OEMs noted that although sustainability remains a priority for customers, the motivation has shifted. What was once tied to meeting environmental targets is now more often framed in terms of operational efficiency and cost savings.



### Water Reduction

Water use emerged as one of the most significant sustainability concerns. Processors are under growing pressure to reduce both freshwater consumption and wastewater output, which can represent substantial ongoing operating costs.

Interviewees reported a shift toward systems and cleaning methods that significantly reduce water usage. This includes replacing older designs that relied on continuous water flow for cooling with modern systems that eliminate or dramatically reduce water consumption by recirculating or internally cooling fluids.

Cleaning practices are also evolving. Many plants are moving away from traditional high-volume rinsing during sanitation, instead adopting mechanical or dry cleaning methods that reduce the amount of water sent to the drain. Examples include sweeping or mechanically removing product prior to washdown, using dry-ice cleaning methods, and purging residual material with physical devices before rinsing. These approaches limit wastewater volumes, reduce treatment costs, and improve environmental performance.

Sanitation and washdown activities can require significant water use in food processing environments. As wastewater treatment fees escalate, processors are increasingly exploring technologies that reduce the volume of water required for cleaning internal piping and processing equipment.



## Cost-driven sustainability in processing



### Energy Efficiency

Energy consumption is another central sustainability priority. Modern equipment designs increasingly focus on reducing power draw, improving efficiency during operation, and minimizing energy use during idle periods.

Recent design improvements include systems that significantly reduce hydraulic or motor power requirements, operating only when needed rather than continuously. These optimizations lower overall energy consumption and can provide meaningful cost savings in facilities with large fleets of equipment.

Other sustainability-aligned practices include reducing the energy load during periods when machinery is idle, such as partially staffed or shortened shifts. Automated low-power modes allow machines to remain active for monitoring or readiness while minimizing unnecessary electricity use.

In addition, some processors are evaluating the cumulative impact of motors used in conveying and pumping systems, recognizing that even incremental efficiency improvements can generate significant savings across continuous, line-wide operation.



### Waste Reduction and Scrap Minimization

Waste reduction is one of the most consistently emphasized sustainability themes. Rising ingredient costs, shorter production runs, and intensifying cost pressures mean that even small increases in scrap can have a disproportionate financial impact.

Manufacturers and processors are placing greater emphasis on equipment that maintains product integrity, keeps material on the line rather than on the floor, and minimizes losses associated with changeovers or product handling. In many cases, this includes conveyor systems designed with improved containment features, such as guides or sidewalls, to prevent spillage during transfers or high-speed operation. In processes where additives or coatings account for a large share of product cost, equipment is increasingly designed to apply these materials more efficiently, reducing excess use and preventing waste.

Operational shifts with shorter runs and more frequent product changes also heighten the cost impact of defects. As a result, systems that improve accuracy, reduce variability, and prevent mistakes contribute directly to sustainability goals by keeping more product within acceptable specifications.



# 3

# Industry Statistics

## MARKET SECTOR OVERVIEW

### Summary of factor impacting each sector



#### Alcoholic Beverages

Investment remains resilient but uneven. While overall demand is stable, spending is shifting toward efficiency upgrades and flexible systems as premium segments soften and product formats diversify.



#### Animal Feeds & Pet Food

Growth is driven primarily by premium pet food. Investment is increasingly focused on wet, fresh, and human-grade production, raising requirements for sanitation, inspection, and flexible batching systems.



#### Bakery & Confectionery

Capital spending is recovering gradually, supported by the need for greater versatility and sanitation. Shorter runs, formulation variability, and input cost volatility are reinforcing demand for adaptable processing equipment.



#### Cooking Oils

A mature segment with limited capacity expansion. Investment is centered on incremental upgrades and SKU diversification tied to specialty and health-positioned oils rather than large new builds.



#### Dairy

One of the stronger growth segments, supported by high-protein products and signs of stabilization in fluid milk. Investment is concentrated in fermentation, blending, filling, and sanitation-driven upgrades.



#### Fish & Seafood

Growth is moderate and operationally driven. Labor constraints and food-safety requirements are supporting targeted investment in automation, inspection, and yield-protection technologies rather than broad capacity expansion.



#### Fruits & Vegetables

Steady growth supported by rising automation demand. Labor availability, wage pressure, and food-safety risk are driving investment in cutting, sorting, washing, and inspection equipment.



#### Grains & Cereals

A low-growth, mature segment shaped by consolidation and regulatory pressure. Investment is focused on compliance-driven reformulation, efficiency improvements, and selective modernization rather than expansion.



#### Meat & Poultry

The largest end-market for processing machinery. Labor shortages, yield optimization, and supply constraints are accelerating investment in automation, material handling, and primary processing equipment.



#### Non-Alcoholic Beverages

A structurally attractive growth area driven by health-oriented products. Investment is focused on line flexibility and formulation adaptability rather than greenfield capacity.



#### Prepared Foods

The fastest-growing segment, supported by demand for ready-to-eat and ready-to-heat meals. High capital intensity reflects automation, integration, sanitation, and throughput requirements.

# SECTOR OUTLOOK – FORECAST & TRENDS

## Alcoholic Beverages

### Overview

In 2025, the value of shipments of processing machinery in the alcoholic beverages sector reached an estimated \$282 million. This sector is projected to grow to \$332 million by 2030, reflecting a CAGR of 3.2% for 2024-2030.

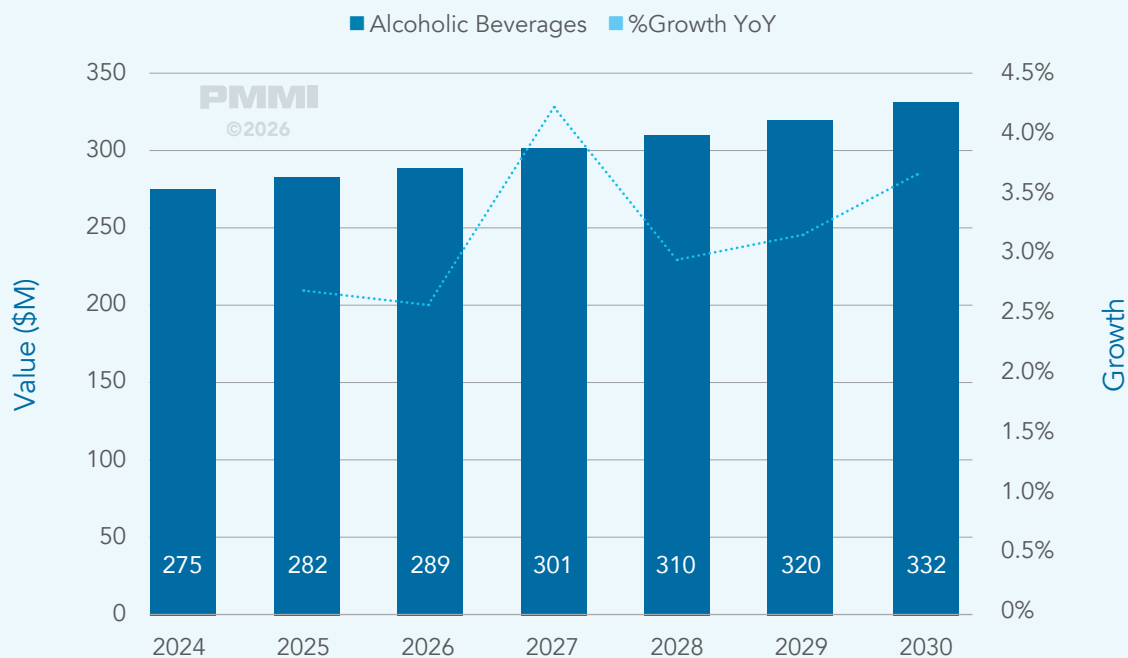
Growth is expected to remain moderate over the forecast period, with a temporary acceleration around 2027 as capital spending normalizes following recent economic uncertainty. After this release of deferred investment, expansion returns to a steadier trajectory, broadly tracking overall food and beverage processing industry growth.

### Trends

The alcoholic beverages sector has historically demonstrated resilience across economic cycles. Consumption patterns tend to shift during downturns, but overall demand has remained comparatively stable. Interviews reinforced this view, noting that while consumers may trade down in price during economic softness, they do not necessarily exit the category.

Given that historical stability, current market conditions reflect evolution rather than contraction. Interviews indicate that fragmentation across brands, softening in certain premium tiers, and continued format diversification are reshaping competitive dynamics. As broader economic conditions stabilize, this transition is likely to support renewed capital spending focused on flexibility, efficiency, and product mix adaptation.

Fig. 12 US Processing Machinery Forecast - Alcoholic Beverages



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## New Formats and Growing Competition

Interviews indicate that the alcoholic beverages aisle is more diversified than at any point in recent memory. Retailers are allocating shelf space to an expanding range of formats, including ready-to-drink cocktails, hard seltzers, carb-conscious beverages, and other hybrid offerings. Consumers increasingly expect variety across flavor, format, and occasion.

At the same time, the broader “relaxation” and social beverage landscape is expanding beyond traditional alcohol. Functional beverages, botanical blends, and hemp-derived or cannabinoid-infused products are emerging as adjacent competitors, particularly among younger demographics. These alternatives do not necessarily eliminate alcohol demand, but they contribute to share fragmentation within the category.

This environment is influencing capital priorities. Greater format diversification favors flexible blending systems, adaptable batching platforms, and equipment capable of supporting shorter runs and more frequent product changeovers.

## Trading Down and Premium Softening

Alongside format expansion, interviewees described evidence of consumer trade-down behavior during tighter economic conditions. While overall alcohol demand remains relatively stable, purchasing shifts toward lower-cost options when discretionary income is pressured. This has resulted in softness across certain premium tiers.

In response, producers are becoming more selective about capacity expansion, particularly in mid-tier and craft-focused segments, while prioritizing operational efficiency and cost control.

## Contraction in Microbreweries

Several interviewees also noted a slowdown in the microbrewery sector following decades of expansion. Market saturation, tighter consumer spending, and distributor consolidation have reduced greenfield activity among smaller players.

This may temper demand for small-scale fermentation systems and specialty brewing equipment in the near term, while shifting capital toward consolidation, modernization, and efficiency improvements among larger operators.



# Animal Feeds & Pet Food

## Overview

In 2025, the value of shipments of processing machinery in the animal feeds & pet food sector reached an estimated \$329 million. This sector is projected to grow to \$402 million by 2030, reflecting a CAGR of 4.1% for 2024-2030.

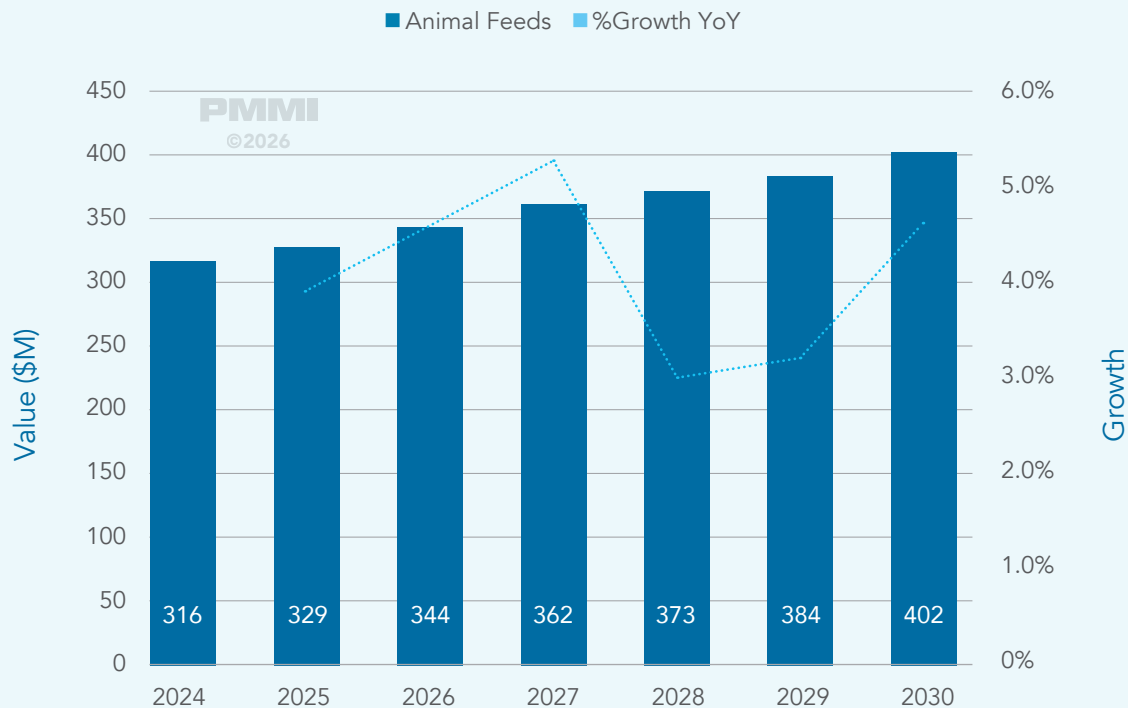
While the sector includes both livestock feed and pet food products, interviews and recent investment patterns indicate that growth has been concentrated in pet food, particularly premium, fresh, and wet formats. Traditional animal feed production remains a source of machinery demand; however, it is not experiencing the same degree of structural transformation or capital intensity observed in pet food.

## Trends

Over the past several years, interviewees described a marked increase in consumer engagement with pet nutrition. As households spent more time at home, attention to ingredient quality, freshness, and health positioning intensified.

Demand growth has been concentrated in premium, wet, fresh, and human-grade formats rather than traditional dry kibble. This transition is materially reshaping equipment requirements, increasing demand for flexible batching systems, enhanced sanitation design, and advanced inspection technologies.

Fig. 13 US Processing Machinery Forecast - Animal Feeds & Pet Food



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## Shift in Product Mix: Premium, Wet, and Alternative Formulations

As more households spent extended time at home with their pets, interest in ingredient quality and product composition increased. Interviewees noted that the shift in demand was not limited to volume; it was concentrated in premium and differentiated formats. Boutique brands played an early role in introducing unique wet, human-grade, and alternative-protein formulations, which challenged the dominance of traditional dry kibble.

## Human-Grade Formulations & Sanitation-Driven Capital Investment

One of the most significant structural shifts in the pet food segment has been the move toward human-grade production standards. Interviewees described some facilities that historically produced limited volumes of pet food have converted a majority of production to human-grade formulations. In some cases, plants have shifted from minority human-grade production to more than half of total output. Human-grade positioning elevates sanitation expectations, material specifications, and inspection rigor.

## Inspection & Brand Risk Mitigation

The move toward premium and human-grade positioning has also elevated quality control expectations. Interviewees emphasized that pet food recalls carry significant reputational consequences, particularly in premium segments where brand trust is central. As a result, producers are increasingly willing to invest in metal detection, X-ray inspection, and vision systems, technologies to mitigate contamination risk and preserve product integrity.

## Competitive Spillover to Large Processors

Although boutique companies were early adopters of differentiated formulations, the trend has not remained confined to smaller players. Interviewees noted that large, established manufacturers are expanding or retrofitting facilities to compete in fresh, wet, and human-grade categories. In many cases, legacy producers have installed parallel lines or upgraded existing systems to support higher-margin product tiers.

The transition toward human-grade and fresh formulations represents a structural ratcheting of production standards. Once facilities upgrade sanitation, inspection, and material specifications to compete in premium tiers, a return to lower-spec dry-focused production becomes unlikely. This suggests that machinery demand in the segment may remain elevated even if overall pet population growth moderates.

# Bakery & Confectionery

## Overview

In 2025, the value of shipments of processing machinery in the bakery & confectionery sector reached an estimated \$551 million. This sector is projected to grow to \$641 million by 2030, reflecting a CAGR of 3.0% for 2024-2030.

Bakery producers are particularly sensitive to borrowing costs given relatively tight margins and high capital intensity. As interest rate pressures begin to ease, some delayed investments are expected to resume. Growth through 2027 reflects a combination of normalization in capital timing and structural upgrades driven by sanitation, flexibility, and evolving product requirements.

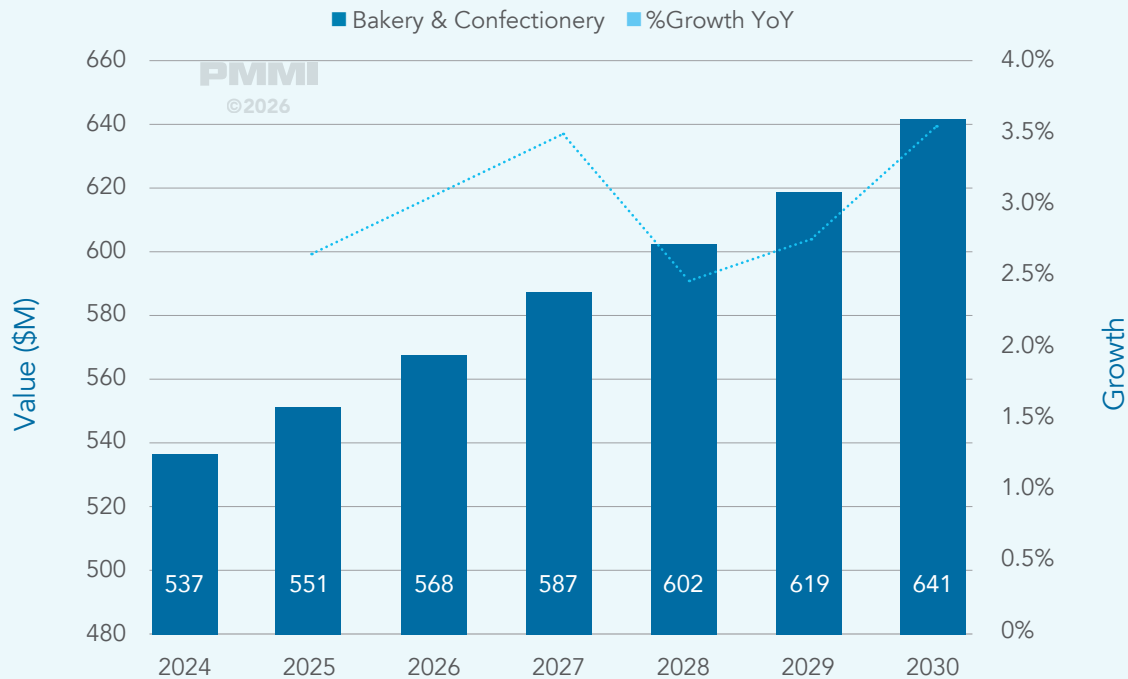
## Trends

Across interviews and industry observations, confectionery producers are operating in an environment defined by faster production and greater formulation variability. Ingredient volatility and shifting consumer preferences are compressing development timelines and increasing SKUs.

