

# POTATO PROCESSING

I N T E R N A T I O N A L

Supporting the potato industry worldwide

Issue 4 • Volume 31 • 2023



## Process - Frying

Key Selling Points of  
Potato Frying Systems

## Spotlight

The Balance Between  
Accountability and Profitability  
in the Potato Supply Chain

## Trends

Exploring US Snacking  
Trends: Monitoring Inflation  
and Promotional Impact

**PB**

visit [potatobusiness.com](https://potatobusiness.com) incorporating our digital magazine

**POTATOBUSINESS**

**#**

**digitalmedia**

**#news**

[www.potatobusiness.com](http://www.potatobusiness.com)

**#exclusive content**

Potato Business Digital

**#insights**

Dossier

**#industry updates**

Newsletter

**#customization**

e-Blasts



# Contents

## 04 Comment

AI Makes its Way onto Potato Fields

## 06 News

Latest Industry News

## 10 Process - PEF

PEF Technology: Pushing the Boundaries of Science

## 14 Process - Frying

Key Selling Points of Potato Frying Systems

## 18 Expert View

Urschel: European Focus

## 22 Spotlight

The Balance Between Accountability and Profitability in the Potato Supply Chain

## 22 Case Study

Keeping an Eye on All the Machines in Your Plant to Prevent Unplanned Downtime is Leaving you Fried? Schaeffler Has a Crisp Solution for You!

## 30 Process

The Transformative Power of IQF Technology for Potato Processors

## 34 Packaging

Packaging Equipment in High Demand Driven by Population Growth

## 38 Trends

Exploring US Snacking Trends: Monitoring Inflation and Promotional Impact

## 40 Markets

South America: Production and Consumption Trends

## 42 Products

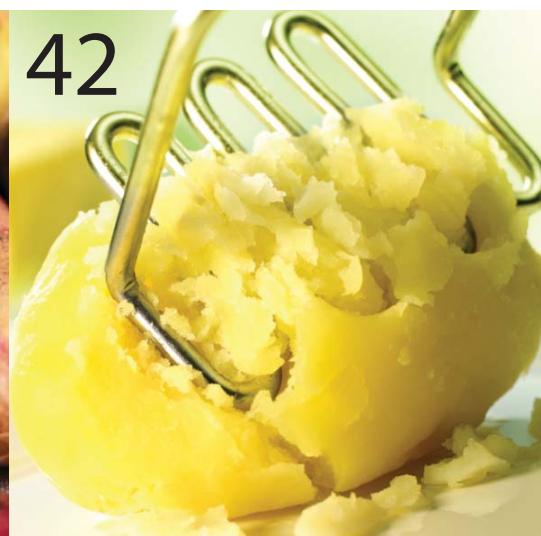
Flake It, 'till You Make It

## 46 Seasoning

Seasoning Technology Options for Complex Flavor Profiles

## 48 Storage

Storage Conditions Dictate the Ventilation System Components





# AI Makes its Way onto Potato Fields

**Tudor Vintiloiu - Editor in chief**  
email: tudor.vintiloiu@trade.media

Over the past few years, we have witnessed an unprecedented growth in the research and implementation of Artificial Intelligence (AI) into various industries, and agriculture is no exception. One key area where AI is making significant advancements is in precision agriculture. AI-powered drones equipped with advanced sensors and cameras are employed to monitor vast potato fields, monitoring soil moisture levels, and even detecting early signs of diseases or pests. A vast amount of data is then processed by AI algorithms, which analyze it to provide farmers with valuable insights and actionable recommendations. This enables farmers to apply targeted treatments, such as precise irrigation or localized pesticide application, reducing waste and optimizing resource utilization. Moreover, AI-driven predictive analytics is playing a pivotal role in potato production. By leveraging historical data, weather patterns, and market trends, AI models can anticipate the optimal time for planting, harvesting, and storage. This results in improved yield forecasts and better decision-making, minimizing losses and

*AI-driven predictive analytics is playing a pivotal role in potato production. By leveraging historical data, weather patterns, and market trends, AI models can anticipate the optimal time for planting, harvesting, and storage.*

maximizing profits for farmers. Another key aspect of AI adoption in potato production is the development of autonomous machinery. One recent example is the LaserWeeder from Carbon Robotics, which is the first and only laser-weeding robot currently on the market. To achieve highly accurate weed management, it makes use of powerful AI deep learning technology, computer vision, robotics, and lasers. Potato cultivation has always been a labor-intensive and

demanding process, but the emergence of field robots presents new opportunities for automation and improved precision. A German study, conducted by a team of researchers from Leibniz-Institut für Agrartechnik Potsdam and Technische Universität Berlin, aimed to identify field robot systems that meet the specific requirements of potato development stages while ensuring optimal performance. A total of 35 ag-robots were identified, with 17 available on the market, 4 in the test phase, and 14 in the development phase. So the massive change we always thought would eventually come - a modern-day Industrial Revolution - is already here, and we're living it. ●

**Tudor Vintiloiu (editor in chief)**  
email: tudor.vintiloiu@trade.media  
Tel: +40 721 277 042  
Skype: tudor.vintiloiu

**Ionel Vaduva (on-line editor)**  
email: ionel.vaduva@trade.media  
Tel: +40 21 315 9031  
Skype: ionel.vaduva

**Cristina Nae (advertising sales director)**  
email: cristina.nae@cmgromania.ro  
Tel: +32 499 731 114/+40 725 409 997

**Marian Cilibeau (production manager)**  
email: production@trade.media

**Simona Ardeleanu (circulation manager)**  
simona.ardeleanu@trade.media

**Raluca Canescu (publisher)**  
raluca.canescu@trade.media  
Tel: +40 21 315 90 31  
Skype: raluca.canescu

**Nicoleta Marasescu (managing director)**  
nicoleta.marasescu@trade.media  
Tel: +40 723 452 329  
Skype: nicoleta.marasescu

**Contributing writers**  
Jonathan Thomas, Cedric Porter, Nora Olsen, Mintel Group LTD, Euromonitor International, Future Market Insights, AHDB, Persistence Market Research  
**(IT Support)**  
email: admin@trade.media

**Editorial office:**  
**Trade Media Solutions SRL,**  
G-ral David Praporgescu Street, no.1, District 2, Bucharest, 020965, Romania  
Tel: +40 21 315 9031  
www.mediatrade.ro

**Printed by: Sothis**  
**ISSN: 0968-7661**



Like our page and join our online community:  
[www.facebook.com/Potatobusiness](http://www.facebook.com/Potatobusiness)



Follow us on Twitter: <http://twitter.com/potatobusiness>  
We will update regularly on our activities, upcoming features and show attendance.



Join our group on LinkedIn search for: **PPI News**

**Copyright © Trade Media Solutions.**

All rights reserved.  
No part of this publication may be used, reproduced, stored in an information retrieval system or transmitted in any manner whatsoever without the express written permission of Trade Media Solutions. The publication of the contributed articles contained herein does not necessarily imply that any opinions given are those of the publishers. The greatest care has been taken to ensure accuracy but the publishers cannot accept responsibility for omissions or errors. European Baker is published six times a year by Trade Media Solutions.



**Annual subscription:**  
1 year €120 and 2 years €210  
**Subscribe online:** [www.potatobusiness.com/subscribe](http://www.potatobusiness.com/subscribe)  
**Email:** [subs@mediatrade.ro](mailto:subs@mediatrade.ro)  
**or Telephone:** +40 21 315 90 31.  
Visit our website: [www.potatobusiness.com](http://www.potatobusiness.com)

When you have finished with this magazine please **Recycle it**



# French Fry & Potato Co-product Solutions designed for your business



- Potato Handling & Storage
- Preparation & Electroporation
- Batter Coating
- Frying & Oil Management
- Energy Saving
- Pollution Control
- Seasoning & Conveying



Across industries and applications, we design specialised solutions.

Bringing together leading brands in processing and packaging equipment for the French fry and potato product industries. Our solutions set the standard for yield, efficiency, and safety while producing the highest quality straight cut, crinkle cut, wedges, curly fries, hash browns and potato gems. Whatever your product needs, we can meet it with precision and passion.



## Rockefeller Capital Management L.P. Sold a Fair Share of Utz Brands' Stocks



According to its most recent Form 13F filing with the Securities & Exchange Commission, Rockefeller Capital Management L.P. lowered its holdings in Utz Brands, Inc. by 90.3% in the 4th quarter. After selling 1,226,658 shares of the company's stock, the institutional investor now owned 131,529 shares. At the end of the most recent quarter, Rockefeller

Capital Management L.P. owned 0.09% of Utz Brands for a total value of USD2.08m. Recently, several other significant investors made purchases and sales of UTZ stock. During the fourth quarter, Point72 Middle East FZE added a new investment in Utz Brands shares valued at around USD41,000. During the fourth quarter, Clear Street Markets LLC added a new investment in Utz Brands shares worth about USD90,000.

During the third quarter, Tower Research Capital LLC TRC increased its holdings in Utz Brands shares by 236.1%. Tower Research Capital LLC TRC acquired an additional 4,432 shares of the company's stock in the most recent quarter, bringing its total share count to 6,309, valued at USD95,000. Currently approximately 83.96% of the company's stock is held by hedge funds and institutional investors.

## A New Heat and Control Office in Cape Town

Heat and Control, recently announced the launch of their new office, marking thirty years of operation in Africa.

According to a press release, the business has a sizable customer base in Africa, and the opening of Heat and Control's new office in Stikland, Bellville, demonstrates its dedication to the area and its African clients. Jeff Rossouw, General Manager of Heat and Control in Africa said: "As a global business, we understand the importance of having a local footprint to support our customers. In the last five years, we've expanded our personnel in this region by fifty percent and we have a direct presence in Nairobi, Kenya as well." With the assistance of key industry partners like Ishida, CEIA, Key Technology, and Urschel, Heat and Control offers a comprehensive selection of market-leading equipment solutions and is prepared to meet the expanding demands of food processors in Africa.



## Novel U.S. Biotech Greenhouse Focused on Processing Potatoes

A fresh new biotech greenhouse enterprise of more than 6,000 square meters, which is cultivating genetically-engineered potatoes bred specifically for processing, and a variety of other plants, went public on May 24 with a ribbon-cutting ceremony



attended by numerous Henderson County government and U.S. agricultural leaders. Ohalo Genetics' Founder and CTO, Judson Ward, stated that the business has invested USD9m in the new state-of-the-art facility, which is located next to the greenhouse at Van Wingerden International. "[...] As of May 24, the company employs eight people in their Mills River location but will be tripling that number in a few weeks," Ward added, cited by Blue Ridge Now. Ward also stated that he intends to hire a potato breeder and would be offering numerous other positions soon.