While none of these pressures independently redefine the sector, collectively they are reinforcing a common requirement: adaptability. Producers increasingly value equipment that can accommodate new inclusions, support rapid tooling swaps, and enable efficient changeovers between seasonal or limited-edition products.

The following sections illustrate how these pressures, from cocoa price spikes to viral-driven flavor proliferation, are impacting the processing space.

Fig. 14 US Processing Machinery Forecast - Bakery & Confectionery



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### Versatility Demands

Versatility has become essential largely because dough and batter formulations now vary more widely than in the past. Differences in moisture levels, air content, inclusions, and ingredient sensitivity mean that products behave differently as they move through mixing, forming, and finishing steps. Equipment that once supported only a narrow product range is no longer sufficient. Bakeries now expect machinery that can accommodate rapid recipe changes, adjust mixing styles, handle variable viscosity, and adapt to different temperatures or shear requirements, all while minimizing changeover time. This need is amplified by consumer-driven trends that require faster shifts between seasonal or limited-edition offerings. As a result, producers may increasingly favor machines capable of quick tooling changes, automatic recipe-driven adjustments, and simplified interfaces that reduce reliance on highly skilled labor.



Source: Lindt



Source: Rolling Pin Snacks

### Virality Leads to Rapid Scaling

In today's market, consumer demand can scale rapidly through social media and influencer-driven trends. Products such as Dubai chocolate illustrate how a specific ingredient combination or flavor profile can gain national attention in a short period of time. While initial volumes may be modest, the speed of adoption can place pressure on both smaller producers and established brands to respond quickly.

For smaller entrants, viral products often create an opportunity to capture early demand, but scaling introduces operational complexity. Ingredient sourcing, inclusion handling, and process consistency become more

challenging as volumes increase. These producers may seek modular or entry-level equipment to scale without fully overhauling their operations.

For larger manufacturers, virality often translates into SKU expansion. A successful trend may be introduced as a limited-edition flavor extension, such as incorporating a trending confectionery concept into ice cream, baked goods, or seasonal assortments. This increases formulation variability and requires lines that can accommodate new inclusions, textures, or viscosity changes without extensive downtime.

Viral moments tend to increase product churn. OEMs that can support rapid formulation shifts and SKU additions may benefit in an environment where consumer trends move faster than traditional product development cycles.

### The Need for Quick Recipe Adaptation

Global cocoa prices surged in 2024, reaching more than double historical averages before moderating slightly in 2025. The speed and magnitude of the increase created immediate margin pressure for chocolate-heavy portfolios.

This rapid increase led many producers to respond by adjusting the product composition of their chocolate confections. Some examples include increasing the ratio of fillings to chocolate shells, reformulating products to reduce cocoa intensity, or emphasizing formats where chocolate content represents a smaller share of total cost.

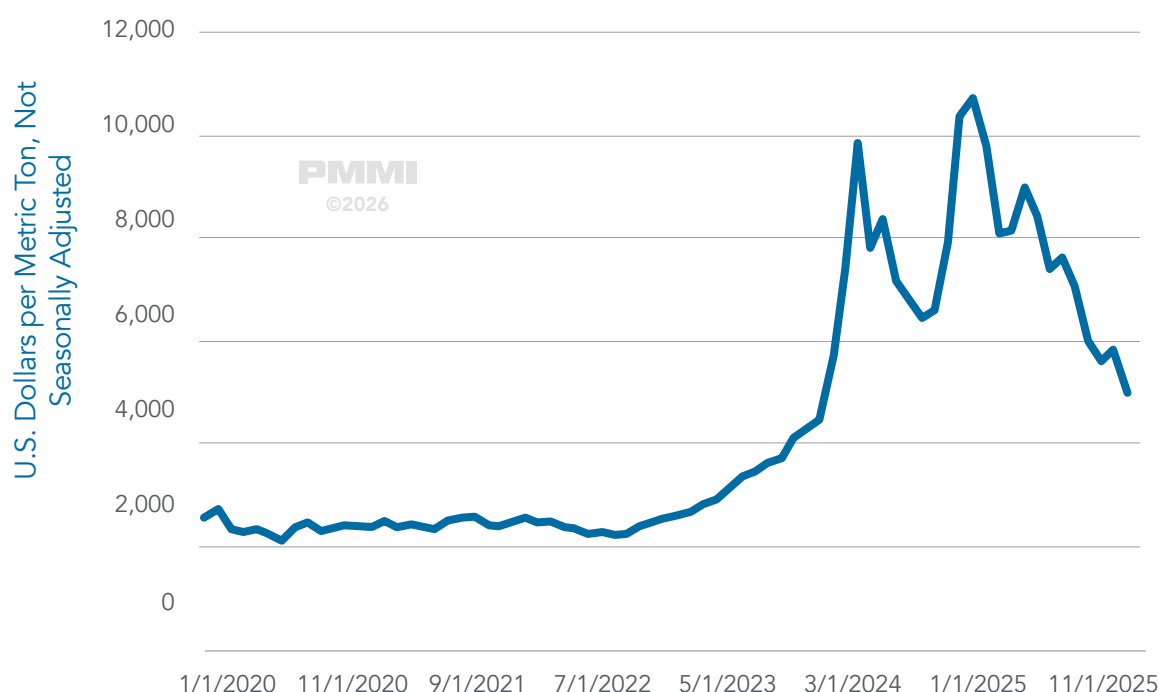
At the same time, several suppliers created or marketed non-chocolate confections, particularly gummies and sugar-based products, which can offer more stable input costs.

From a processing standpoint, these adjustments do not necessarily require full line replacement, but they can influence tooling demand, depositing configurations, and format-specific equipment orders. Vendors may see increased requests for:

- Interchangeable molds or dyes
- Adjustable depositing heads
- Flexible changeover features that allow seasonal product shifts

Even as cocoa prices ease, the episode highlights how input volatility can reinforce the value of adaptable equipment platforms. OEMs offering systems designed for format flexibility may be better positioned when ingredient costs fluctuate.

Fig. 15 Global Price of Cocoa



Source: International Monetary Fund, Global price of Cocoa [PCOCOUSD], retrieved from FRED, Federal Reserve Bank of St. Louis

### Rapid Prototyping Thanks to 3D printing

One OEM described leveraging 3D printing to shorten tooling development cycles. Instead of waiting weeks for traditionally machined metal components, the company prints customized depositor heads and nozzle geometries to test new product designs during early-stage validation.

These printed parts are not intended for long-term production use; rather, they allow processors to evaluate flow behavior, portion control, and depositor performance before committing to final tooling in production-grade materials. Once specifications are confirmed, permanent components are manufactured in stainless steel or other durable materials.

By reducing iteration time and upfront tooling cost, this approach allows processors to respond more quickly to seasonal, promotional, or trend-driven product launches. As product lifecycles shorten, the ability to rapidly prototype before scaling may become a meaningful differentiator among equipment suppliers.

### Sanitation Comes to the Forefront

Sanitation has become an increasingly central consideration in bakery equipment investment. Historically, the baking step provided a meaningful microbial control point, and equipment designs were often optimized for throughput and durability within that context.

Evolving product portfolios and more frequent sanitation cycles are placing new demands on legacy systems. Interviewees cited examples of aging painted frames where coatings began to degrade or chip over time, creating potential contamination concerns. As cleaning intensity increases and inspection standards tighten, these wear-related issues are prompting some facilities to replace or retrofit older lines.

As a result, investment is increasingly directed toward equipment designed for improved cleanability, simplified disassembly, reduced harborage points, and materials capable of withstanding repeated washdowns. This shift reflects a broader modernization cycle in which sanitation performance and durability are becoming primary purchasing criteria rather than secondary considerations.



# Cooking Oils

## Overview

In 2025, the value of shipments of processing machinery in the cooking oils sector reached an estimated \$143 million. This sector is projected to grow to \$161 million by 2030, reflecting a CAGR of 2.5% for 2024-2030.

## Trends

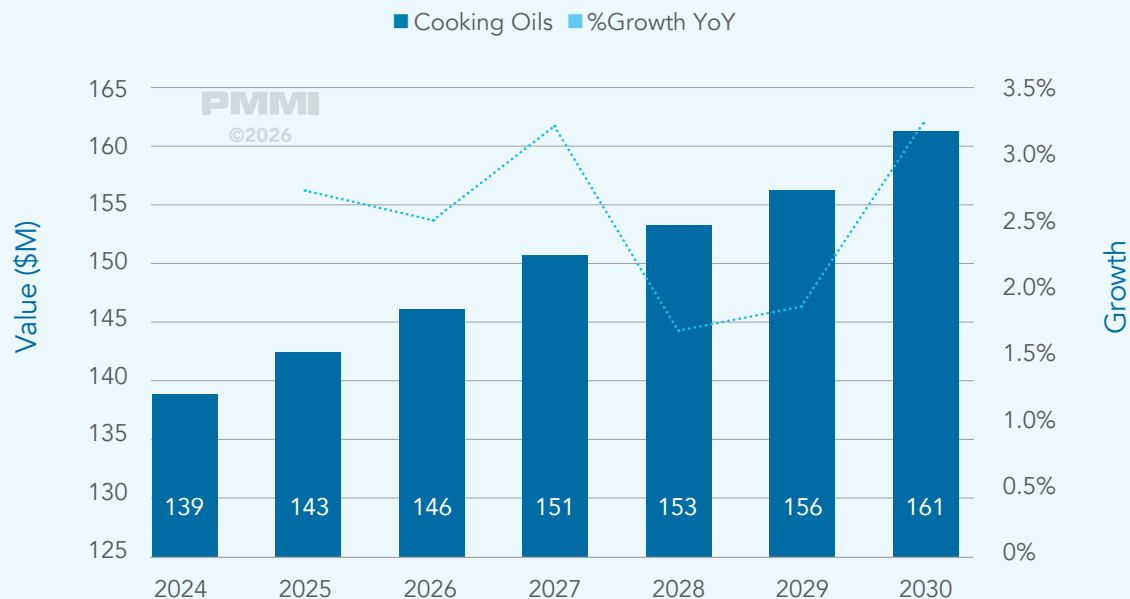
The US cooking oils segment remains a mature, relatively stable segment of the broader food processing landscape. Consumption patterns for staple oils such as soybean and canola have not experienced the same volatility seen in other categories. As reflected in the forecast, growth through 2030 is steady but moderate. We expect incremental upgrades, efficiency improvements, and replacement cycles rather than significant capacity expansion.

Where change is occurring, it is more visible at the product-mix level. Consumer health narratives and social media influence have elevated interest in olive oil, avocado oil, and specialty formats. Brands such as Graza illustrate how internet-driven visibility can rapidly scale niche oil products. For processors, this trend supports greater SKU diversity.



Source: Graza

Fig. 16 US Processing Machinery Forecast - Cooking Oils



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# Dairy

## Overview

In 2025, the value of shipments of processing machinery in the dairy sector reached an estimated \$773 million. This sector is projected to grow to \$945 million by 2030, reflecting a CAGR of 4.0% for 2024-2030.

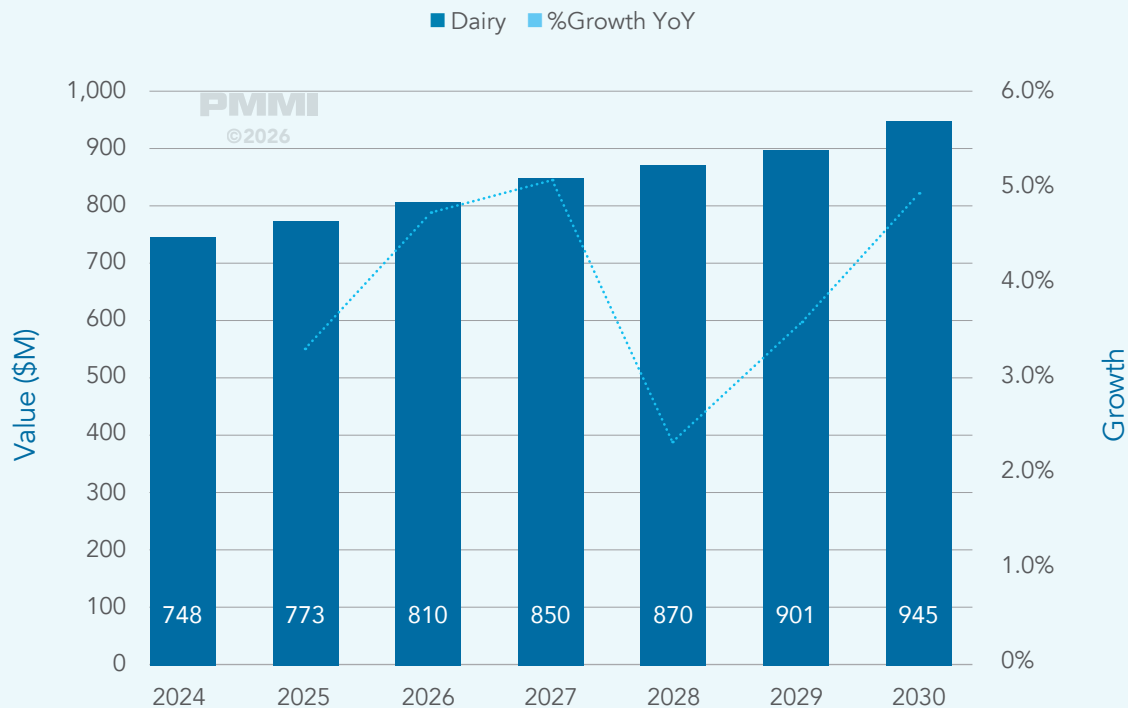
Recent performance has been supported by strength in specific dairy segments, particularly cultured and high-protein products such as cottage cheese, while fluid milk volumes appear to be stabilizing after several years of decline. We expect dairy machinery investment to remain positive through the forecast period, with growth peaking around 2027 before moderating as recent expansion cycles normalize.

## Trends

Recent data show a modest increase in fluid milk sales in 2024 after several flat to declining years. While volumes remain below prior-decade levels, the uptick suggests the category may be stabilizing. At the same time, cottage cheese recorded double-digit growth in both 2023 and 2024 following several years of decline.

The following sections explore how the rapid growth of cottage cheese and the stabilization of milk are influencing processing needs within the dairy sector.

Fig. 17 US Processing Machinery Forecast - Dairy



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## Cottage Cheese Rapid Acceleration

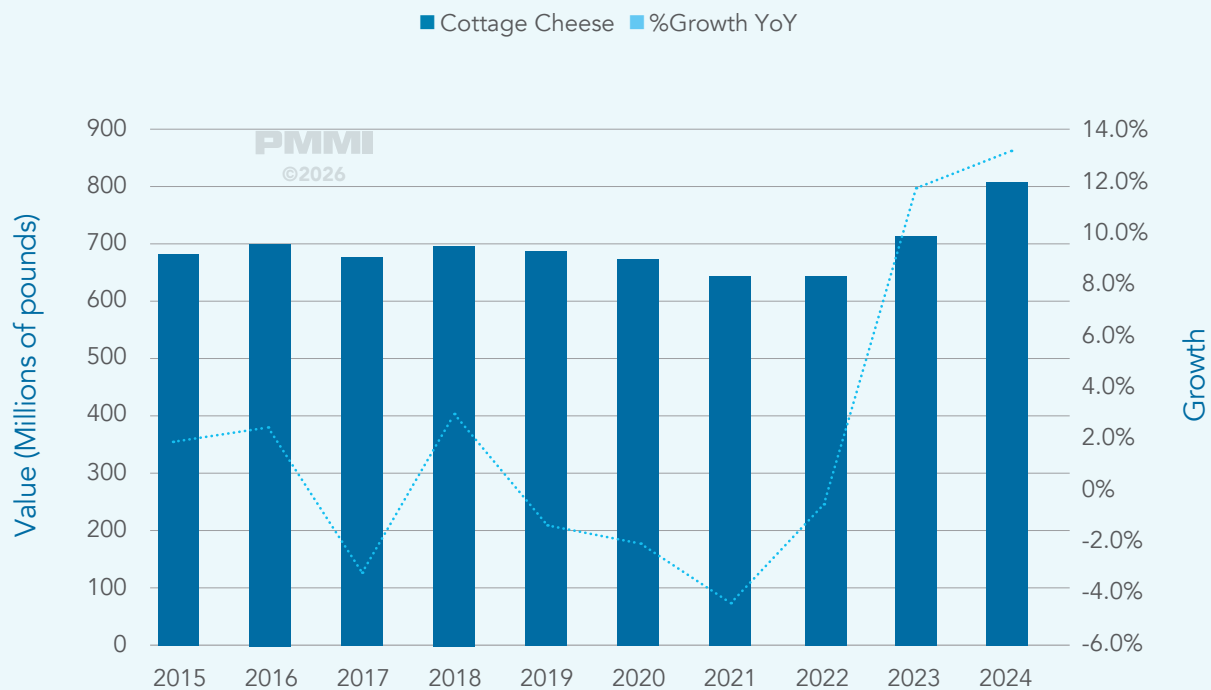
Throughout our research process, discussions of cottage cheese facing a boom were echoed by many. The reason for this growth is modern-day virality. The virality was sparked by TikTok, with many users jumping in to try cottage cheese.

This virality led to clear growth in cottage cheese consumption. Data from the USDA shows that after declining through 2022, cottage cheese production increased 11.7% in 2023 and a further 13.0% in 2024. These back-to-back double-digit growth rates mark a notable shift. As cottage cheese sales accelerated, this trend even caught the attention of the mainstream media, with [Forbes](#) running a piece on the product's rapid expansion.