## New Independent Cooperative of Table Potato Growers



AgriCo and Nedato's table potato activities will be combined with those of Leo de Kock in a new independent cooperative of table potato growers. The new entity will begin operations this fall. The subsequent integration will take place in stages.

"In this new cooperative, the strategy is fully focused on consumption cultivation and the growers of table potatoes are the owners themselves. This joining of forces thus ensures a better future perspective for the growers involved," Mark Zuidhof, Chief Operating Officer, declared. Given the growing buyer demand for an integrated supply of table potatoes, the structurally altered needs of consumers, and the declining market in the Netherlands, the three parties have been extensively investigating how a possible collaboration can best take shape in recent months. The beginning premise was that collaboration should result in a strong, healthy organization that satisfies the needs of customers while also providing table producers with a bright future.



# Any Way You Slice It

Successful processors depend on Urschel to provide complete potato slicing solutions.



#1 Best selling provider of industrial cutting machinery throughout the world.

**URSCHTEL**<sup>®</sup>

The Global Leader in Food Cutting Technology

Set up a free test-cut of your product.

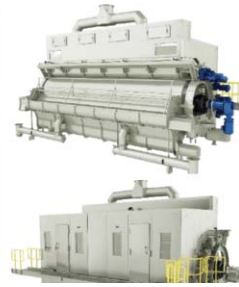
[www.urschel.com](http://www.urschel.com)

® Urschel, Urschel logo symbol, and The Global Leader in Food Cutting Technology are registered trademarks of Urschel Laboratories, Inc. U.S.A.

# Expanding the Emission to Energy (E2E) Concept **With the SteamClosure Extraction System**

**A**ccording to its most recent Form 13F filing with the Securities & Exchange Commission, Rockefeller Capital Management L.P. lowered its holdings in Utz Brands, Inc. by 90.3% in the 4th quarter. After selling 1,226,658 shares of the company's stock, the institutional investor now owned 131,529 shares. At the end of the most recent quarter, Rockefeller Capital Management L.P.

owned 0.09% of Utz Brands for a total value of USD2.08m. Recently, several other significant investors made purchases and sales of UTZ stock. During the fourth quarter, Point72 Middle East FZE added a new investment in Utz Brands shares valued at around USD41,000. During the fourth quarter, Clear Street Markets LLC added a new investment in Utz Brands shares worth about USD90,000. During the third quarter, Tower Research



Capital LLC TRC increased its holdings in Utz Brands shares by 236.1%. Tower Research Capital LLC TRC acquired an additional 4,432 shares of the company's stock in the most recent quarter, bringing its total share count to 6,309, valued at USD95,000. Currently approximately 83.96% of the company's stock is held by hedge funds and institutional investors.

## Reyco Released the **EcoMiser Elite Oil Removal System**

**T**he EcoMiser Elite Oil Removal System, the latest product from Reyco Systems, was recently announced. According to the company, the EcoMiser Elite model combines game-changing improvements to produce a substantially cleaner oil removal system with little crumb build-up and a significantly lower risk of process fires. The EcoMiser Elite system uses Reyco's proprietary swirl tube technology, entirely replacing the significant cyclone requirements of earlier misers with cutting-edge engineering. This swirl tube design has shown to be equally efficient as the conventional cyclone design while being less expensive. "We are thrilled to introduce the EcoMiser Elite Oil Removal System. The new design incorporates several evolutionary developments, and shows our continued dedication to helping our customers improve," Brian Cardwell, Reyco Systems Director of Engineering, summed up.



## Max. Detection, Min. Rejection: **New Metal Detector Mitus**



**U**sers can detect foreign objects at a completely new level thanks to the metal detection system Mitus. The inspection solution from Minebea Intec successfully detects contaminated items of a wide range of sizes, shapes, and compositions thanks to its adjustable modulation feature MiWave, preventing unnecessary wrong rejections. As a result, the production line operates as efficiently and safely as possible. The metal detector Mitus, which debuted at interpack 2023, is now readily available. "With the new metal detection system Mitus, Minebea Intec offers a high-precision inspection solution for detecting foreign objects in almost all applications in the food and drinks industry. Thanks to its flexible modulation feature MiWave, the system ignores high product effects caused by product shape, size, and composition, and minimizes incorrect separations in the process. This enables Mitus to reliably detect foreign objects. Another impressive feature of the metal detector is the variety of models available, which ensures it can be easily integrated into existing systems," according to a recent press release.

## Pulemaster Introduces **Compact PEF System up to 10 t/h**

**P**ulemaster has launched a new Compact industrial-scale PEF solution for the treatment of tubers, roots, vegetables and fruits up to 10 t/h - the Pulemaster Compact PEF system, which is designed for the small and mid-scale production line. At the request of small and mid-scale processors, Pulemaster supplied a robust, compact all-in-one unit with a small footprint. The machine is easy to install into a production line, quick to start up and features low energy and water usage. The texture softening (reduced cell pressure) that this machine achieves, improves cutting, reduces starch loss, feathering, breakage and increases yield. Controlled moisture release and smoother surfaces allows decreased oil uptake, reduced frying time and temperature during the frying process.





## Potato Wart Detection Confirmed by The Canadian Food Inspection Agency

The Canadian Food Inspection Agency (CFIA) has just posted its latest update on the investigation into potato wart on Prince Edward Island (PEI), and it includes one detection in a field in Prince County. The sample is from a farm and field associated with detection in February 2022. The detection was reported in April of this year. The agency told CBC that the field is owned by a farm that produces potatoes for processing on P.E.I., and no potatoes were produced in the field in 2022. According to P.E.I. management, just four positive samples have been discovered out of over 50,000 samples collected since 2021. All of the positive samples were discovered in fields with CFIA limits and proximity to one another. The CFIA stated that assuming no new detections are made, the investigations should be concluded by the fall of 2023. The following quarterly update is planned for the week of October 2, 2023.

## Lamb Weston Generated Strong Revenue Growth

Investors have recently become interested in Lamb Weston Holdings due to its remarkable financial performance. Riding a wave of success in the most recent quarters, Lamb Weston was able to outperform the market and produce a significant revenue increase. "Despite a slight reduction in stake by Dorsey Wright & Associates, the company remains an attractive investment opportunity due to its robust earnings and market dominance," Best Stocks analysts recently wrote. "Lamb Weston's performance during this year's first quarter was mirrored by its remarkable earnings results. The specialty retailer surpassed analysts' consensus estimates for that period with impressive earnings per share (EPS) figure of USD1.43 – surpassing projections by USD0.45 per share," the above-mentioned source's analysts added.



Coating & Conveying Solutions designed for your business

Across industries and applications, we design specialised solutions.

Bringing together leading brands in coating and conveying equipment for the French Fry and potato product industries. Our solutions set the standard for yield, efficiency, and safety while producing the highest quality product. Whatever your product needs, we can meet it with precision and passion.



# PEF Technology: Pushing the Boundaries of Science

Electroporation, also known as Pulse Electric Field (PEF) technology, is a non-thermal food processing method that utilizes short electric pulses to increase the permeability of cell membranes. This allows for better extraction of valuable compounds and improved flexibility of the food product. In the context of potato processing, electroporation has found several applications.

## By Tudor Vintiloiu

**T**he basic principle of electroporation involves subjecting the food to brief, high-intensity electrical pulses. These pulses create temporary pores in the cell membranes, allowing for the exchange of ions, nutrients, and other substances within the cells. By controlling the electric field parameters, the process can be optimized to selectively target certain types of cells without causing damage to the overall food structure. There are several companies producing commercial electroporation equipment for the food processing industry, including applications in the potato processing niche. The competitive landscape is constantly evolving and companies differentiate themselves based on the efficiency, scalability, and versatility of their electroporation systems. Advanced technology that achieves higher yields, better preservation, and improved food quality will have a competitive edge. Potato Processing International reached out to Elea Technology

GmbH, Pulsemaster BV and Heat and Control – global leaders in PEF technology – to gain a better understanding of the latest advancements in electroporation systems for potato processing.

### NEW DEVELOPMENTS

A recent announcement comes from Pulsemaster, who has launched a new Compact industrial-scale PEF solution for the treatment of tubers, roots, vegetables and fruits up to 10 t/h - the Pulsemaster Compact PEF system, which is designed for the small and mid-scale production line. At the request of small and mid-scale processors, Pulsemaster supplied a robust, compact all-in-one unit with a small footprint. The machine is easy to install into a production line, quick to start up and features low energy and water usage. The texture softening (reduced cell pressure) that this machine achieves, improves cutting, reduces starch loss, feathering, breakage and increases yield. Controlled moisture release and smoother surfaces allows decreased oil uptake, reduced

frying time and temperature during the frying process. Mark de Boevere, Managing Director of Pulsemaster commented: "PEF is a disruptive technology for the potato processing industry. It is not a machine that is just a little bit different or better than the previous technology, but it really changes things. In the world of French fries, for example, that could mean traditional preheaters out, PEF system in. The goal of PEF treatment is cell disintegration. The pulsed electric field creates holes in the membranes of the potato cells. Drilling tiny holes in the membranes makes it easier for moisture to escape and evaporate, among other things, and has all kinds of benefits for the potato industry in terms of product and process. Suddenly you need 40% less cutting force to make French fries. You cut much better, you have a nicer cut, the fries don't break as easily, they are smoother, they absorb less oil so you need less oil, you can shorten the blanching and frying time. These effects also apply to chips production. They are

easier to cut, have smoother surfaces, and therefore up to 19% less oil absorption.” Energy savings are an important, positive side effect of using PEF technology in the processing operation, which is certainly an important factor given the current rising energy prices. “Compared to conventional energy consumption, PEF is a much more efficient way to treat potatoes at the beginning of the production line. There is a 30-second dwell time in the PEF treatment unit, and energy consumption is much lower. In addition, a company with a PEF system not only saves energy, but also follows the general trend toward CO2 reduction. Big, well-known names in the potato processing industry are busy reducing CO2 emissions. They are setting up production lines for the future, and of course they have thought this through. PEF technology is an important, good step forward in this regard. As a practical example, one customer decided to install a Pulsemaster PEF system at its plant. Water consumption was reduced by more than 100,000 liters per day the first year. In addition, the PEF system at this plant will save around 276 tons of CO2 per year and reduce energy consumption by around 33,000 gigajoules,” added de Boevere.