In our interviews, OEMs noted that this boom has pushed brands to introduce flavored extensions and differentiated formats to ride the momentum. As this trend continues, processors may face increased formulation variability and shorter product lifecycles. This dynamic can elevate demand for flexible mixing systems, inclusion-handling capabilities, and adaptable lines that can accommodate varying viscosities.



Fig. 18 US Cottage Cheese Consumption

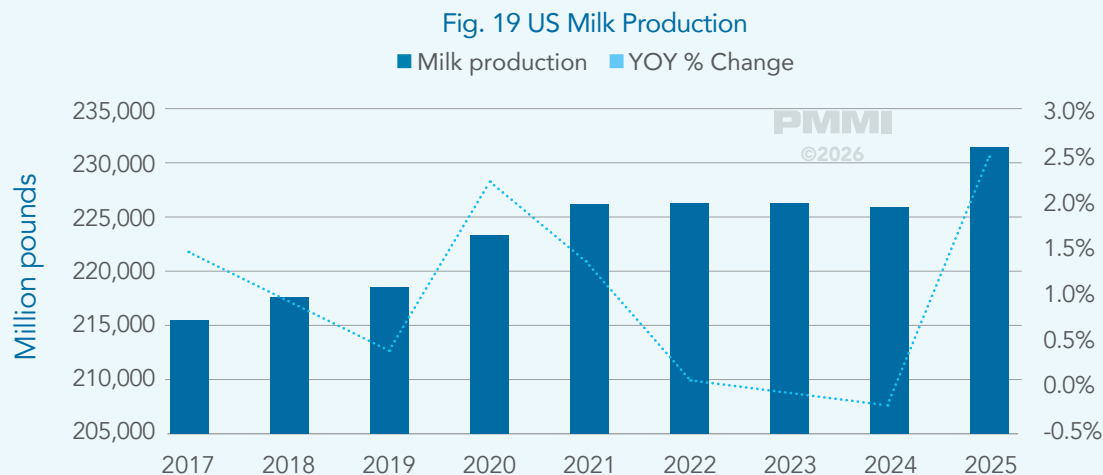


Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service; USDA, Foreign Agricultural Service; USDA, Agricultural Marketing Service; and US Department of Commerce, Bureau of the Census.

## Milk Consumption: Indications of a Modest Rebound

USDA data show that US milk production increased in 2025, marking the first year of growth following several years of flat to declining output. While production growth does not automatically signal a sustained rebound in consumption, it suggests that broader dairy demand conditions may be stabilizing.

Looking at 2024 fluid milk sales provides additional context. After more than a decade of overall decline, total milk volumes showed a modest uptick. Whole milk, in particular, has remained comparatively resilient relative to other milk categories and returned to growth in 2024, even as other variants continued to trend downward.



Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

At the same time, plant-based milk alternatives, which had steadily gained shelf space over the past decade, saw their first decline in several years, [according to NIQ reports](#). This reversal may reflect increased price sensitivity, as traditional milk often retails at a lower price point than many plant-based alternatives. Combined with renewed interest in naturally protein-rich foods, these factors may be contributing to steadier conditions in traditional dairy.

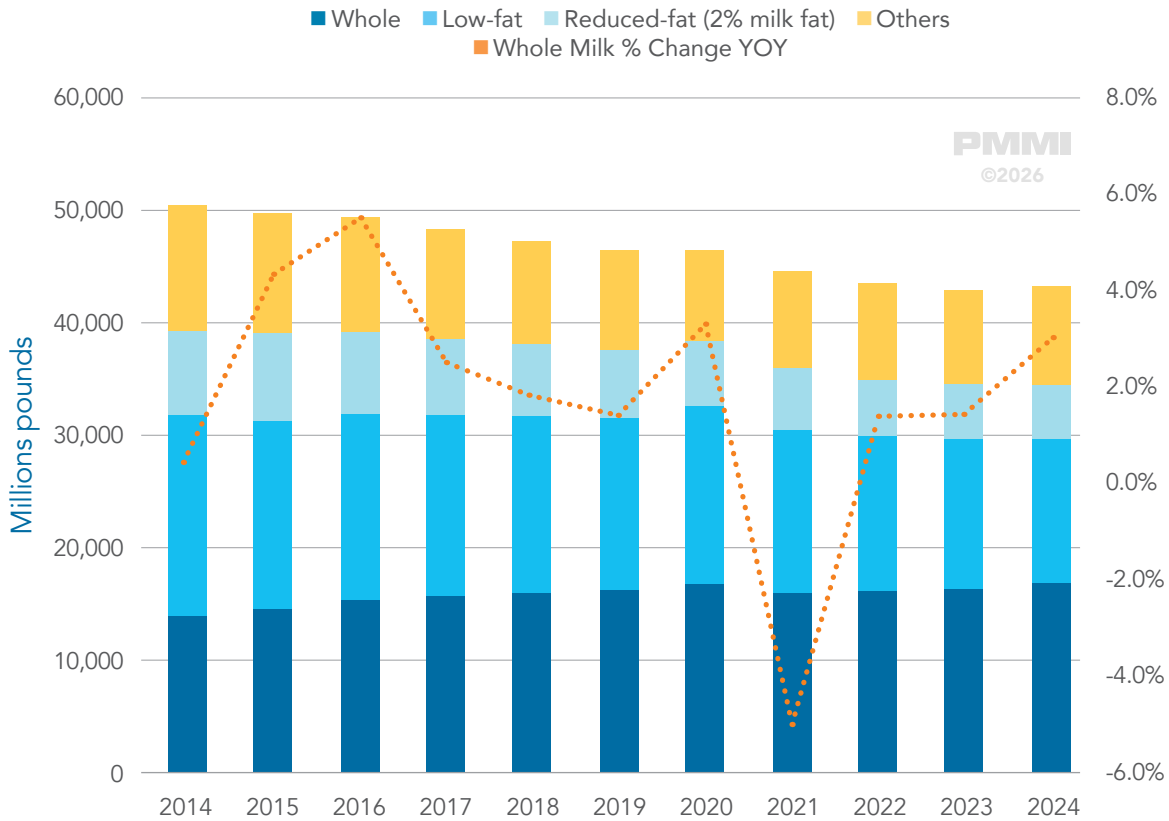
Consumer interest in protein-rich, minimally processed foods has intensified, positioning cow's milk as a naturally protein-dense beverage. As shown in Figure 20, whole milk sales have demonstrated greater resilience than lower-fat variants in recent years, likely aided by the rising cost of alternatives.

In addition to shifting consumer sentiment, policy developments could provide further support. The Whole Milk for Healthy Kids Act of 2025 was signed into law in early 2026, allowing schools to serve whole and 2% milk. Previous shifts similar to this, such as the 2010 HHKA, which removed whole milk from schools, led to a clear shift in milk type sales. We anticipate this new act can aid the expansion of milk in the US, as schools may now choose to bring in whole milk once more.

If milk volumes continue to stabilize, OEMs may see steady, measured demand for liquid processing equipment, particularly as processors differentiate through extended shelf-life formats, higher-protein variants, or energy-efficient system retrofits, rather than through large-scale new facility construction.



Fig. 20 Fluid Beverage Milk Sales Quantities by Product (Million of Pounds)



Source: USDA, Economic Research Service

## Fish & Seafood

### Overview

In 2025, the value of shipments of processing machinery in the fish & seafood sector reached an estimated \$299 million. This sector is projected to grow to \$364 million by 2030, reflecting a CAGR of 3.4% for 2024-2030.

We anticipate slight growth in the fish & seafood space over the forecast period as economic conditions stabilize and allow for more capital expenditure as the industry sees more pressure of working with a reduced workforce.

### Trends

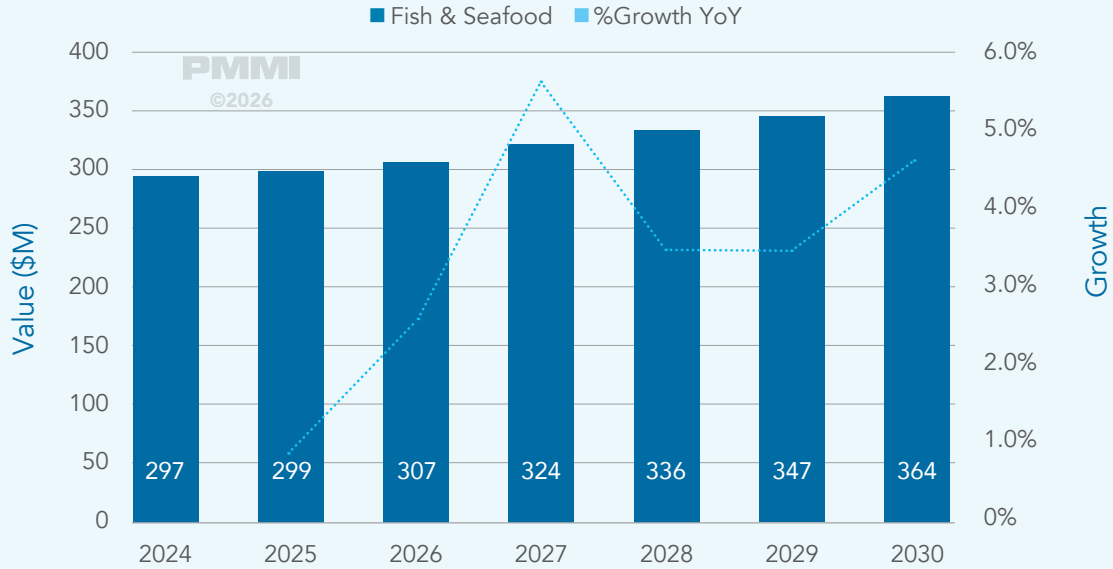
The fish & seafood sector represents a smaller portion of total processing machinery demand relative to other protein categories. While interviews did not indicate a singular structural shift reshaping the space, several pressures continue to influence investment decisions.

### New Bone Detection Capabilities

Compared with poultry or red meat, fish bones are smaller and lower in density, making them more difficult to identify using traditional inspection systems. Historically, this has required higher levels of manual trimming and inspection.

In our discussion, recent improvements in X-ray technology, including enhanced imaging resolution and more advanced software detection capabilities are starting to gain interest in fish & seafood. While adoption varies by processor, these developments may improve bone detection performance over time. As labor availability tightens and consistency becomes increasingly important, processors may evaluate inspection upgrades that reduce manual handling while improving yield control.

Fig. 21 US Processing Machinery Forecast - Fish & Seafood

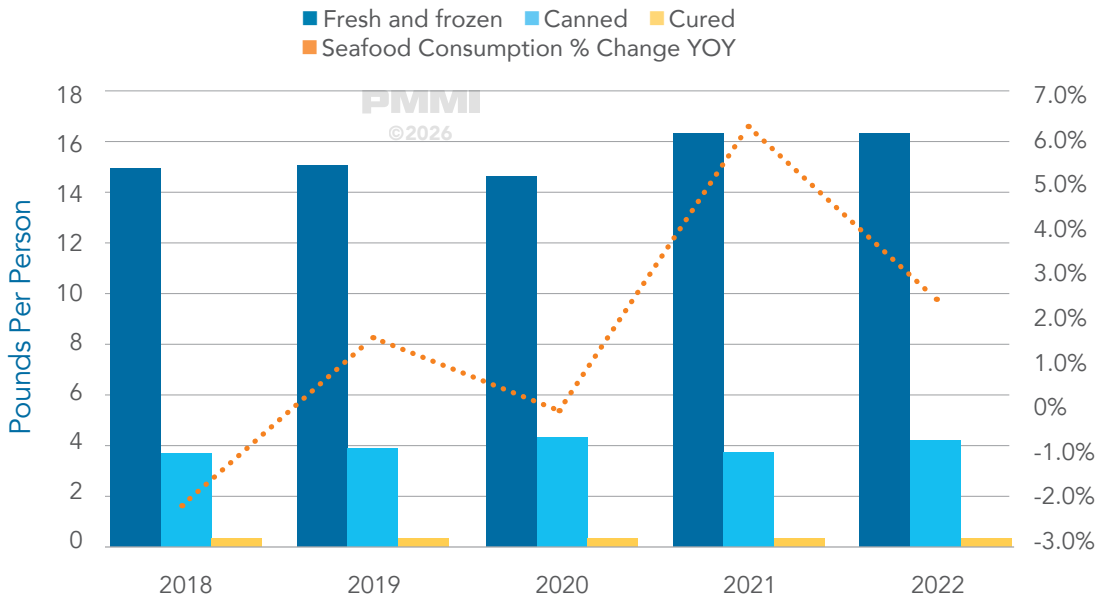


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### Consumption Outlook

On the demand side, USDA data show that US per-capita seafood consumption has been steadily increasing over the last few years with fresh and frozen seafood taking the lion's share over canned and cured products. Seafood continues to benefit from broader interest in protein-rich diets and omega-3 nutrition positioning.

Fig. 22 US Per Capita Consumption of Seafood Products

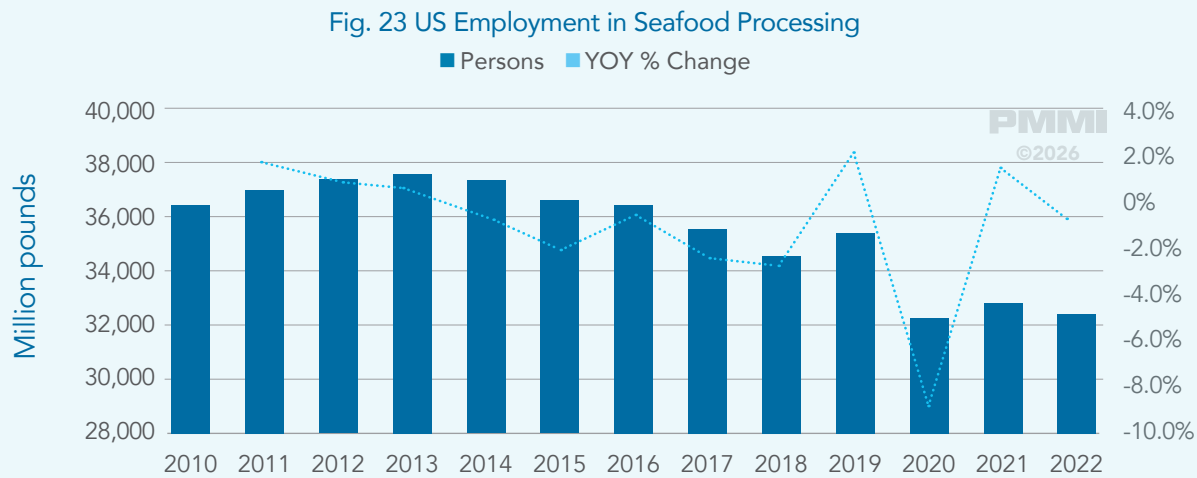


Source: US Department of Commerce, National Oceanic and Atmospheric Administration, Fisheries Office of Science and Technology, Commercial Landings Query.

## Labor Constraints

Employment data also highlight structural labor challenges. OECD data show that US employment in seafood processing declined from approximately 37,600 workers in 2013 to roughly 32,400 in 2022. That decline is 14% over nearly a decade. While the sector has experienced cyclical fluctuations, workforce levels remain below prior peaks.

Seafood processing is often labor-intensive, particularly in filleting, trimming, and sorting applications. As labor availability tightens, processors may face increased pressure to automate manual tasks where technically feasible. Rather than large-scale capacity expansion, investment is more likely to focus on automation that improves throughput stability and reduces dependency on skilled manual labor.



Source: OECD, *Employment in fisheries, aquaculture and processing*

## Fruits & Vegetables

### Overview

In 2025, the value of shipments of processing machinery in the fruits & vegetables sector reached an estimated \$486 million. This sector is projected to grow to \$547 million by 2030, reflecting a CAGR of 2.3% for 2024-2030.

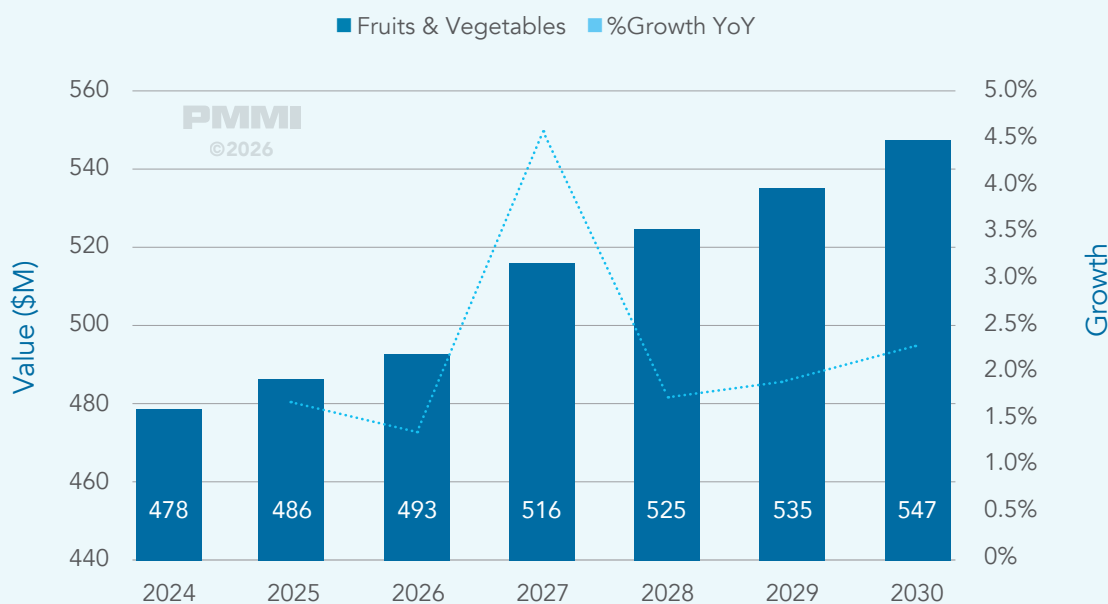
While fruits and vegetables do not represent the largest segment within processing machinery, we expect steady growth in the coming years, supported primarily by rising automation demand.