**HIGHER YIELD AND ENVIRONMENTAL FACTORS**

Stefan Toepfl, Managing Director, Elea Technology GmbH says that PEF is in industrial use in all major French Fries markets and with growing numbers in potato and vegetable chips processing. For potato processing PEF allows replacing conventional preheaters with several process and product benefits including less energy and water consumption, increased cutting performance, higher product yield and reduced frying time and temperature. “Growing interest is seen in fruit and vegetable processing, where PEF is applied to improve cutting and peeling as well as to accelerate blanching, drying of freezing and results in higher product yield

and quality,” he points out. “Elea PEF systems have very high power efficiency ratings of > 95 %. The energy input requirement ranges from 0.3 kJ/kg for potato applications up to 3 kJ/kg for sweet potato treatment. Energy efficiency as well as treatment capacity are enhanced with optimized system design. As an example, a large free cross section allows processing at high product to water ratio. Recent studies have shown an annual savings potential of up to 70 million liters of water and 30 million kWh of energy for an average size system of 25 t/h finished product. PEF allows making use of electric energy from renewable energy sources, hence fosters food industry decarbonization efforts,” Tepfl added. According to him, a number of factors contribute towards costs savings. PEF impacts on product yield in different production stages. Feathering and breakage during cutting are reduced, and less starch is lost into processing water streams, accounting for up to 260t additional product yield on a 25 t/h finished line, for example. Better cutting delivers more intact strips or slices, lower frying temperature and time, causing in turn less browning and color defects, hence a higher good to bad product ratio is achieved. Dependent on raw material type and product, shape blade life increases up to 3-fold with less replacement or sharpening efforts but also increased uptime. Reduced oil uptake accounts for savings of up to 360 t/annum of oil for a typical French Fries line of 25 t/h finished product or 175 t/annum for a potato chips line of 1.2 t/h finished product.

**MARKET DEMAND**

According to experts, the adoption of PEF systems (as an alternative to thermal pasteurization) and its many additional processing benefits, is creating a sizable demand for this technology in the food industry. The development of new PEF technology is a driving factor behind food industry PEF systems market growth, and they expect demand for this technology



**OPTICAL SORTING SOLUTIONS FOR THE POTATO INDUSTRY**



More information?  
 T. +32 (0)11 71 80 20  
 info@optimum-sorting.com  
 www.optimum-sorting.com



Photo: ELEA

will continue to grow.

A recent report by Technavio (January 2020) stated that the global food industry pulsed electric field (PEF) systems market is poised to grow by USD 227.52 million during 2020-2024, progressing at a CAGR of about 24% during the forecast period.

“We expect there will be emerging markets for PEF systems in countries where potato agronomy faces challenging conditions such as India, Egypt and other similar regions. Challenging crop conditions experienced in these locations often means a processor must blanch their potatoes for large parts of the year. It is processors such as these, who would see a very fast ROI from reduced energy costs if they were to adopt a new PEF system. In some cases, producers could see a ROI of less than 2 years based purely on energy savings during blanching, with the E-FLO providing added benefits of significant increase in yields and better-quality product,” Heat and Control’s specialists told us.

## PROCESS WORKFLOW

After extensive research and development, Heat and Control brought to market their own PEF system to apply Pulsed Electric Field (PEF) processing to potatoes. The Heat and Control E-FLO® Electroporation system was



Photo: Pulsemaster

originally created as a solution to reduce acrylamide, without degradation to the original taste and texture of the product, the technology also provided additional benefits of increased line efficiency and reduced operation costs.

As explained above, PEF sends a pulsed electric field through the cell walls of a potato (or root vegetable) to perforate its cell membranes with microscopic holes. This allows sugars and asparagine to be released from the vegetable before its cooked, thereby reducing harmful acrylamide. Peeled and washed potatoes are supplied in measured quantities by upstream equipment and delivered to the E-FLO equipment’s infeed chute. The rotating E-FLO wheel transports potatoes through the processing area as a compact packed bed through a water bath. Processing takes place in a water bath so that the electrical pulses

can influence the product as desired. After a short exposure to the electric field pulses, to perforate the cell walls, the potatoes are lifted and discharged from the water bath by the continuing rotation of the wheel into the discharge chute. While commercial implementation of PEF systems is moving ahead at full speed, the technology is continually evolving, and its full potential in the potato industry and other food processing sectors is yet to be fully explored and realized. In the meanwhile, healthy competition between different companies can be a driving force for innovation and advancement in PEF technology. Competition fosters creativity and encourages companies to think outside the box, seeking novel approaches and groundbreaking ideas to stay ahead of the game. As a result, consumers benefit from a steady stream of innovative products and services that push the boundaries of what was previously possible. ●



Photo: Heat and Control

Introducing the new **B 1000-850**, **B 100-535** & **B 10-535**



## PROCESS MORE FOR LESS WITH OUR LATEST BELT SYSTEMS



The new PEF Advantage **B 1000-850**  
for capacities up to **100 t/h**



The new PEF Advantage **B 100-535** (up to **32 t/h**)  
and the new **B 10-535** (up to **20 t/h**)



Our newest, most innovative and highest capacity belt machines are now available in a range of three systems, the Elea PEF Advantage **B 1000-850**, **B 100-535** and the **B 10-535**.

Capable of processing up to 100 t/h, it's easy to find the most optimised PEF solution for your production line.

The feature-packed new designs improve on capacity, flexibility, safety, process monitoring and optimisation, energy saving, installation, upgradeability and more.

- Fenceless, compact & easy to install
- Improved process monitoring
- New upgradeability options
- Process up 100 t/h
- Save more energy
- Powered by a single generator with extended cable length

We have distilled more than ten years of knowledge and experience into our latest systems to produce the most capable and advanced PEF belt system yet.

# Key Selling Points of Potato Frying Systems

When looking at the distinction between batch fryers versus continuous fryers in potato processing lines, the arguments often revolve around the required production capacity as well as product characteristics.

**By Ionel Văduva**

**A**side from that, potato processors need to look at how these two technologies influence the rest of the manufacturing variables. An important aspect, for example, is oil turnover.

“Normal continuous potato chips fryers have an Oil-Turn-Over-Rate of less than eight hours whereas, in a traditional batch fryer, it can reach 35 - 40 hours. The Oil-Turn-Over-Rate is defined in hours and calculated as the weight of the vegetable oil in the frying system divided by the weight of oil pick-up in the chips per hour. The longer Turn-Over-Rate, the higher risk for the frying oil to get rancid,” Rosenqvists experts explained. Protecting the vegetable oil in a batch fryer is more difficult because it will not be covered by a steam protection layer during the final two minutes of frying. After all, the frying time is typically five to seven minutes and the water inside the potato slices is evaporated during the first two minutes.

“Most batch fryers are heated by gas. The gas is fired in tubes placed inside the frying pan. The open flames inside the tubes are heating the oil. The flame temperature from the gas can be very high, perhaps even as high as 800–900 degrees Celsius. If the tube system is not properly designed, the heat penetration onto the oil will be too high, resulting in hot-spots and uneven temperatures causing the vegetable oil to break down faster,”

Rosenqvists added.

Direct gas-heated fryers are suitable for capacities of up to 150-160 kg/h of finished potato chips. However, for higher capacities (250-300 kg/h), an alternative heating source is recommended to minimize total oil volume and allow for additional technical solutions to the aforementioned issues. This is because the total amount of vegetable oil in the batch fryer system is critical.

One of Rosenqvists Food Technologies' solutions is the patented dual-function fryer. A fryer for true batch fried chips and normal potato chips. All in the same pan.

According to company experts, the market has seen a growing interest in batch-fried chips over the last 7-8 years. So the company designed a pan that has two different systems inside its hood, which can be switched. Each one has the required elements needed to transform the fryer between continuous and batch-style production.

As the potato slices enter the fryer, one or two paddle wagons (agitators) will be moving back and forth in the frying pan separating the individual slices and ensuring that the bed of slices is in motion. The sequence of the action of the paddle wagons is set by the PLC program. The number of trans-movements, the speed of the paddles, the duration of stop and start times at each end, etc. are set

*“Protecting the delicate vegetable oil in a batch fryer is more difficult because it will not be covered by a steam protection layer during the final two minutes of frying because the frying time is typically five to seven minutes and the water inside the potato slices is evaporated during the first two minutes.”*

*Rosenqvists*



in the recipe program for each type of potato chips being produced. The total frying time and requested temperature at the end of the batch cycle can also be set to match the product criteria set by the snack processor. When the chips are done, a gate opens, and the automatic take-out conveyor transports the chips to de-oiling and toward the seasoning system.

**SPECIALIZED POTATO CHIP FRYER DESIGNS**

Batch fryers for kettle-style potato chips are commonly used for hard-bite, slow-cooked potato chips due to their specific temperature profile, Heat and Control experts say. When it comes to high potato moisture content, a batch fryer is required. Batch fryers for potatoes use a kettle of static, hot oil that is heated

either directly by a gas burner burning beneath the fryer pan or indirectly through heat-transfer tubes immersed in the oil. These tubes can be heated using a gas burner, steam, or thermal fluid. With each batch of potato slices entering the oil, the cooking oil temperature initially drops and then gradually rises as the moisture in the potato slice is cooked off and

**GEA A-series IQF Tunnel Freezer, a sustainable solution**



**22%**

Reduction of CO2 emissions



Standard



Curly



Waffle



Crinkle



the burner system regains the ideal frying temperature. Because of the unusual hard-bite texture produced by this “inverted bell curve” temperature profile, these chips are the fastest-growing segment of the potato chip market.

“The art of adjusting this oil temperature profile gives processors the ability to create subtle differences in chip texture. Once these cooking parameters are set, sophisticated batch fryers use a programmable logic controller (PLC) to assure repeatable frying of each batch of chips. PLC systems give operators control of multiple machines and process functions, pre-programmed product menus, and complete data management at the touch of a single display screen.

Heat and Control Batch Fryer capacities range from 16 to more than 227 Kilograms of finished potato chips per hour,” the company representatives explained.

### **CONTINUOUS FRYERS**

The designs of continuous fryers differ in terms of heat load, product handling, oil filtration, and production capacity, but they all typically cook food in a continuous flow. The large amount of moisture that must be boiled off during the frying process, as well as factors like responsive, accurate, and consistent temperature control, necessitate an externally-heated continuous fryer design for potato products like chips, sticks, co-products (e.g., tots, patties), French

fries, or batter-coated fries.

Continuous fryers with capacities ranging from 91 to 2,948 kg of finished potato chips per hour and up to 22,680 kg of completed French fries per hour are available. External heat exchangers use gas or light fuel oil burners, steam, or thermal fluid to heat cooking oil. These fryers circulate oil constantly through a filter, an external heat exchanger, and single or multiple inlets and exits.

“For a processor who wants the flexibility to cook both hard bite and conventional chips, Heat and Control offers the Universal Product Cooker (UPC). The UPC is a versatile, economical fryer that utilizes independent fryer modules integrated into one continuous



*“The art of adjusting this oil temperature profile gives processors the ability to create subtle differences in chip texture. Once these cooking parameters are set, sophisticated batch fryers use a programmable logic controller (PLC) to assure repeatable frying of each batch of chips.”*

*Heat and Control*



*“The Kiremko CORDA Invicta is a step forward in frying, with 30% less oil content, a 15% smaller manufacturing footprint, a variety of high-tech advances, and a lower Total Cost of Ownership. All the while ensuring a consistent, high-quality result, independent of layer thickness.”* Kiremko

system to produce kettle-style, traditional potato chips, and other types of snacks from the one fryer. It allows an operator to adjust the time, temperature, and oil flow in each module to customize a recipe and to create a variety of styles of chips with a specific texture, moisture, and color,” the company’s experts added.

#### RECENT DEVELOPMENTS

When it comes to Kiremko’s CORDA Invicta, the oil flow was redesigned from the bottom. The belt in the fryer is a completely new closed chain with low maintenance rolling rather than slurring. It also has an embedded control system that leverages data from the processing to improve the fryer’s efficiency.

According to the company, the Kiremko CORDA Invicta is a step forward in frying, with 30% less oil content, a 15% smaller manufacturing footprint, a variety of high-tech advances, and a lower Total Cost of Ownership. All the while ensuring a consistent, high-quality result, independent of layer thickness.

The entire metal belt with the integrated chain-link architecture of the CORDA Invicta minimizes plastic pollution while assuring excellent product quality and decreasing wear. The rolling belt support and the one-of-a-kind circulation pump reduce friction and wear, resulting in longer service life.

“The Kiremko CORDA Invicta features an integrated dirt removal system, steam blanketing, and automatic fire extinguishing. This keeps your production line, factory, and people safe.

The enclosed system has minimized vapor emissions while maintaining safety. However, the integrated cover and bottom operating system ensure that the interior is secure and simple to access. In comparison to its rivals, the Kiremko CORDA Invicta requires less time and cleaning supplies because of its inside-and-out hygienic design,” Kiremko concluded. •

**Flo-  
Mech**

## SYSTEMS • SERVICES • SOLUTIONS

FOR THE SNACK FOOD PROCESSING INDUSTRY SINCE 1974  
FROM SINGLE MACHINES TO COMPLETE TURNKEY  
PROCESSING LINES



**Potato Halving**



**Peeling**



**Starch Recovery**



**Flavouring**



**Oil Heating**



**Drying**



**Pumping**



**Filter**



PROCESS SYSTEMS  
& EQUIPMENT



PROJECT  
MANAGEMENT



ENGINEERING  
& DESIGN



European  
Snacks  
Association

[www.flo-mech.com](http://www.flo-mech.com)  
[enquiries@flo-mech.com](mailto:enquiries@flo-mech.com)

# Urschel: European Focus

Leading food processors throughout Europe have benefitted from Urschel expertise in supplying cutting solutions since the early days of high-volume food production. Urschel remains the best-selling provider of high-speed, high-capacity food cutting equipment in Europe and around the globe through partnering with food processors from the beginning. Remaining the go-to, top provider of such food reduction machinery means realizing the future goals of processors, understanding where industries might be growing, the current and future needs, and knowledge of niche product development.



Luc Van Buynder

By Luc Van Buynder, Technical Sales Director Europe, Urschel



**T**his article focuses on solutions popular in the potato industry, specifically Europe, and will delve into some of the technology surrounding potato slicing, potato dicing, particle size reduction of potatoes, and highlight why customers remain with Urschel for the long-term.

## URSCHEL: FASTER, ACCURATE, HIGH-SPEED POTATO SLICING

Since the introduction of the CC Slicer in 1959, the slicer has evolved to meet the changing demands of the popular chipping industry.

While the operating principle has remained constant, the cuts, machine construction and capabilities continue to advance. Latest improvements include the MicroAdjustable® SL-14 (slicing) and SH-14 (shredding) Heads. SL-14 heads have been greatly accepted by the potato chip industry. Customers have reacted very positively to the higher capacity SL-14 and SH-14 style CC heads. Different shapes are available including Z-cut slices, Crinkle, V, and flat slices; small 1.8 mm, 2.5 mm, and 3.2 mm V and reduced V shreds, oval shreds, julienne sticks, Flat V®, and hexagonal sticks. For all

cuts, customers should visit the Urschel website. The SL-14, 14-station cutting head, over the 8 shoe cutting head offers many benefits: more precise slicing, quick change over of knives, light weight, and higher yield with less product loss. Setting the SL14 head is extremely simple and can be achieved with a single setting of each knife, the setting will also not shift during production. Knife life on the 14-station heads has increased dramatically resulting in reduced costs for the customer. Each time an Urschel customer purchases a SL-14 head to replace a

pre-existing 8 shoe head; the customer inevitably mentions that the head almost sells itself because of the obvious benefits and switching to the SL-14 was a wise business decision.

The .12 V MicroAdjustable SL-14 Heads incorporate SlideLocc® technology. This patented design incorporates a simple, fast knife-clamp operation that enables a wide hinge opening. A great asset when it comes to cleaning behind the clamp.

### **DIVERSACUT SERIES FROM URSCHEL: THE BENCHMARK OF POTATO DICING & STRIP CUTTING**

The DiversaCut® series of machines remain a success since each dicer in the line debuted. The DiversaCut has evolved into the leading benchmark when it comes to high quality, high-capacity dicing and strip cutting. Urschel customers prefer the DiversaCut because of its large diameter infeed and deep drum, including the simple design, and easy maintenance.

Product loss is kept to a minimum which is a big cost savings for Urschel customers. High quality blades ensure crisp cuts and less cell damage resulting in less oil consumption.

Foreign matter, such as the common rock, is an issue for potato processors. To help minimize the impact damage when this occurs, the DiversaCut has an optional micro V belt system that slips when the machine is blocked saving other drive components from damage.

Currently, the DiversaCut 2110A Dicer is available in 3 different models: the standard version, a version with a discharge belt which is very useful when discharging into a eurobin, and the third version available is for very large products up to 300 mm in diameter.

Producing crinkle french fries and dices is still the mainstay for the DiversaCut when it comes to potatoes. Crinkle French fries come in 4 different shapes; dices vary from 9.52 mm up to 25.4 mm. The compact design of the cutting parts between slice and crosscut

ensure a perfect cutting result without damaging the product. Different optional feed discs are available depending on the slice thickness to help the slice be transported to the crosscut blades resulting in perfect crinkle French fries. To further enhance the quality, a selection of impellers is available from 4 to 14 blades depending on the size of the potato to deliver maximum French fry length.

### **KNIVES & COST-SAVINGS**

Urschel has specifically designed many knives with the added value of being able to sharpen the blade edge via Urschel-manufactured honing equipment. Operating any cutting machine with dull or not properly maintained knives may prove costly. Lost time and increased product waste far exceeds the cost of knife replacement. Use of dull knives increases the potential of cell rupturing, miscuts, and decreases yield and profit. Customers are encouraged to learn more about the many knives and

set-ups available to ascertain the most optimal for their product and line requirements. Urschel routinely develops and introduces new knives and cutting set-ups to improve individual cutting machine performance.

### **URSCHEL PARTICLE SIZE REDUCTION SPECIALTY LINE: THE COMITROL PROCESSOR**

The Comitrol® Processor line of machines is very well-known in the potato industry, for example our Comitrol Processor Model 1700 reduces potato flakes into powder using microcut technology. Microcut technology ensures acute, consistent particle size which is needed when producing potato powder. The Model 1700 is also used to produce hashbrowns and sweet potato puree.

The machine principle consists of a rotating impeller running up to 9000 rpm and a fixed microcut head with multiple blades. The





number of blades determines the reduced particle size. More information related to this line may be found on the Urschel website.

## MEETING AND EXPANDING ON CUSTOMER SERVICE AND SUPPORT

Urschel has a very strong network of experts in cutting solutions located in direct offices throughout the world to completely support customers on a local scale with all of their needs, concerns, and technical questions.

Urschel speaks the language of food processing and the local language, so important customer expectations are met. Customers like the fact that local people can help them directly rather than having to contact an overseas company, which may be time consuming and ineffective. Urschel has multiple test-cutting centers available ready to receive customers and support all their size reduction needs.

Customers acknowledge that owning an Urschel machine results in less downtime and they receive outstanding customer service. They also benefit from receiving parts and knives in a timely manner and appreciate the complete access Urschel offers to expert cutting solutions. Urschel partners with food processors to help them succeed. The depth and breadth of knowledge is astounding as is the Urschel history – proud to be assisting food processor for over 113 years and counting. In a time when many companies



are downscaling, Urschel remains strong with an expansion in the U.S. at its global headquarters and construction of a larger, brand-new Urschel International (U.I.) office. Urschel U.S.A. Headquarters is in the process of adding 115,000 square feet of manufacturing space to the current 410,000 square-foot facility. This marks the company's third expansion since building the newly constructed plant in 2015. The company continues to grow and expand incorporating larger, newer manufacturing equipment and improving on production processes to uphold the Urschel quality customers expect from the company. Urschel B.V., an office U.I. located in the Netherlands, is moving to a

larger building after more than 30 years in Wijk Bij Duurstede, the staff will move to Tiel. Strong machine and parts sales has made it necessary for Urschel B.V. to move to a larger location to better serve Urschel customers, for example the warehouse will be 818m<sup>2</sup> which is 3.5 times larger than the current one. A large portion of the building will be dedicated to a state-of-the-art testing center. The concrete floor has been poured and office walls are in the process of being constructed. The anticipated completion date of construction is slated for December 2023. Learn and discover more about expert cutting solutions at [www.urschel.com](http://www.urschel.com).