### Trends

Historically, many fruit and vegetable operations have relied heavily on manual labor, particularly for chopping, slicing, trimming, and sorting. Several interviewees noted that hand processing remains common in certain applications. As discussed in the workforce section, labor costs continue to rise, and availability remains inconsistent in some regions. In response, processors may increasingly evaluate automated slicing, dicing, and cutting systems to improve throughput consistency and reduce dependency on manual labor.

One interviewee specifically highlighted wage pressures in California, where a significant share of US produce processing is concentrated. Accelerated wage growth in the state may further incentivize capital investment in automation over the medium term. As economic conditions stabilize, OEMs may see incremental increases in demand for equipment that offsets labor intensity.

Fig. 24 US Processing Machinery Forecast - Fruits & Vegetables



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### Inspection and Quality Control

Inspection remains a key focus area within fruits and vegetables. While metal detection systems are widely deployed, identifying non-metal foreign material, such as plastic, stones, or organic debris, continues to present challenges in produce applications. The natural variability of fruits and vegetables further complicates detection, as inspection systems must distinguish between acceptable product variation and true defects.

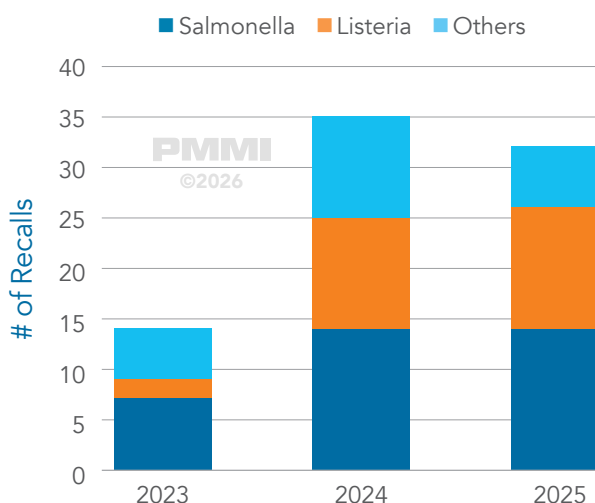
Food safety considerations reinforce this focus. Over the past three years, fruits and vegetables have ranked among the categories with higher recall counts, with salmonella and listeria accounting for the majority of incidents. Because many produce items are consumed raw and lack a final thermal kill step, contamination risks must be controlled throughout washing, cutting, and packaging.

In response, processors may continue investing in enhanced vision systems, optical sorters, improved wash controls, and integrated inspection solutions that support both foreign material detection and microbial risk management. This segment is likely to concentrate on quality control upgrades and line-level improvements aimed at improving consistency and reducing risk exposure.

### Health Consciousness

Alongside food safety pressures, interviewees noted that consumer preference for healthier eating continues to support demand for fruits and vegetables. Increased emphasis on fresh, minimally processed, and plant-forward diets sustains production volumes.

Fig. 25 Fruit & Vegetables Recalls



Source: US FDA

# Grains & Cereals

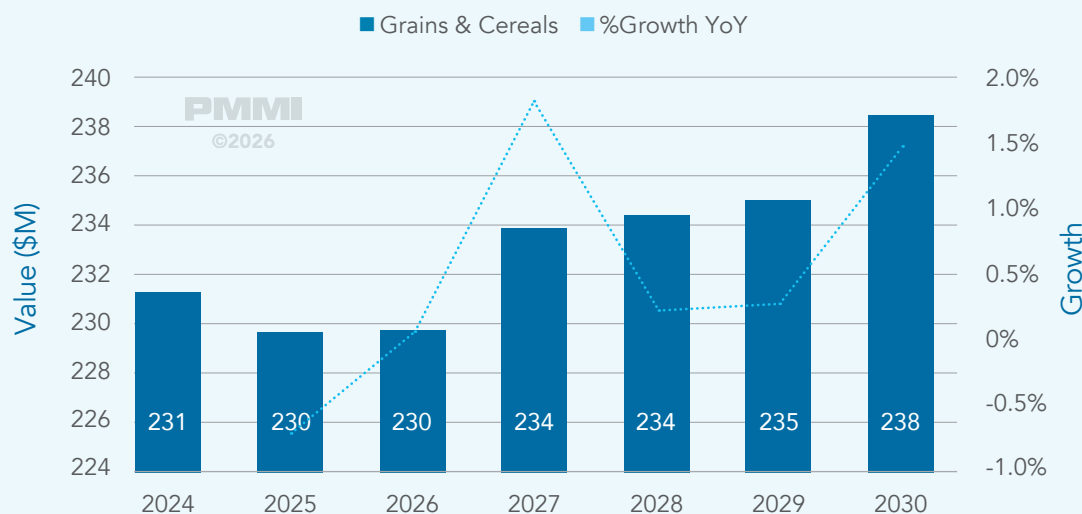
## Overview

In 2025, the value of shipments of processing machinery in the grains & cereals sector reached an estimated \$230 million. This sector is projected to grow to \$238 million by 2030, reflecting a CAGR of 0.5% for 2024-2030. In the current economic environment, characterized by cautious consumer spending and portfolio rationalization among major manufacturers, growth is expected to remain incremental rather than expansionary.

## Trends

Grains & cereals sector in the US is being shaped by a mix of operational rationalization, shifting demand patterns, and tighter regulatory expectations. On the branded cereal side, large manufacturers have consolidated production footprints and undergone ownership changes, reflecting sustained volume pressure in traditional ready-to-eat breakfast formats. Changing breakfast habits, price sensitivity in center-store categories, and growing emphasis on protein and lower sugar formulations are influencing innovation and SKU prioritization. At the same time, regulatory developments, such as updated FDA nutrient content criteria and school meal sugar limits, are increasing compliance and reformulation requirements.

Fig. 26 US Processing Machinery Forecast - Grains & Cereals



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## Shifting Breakfast Habits

Cereal is no longer competing solely within its historical category boundaries. It now competes with yogurt, protein shakes, breakfast sandwiches, and snack-based consumption occasions. Portability, convenience, and protein content increasingly influence purchase decisions. Consumers remain price sensitive in center-aisle categories, supporting private label growth and intensifying promotional activity. Simultaneously, nutrition scrutiny has increased. Products positioned around protein, fiber, whole grains, and satiety are gaining relative traction, while high-sugar formulations face greater resistance. This demand evolution influences R&D allocation, reformulation efforts, and marketing strategy.

## Regulatory and Compliance Pressures

Regulatory developments are directly affecting formulation, labeling, and packaging economics. Updated FDA criteria for nutrient content claims such as “healthy” tighten thresholds for added sugars, sodium, and whole grain content, which may require reformulation to maintain front-of-pack positioning. USDA school meal standards introduce phased limits on added sugars that impact institutional channel formulations. At the packaging level, emerging state-level Extended Producer Responsibility (EPR) laws create reporting obligations and potential fee structures tied to packaging materials. For high-volume packaged goods like cereal, even incremental per-unit costs can materially influence packaging design, lightweighting initiatives, and supplier negotiations.

## Grains Face Increasing Weather Risks

On the grains side, drought remains a structurally important but regionally uneven risk factor. A significant portion of US corn, soybean, and winter wheat acreage periodically experiences moderate or worse drought conditions, increasing yield variability. While aggregate national output can remain strong when favorable regions offset stressed ones, localized dryness during pollination or grain-fill stages can materially impact yields and influence futures markets. The effect is less persistent shortage and more heightened volatility in production expectations and pricing.

## Meat & Poultry

### Overview

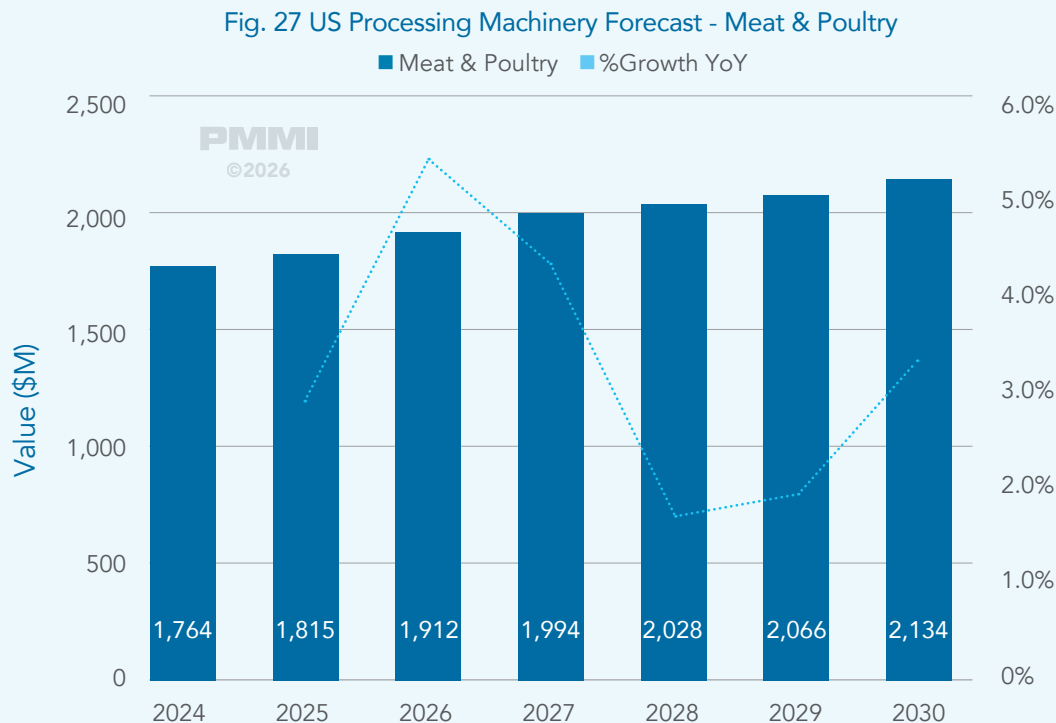
In 2025, the value of shipments of processing machinery in the meat & poultry sector reached just over \$1.8 billion. This sector is projected to grow to \$2.1 billion by 2030, reflecting a CAGR of 3.2% for 2024-2030.

Looking ahead, 2026 growth is expected to be supported in part by continued expansion in the poultry segment. Poultry's shorter production cycle and more flexible supply response have enabled processors to scale output more rapidly than in beef, supporting facility investment and automation upgrades.

### Trends

The sector is currently shaped by constrained cattle inventories and elevated livestock prices, particularly in beef, which are compressing processor margins and increasing focus on yield optimization. At the same time, persistent labor shortages in primary processing are accelerating investment in automation across carcass handling, cutting, and material movement.

While beef production faces longer biological cycles and slower supply response, poultry's shorter production cycle provides greater flexibility. This dynamic has supported continued capacity expansion and automation in poultry, reinforcing its role as a stabilizing contributor within the broader protein complex.



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Fig. 28 US All Cattle & Calves Inventory

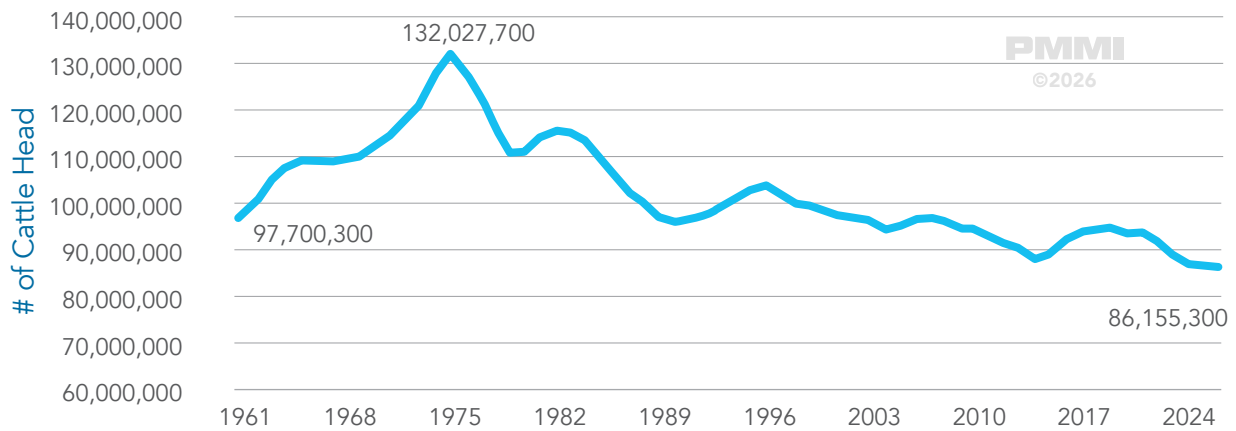
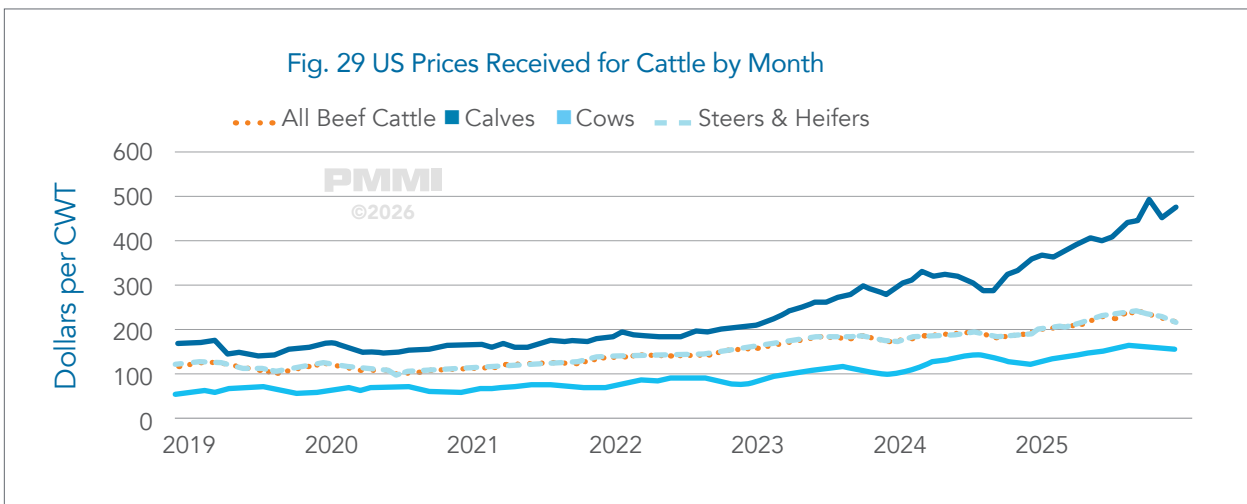


Fig. 29 US Prices Received for Cattle by Month



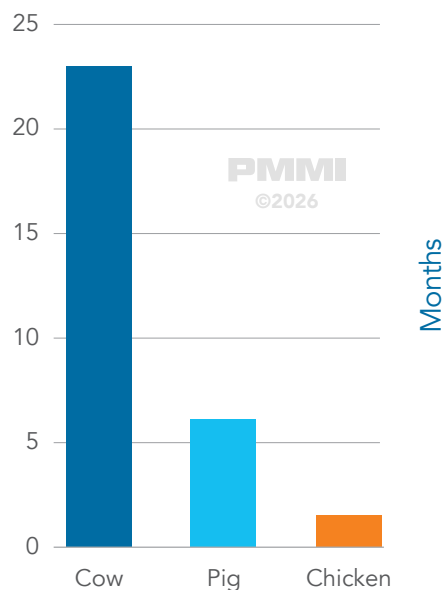
### Cattle Supply

In the US, the total number of cattle has been trending downward from its 1970s peak of approximately 132 million head of cattle. Although the herd has experienced periodic volatility, recent data indicate that inventories have fallen to multi-decade lows as can be seen on Figure 28. Reduced herd size has placed upward pressure on calf and feeder cattle prices, creating margin compression for beef processors, as can be seen on Figure 29.

Several interviewees cited cattle supply constraints as a key operational challenge. Longer biological cycles in cattle production limit the industry’s ability to respond quickly to supply shortages. In contrast, poultry production operates on significantly shorter cycles, allowing producers to replenish flocks more rapidly in response to demand and price shifts.

As beef prices increased, some processors and retailers shifted focus toward poultry and pork, where cost structures were more favorable. This substitution effect has supported expansion activity within the poultry sector, with major processors announcing facility investments and capacity upgrades in recent years.

Fig. 30 Slaughter Age



## Machinery Impacts

Interview feedback pointed to several machinery-related dynamics shaping the sector. In primary meat processing, companies continue to face significant staffing challenges due to the physical strain and harsh environmental conditions associated with tasks such as de-hoofing, evisceration, quartering, and other slaughter-adjacent operations. These roles occur in cold, labor-intensive settings that are increasingly difficult to fill or retain workers for. As a result, processors are accelerating investment in specialized automation capable of taking on these physically demanding steps. This includes equipment designed for automated carcass handling, primary cuts, and other processes that historically required large teams of manual labor. The shift reflects both workforce scarcity and the need to stabilize operating costs in an environment where labor availability has become a major constraint.

At the same time, processors, especially in the beef sector, are intensifying their focus on yield optimization. With cattle inventories at multi-decade lows and overall beef supply tight, even small improvements in recoverable protein per animal can materially improve financial outcomes. OEMs noted increasing demand for systems that enhance yield through more efficient separation, deboning, or trimming, helping processors recover additional usable meat from each carcass. Plants are also directing capital toward machinery that improves cut precision and reduces trim loss, reflecting a broader strategic push to maximize output from constrained upstream supply. This emphasis has been especially pronounced in segments where processors are managing tightening margins and volatile input costs.

In the poultry category, the combination of strong consumer demand and persistent labor shortages is prompting a different pattern of automation. While many primary operations remain labor-intensive, processors are increasingly targeting smaller, repetitive tasks that create bottlenecks when performed manually. One example referenced in interviews involved automation to reorient or “lane” chicken tenders on conveyor lines prior to packaging. This step has historically required workers to manually turn or align each piece, but processors are now adopting conveyor-based systems capable of performing these adjustments automatically. Automating these micro-tasks enables plants to maintain consistent throughput, reduce slowdowns caused by staffing gaps, and avoid reallocating scarce labor to low-skill but throughput-critical activities.



# Non-Alcoholic Beverages

## Overview

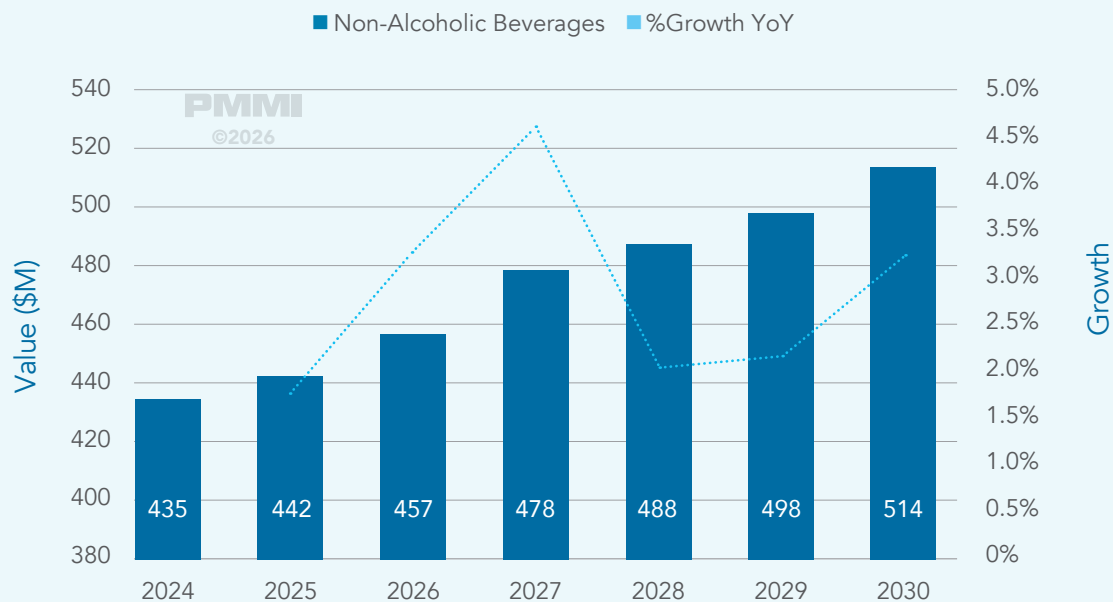
In 2025, the value of shipments of processing machinery in the non-alcoholic beverages sector reached an estimated \$442 million. This sector is projected to grow to \$514 million by 2030, reflecting a CAGR of 2.8% for 2024-2030. This growth reflects sustained demand for functional and health-oriented beverages, with capital increasingly tied to formulation innovation, SKU expansion, and adaptable processing systems.

## Trends

Non-alcoholic beverages are a clear growth sector within food and beverage, propelled by strong consumer demand for health-focused drinks. Product categories such as low- or zero-sugar sodas, enhanced waters, protein-fortified beverages, and energy drinks continue to gain market share as consumers increasingly seek healthier alternatives. This demand has led to rapid product innovation, with brands introducing new formulations and functional ingredients to differentiate their offerings.

However, this growth has not resulted in significant increases in capital investment. Instead of major capacity expansions, the industry is seeing incremental line upgrades and modular engineering adjustments to support new product types. Most changes focus on adapting existing production lines to accommodate increased formulation complexity, rather than building new facilities. As a result, investment is steady and operationally focused, with efficiency and flexibility prioritized over large-scale capital spending.

Fig. 31 US Processing Machinery Forecast - Non-Alcoholic Beverages



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## Plant-Based Milks Shift to Normalization

Plant-based milks, particularly oat milk, experienced rapid expansion through the early 2020s. Recent data from NIQ suggests that the category is entering a normalization phase, with growth moderating after several years of strong expansion. Price sensitivity, inflationary pressure, and increased competition have contributed to a more balanced demand environment.

While large-scale capacity expansion may be slowing compared to peak years, this normalization could create opportunities for smaller or regionally focused brands. For equipment suppliers, this shifts the emphasis toward mid-scale processing systems and lines capable of supporting niche positioning or specialty formulations. The category remains structurally relevant but is unlikely to replicate its earlier surge in capital intensity.

## THC and CBD Beverages Face Regulatory Uncertainty

Hemp-derived THC beverages have expanded rapidly since the legalization of hemp under the Agriculture Improvement Act of 2018, but proposed federal revisions to hemp definitions in the upcoming Farm Bill cycle could significantly alter how these products are regulated. Depending on whether lawmakers establish a structured regulatory framework or impose stricter limits on intoxicating hemp products, the category could either stabilize and grow under clearer rules or slow if mainstream retail access is restricted.

## Health & Wellness Drinks on the Rise

As consumers continue to seek healthier options, non-alcoholic beverages positioned around functional benefits are attracting increased interest. Protein-fortified sodas, fiber-enhanced drinks, electrolyte beverages, and other “better-for-you” formats are appearing more frequently on retail shelves. Rather than competing directly on flavor alone, these products are positioned as alternatives to traditional soft drinks that align more closely with wellness goals.

Interviews suggest that this shift is less about the emergence of a single dominant category and more about experimentation at the formulation level. One OEM described protein-fortified sodas and similar functional drinks as niche but emerging, clearly drawing attention from brand owners searching for the next point of differentiation.

For manufacturers, these shifts are prompting reevaluation of existing lines to ensure they can handle more complex formulations. In most cases, this means adapting proven systems rather than introducing entirely new platforms. The acquisition of Poppi by PepsiCo illustrates how larger players are moving to participate in this segment, reinforcing its relevance even as it continues to evolve.

# Prepared Foods

## Overview

In 2025, shipments of processing machinery in the prepared foods sector totaled an estimated \$870 million. The sector is projected to grow to nearly \$1.1 billion by 2030, reflecting a CAGR of 4.8% for 2024-2030, the highest among the industries analyzed.

Prepared foods emerged across interviews as one of the strongest-performing categories. OEMs noted that consumers continue to prioritize convenience across fresh, refrigerated, and frozen formats, reinforcing demand for ready-to-heat and ready-to-eat offerings.

## Trends

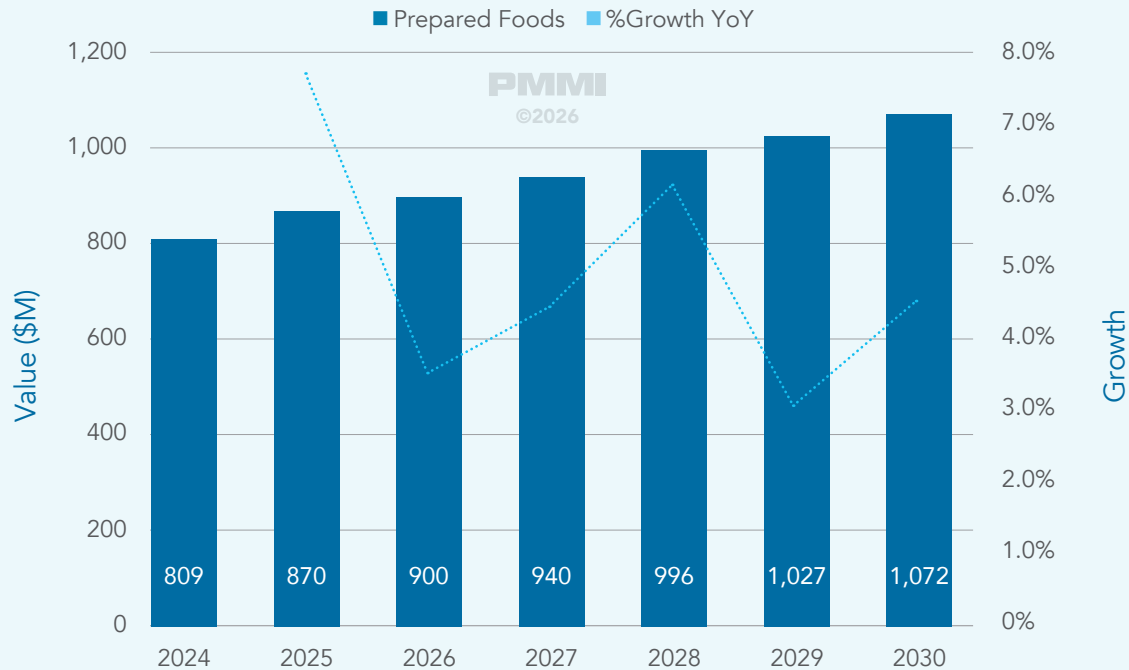
Processors in this segment appear more willing to invest in equipment that supports throughput consistency, portion accuracy, and product presentation. Rising expectations from retailers and end consumers are increasing the importance of uniformity and operational control, contributing to sustained capital activity within the category.

## Automation and Labor Dynamics

Labor availability remains a primary investment driver within prepared foods. Many operations historically relied on repetitive manual assembly tasks, creating exposure to turnover and staffing volatility. Interviews indicate that processors increasingly view automation not as an incremental improvement, but as a stabilizing necessity in this segment.

The push toward more fully automated and coordinated line solutions reflects both labor constraints and operational predictability goals. Processors value the ability to reduce operator counts, centralize troubleshooting responsibility, and maintain throughput consistency in environments where product variety and order volumes are high.

Fig. 32 US Processing Machinery Forecast - Prepared Foods



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### Processing Requirements and Technical Complexity

Prepared foods production requires multiple mechanical steps that add complexity to processing lines. Interviews referenced the need for equipment to develop product color and deliver a cooked, appetizing appearance. These capabilities are fundamental for products such as grilled chicken, burgers, or seafood portions sold as finished or semi-finished components. Processors also rely heavily on slicing, dicing, and shredding equipment to create consistent ingredients for meal kits, toppings, and frozen entrées. Such systems must maintain uniformity and handle variable product textures, aligning with prepared foods' emphasis on quality and precision.

Beyond thermal and mechanical transformation, prepared foods lines also depend on multi-step handling and integration. Interviews revealed that OEMs increasingly supply fully integrated lines that combine slicing, portioning, assembling, and packaging into coordinated systems. These integrated solutions help processors reduce dependence on manual tasks and maintain tighter control over yield, quality, and order predictability. The complexity of prepared foods often requires equipment able to handle multiple product forms, from liquids and slurries to portioned proteins, while needing to integrate with downstream packaging processes.

### Inspection, Sanitation, and Food Safety

Prepared foods now span a wide range of consumption formats, including fully cooked, ready-to-heat, refrigerated, and in some cases raw or partially prepared products. This diversification increases variability in how products are handled after purchase and can elevate food-safety expectations within processing environments.

Interviewees noted that as consumer behavior evolves, products once assumed to undergo a final kill step may no longer be treated that way. For example, items such as cookie dough, historically intended for baking, have increasingly been consumed raw, altering the risk calculus and increasing scrutiny around ingredient handling and contamination control.

As a result, prepared-food facilities often operate under heightened inspection and sanitation requirements. Broader use of detection systems and stricter hygienic design standards are common in this segment. Investment reflects the need to manage both physical contamination risks and microbial exposure in environments where product form and post-purchase handling may vary.

## 4

# Major Announcements

**Table 3 - Major Announcements in Food & Beverage Processing (1)**

Company	Announcement	Type	Year	Summary
Nestlé	Nestlé Purina plans \$110M upgrades in Clinton, Iowa	Investment	2023	The company recently announced plans for a \$110 million investment in the Clinton facility to build a 90,000-square-foot building to support an expansion at the facility.
Tyson Foods	Tyson Foods opens new food production facility in Kentucky to meet demand for iconic bacon brands	Investment	2023	Tyson officially opened its new \$355 million food production facility in Bowling Green, Kentucky. Built to support a significant expansion of its bacon production capabilities, the new plant positions Tyson Foods to capitalize on its category leadership and the increasing market for its products.
Tyson Foods	Tyson Foods to employ 60 people in new \$70M Hope hatchery	Investment	2023	A \$70 million hatchery operation. The project, which improves on the company's existing hatchery in Hope, Ark., will be 131,000 square feet when it is completed.
Tyson Foods	Tyson Foods to close two chicken plants, affecting hundreds in Virginia, Arkansas	Closure	2023	Tyson Foods has announced that it will be closing two chicken plants because of a drastic drop in sales over the past year. The plants in Glen Allen, Va., and Van Buren, Ark., shut down in May (2023).

**Table 4 - Major Announcements in Food & Beverage Processing (2)**

Company	Announcement	Type	Year	Summary
General Mills	Blue Buffalo starts Indiana plant expansion	Investment	2023	Blue Buffalo broke ground on an expansion of its pet food facility in Richmond, Ind. The company plans to invest \$200 million over the next two years to add 169,000 square feet of processing operations and warehouse capacity to the plant.
MONDELÉZ	Mondelēz international opens doors to new global R&D innovation center	Investment	2023	Mondelez new Global Research & Development (R&D) Innovation Center in Whippany, New Jersey. The state-of-the-art facility, which is supported by an investment of nearly \$50 million, includes pilot and scale-up capability.
General Mills	General Mills invests in US snacks facility	Investment	2023	The company is adding two buildings to the site in Geneva, Illinois: a one-story 65,600-square-foot asset and a 48,600-square-foot warehouse expansion.
MONDELÉZ	Mondelēz plans shutdown of Enjoy Life facility, will 'refocus and narrow' allergen-free portfolio	Closure	2023	Mondelēz International plans to close a manufacturing plant in Jeffersonville, Indiana, starting in July that produces offerings for its Enjoy Life Foods brand, the company said in a statement.
General Mills	General Mills to close plant acquired from Tyson Foods	Closure	2023	General Mills plans to shutter a Blue Buffalo production facility in Independence, Iowa, USA by the end of 2023. The plant produces Top Chews and Nudges treats.
Mars	Take a look inside the factory fueling candy giant Mars' \$1B ice cream ambitions	Investment	2023	\$50 million upgrading its Burr Ridge, Illinois, ice cream factory and earmarked an additional \$20 million for the facility that it hasn't spent yet.
Campbell Soup Co	Campbell Soup closing Charlotte plant as it sells off Emerald nuts business	Closure	2023	Campbell Soup Co. will close one of three Charlotte, NC manufacturing plants by September as it sells off its Emerald nuts business. It was expected to close no later than Sept. 7 (2023).
Nestlé	\$182M Purina factory expansion completed in King William County	Investment	2023	Purina, and its parent company Nestlé, have completed construction on a \$182 million expansion project to the King William (VA) factory located on Dunluce Road.

**Table 5 - Major Announcements in Food & Beverage Processing (3)**

Company	Announcement	Type	Year	Summary
Kraft Heinz	Kraft Heinz invests \$400M to build one of the largest automated CPG distribution centers in North America	Investment	2023	\$400 million investment to build one of the largest automated CPG distribution centers in North America
Campbell Soup Co	Campbell Soup investing \$160M to make more than 5 million Goldfish per hour	Investment	2023	Campbell Soup Co. plans to invest approximately \$160 million to expand the production of its Goldfish product. Added capacity will increase the bakery's output of Goldfish by 50%, allowing it to produce more than five million Goldfish per hour, or about 1,500 every second.
Tyson Foods	Tyson Foods to shut down 4 chicken plants after fall in demand	Closure	2023	Tyson Foods has announced the closure of four of its chicken plants following a decline in demand for some of its products. The company will close meatpackers in three states – Arkansas, Indiana, and Missouri – to cut costs.
General Mills	General Mills to expand in Joplin, investing \$48M and creating 47 jobs	Investment	2023	General Mills to expand in Joplin, MO., investing \$48 million and creating 47 new jobs at its frozen dough plant location. The company's expansion will increase its manufacturing and packaging capacity.
General Mills	General Mills to expand US frozen dough facility	Investment	2023	General Mills to invest \$48m in expanding its frozen dough plant in the US state of Missouri. The project will increase the site's manufacturing and packaging capacity to meet growing demand and product innovation from foodservice customers.
Tyson Foods	Tyson Foods to shut two more US sites	Closure	2023	Tyson Foods is closing two of its case-ready meat production facilities. The sites affected will be in Jacksonville, Florida and in Columbia, South Carolina.
Tyson Foods	Tyson Foods opens new fully cooked food production plant in Virginia to drive business growth	Investment	2023	Tyson Foods has officially opened a new \$300 million fully-cooked food production facility in Danville, Virginia, delivering on its strategy of accelerating long-term growth, operating as efficiently as possible and investing in its poultry business.

**Table 6 - Major Announcements in Food & Beverage Processing (4)**

Company	Announcement	Type	Year	Summary
WK Kellogg Co	WK Kellogg Co expansion in Battle Creek will retain 170, create 43 high-wage jobs, boost state's agribusiness industry	Investment	2023	WK Kellogg decided to expand volume at its Battle Creek (MI) facility, where the company will drive efficiency through investment in more modern technology.
Mars	Mars opens transformative \$42M snacking research and development hub in Chicago	Investment	2024	Mars announced the opening of its Global Research and Development Hub on its Goose Island campus, the global headquarters of the company's Snacking business. One of seven Mars global innovation sites around the world, the 44,000-square-foot, \$42 million facility will be dedicated to chocolate and nut testing, research and innovation.
Tyson Foods	Tyson Foods to close another plant	Closure	2024	Tyson Foods, Inc. is closing a pork processing plant in Perry, Iowa. The closing is scheduled to happen on June 28 (2024).
Mars	Mars announces \$70M investment in Hackettstown facility	Investment	2024	Mars has committed more than \$70m in investment into its Hackettstown location in New Jersey. The economic development will fund a Research and Development (R&D) Innovation Studio, encompassing a packaging lab, a new test kitchen, and a collaboration space. These facilities are designed to enhance manufacturing efficiencies and elevate food safety standards at the Hackettstown manufacturing factory.
Nestlé	Nestlé Purina celebrates opening of new factory	Investment	2024	Nestlé PurinaPetCare celebrates the grand opening of its cutting-edge pet food factory in Eden, North Carolina, marking a significant milestone in the company's expansion efforts. The 1.3-million-square-foot facility, established with an investment exceeding \$450 million, breathes new life into a former brewery, setting the stage for what Purina dubs as the 'factory of the future.'
PepsiCo	PepsiCo to close US Quaker Oats facility hit by salmonella recall	Closure	2024	PepsiCo is to permanently close a Quaker Oats factory in the US, local government officials have said, "After a detailed review, we determined that meeting our future manufacturing needs would require an extended closure for enhancements and modernization," PepsiCo said in a statement.