# It's all about **POTATO**



## **POTATO PROCESSING INTERNATIONAL**

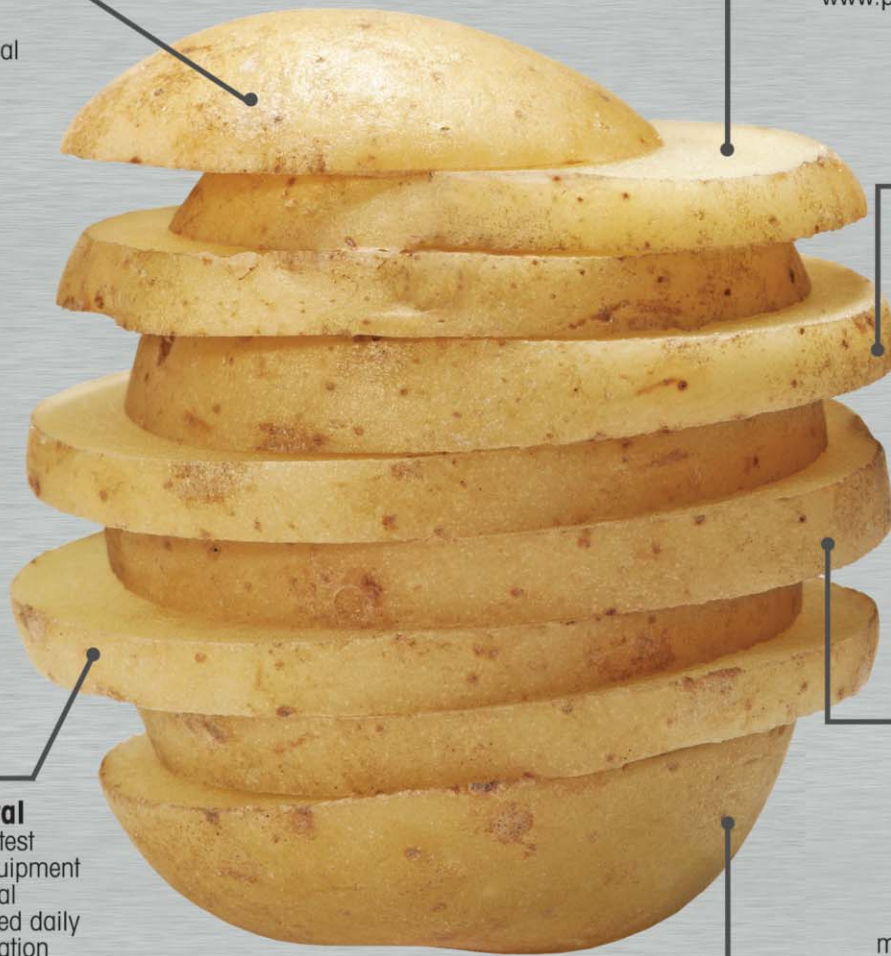
Potato Processing International has been serving the global potato processing industry for 25 years and is regarded as a must-have information source for potato processors, equipments and ingredients manufacturers, as well as players in storage, retail and foodservice.

This business-to-business magazine is published six times per year and continuously strives to be the most comprehensive publication, containing in-depth articles, expert views from some of the most respected companies in the industry, exclusive interviews, as well as news and trends.



## **POTATO BUSINESS Portal**

From breaking news to the latest innovations in processing equipment and potato products, the portal [potatobusiness.com](http://potatobusiness.com) is updated daily with the most relevant information for all players in the potato processing and storage industries. Regarded as a trusted source of information, the website also contains exclusive blog articles and white papers on various current topics that concern the potato universe.



## **POTATO BUSINESS DIGITAL**

Tailored specifically to meet the needs of the busy professionals in the potato industry, Potato Business Digital is the first industry standardized digital magazine for tablets and mobile phones. This quarterly online publication presents exclusive articles on various processing topics, as well as information on ingredients, food safety and storage innovation, in an interactive and dynamic form. Potato Business Digital is available in the click-to-read format on the [www.potatobusiness.com](http://www.potatobusiness.com) portal.



## **POTATO BUSINESS Weekly Newsletter**

The latest news, exclusive articles and interviews are delivered directly to your inbox with our weekly newsletter service, containing pertinent information from trusted sources, as well as industry insights and updates.



## **E-BLAST**

- Custom e-blasts using specific segments of our e-database, depending on the client's needs, with measured results.
- Special e-blast covering major worldwide trade fairs.



## **SPECIAL PROJECTS Potato Business Dossiers**

Information-rich reports on potato industry topics that include our content, as well as original content from our partners.



# A COMPLETE COMMUNICATION PLATFORM

# The Balance Between Accountability and Profitability in the Potato Supply Chain



The potato supply chain encompasses multiple stages, including seed production, farming, harvesting, storage, processing, and distribution. Farmers play a crucial role in the supply chain as they cultivate and harvest potatoes, which are then supplied to processors for further processing and packaging.

## By Tudor Vintiloiu

**T**o ensure a steady supply of high-quality potatoes, processors often establish contracts with farmers. These contracts outline the terms and conditions regarding potato varieties, quantities, quality standards, delivery schedules, and pricing mechanisms. Negotiations for these contracts typically take place prior to the planting season, allowing processors to plan their production and farmers to secure a market for their future harvest.

### CONTRACTS

Under buyback contract farming, large farmers get complete technical support from the processing company which assigns field officers to inspect the potato fields regularly. Most of the companies provide their own seeds, machines, and technical know-how under contract farming, however, despite all support if the crop does not meet their standard requirements - the farmers stand to lose money.

While contracts provide a level of stability, processors also engage in spot purchasing. Spot prices refer to the current market prices for potatoes at a particular point in time. Processors may resort to spot purchasing to meet sudden increases in demand, accommodate fluctuations in supply, or leverage price differentials in various potato varieties. Spot prices are influenced by factors such as weather conditions, global market dynamics, and seasonal variations in demand.

## TRADE ASSOCIATIONS

Trade associations have an important role to play here, and while they cannot interfere with contract negotiations, they can stimulate, make suggestions and mediate possible conflicts. In a previous interview, Christophe Vermeulen, the CEO of Belgapom – the association for the Belgian potato trade and processing industry – says that that processors have become more understanding. “More and more we see that, because there are more and more crises in the potato sector, the resentment that was once between farmers' organizations and the industry is dissolving, because we need each other more than ever, so when there's a problem it gets resolved really quick and much easier than it was five-ten years ago. We need the farmers to want to plant potatoes instead of other crops and that's why we have to pay the price for the potatoes, literally pay a good price.”

He also acknowledged the growing leverage that farmers are benefitting from: “Some voices are saying that the farmers are the weakest link in the chain, but I disagree. Farmers are getting stronger and stronger. It's true they have to respect a lot of regulations and it's not easy being a farmer but when it comes to demand, they're getting a stronger position because the industry needs their potatoes. The demand is still increasing so heavily, we are building factories as fast as we can, but we need more and more potatoes and it's getting harder and harder to source them.”

## ENSURING A YEAR-ROUND SUPPLY

The effective management of the potato supply chain, including farmer contracts, spot prices, and storage capabilities, significantly impacts productivity. Well-negotiated contracts provide farmers with financial security, incentivizing them to invest in their crops and adopt best agricultural practices. Stable pricing mechanisms ensure processors have a consistent supply of potatoes, reducing production fluctuations and minimizing the risk of shortages. Moreover, strategic storage practices enable processors to bridge the gap between harvest seasons, ensuring a year-round supply and reducing wastage.

Potatoes, being a perishable crop, require appropriate storage methods to maintain their quality and extend their shelf life. Processors often invest in advanced storage facilities where temperature, humidity, and ventilation are carefully regulated. By controlling these factors, potatoes can be stored for several months without significant deterioration in quality. Proper storage enables processors to manage their inventory effectively, respond to market demands, and minimize supply disruptions during periods of low or no potato production.

## REGULATORY FRAMEWORK

The regulatory framework in agriculture plays a crucial role in influencing the production of potatoes and the functioning of the processing supply chain.

# Advanced cutting solutions for processed potatoes and potato snacks



**FAM**

INDUSTRIAL FOOD CUTTING SOLUTIONS



**stumabo**



fam.be

Together we cut  
your product  
to perfection



stumabo.com



These regulations are implemented by governmental bodies to ensure food safety, environmental sustainability, fair trade practices, and the overall well-being of the agricultural sector.

Government regulations can have both positive and negative impacts on the profitability of potato farming. While regulations are often implemented to protect the interests of consumers, the environment, and the agricultural sector as a whole, they can also impose additional costs and challenges for potato farmers.

**Compliance Costs:** Government regulations often require potato farmers to meet certain standards and guidelines, such as those related to food safety, environmental protection, and labor welfare. Compliance with these regulations may involve additional expenses, such as investing in equipment, implementing new farming practices, or conducting regular inspections and audits. These compliance costs can reduce the profitability of potato farming, especially for small-scale farmers who may have limited resources.

**Input Restrictions:** Some government regulations may restrict the use of certain agricultural inputs, such as fertilizers, pesticides, or genetically modified organisms (GMOs). While these regulations are aimed at protecting the environment and consumers, they can limit farmers' choices and increase the cost of production. Farmers may need to explore alternative inputs or adopt organic farming practices, which can be more expensive or result in lower yields. These input restrictions can affect the profitability of potato farming by increasing production costs and potentially impacting crop quality and yield.

**Trade Barriers:** Government regulations related to trade and import/export can also impact the profitability of potato farming. Tariffs, quotas, and other trade barriers imposed by governments can limit market access for potato farmers, both domestically and internationally. These barriers may protect domestic producers but can also limit opportunities for farmers to reach larger markets or compete on a level playing field. Limited market access can reduce demand and negatively affect the profitability of potato farming.

**Subsidies and Support Programs:** On the positive side, government regulations can also provide subsidies, support programs, and incentives to promote the profitability of potato farming. These measures may include financial assistance, insurance programs, research and development support, or grants for adopting sustainable practices. Such support can help offset costs, enhance productivity, and improve the overall profitability of potato farming.

**Price and Market Regulations:** Government regulations may also influence potato prices and market dynamics. Price controls, price stabilization mechanisms, or regulations related to marketing channels can impact the ability of potato farmers to receive fair prices for their produce. These regulations may aim to protect consumers from price fluctuations, ensure food affordability, or promote fair trade practices. However, if not carefully designed, they can affect the profitability of potato farming by limiting farmers' ability to negotiate prices or respond to market conditions.

However, Government regulations have to be very well thought out and a very specific implementation strategy considered.

"Farmers were complaining about new regulations coming into effect and as a result they would be forced to reduce their acreage. Farmers react because there is a flood of new European regulations as a result of the 'farm to fork' strategy and the 'green deal' whose target is 2030. We're in 2023 - that's almost one

third of the decade already gone, so many things have to be changed - like the use of pesticides, for example. Another current issue in Belgium, especially on the Flemish side, has to do with fertilization and the new regulations around that. A leaked plan of the ministry of environment surfaced and it was actually quite surprising. There were a few very important things mentioned in the plan - no more fertilization after the first of August, which meant you could not harvest anymore after the first of September. This alone would have meant that in certain areas where the water quality is poor - and that means the whole province of West Flanders and East Flanders where all the potatoes and all the vegetables are grown - would see a reduction of 80% of their acreage. That essentially would mean no more potatoes and vegetables like cauliflower or spinach could be grown in this country, in the heartland of it. The aim of the plan was to increase the quality of water, which is fantastic and we are very much in favor of that, but the solutions were so generic and so radical that it would have meant the end for the industry," Vermeulen explained.