**Table 7 - Major Announcements in Food & Beverage Processing (5)**

Company	Announcement	Type	Year	Summary
Nestlé	Gov. Evers, WEDC announce Nestlé Purina’s \$195M expansion of Jefferson factory	Investment	2024	Gov. Tony Evers announced that Nestlé Purina PetCare Company is expanding its production facility in Jefferson, Wisconsin—a \$195 million project that is expected to bring an additional 100 jobs to the community it has called home since 1910.
Campbell Soup Co	Campbell announces supply chain optimization plan to fuel growth	Investment	2024	Company to invest \$230 million in network-wide projects to drive best-in-class manufacturing capabilities and leverage leading co-manufacturing partners. Maxton, North Carolina: \$150 million investment for new aseptic soup production, 100 new roles; Hanover, Pennsylvania: \$72 million investment to add additional potato chip kettles, 72 new roles; Franklin, Wisconsin: \$8 million investment to expand capacity for tortilla chips, 40 new roles
Campbell Soup Co	Campbell Soup to transform Texas plant into flagship sauce facility	Investment	2024	Campbell Soup Company is investing up to \$150 million to expand its facility in Robeson County, TX. According to a news release, the facility in Maxton is one of the company’s largest facilities and has been a vital employer in Robeson County for over 50 years. Campbell employs 1,200 people at this facility and plans to add 100 new workers there. It also plans to expand its soup and broth production.
WK Kellogg Co	WK Kellogg’s \$500M supply chain plan	Investment	2025	WK Kellogg Co. has unveiled a half-billion-dollar supply chain modernization plan aimed at hoisting margin growth into double digits by the end of 2026. Under the plan, expected to cost \$450 million to \$500 million, WK Kellogg said it will invest in new infrastructure, equipment, technology and capabilities at its manufacturing plants in Battle Creek, Mich.; Lancaster, Pa.; and Belleville, Ont., with a goal of boosting production at those sites as well. WK Kellogg said the up to \$500 million price tag for the supply chain modernization includes capital expenditures of up to \$390 million, along with one-time cash restructuring and non-restructuring costs of about \$110 million.
Kraft Heinz	Kraft Heinz embarks on a new \$143M expansion project in Garland, Texas	Investment	2024	Kraft Heinz Food Company and the City of Garland (TX) have partnered on a \$143 million expansion project to modernize and upgrade manufacturing capacity. Operating from their facility off Forest Lane since 1949, Kraft Heinz Food Company will make a major new capital investment in Garland, with plans to add new lines of production while also modernizing existing lines.

**Table 8 - Major Announcements in Food & Beverage Processing (6)**

Company	Announcement	Type	Year	Summary
Campbell Soup Co	Campbell's to close former Pacific Foods plant in Tualatin, lay off 330 by 2026	Closure	2024	Campbell Soup Co. plans to lay off a total 330 workers by summer 2026, when it permanently closes its Pacific Foods manufacturing plant in Tualatin, Oregon.
Campbell Soup Co	Campbell Soup Co. to cease soup production at US facility	Closure	2024	Campbell Soup Co. is to cease production of its canned soups at a factory in Paris, Texas. The move is being made to focus purely on production of its sauce brands.
WK Kellogg Co	WK Kellogg to close Omaha plant, downsize in Memphis as it shifts production to newer facilities	Closure	2024	WK Kellogg Co. is closing one U.S. cereal plant and downsizing another as part of a plan to consolidate its operations in newer facilities. The company said Tuesday it will close its Omaha, Nebraska, plant by the end of 2026. It also plans to scale back production at its plant in Memphis, Tennessee, starting 2025.
Nestlé	Nestlé to invest \$150M in frozen food plant	Investment	2024	Nestlé USA invested \$150 million to expand its frozen food facility in Gaffney, SC. The expansion will include the addition of a new line for the production of single-serve frozen meals as well as enhanced automation and digital technology.
General Mills	General Mills in Hannibal's latest expansion to focus on Old El Paso products	Investment	2024	General Mills is investing millions of dollars to expand its plant in Northeast Missouri. The new facility will be built on the north end of the facility. General Mills representatives said Old El Paso, known for its Tex-Mex products, will be the main focus there as it continues to grow in popularity. The plant also produces other name-brand foods such as Progresso and Nature Valley.
Tyson Foods	Tyson to shut down Emporia meat plant	Closure	2024	Tyson Foods has announced the planned closure of its value-added marinated proteins and ground beef plant in Emporia, Kansas.
Tyson Foods	Tyson Foods closes three US plants	Closure	2024	Tyson Foods is to shut three facilities in its domestic market. The company is closing two facilities in Pennsylvania and one in Kansas.

**Table 9 - Major Announcements in Food & Beverage Processing (7)**

Company	Announcement	Type	Year	Summary
PepsiCo	PepsiCo to close US PopCorners plant in New York	Closure	2025	PepsiCo is to close a snacks plant in the US manufacturing the PopCorners brand, with more than 200 employees expected to lose their jobs. The facility in the town of Liberty in New York is operated by PepsiCo Foods US.
Kraft Heinz	DeKalb, Illinois Centerpiece of Kraft Heinz \$3B U.S. Investment	Investment	2025	Kraft Heinz is investing \$3 billion to upgrade its 30 factories across the U.S., the company's biggest manufacturing investment in ten years. The food giant said the goal is to make its plants more efficient, lower costs, and bring new products to market faster. In July 2023, Kraft Heinz announced a \$400 million plan to build a large automated distribution center in DeKalb, Illinois. That project is part of the \$3 billion total.
Mars	Mars to invest \$2B into U.S. manufacturing through 2026	Investment	2025	The \$2B investment in U.S.-based manufacturing will enable increased capacity and further innovation across its diverse portfolio of brands. This investment is supporting a new, \$240 million facility for Nature's Bakery in Salt Lake City, Utah. Earlier this year Mars also opened a \$450 million Royal Canin® dry pet food facility in Lewisburg, Ohio.
General Mills	General Mills invests \$54M in expansion of James Ford Bell Technical Center	Investment	2025	General Mills announced a \$54 million investment to expand its James Ford Bell (JFB) Technical Center, a key hub for the company's innovation, technology and quality capabilities. This expansion will add a new 35,000-square-foot, two-story pilot plant wing, increasing pilot plant space by more than 20 percent and providing state-of-the-art facilities for its research and development teams.
Kraft Heinz	Kraft Heinz to split a decade after megafood merger	Investment	2025	Kraft Heinz is splitting into two a decade after a merger of the brands created one of the biggest food companies on the planet. One of the companies, currently called Global Taste Elevation Co., will include shelf stable meals and include brands such as Heinz, Philadelphia cream cheese and Kraft Mac & Cheese. The other, currently called North American Grocery Co., will include brands such as Oscar Mayer, Kraft Singles and Lunchables. The official names of the two companies will be released later.

**Table 10 - Major Announcements in Food & Beverage Processing (8)**

Company	Announcement	Type	Year	Summary
General Mills	General Mills to close three plants	Closure	2025	In an 8-K filing with the Securities and Exchange Commission, released Oct. 1, General Mills said it aims to close its North America Food service pizza crust production plant in St. Charles, Mo., as well as two North America Pet manufacturing facilities in Joplin, Mo. Plans call for the TNT Crust plant in St. Charles to shut down by the end of June 2026 and for production at the two Joplin facilities to end by July 2026. General Mills said in the filing that it expects to incur about \$82 million in restructuring charges.
Tyson Foods	Tyson Foods to close major US beef plant as cattle supplies dwindle	Closure	2025	Tyson Foods will close a major beef plant in Lexington, Nebraska, with about 3,200 employees in January after U.S. cattle supplies dropped to their lowest level in nearly 75 years.
PepsiCo	PepsiCo closes a Florida Frito-Lay plant after 60 years, layoffs hit	Closure	2025	PepsiCo has shuttered its Frito-Lay plant in Orlando, Florida, a facility that operated for 60 years before closing on November 18, 2025.
PepsiCo	PepsiCo shuts down Frito-Lay plant in California	Closure	2025	PepsiCo., Inc., has shut down manufacturing operations at a Frito-Lay, Inc. plant in Rancho Cucamonga, California. The warehouse, distribution and transportation employees will continue to operate at the location. The company did not report how many jobs were cut.

# 5

# Machine Statistics

## BASELINE OF PROCESSING MACHINERY

### First edition note

This report marks the first edition of PMMI and FPSA's joint effort to segment and forecast the food processing machinery market. Compared with adjacent equipment categories such as packaging, many core processing technologies are structurally mature. Thermal systems, chilling, mixing, and primary meat processing equipment have evolved over decades and operate within well-established food science principles and regulatory frameworks. As a result, innovation in many categories tends to be incremental, focused on performance optimization rather than fundamental redesign.

Across most processing machine groups, growth is primarily driven by capacity expansion, plant modernization, and replacement cycles rather than rapid technological disruption. Equipment lifecycles are typically long, capital intensity is high, and improvements often center on yield enhancement, sanitation, energy efficiency, and selective automation. This creates steady, structurally anchored demand patterns across much of the sector.

Regulatory compliance and food safety requirements remain central purchasing considerations. Categories such as inspection, pasteurization, sterilization, and chilling are directly shaped by retailer standards, export regulations, and validation protocols. At the same time, labor availability and operating cost pressures are encouraging greater automation and system integration, particularly in labor-intensive segments such as primary meat processing and material handling.

As the inaugural edition of this study, the analysis focuses on establishing a clear structural baseline across major machine groups, including market size, forecast trends, and industry exposure. Future editions will expand sub-segment detail as additional primary research and supplier engagement further refine the dataset.

For more data manipulation—including machine filters and industry-specific filters—PMMI/FPSA members can access the interactive Processing State of the Industry Dashboard at: [pmmi.org/content/soti-dashboard](https://pmmi.org/content/soti-dashboard)

# DRY INGREDIENT EQUIPMENT

In 2025, the total estimated value of shipments within the dry ingredient equipment sector in the US was \$542 million. The majority of this equipment was sold to the prepared foods sector, which accounted for 17% of the market in 2025.

This machinery experienced a growth rate of 3.0% compared to the previous year in the US. For 2026, we anticipate a growth rate of 2.8%.

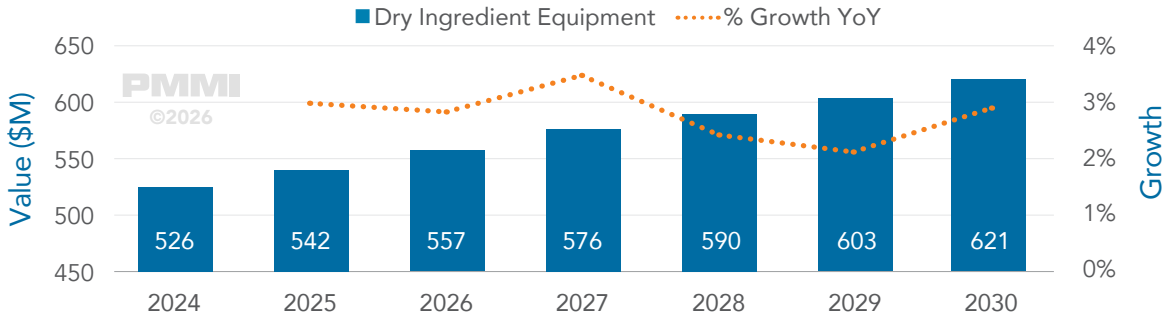
By 2030, the value of shipments is expected to reach approximately \$621 million, reflecting an overall CAGR of 2.8% from 2024 to 2030.

**Table 11 - US Dry Ingredient Equipment by Industry**

Industry	2025 Value of Shipments (\$M)	Share %
Alcoholic Beverages	\$18	3%
Animal Feeds & Pet Food	\$58	11%
Bakery & Confectionery	\$73	13%
Cooking Oils	\$22	4%
Dairy	\$70	13%
Fish & Seafood	\$22	4%
Fruits & Vegetables	\$51	9%
Grains & Cereals	\$34	6%
Meat & Poultry	\$67	12%
Non-Alcoholic Beverages	\$34	6%
Prepared Foods	\$92	17%
<b>Total</b>	<b>\$542</b>	

Source: Interact Analysis

**Fig. 33 US Processing Machinery Forecast - Dry Ingredient Equipment**



PMMI/FPSA members can visit <https://www.pmmi.org/content/soti-dashboard> to explore interactive forecast data by machine type, industry, and more

## FORMING, SHAPING, & DECORATING EQUIPMENT

In 2025, the total estimated value of shipments within the forming, shaping, & decorating equipment sector in the US was \$582 million. The majority of this equipment was sold to the meat & poultry sector which accounted for 38% of the US market in 2025.

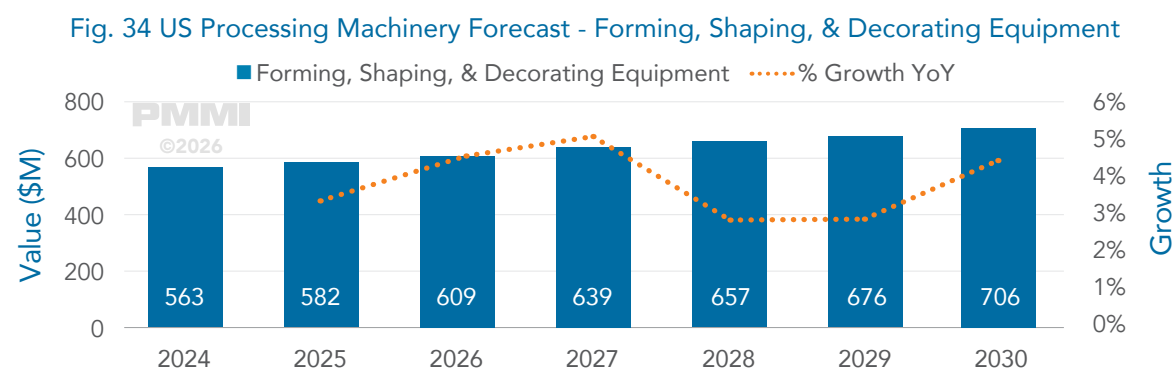
This machinery experienced a growth rate of 3.4% compared to the previous year in the US. For 2026, we anticipate a growth rate of 4.5%.

By 2030, the value of shipments is expected to reach approximately \$706 million, reflecting a CAGR of 3.8% from 2024 to 2030.

**Table 12 - US Forming, Shaping, & Decorating Equipment by Industry**

Industry	2025 Value of Shipments (\$M)	Share %
Alcoholic Beverages	–	–
Animal Feeds & Pet Food	\$36	6%
Bakery & Confectionery	\$94	16%
Cooking Oils	–	–
Dairy	\$76	13%
Fish & Seafood	\$24	4%
Fruits & Vegetables	\$48	8%
Grains & Cereals	\$20	4%
Meat & Poultry	\$222	38%
Non-Alcoholic Beverages	–	–
Prepared Foods	\$62	11%
<b>Total</b>	<b>\$582</b>	

Source: Interact Analysis



PMMI/FPSA members can visit <https://www.pmmi.org/content/soti-dashboard> to explore interactive forecast data by machine type, industry, and more

# INSPECTION EQUIPMENT

In 2025, the total estimated value of shipments within the inspection equipment sector in the US was \$630 million. The majority of this equipment was sold to the meat & poultry which accounted for 24% of the US market in 2025.

This machinery experienced a growth rate of 4.4% compared to the previous year in the US. For 2026, we anticipate a growth rate of 4.2%.

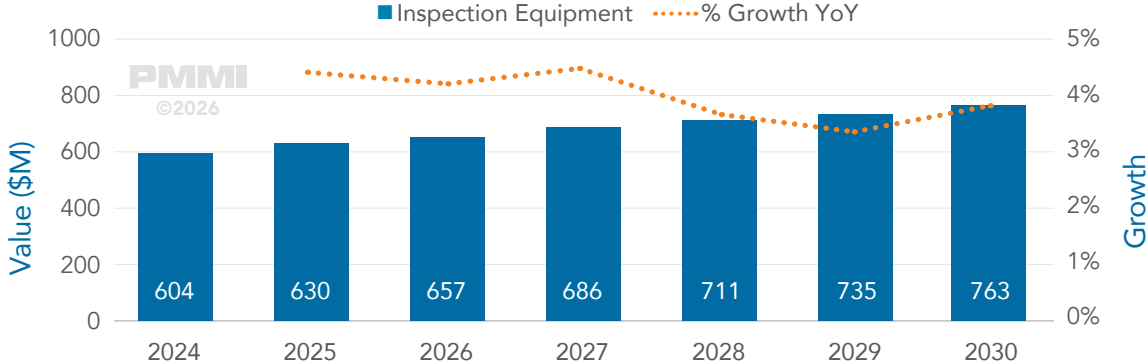
By 2030, the value of shipments is expected to reach approximately \$763 million, reflecting a CAGR of 4.0% from 2024 to 2030.

**Table 13 - US Inspection Equipment by Industry**

Industry	2025 Value of Shipments (\$M)	Share %
Alcoholic Beverages	\$34	5%
Animal Feeds & Pet Food	\$30	5%
Bakery & Confectionery	\$52	8%
Cooking Oils	\$20	3%
Dairy	\$81	13%
Fish & Seafood	\$20	3%
Fruits & Vegetables	\$67	11%
Grains & Cereals	\$26	4%
Meat & Poultry	\$148	24%
Non-Alcoholic Beverages	\$39	6%
Prepared Foods	\$112	18%
<b>Total</b>	<b>\$630</b>	

Source: Interact Analysis

**Fig. 35 US Processing Machinery Forecast - Inspection Equipment**



PMMI/FPSA members can visit <https://www.pmmi.org/content/soti-dashboard> to explore interactive forecast data by machine type, industry, and more

## LIQUID, PASTE, & SLURRY PROCESSING EQUIPMENT

In 2025, the total estimated value of shipments within the liquid, paste, & slurry processing equipment sector in the US was \$379 million. The majority of this equipment was sold to the dairy sector, which accounted for 24% of the US market in 2025.

This machinery experienced a growth rate of 3.4% compared to the previous year in the US. For 2026, we anticipate a growth rate of 3.7%.

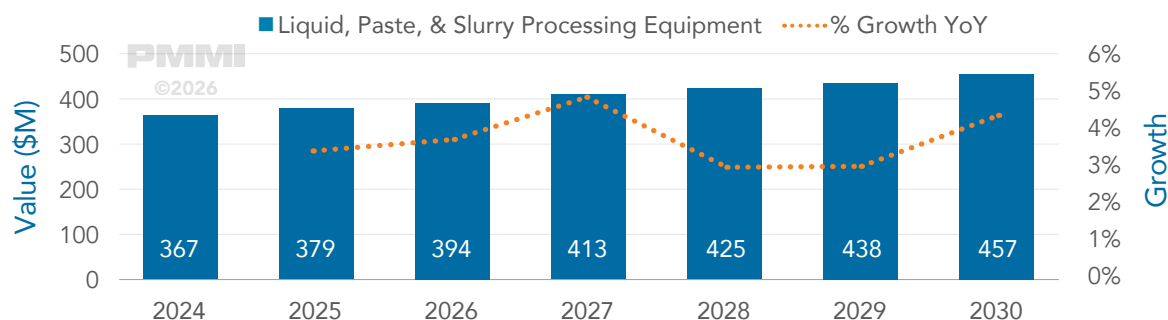
By 2030, the value of shipments is expected to reach approximately \$457 million, reflecting a CAGR of 3.7% from 2024 to 2030.

**Table 14 - US Liquid, Paste, & Slurry Processing Equipment by Industry**

Industry	2025 Value of Shipments (\$M)	Share %
Alcoholic Beverages	\$43	11%
Animal Feeds & Pet Food	\$16	4%
Bakery & Confectionery	\$22	6%
Cooking Oils	\$22	6%
Dairy	\$90	24%
Fish & Seafood	\$12	3%
Fruits & Vegetables	\$29	8%
Grains & Cereals	\$10	3%
Meat & Poultry	\$23	6%
Non-Alcoholic Beverages	\$54	14%
Prepared Foods	\$58	15%
<b>Total</b>	<b>\$379</b>	

Source: Interact Analysis

**Fig. 36 US Processing Machinery Forecast - Liquid, Paste, & Slurry Processing Equipment**



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# MATERIAL HANDLING & CONVEYANCE

In 2025, the total estimated value of shipments within the material handling & conveyance sector in the US was nearly \$1.1 billion. The majority of this equipment was sold to the meat & poultry sector which accounted for 21% of the US market in 2025.

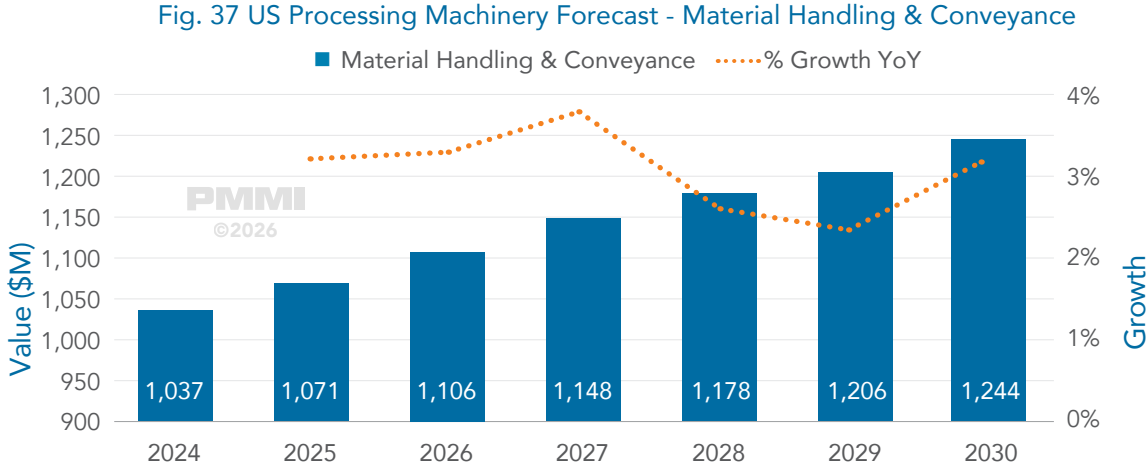
This machinery experienced a growth rate of 3.2% compared to the previous year in the US. For 2026, we anticipate a growth rate of 3.3%.

By 2030, the value of shipments is expected to reach approximately \$1.2 billion reflecting a CAGR of 3.1% from 2024 to 2030.

**Table 15 - US Material Handling & Conveyance by Industry**

Industry	2025 Value of Shipments (\$M)	Share %
Alcoholic Beverages	\$63	6%
Animal Feeds & Pet Food	\$57	5%
Bakery & Confectionery	\$118	11%
Cooking Oils	\$19	2%
Dairy	\$144	13%
Fish & Seafood	\$38	4%
Fruits & Vegetables	\$88	8%
Grains & Cereals	\$49	5%
Meat & Poultry	\$229	21%
Non-Alcoholic Beverages	\$73	7%
Prepared Foods	\$192	18%
<b>Total</b>	<b>\$1,071</b>	

Source: Interact Analysis



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# PRIMARY MEAT PROCESSING EQUIPMENT

In 2024, the total estimated value of shipments within the primary meat processing equipment sector in the US was \$836 million. The majority of this equipment was sold to the meat & poultry sector which accounted for 79% of the US market in 2025.

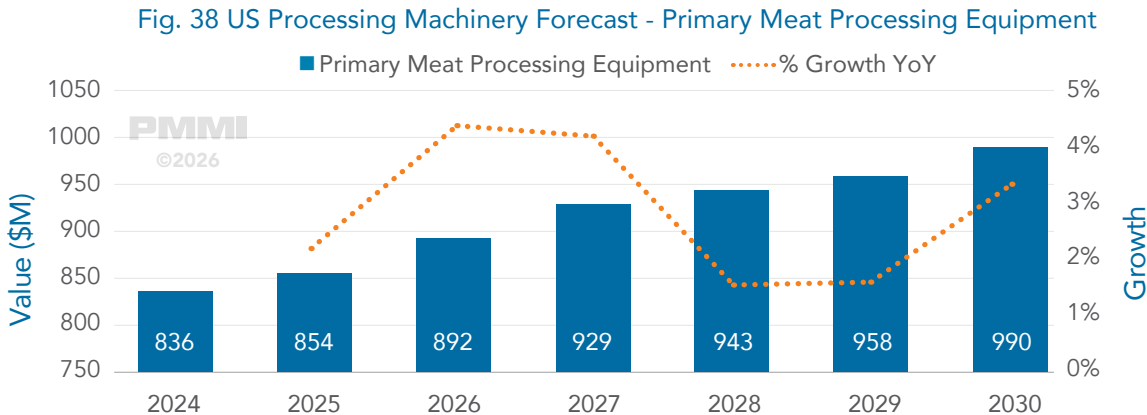
This machinery experienced a growth rate of 2.2% compared to the previous year in the US. For 2026, we anticipate a growth rate of 4.4%.

By 2030, the value of shipments is expected to reach approximately \$990 million reflecting a CAGR of 2.9% from 2024 to 2030.

**Table 16 - US Primary Meat Processing Equipment by Industry**

Industry	2025 Value of Shipments (\$M)	Share %
Alcoholic Beverages	–	–
Animal Feeds & Pet Food	\$24	3%
Bakery & Confectionery	–	–
Cooking Oils	–	–
Dairy	–	–
Fish & Seafood	\$109	13%
Fruits & Vegetables	–	–
Grains & Cereals	–	–
Meat & Poultry	\$674	79%
Non-Alcoholic Beverages	–	–
Prepared Foods	\$47	5%
<b>Total</b>	<b>\$854</b>	

Source: Interact Analysis



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## SEPARATING, SORTING, & CUTTING EQUIPMENT

In 2025, the total estimated value of shipments within the separating, sorting, & cutting equipment sector in the US was \$993 million. The majority of this equipment was sold to the meat & poultry sector which accounted for 23% of the US market in 2025.

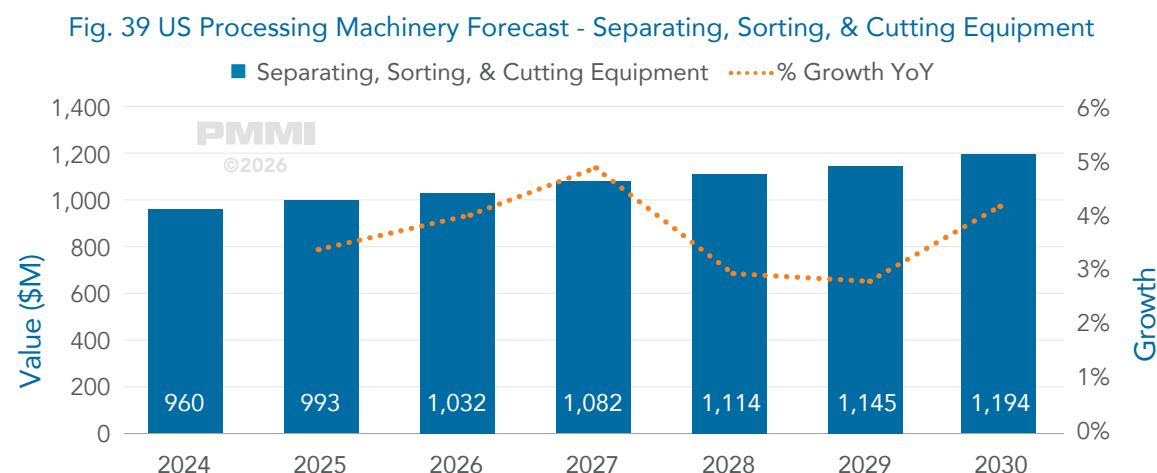
This machinery experienced a growth rate of 3.4% compared to the previous year in the US. For 2026, we anticipate a growth rate of 3.9%.

By 2030, the value of shipments is expected to reach nearly \$1.2 billion, reflecting a CAGR of 3.7% from 2024 to 2030.

**Table 17 - US Separating, Sorting, & Cutting Equipment by Industry**

Industry	2025 Value of Shipments (\$M)	Share %
Alcoholic Beverages	\$38	4%
Animal Feeds & Pet Food	\$55	6%
Bakery & Confectionery	\$96	10%
Cooking Oils	\$32	3%
Dairy	\$119	12%
Fish & Seafood	\$37	4%
Fruits & Vegetables	\$106	11%
Grains & Cereals	\$49	5%
Meat & Poultry	\$227	23%
Non-Alcoholic Beverages	\$76	8%
Prepared Foods	\$158	16%
<b>Total</b>	<b>\$993</b>	

Source: Interact Analysis



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## SPECIALIZED EQUIPMENT

In 2025, the total estimated value of shipments within the specialized equipment sector in the US was \$516 million. The majority of this equipment was sold to the non-alcoholic beverages which accounted for 23% of the US market in 2025.

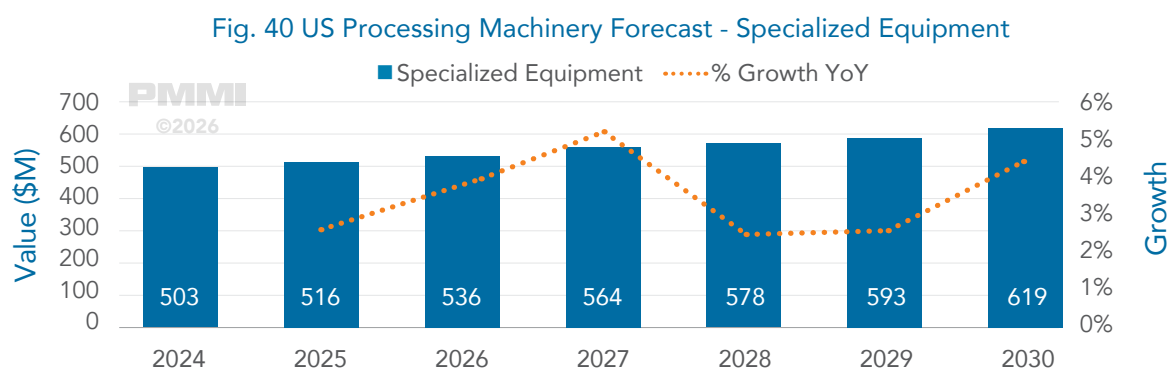
This machinery experienced a growth rate of 2.7% compared to the previous year in the US. For 2026, we anticipate a growth rate of 3.8%.

By 2030, the value of shipments is expected to reach approximately \$619 million, reflecting a CAGR of 3.5% from 2024 to 2030.

**Table 18 - US Specialized Equipment by Industry**

Industry	2025 Value of Shipments (\$M)	Share %
Alcoholic Beverages	\$47	9%
Animal Feeds & Pet Food	\$26	5%
Bakery & Confectionery	\$46	9%
Cooking Oils	\$10	2%
Dairy	\$71	14%
Fish & Seafood	\$18	3%
Fruits & Vegetables	\$30	6%
Grains & Cereals	\$17	3%
Meat & Poultry	\$77	15%
Non-Alcoholic Beverages	\$121	23%
Prepared Foods	\$54	10%
<b>Total</b>	<b>\$516</b>	

Source: Interact Analysis



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# THERMAL PROCESSING EQUIPMENT

In 2025, the total estimated value of shipments within the thermal processing equipment sector in the US was \$652 million. The majority of this equipment was sold to the meat & poultry which accounted for 23% of the US market in 2025.

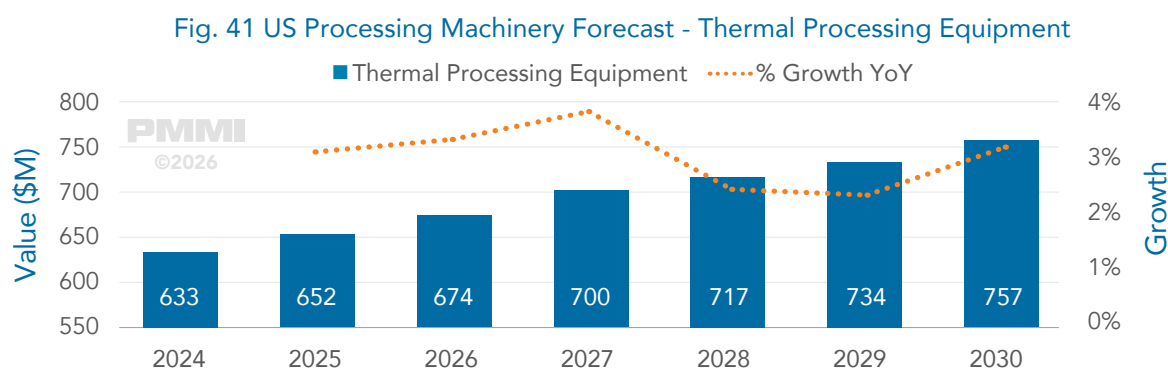
This machinery experienced a growth rate of 3.1% compared to the previous year in the US. For 2026, we anticipate a growth rate of 3.3%.

By 2030, the value of shipments is expected to reach approximately \$757 million, reflecting a CAGR of 3.0% from 2024 to 2030.

**Table 19 - US Thermal Processing Equipment by Industry**

Industry	2025 Value of Shipments (\$M)	Share %
Alcoholic Beverages	\$39	6%
Animal Feeds & Pet Food	\$28	4%
Bakery & Confectionery	\$48	7%
Cooking Oils	\$16	3%
Dairy	\$121	19%
Fish & Seafood	\$19	3%
Fruits & Vegetables	\$66	10%
Grains & Cereals	\$25	4%
Meat & Poultry	\$149	23%
Non-Alcoholic Beverages	\$45	7%
Prepared Foods	\$96	15%
<b>Total</b>	<b>\$652</b>	

Source: Interact Analysis



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# 6

# Appendix

## RISKS ASSOCIATED WITH FORECAST

### Tariffs & Uncertainty

Tariff announcements and reversals in 2025 contributed to order delays as buyers paused to assess potential cost impacts. While markets have shown greater resilience to policy headlines over time, renewed escalation from recent legal developments could again disrupt material pricing and capital investment timing. Greater uncertainty could again reduce the willingness to invest in machinery, negatively impacting machinery demand.

### Federal Reserve to see new Chairman

Leadership transition at the Federal Reserve in the coming cycle introduces potential variability in policy direction. Although institutional continuity typically moderates abrupt shifts, markets often respond to perceived changes in rate-setting posture. If rate policy changes rapidly, it could materially impact capital equipment demand, thus impacting processing machinery market growth.

### First Edition

As the first edition of the food & beverage processing machinery forecast, coverage depth varies across subsegments. Where direct reporting was limited, we incorporated historical data, secondary research, and cross-sector comparisons to reinforce estimates. Future editions will continue to expand data continuity and segment detail.

## Thank You for Your Participation

We extend our gratitude to those who participated in the survey for this report. Your responses were instrumental in helping us understand the growth patterns in this market. For those who contributed through interviews, your insights were invaluable. We recognize that your time is valuable, and your willingness to share information about the industry's current state has significantly enhanced the depth and accuracy of this report.

# RESEARCH METHODOLOGY

## Primary research

Our research relies heavily on primary sources of information. For this report, these sources were as follows:



PMMI & FPSA Membership  
Supplier Survey



16 Interviews With Processing  
Machinery Suppliers



Attending Processing  
Machinery Tradeshows

These sources were used to achieve the following:

- 1 Determine market size for 2024 through a bottom up counting of revenues
- 2 Uncover sentiment relating to growth during 2025/2026
- 3 Understand challenges and opportunities facing packaging machinery suppliers
- 4 Determine relative share of machine types by industry
- 5 Understand long term drivers of growth

## Secondary Data Sets Used in Modelling Process:

### US Census

The US Census provides robust data on the performance of manufacturing by various industry sectors. This data was relied upon heavily to determine the relative size of end-verticals. It was also used to provide historic perspective for how processing machinery production has performed, and its relationship with machinery production.

### Federal Reserve Economic Database (FRED)

Our macroeconomic commentary relies heavily on information provided by the federal reserve. The FRED provides information relating to inflation, interest rates, supply chain pressures, amongst much more. We've utilized these historic datasets to help determine the impact macroeconomic movement has on the sale of processing machinery.

### US Bureau of Labor Statistics

We relied on the US Bureau of Labor Statistics for information relating to employment of service

technicians and utilized it to provide context for the workforce shortage discussion.