Striking a delicate balance between regulatory objectives and the economic viability of potato farming is of paramount importance in fostering a sustainable and profitable agricultural sector. Keeping this balance will not only enable the long-term profitability of potato farming but also ensure a sustainable and resilient supply chain that benefits farmers, processors, consumers, and the environment. •





# Complete Potato Chip Solutions designed for your business



- Potato Handling & Storage
- Peeling, Grading, Washing
- Electroporation
- Frying & Oil Management
- Salt & Seasoning Application
- Conveying, Sizing & Accumulation
- Energy & Pollution Control



Across industries and applications, we design specialised solutions.

Bringing together leading brands in processing and packaging equipment for the potato chip industry. Our solutions set the standard for yield, efficiency, and safety while producing the highest quality potato chips. Whatever your product needs, we can meet it with precision and passion.



Keeping an Eye on All  
the Machines in Your Plant  
to Prevent Unplanned  
Downtime is Leaving  
you Fried?

# Schaeffler Has a Crisp Solution for You!

Potato processing is a delicate trade. From the moment a potato is dug out of the ground until its final stage as a potato chip or French fry or any other potato product, it undergoes a number of processing steps. It is de-stoned and washed, peeled and cut, cooked or fried and eventually packaged. All these steps are coordinated in such a way that the spud is processed quickly and with as little waste as possible. A failure of the recirculation pump in your fryer, for instance, or a misalignment of the rollers of your water knife conveyors will put your smooth production to a rough halt. Maintaining all your machines is essential to ensure efficient production.

**By Schaeffler Lifetime Solutions**



**B**ut still, one of the most common sources for unplanned downtime in food processing plants is machine failure. Reasons are manifold: in hard-to-reach or remote places, bearing conditions or lubrication statuses may not be checked regularly enough to catch impending problems early. Professional resources for manual condition monitoring are often scarce, but even if not, it's a particular challenge in environments that operate 24/7. In hot areas, machine monitoring with hand-held devices may be difficult and even pose a safety risk to employees. The consequences of interrupted production, however, are immense. If only one machine fails, the entire line of production

may come to a complete stop, wasting half-finished products, time, money and resources. The pressure is on for maintenance teams and plant managers to ensure plant uptime, maintain safety and hygiene standards and increase occupational health at the same time. What sounds like a jack-of-all-trades solution is what Schaeffler Lifetime Solutions offers: a solution portfolio that makes predictive maintenance in your plant easy and affordable. A renown potato specialist wanted exactly that - a comprehensive condition monitoring solution that is easy to use, warns early if anything is about to go wrong and indicates the possible root cause. They decided to go for Schaeffler's intelligent wireless condition monitoring solution OPTIME CM and

installed a small number of OPTIME sensors on their peeling machines, the frying plant and machines in the waste water treatment area. Shortly after installation, the OPTIME app issued a warning message for a boiler fan. It turned out that the outer ring of the bearing was defective. Replacing it is complicated and maintenance work around the boiler is usually done during a scheduled maintenance shutdown once a year. Not wanting to stop production out of schedule unless further deterioration of the bearing would make it unavoidable, the maintenance crew decided to keep a very close eye on the bearing condition with the help of the OPTIME app. Since the app did not indicate a worsening of the situation, the bearing outer ring was replaced during the next scheduled shutdown with all necessary replacement parts already at hand. Other problems OPTIME CM detected include rapidly increasing acceleration values in a fan motor indicating electrical fluting, and strong vibration on a conveyor. Inspection on the latter revealed that the scraper had been sucked under the conveyor belt and broken. With OPTIME condition monitoring the customer gained valuable insight into his machines' conditions, was able to make decisions and take respective action. After only two months in operation, the solution hardware was already paid for through the savings realized from prevented downtime. Not surprisingly, the customer decided to expand the solution and has meanwhile installed hundreds of OPTIME sensors in his plant.

But condition monitoring is not the only trick there is to prevent unplanned downtime – up to 80% of premature bearing failures are caused by insufficient or incorrect lubrication. Finding the right lubricant, however, seems hard and requires a lot of expertise given the fact that there is a large number of partially conflicting demands: It should reduce friction to avoid wear and tear, or it should both cool and seal the bearing. Sometimes it should keep the bearing clean by

Schaeffler Lifetime Solutions has both lubrication experts and expert lubrication. Their special grease FOOD2 from the Arcanol grease family, for instance, is made especially for the food & beverage industry. It is HSF-H1 registered and certified for kosher and halal production, ensuring both food safety and operational reliability. Its distinguishing characteristics are very high resistance to water and chemical cleaning agents, as well as great anti-corrosion protection.



preventing deposits of any substances generated during operation or protect the bearing surface from corrosion. Choosing the right lubricant is thus always a compromise for which the expected operating conditions, such as speed, operating and ambient temperature range and load, should be known. It is not always clear which of the many lubricants on the market is the best choice for your application and unfortunately, it is often difficult to recognize its quality.

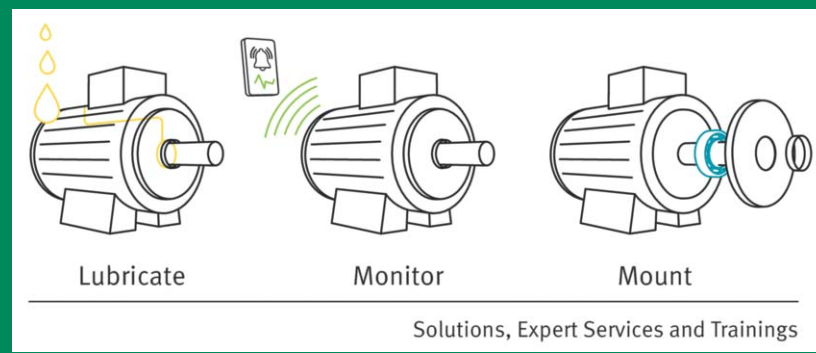
And once you found the best lubricant for your application, how do you make sure the right amount of it gets to the right lubrication point at the right time? 74% of all lubrication points in the process industry are still manually lubricated, making machine maintenance complex and time consuming. Unnecessarily so. Automatic lubricators, or better yet smart automatic lubricators, can cut

this task out of your daily routine. Automatic lubrication delivers a controlled quantity of lubricant to various lubrication points. This happens while the machine is in operation, thus reducing unnecessary downtime. Inspections are still necessary, but fewer than with manual lubrication. The advantage is the precise lubrication, which extends service life, avoids the ingress of dirt and also minimizes the risk of accidents. Smart lubrication takes it a step further: the lubrication system does all of the above but also automatically informs the user via an intuitive app which lubrication points are insufficiently supplied, and which cartridges need to be refilled or replaced. The advantages are location-independent access to the machine condition and the lubricator status. You can significantly reduce regular inspection efforts as the system notifies you if it needs attention. The time you save can be used for other, more important tasks. Monitoring remotely also means that you can keep yourself and your staff out of dangerous environments. All you need to do to check the status of your many lubrication points, is to check the app.

Many of Schaeffler's customers combine both condition monitoring and smart lubrication and opt for Schaeffler's OPTIME Ecosystem. It combines many elements that work together and enables a high level of

"smartness" that makes predictive maintenance to eliminate unplanned downtime easy. It begins with the OPTIME User Interface that can be used to get a complete overview of all your machines and lubrication points. The intuitive mobile app, dashboard and expert viewer mean you always have easy access to the right information at the right time, no matter where you are. This is made possible by OPTIME Cloud & Analytics. With extensive processing power and capacity, it takes huge amounts of data and makes it easy to understand and work with. This data comes from your OPTIME vibration sensors and smart lubricators via the OPTIME Gateway: a standalone device that makes secure cloud connectivity and IT integration easy. Connecting all OPTIME devices is the automatic and self-healing OPTIME mesh network. Easy to set up, the mesh network needs low energy and makes large-scale installations possible. So you can monitor your machines from wherever you are with OPTIME Condition Monitoring and simplify the lubrication of your machines with a smart lubricator such as the OPTIME C1. The OPTIME Ecosystem also includes the OPTIME Connector Service and the OPTIME REST API. The OPTIME Connector Service lets you connect other devices to the OPTIME Ecosystem quickly and easily. The OPTIME REST-API makes it easy to connect your OPTIME Ecosystem to other existing systems. •

Schaeffler Lifetime Solutions uses the extensive bearing & vibration analysis expertise the company has acquired over decades and puts it to use in the development of a comprehensive range of products, services and solutions for industrial maintenance.





We pioneer motion

## We keep your machines rolling – You keep your customers smiling

### **Around-the-clock machine availability with industrial maintenance solutions**

Your production process is precisely timed. The availability of your machines must be guaranteed 24/7 to avoid waste of food, time and resources.

With our comprehensive solutions for condition monitoring, lubrication and mounting, unplanned downtime on conveyor belts, frying systems, peeling machines and other critical equipment in a potato processing plant becomes a thing of the past. At the



same time they help you reduce CO2 emissions and ensure greater safety for your employees. Our solutions are called Lifetime Solutions – because we support maintenance experts like you over the entire life cycle of your machines.

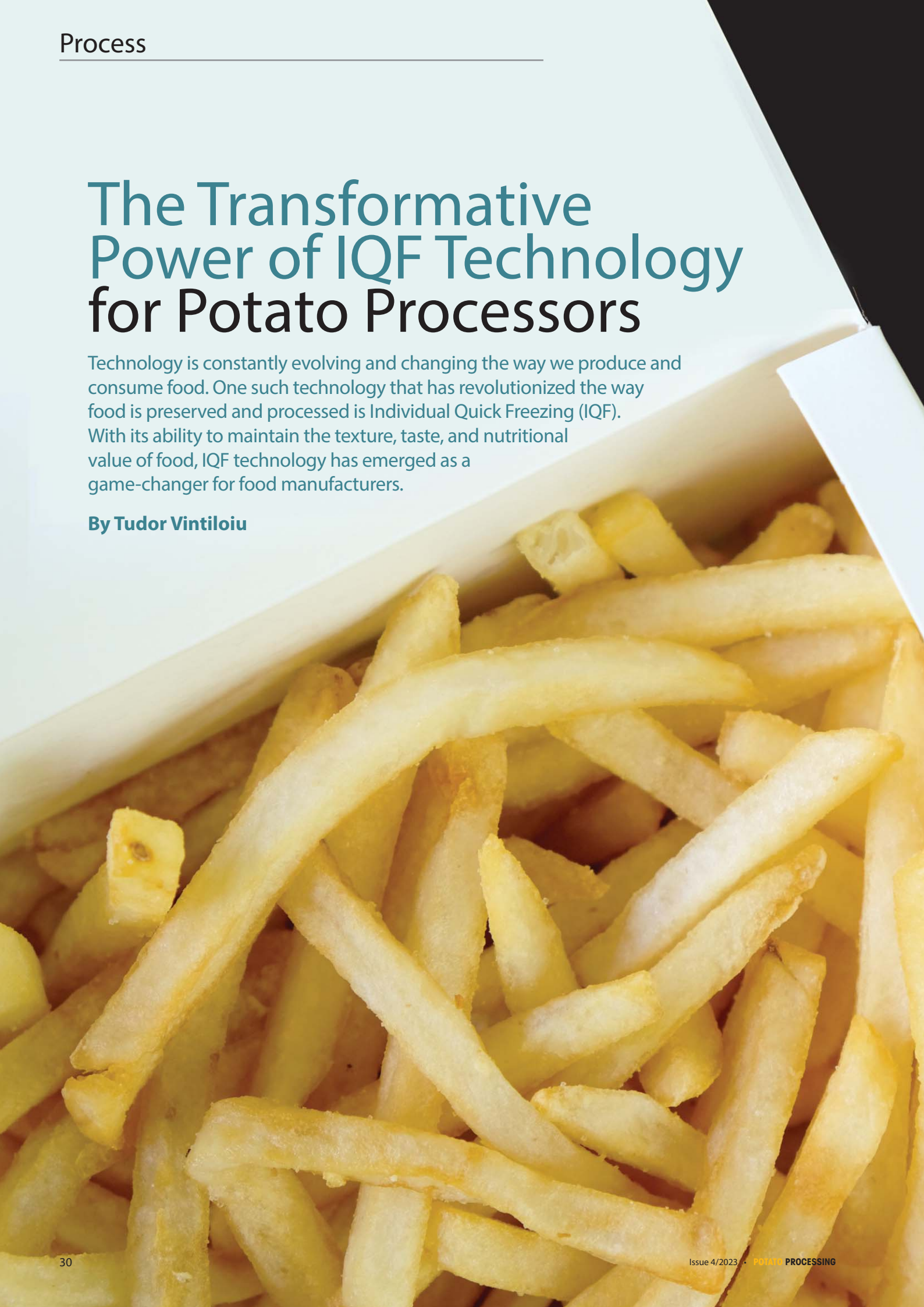
[medias.schaeffler.de/en/lifetime-solutions](https://medias.schaeffler.de/en/lifetime-solutions)

**SCHAEFFLER**

# The Transformative Power of IQF Technology for Potato Processors

Technology is constantly evolving and changing the way we produce and consume food. One such technology that has revolutionized the way food is preserved and processed is Individual Quick Freezing (IQF). With its ability to maintain the texture, taste, and nutritional value of food, IQF technology has emerged as a game-changer for food manufacturers.

**By Tudor Vintiloiu**



Unlike conventional freezing methods that form ice crystals and cause cellular damage, IQF technology rapidly freezes products at ultra-low temperatures (-30°C to -40°C) within a short span of time. This quick-freezing process forms small ice crystals, preventing the formation of large ice masses and preserving the integrity of the food.

### REDUCING FOOD WASTE

IQF technology preserves the individual integrity of each item, minimizing product damage and reducing the potential for food waste. Processors can freeze large batches of food and select the desired quantity for packaging, allowing for precise portion control and reducing the risk of excess inventory.

By freezing food rapidly at extremely low temperatures, IQF technology significantly extends the shelf life of perishable items. This enables food processors to maintain inventory for longer periods, reducing the need for frequent production cycles and

minimizing the risk of product spoilage. Additionally, the individually frozen nature of IQF products offers flexibility to processors, as they can easily portion out the required quantity and reduce the risk of product degradation during thawing. With almost 40% of all food in the United States going uneaten, food waste is an important and relevant concern for many shoppers. Now, two new studies reveal that consumers turn to frozen food to help reduce their food waste footprint at home. Publications from the Cornell University Dyson School of Business and market research firm 210 Analytics cast light on the lower waste rates of frozen food and how consumers are utilizing frozen food to fight back against waste, respectively.

“As shoppers and policymakers alike look for ways to reduce food waste, new data show that freezing is an important solution,” said American Frozen Food Institute (AFFI) President and CEO Alison Bodor. “Freezing is nature’s pause button – preserving foods so families can benefit from the longer shelf-life made possible. Whether enjoying frozen fruits and vegetables, pre-portioned meals and appetizers, or other meal ingredients, consumers rely on frozen food to provide flexibility in meal planning and a convenient way to reduce their food waste.”

A literature review conducted by Cornell University explored the rate of waste among frozen foods in grocery stores and households. This analysis of multiple studies affirmed that, in general, frozen foods are wasted less than their fresh counterparts at both the retail and consumer levels. While the rates of food waste vary among different types of food, among the fruits and vegetables studied, the frozen products are typically much less likely to be

discarded than the fresh equivalent. The study also reported that, when refrigerated foods are discarded, it is commonly due to concerns about

spoilage or excess leftovers. Freezing food can help to address these challenges by extending the shelf-life of products and allowing families to prepare exactly what they need.

Adding to the library on food waste is a survey by 210 Analytics of more than 1,500 U.S. consumers exploring concerns, attitudes, and behavior related to wasting food and the value of buying frozen products or freezing food at home. Eighty-three percent of survey respondents agreed that buying frozen food is a good solution to limit the amount of food waste in their household. Consumers largely reported benefiting from the ability to prepare what they need with frozen food, and 79% of survey respondents reported that the ability to prepare exact portions is a purchase driver. Consumers also reported that frozen ingredients provided additional meal flexibility, with 9 in 10 frozen food consumers agreeing that frozen food allows having a backup plan without the risk of spoilage.

In addition to the environmental impact of wasting food, many shoppers acknowledge the financial impact. Among households eligible for the Supplemental Nutrition Assistance Program (SNAP), 86% indicated that they cannot financially afford to waste food and that frozen food ingredients help them save money because they are able to use the food over time.

“Reducing food waste isn’t just good for the planet, it’s good for the wallet,” added Bodor. “With the preservation made possible by freezing, consumers can avoid at-home spoilage of food ingredients and still adjust meal plans due to last-minute changes. This new data shows that when you want to cut back on food waste, the freezer is your friend.”

### THE FROZEN FRENCH FRY MARKET DYNAMIC

One prominent area where IQF technology has witnessed substantial adoption is in potato processing, specifically for the production of frozen French fries.



The global demand for frozen French fries has been steadily increasing due to factors such as changing lifestyles, rising urbanization, and the growing preference for convenient, ready-to-eat meals. This surge in demand has prompted potato processors to invest in IQF technology to meet consumer expectations and streamline their production processes.

According to a recent report by Technavio, the frozen potato fries market size is projected to increase by USD7.37bn and the market size is estimated to grow at a CAGR of 5.84% between 2022 and 2027. "Our researchers analyzed the data with 2022 as the base year, along with the key trends, and challenges," Technavio's analysts explained.

The primary driver propelling the expansion of the global frozen potato fries market is the increased online presence of this food item. The rise of e-commerce has impacted the availability of several food products online, including frozen French fries. Due to the convenience and time savings offered by frozen foods, consumers increasingly rely on online marketplaces and supermarket delivery services to quickly shop for their food needs. Compared to conventional stores, online marketplaces have a greater variety of frozen potato fry brands, flavors, and container sizes.

"Some major players, such as

McCain Foods and Ore-Ida, offer products online. The rising number of direct-to-consumer brands and online marketplaces has allowed frozen potato fries manufacturers to reach consumers directly. Thus, increased online penetration of frozen potato fries will positively impact the growth of the global market during the forecast period," the experts added.

Other drivers include urbanization expansion and changing consumer lifestyles. Frozen potatoes are a part of this trend because they are regularly used as a component in many processed food items, such as snacks, appetizers, and ready-to-eat meals. Additionally, overseas markets are seeing an increase in demand for frozen potatoes. Producing countries for potatoes commonly export and freeze their surpluses to reduce waste and boost profitability. The global demand for frozen

potatoes has increased as a result of this trend.

Frozen potatoes have a longer shelf life than fresh ones. They can be stored in the freezer for a number of months without noticeably losing quality or nutritional value. Therefore, they make sense for customers who want to stock up on potatoes without having to worry about them going bad. The food service industry, which includes restaurants, fast-food chains, and catering services, is also responsible for the increase in demand for frozen potatoes. These eateries usually rely on the uniformity, practicality, and affordability of frozen potatoes to meet the enormous demand for potato-based meals like French fries, hash browns, and mashed potatoes.

## CONCLUSION

The benefits of IQF technology align perfectly with the requirements of the potato processing industry. Potatoes are a versatile and delicate crop, susceptible to bruising and enzymatic browning. IQF technology minimizes these risks, ensuring that each French fry retains its shape, color, and taste, even after freezing and subsequent cooking. Moreover, IQF technology enables potato processors to efficiently freeze and store French fries in large quantities, reducing the need for frequent production runs and ensuring a consistent supply to meet market demands. As these continue to rise, the adoption of IQF equipment is expected to escalate, driving further advancements in freezing technology and revolutionizing the food processing industry as a whole. •





# POTATOBUSINESS

2020 | ISSUE 1

PRE-CLEANING, WASHING,  
DESTONING  
**Modern Equipment  
Contributes to  
Less Maintenance** >

CUTTING, PEELING, SLICING  
**Finding the Best  
Solution for Every Need** >

SUSTAINABILITY IN  
AGRICULTURE AND BEYOND  
**Taking the Right Steps** >



[www.potatobusiness.com](http://www.potatobusiness.com)

# SINESS DIGITAL



Get your updates  
right from the core of the  
potato processing industry

- Interactive information
- Dynamic design
- Tablet & mobile friendly

# POTATOBUSINESS DIGITAL



Loading...

# Packaging Equipment in High Demand Driven by Population Growth

Even in the challenging year of 2022, the companies in the sector saw a rise in production of 7% to EUR15.8bn in Germany. Accordingly, the fourth-largest segment of mechanical and plant engineering in the country saw growth that surpassed its EUR15.3bn pre-crisis level.

By Tudor Vintiloiu

**“E**ven in the difficult year 2022, the demand for our machines remained high. This is primarily because food processing and packaging machines make a decisive contribution to the safe supply of food, beverages, and pharmaceutical products to a growing world population,” Christian Traumann,

Chairman of the Food Processing and Packaging Machinery Association (VDMA), explained during a press conference.

The same association says that growth should have been much higher but that the slowdown in the economy’s recovery was mostly due to ongoing supply chain issues as well as Russia’s actions in Ukraine.

“The war in Ukraine, with all its consequences – rising energy prices, inflation, and the associated interest rate policy – created uncertainty, especially in Europe, which was reflected in a reluctance to invest,” Traumann added, looking back at the order intake in 2022, which fluctuated sharply from March onwards.