### Processing Machinery Supplier Websites

Websites from public processing machine suppliers are utilized to gain historic perspective of growth and to better understand the drivers of growth. Investor relation reports are utilized heavily for this purpose.

### The Manufacturing Industry Output Tracker

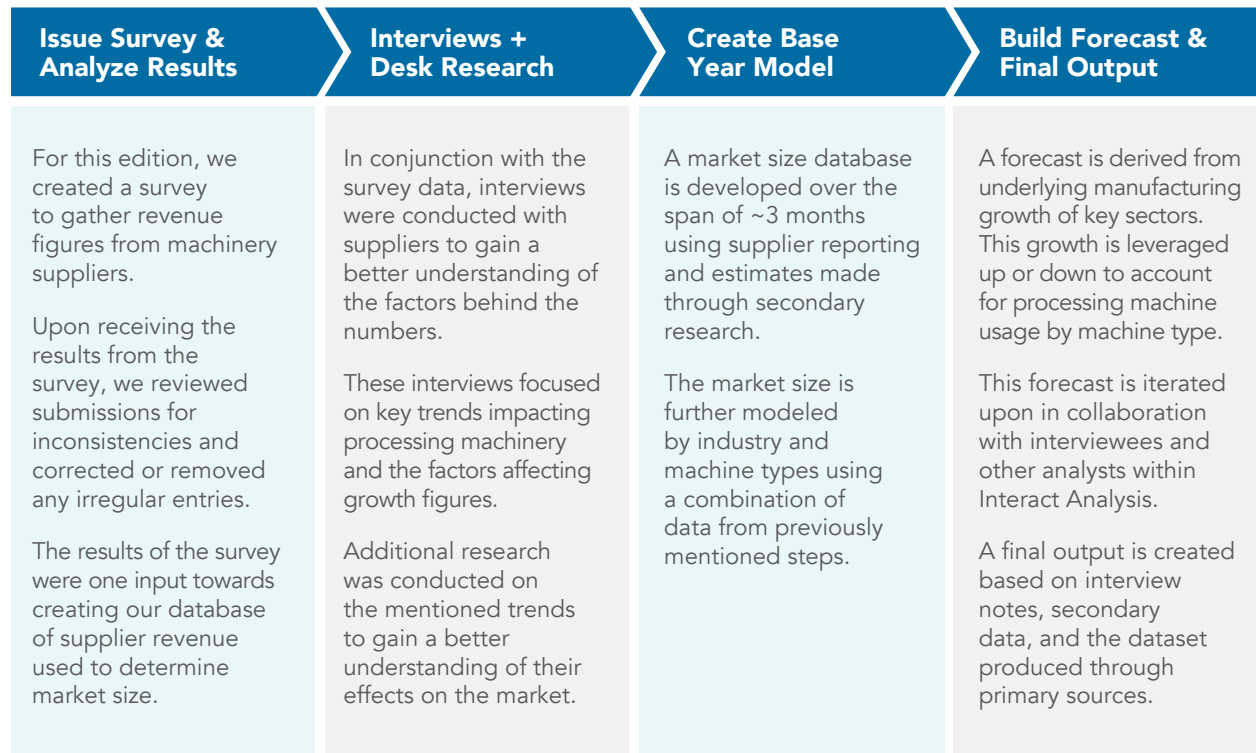
An internal dataset managed by Interact Analysis, the manufacturing industry output tracker looks at growth of manufacturing and machinery production to aid in forecasting the market by industry and machine type.

## Survey + in depth interviews

Our methodology follows a multi-phase approach, detailed below. The core of our methodology is our thorough bottom-up analysis of the market. Instead of relying on modeled market sizes, our goal is to produce market sizes based on actual reported figures. As the research progresses, we will take steps to further enable this approach.

In general, the more deeply you delve into a dataset, the more modeling is needed to develop estimates. We are confident in our estimates at the total market, industry, and machine levels. While more granular data was collected at the sub-machine level (Level 3, as defined in the scope), this level of detail is not fully presented in this edition of the report. As a first edition, the focus was on establishing a consistent and reliable market baseline across higher-level segments. As the research progresses and the dataset continues to develop, future editions may incorporate more detailed sub-machine level analysis.

Feedback on our estimates will be sought as part of next year's research process. We view research as a collaborative and evolving process and take explicit steps to ensure that feedback is incorporated into updated reports.

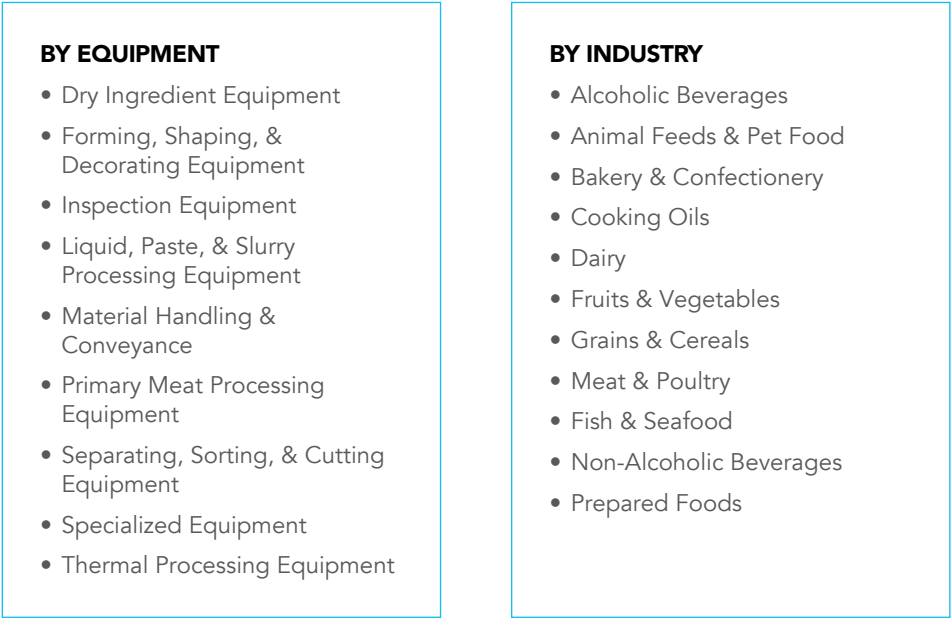


# Segmentation for Processing Market Size and Forecasts

## Level 1

**BY COUNTRY – United States**

## Level 2



Data is presented in terms of total value of shipments for the calendar year 2024, represented in terms of US dollars.

A forecast for the years 2025 through 2030 is also presented.

All data is presented in terms of shipped machine sales in US dollars.

# Segmentation for Processing Market Size and Forecasts



## Level 3

### **Dry Ingredient Equipment**

- Dry Product Feeders
- Dumpers & Bulk Unloading
- Dumping Stations
- Milling & Grinding Equipment

### **Forming, Shaping, & Decorating Equipment**

- Forming & Extruding Equipment
- Coating, Enrobing, & Seasoning Machines
- Decorating Machines
- Depositors
- Injectors
- Tumblers
- Vacuum Stuffers

### **Inspection Equipment**

- Metal Detectors
- Vision Inspection Systems
- X-rays

### **Liquid, Paste, & Slurry Processing Equipment**

- Evaporators & Distillation Equipment
- Fermenters & Reactors
- Filtration Equipment
- Homogenizers
- Mixing & Blending Equipment
- Spray Dryers & Agglomerators

### **Material Handling & Conveyance**

- Bulk Handling/Bulk Weighing Equipment
- Processing Conveyors/Conveyance
- Shakers

### **Primary Meat Processing**

- Carcass Chilling Equipment
- Deboning
- Evisceration Equipment
- Skinning

### **Separating, Sorting, & Cutting Equipment**

- Centrifuges & Separators
- Grading & Sorting Equipment
- Magnetic Separators
- Screening & Separating Equipment
- Slicing, Dicing, Cutting & Shredding Equipment
- Wet Grinding Equipment

### **Specialized Equipment**

- High Pressure Processing (HPP)
- Raw Material Preparation Equipment
- Retort & Sterilization
- Robotic Processing Equipment

### **Thermal Processing Equipment**

- Chillers, Freezers & Cooling Equipment
- Fryers
- Pasteurizers
- Heat Exchangers
- Ovens & Dryers

**NOTE:** This mapping shows which subcategories are aggregated into each equipment.

Data is **NOT** be available at the subcategory level.

Data is available by the equipment types shown in bold.

# DEFINITIONS

## Industries

**Alcoholic Beverages** – Breweries, wineries, and distilleries manufacturing beer, wine, and distilled beverages.

**Animal Feeds & Pet Food** – Manufacturing of livestock feeds, pet food, dog & cat food.

**Bakery & Confectionery** – Retail/commercial bakeries; confectionery manufacturing from cocoa beans or purchased chocolate.

**Cooking Oils** – Soybean & oilseed processing; fats and oils refining & blending.

**Dairy** – Manufacturing of milk, butter, cheese, yogurt, and dry/condensed dairy products.

**Fruits & Vegetables** – Frozen fruit/vegetables, canning, specialty canning, drying/dehydrating

**Grains & Cereals** – Flour milling, rice milling, and breakfast cereal manufacturing.

**Meat & Poultry** – Processing of red meat and poultry products for fresh, frozen, or preserved distribution.

**Fish & Seafood** – Processing of fish and shellfish products, including fresh, frozen, and preserved forms.

**Non-Alcoholic Beverages** – Soft drink manufacturing, bottled water, and ice.

**Prepared Foods** – Perishable prepared foods and other miscellaneous food manufacturing.

## Equipment & sub-equipment

**Dry Ingredient Equipment** – Machinery for handling, measuring, and preparing powders, grains, and other dry raw materials. Includes feeders, milling and grinding equipment, dumping stations, and bulk unloading systems.

**Dry Product Feeders** – Used to load and feed dry products into another inline machine during food and beverage processes; includes equipment such as screw feeders for nut pieces and biscuit feeders for sandwich cookie production.

**Dumpers & Bulk Unloading** – Dumpers, tilts and other bulk unloaders used to discharge the contents of a material handling operation into another.

**Dumping Stations** – Equipment used to empty ingredients such as powders into a hopper during processing.

**Milling & Grinding Equipment** – Used to grind and mill raw products into fine powders and flours for consumable products; includes granulators and conching machines.

**Forming, Shaping, & Decorating Equipment** – Processing machinery that transforms raw or semi-processed foods into finished forms or applies coatings and decorations. Includes extruders, depositors, injectors, vacuum stuffers, enrobing and seasoning machines, and decorating equipment.

**Forming & Extruding Equipment** – Used in food processing to apply heat or other conditions to move food ingredients through plates or dies that create the product's final shape; includes related

equipment such as sheeters, laminators and rounding machines.

**Coating, Enrobing, & Seasoning** – Machinery used to apply edible coatings, batters, breading, or seasonings to food products. Includes breading and battering systems for meat and seafood, enrobers for chocolate or yogurt coatings, and seasoning systems for snacks, crackers, and nuts.

**Decorating Machines** – Processing machinery used to apply precise decorative or finishing touches to food products. Common applications include drizzling, striping, or depositing chocolate, icing, or glaze on bakery and confectionery items.

**Depositors** – Industrial food and beverage processing equipment that places ingredients of various viscosities during formation, or for positioning products for further processing, either continuously or by spot placement.

**Injectors** – Equipment used to inject brines, marinades, or curing solutions into meat, poultry, or fish.

**Tumbling** – Rotating drum systems, often operated under vacuum, used to mix, marinate, and tenderize meat, poultry, seafood, and other foods.

**Vacuum Stuffers** – Machines that use vacuum pressure to remove air pockets and portion ground, emulsified, or semi-solid products into casings, molds, or containers.

## Equipment & sub-equipment

**Inspection Equipment** – Machinery that monitors and verifies product safety, quality, and integrity during processing. Includes X-rays, metal detectors, and vision inspection systems.

**Metal Detectors** – Equipment that uses electromagnetic fields to identify and reject ferrous and non-ferrous metal contaminants in food or beverage products. Often installed inline during processing or just before packaging to maintain product safety standards.

**Vision Inspection Systems** – Optical inspection equipment using cameras, lighting, and software to assess product attributes such as size, shape, color, or surface defects. In processing, these systems sort raw materials (e.g., fruits, vegetables, nuts) or check product quality (e.g., chip color, bakery uniformity).

**X-rays** – Inspection machines that use X-ray imaging to detect foreign objects (such as bone fragments, glass, metal, or dense plastics) in food products during or after processing.

### Liquid, Paste, & Slurry Processing

**Equipment** – Equipment used to process liquid and semi-liquid products in food and beverage applications. Includes mixing and blending systems, homogenizers, fermenters, evaporators, spray dryers, filtration units, and related components.

**Evaporators & Distillation Equipment** – Food and beverage processing equipment that removes water particles from food to reduce weight, transforms liquids into gases, or separates one liquid from another.

**Fermenters & Reactors** – Equipment that transforms a culture medium into a food, beverage or other product for human consumption such as yogurt, whiskey, or penicillin; includes batch/tube reactors and related equipment.

**Filtration Equipment** – Filters, strainers and related systems that are used to separate or strain liquids from micro-sized solids using a variety of substrates during food and beverage processing.

**Homogenizers** – Machinery that breaks down solid particles in liquids, such as removing fat globules during milk processing.

**Mixing & Blending Equipment** – Any processing equipment that mixes or blends two or more ingredients for food, beverage or other processing applications.

**Spray Dryers & Agglomerators** – Processing equipment used to transform liquids into powders (i.e., spray dryers to make milk powder) or accumulate powdered particles into larger elements (i.e., agglomerators for instant coffee processing).

**Material Handling & Conveyance** – Systems used to move, guide, and stage ingredients and products throughout food and beverage processing operations.

Includes bulk handling and weighing equipment, processing conveyors, and vibratory shakers.

**Bulk Handling/Bulk Weighing Equipment** – Machines that transfer, transport and/or weigh bulk ingredients such as powders and pellets for food or beverage applications; includes process scales, floor scales, strain gauges and load cells.

**Processing Conveyors/Conveyance** – Specialized conveying equipment used to transport ingredients and finished products (not packages) through a food processing operation, including cable conveyors for small and fragile ingredients. Other examples include tubular drag/disc, aeromechanical,

**Shakers** – Vibratory conveyors or platforms used to move, align, and distribute food products during processing.

**Primary Meat Processing** – Equipment used after slaughter to convert carcasses into prepared cuts. This includes machinery for evisceration, deboning, skinning, and carcass chilling.

**Carcass Chilling Equipment** – Cooling systems integrated into slaughter lines to rapidly lower carcass temperature after evisceration.

**Deboning** – Machines that mechanically separate edible meat from bones, cartilage, or tendons in poultry, red meat, or fish processing.

**Evisceration Equipment** – Automated systems used to remove internal organs from slaughtered animals, including poultry, pork, and beef.

**Skinning Equipment** – Machines used to remove the outer layer or skin from meat, poultry, or fish products. Skinning systems use mechanical blades, rollers, or vacuum-assisted technology to separate skin or membranes.

### Separating, Sorting, & Cutting

**Equipment** – Machinery used to size, separate, or refine raw and processed food materials. Includes slicers, dicers, shredders, centrifuges, grading systems, magnetic separators, wet grinding equipment, and screening equipment.

**Centrifuges & Separators** – Food and beverage processing machines that apply centrifugal force or other means to separate solids from liquids or one liquid from another in a vessel.

**Grading & Sorting Equipment** – Machines that sort food products (i.e., potato chips, carrots) by weight, size, shape, or other specifications; includes related food processing machinery such as aligners, orienters and scalping equipment.

**Magnetic Separators** – Used in food and beverage production, this equipment separates any ferrous pieces that may have been introduced through processes such as grinding from contaminating a food source.

**Screening & Separating Equipment** – Processing equipment used to separate products by coarseness, such as sifters for flour equipment or separators for removing clumps in powders.

**Slicing, Dicing, Cutting & Shredding Equipment** – Food and beverage processing equipment that prepares ingredients into a desired shape using knives, water cutting, laser and ultrasonic methods, including machines such as choppers, shredders, crumblers, crushers, fruit chunkers and fat trimmers.

**Wet Grinding Equipment** – Processing machines that grind or comminute solid or semi-solid materials within a liquid or moist environment to produce uniform particle sizes or emulsified mixtures. This category includes both colloid mills and meat grinders used to prepare ground, emulsified, or blended products such as sauces, spreads, batters, and processed meats

**Specialized Equipment** – Machinery designed for unique or high-value food and beverage processing steps. Includes robotic processing systems, raw material preparation equipment, retort and sterilization units, and high-pressure processing (HPP) machines.

**High Pressure Processing (HPP)** – Enclosed chambers that apply pressure in place of heat to filled and sealed food or beverage containers as a method to inactivate harmful pathogens in products while retaining nutrients and taste profile and increasing shelf life.

**Raw Material Preparation Equipment** – Food industry equipment used for initial food preparation processes for products, particularly fruits and vegetables, such as washing, peeling, pitting, de-clustering, and destemming.

**Retort & Sterilization** – A range of thermal processing equipment, typically used for processing in-container, low-acid foods, that uses heat to destroy microorganisms, rendering the product shelf stable. Includes autoclaves and other equipment that use batch, continuous process or sterilization methods.

**Robotic Processing Equipment** – Robotics systems used exclusively for preparation or assembly of food and beverage ingredients into processed food, such as robotic equipment for deboning, decorating or ingredient placement.

**Thermal Processing Equipment** – Equipment that applies heating or cooling to transform, preserve, or stabilize products. Includes ovens, fryers, dryers, heat exchangers, pasteurizers, chillers, and freezers.

**Fryers** – Processing equipment that cooks food by immersing it in hot oil or spraying oil in a continuous system.

**Heat Exchangers** – Equipment used to regulate temperatures of liquids during food and beverage processing operations, such as pasteurizers and cookers.

**Ovens & Dryers** – Thermal processing equipment that applies heat and airflow to cook, bake, roast, or dehydrate food products.

**Pasteurizers** – Equipment designed to heat food and beverage products to controlled temperatures for a specified time to destroy microorganisms and extend shelf life.

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