### USA LEADS, CHINA WITH STRONG GROWTH IN THE PACKAGING MACHINERY

In 2022, the sector's exports fell by 1.7% to just under EUR9bn.

Exports to the EU-27 and other European countries decreased by 4% and 8%, respectively. In total, European nations received 49% of German exports, 34% of which were bound for the EU.

With a concentration on North America and Asia, more than half of the exports were sent to non-European nations. The USA has long been by far the most significant market. Machinery for food processing and packaging worth EUR1.4bn was sent to the U.S. in 2022, making up 16% of all exports. Germany, rather than Italy, Canada, or China, is the most significant provider of food processing and packaging equipment to the U.S.

Despite the zero-COVID strategy

there and the ensuing travel restrictions, exports to China, the second-largest market, rose by 11% to a record EUR605m.

"This shows that our products are still in high demand in the Chinese market. High-performance machines and process engineering know-how secure our market position here," Traumann explained.

### PROSPECTS AND CHALLENGES

Even just the growing world population serves as a positive market factor for businesses in the food and packaging machines sectors. Order intake increased by 5% in real terms in 2022 as well, mostly due to non-European nations. "We cannot estimate how the geopolitical risks, inflation, and the associated interest rate policy in the individual countries will affect investments and thus our business development," Traumann said.

According to the VDMA poll from March 2023, a significant bottleneck caused by a lack of competent labor affects about two-thirds of industry organizations. Because of the large order backlog, the Food Processing and Packaging Machinery Association predicts that sales will increase by 8 to 10% this year.

### LESS BUREAUCRACY AND OPEN MARKETS

Christian Traumann urged policymakers to take additional steps to eliminate red tape and open markets.

"If a transformation of the manufacturing industry is to succeed, we must not be overwhelmed with regulations but must be supported by policies that promote industry and small and medium-sized enterprises. Innovation needs entrepreneurial freedom and

# ProcessExpo

# WHERE PROCESS MEETS PROGRESS



SCAN TO REGISTER NOW!

THE GLOBAL FOOD  
EQUIPMENT AND  
TECHNOLOGY SHOW®

OCTOBER 23 - 25, 2023  
Chicago, Illinois USA

MYPROCESSEXPO.COM



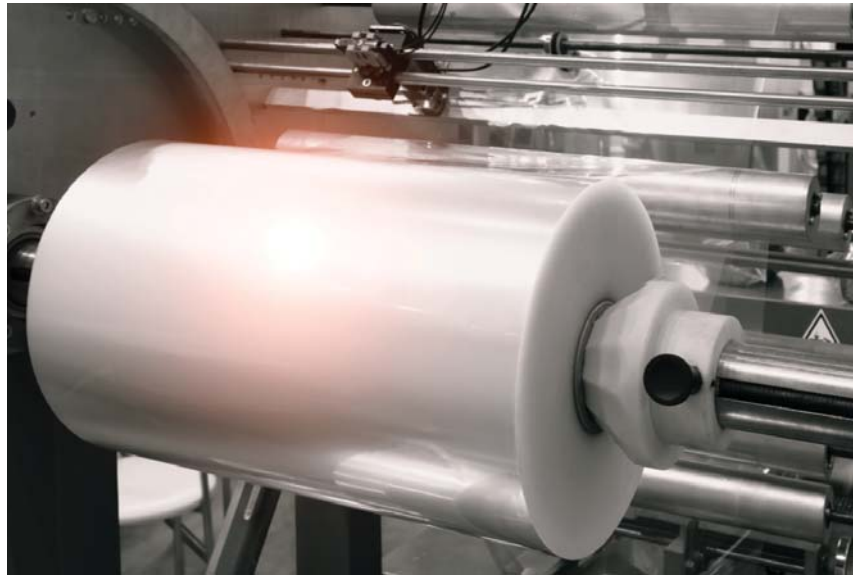
messe frankfurt



competition," he mentioned, referring to slow approval procedures in Germany and current and upcoming EU regulations. Traumann emphasized the critical role that open markets have in the global development of mechanical engineering. He asserted that the EU must concentrate on free trade agreements with its most significant trading partners in light of the rising protectionist climate. Only then will it be possible to stop new obstacles from being built for European industry. "We need China as a sales market and we also need products from China. And China needs the EU market. We should not forget that and represent our own industrial and location policy interests to a greater extent than before," Traumann concluded.

## CASE STUDY

To transform the way snacks are made and help Mister Bee Potato Chips achieve its lofty future objectives, TNA Solutions has teamed up with the company. The Parkersburg, West Virginia, manufacturing facility was entirely planned and optimized by TNA, leading to an impressive 400% capacity gain.



The West Virginia Potato Chip Company, the Mister Bee's new owners, realized that the obsolete frying and packaging equipment needed to be completely upgraded to keep up with the needs of the expanding market. The goal was to establish a production environment that could support growth while producing products of the highest caliber. TNA's specialist engineers identified critical process improvements and presented a bespoke solution in collaboration with Mister Bee's operations manager. The partnership started with a comprehensive redesign of the manufacturing facility using cutting-edge technologies like Microsoft's HoloLens. This stage guaranteed that the newly renovated facility was optimized for efficiency and production before TNA's incorporation. Following the layout of the area, the TNA robag® 3ci, a cutting-edge vertical form, fill, and seal (VFFS) packaging system, was installed. The robag® 3ci can operate at extremely high speeds of up to 150 bags per minute (bpm) because of its rotary double jaw and innovative stripper tube closure. Operations were simplified by the use of TNA's unique auto connect and unload help technology. It made seamless switchovers possible with little additional labor, thus

enhancing overall equipment effectiveness (OEE). The partnership produced amazing outcomes. The output of Mister Bee's chip capacity increased dramatically, enabling it to satisfy rising demand without sacrificing the caliber of its goods. Mary Anne Ketelsen, President of Mister Bee, expressed her satisfaction with the outcome. "Previous machinery could only run 20-25 bpm, whereas now with my new TNA machines, I can run 100-115 bpm. A very big upgrade," Ketelsen added. Furthermore, TNA's turnkey, end-to-end, single-source approach means the company stands by every element, and this was demonstrated by its swift action in rectifying a small design defect during the integration process. Welders were promptly dispatched at TNA's expense to ensure the optimal functioning of the machinery, leaving Mary Anne Ketelsen and her team impressed by TNA's dedication to their success. Mister Bee has since invested in further TNA apparatus, including a new fryer, demonstrating its continued confidence in TNA's exceptional service, great machinery, and consistent results. Mary Anne Ketelsen anticipates that this productive relationship will continue to drive their growth and innovation for many years to come. ●

# ProcessExpo

## EXPERIENCE THE LATEST TRENDS AND TECHNOLOGIES AT PROCESS EXPO 2023

Whether you're a professional in the food and beverage industry or simply interested in the latest trends and technologies, Process Expo is the perfect opportunity to learn about the industry's newest innovations.

As The Global Food Equipment and Technology Show®, Process Expo brings together the industry's leading companies, newest machinery, and the most innovative products and services under one roof. Visitors will have exclusive access to educational sessions and have a chance to connect with other professionals and discover new business opportunities.

On the show floor, visitors will see the latest trends and technologies in food processing and packaging, including baking and snack processing equipment, ingredients, packaging solutions and other manufacturing needs for baked goods. Visitors will also have the opportunity to attend educational sessions that cover topics such as food safety, sustainability, and new product development.

Unique to Process Expo, technology will be on display with a live empanada production line! This special feature will showcase the latest equipment used to produce this popular Latin American snack food. Watch as the empanadas are made from start to finish and learn about the techniques used to produce them on a large scale.

As a professional in the food and beverage industry, Process Expo provides valuable insights across industry applications. It's important to plan ahead. Register and book hotel accommodations as

soon as possible through the official housing provider, Maritz Global Events, to secure the best rates. Don't miss out on this opportunity to stay ahead of the curve in the food and beverage industry. Register today and start planning your visit to Process Expo 2023, The Global Food Equipment and Technology Show®.



**SCAN TO REGISTER NOW!**



**THE GLOBAL FOOD  
EQUIPMENT AND  
TECHNOLOGY SHOW®**

**OCTOBER 23 - 25, 2023**  
Chicago, Illinois USA

[MYPROCESSEXPO.COM](http://MYPROCESSEXPO.COM)



messe frankfurt

# Exploring US Snacking Trends: Monitoring Inflation and Promotional Impact

As Euromonitor International’s most recent Global Inflation Tracker reports, inflation is still very much a top priority for businesses and governments and is having a key impact on consumers’ real disposable incomes. In the US, inflation is expected to slow to 4.2% in 2023 from 8.0% in 2022, but with recession fears abound and rising interest rates, consumers are looking for help on spending anywhere they can find it. For many businesses, analyzing top-line macroeconomic data is not enough to help support day-to-day pricing decisions and so it is important to look to online stock keeping units (SKU) data.

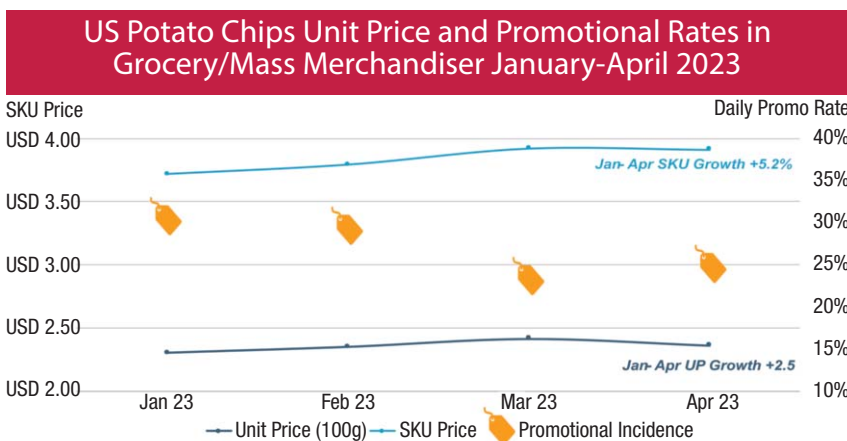
**By Jared Conway, Head of Research at Euromonitor International**

**S**ales of potato chips online in the US reached USD648.9 million in 2022 according to Euromonitor International’s e-commerce system, more than any other salty snack category, so this article looks at how prices and promotions have fared in this dynamic category at the start of the year (when snacking companies ferociously compete amid many sporting events such as the Superbowl) and what data manufacturers and retailers can look to for better pricing and promotional strategies.

In order to make decisions on pricing and promotions, companies need to examine the brands, categories and most importantly, the retail channels, that matter most to them and can impact their business. Narrowing one’s basket of goods can often be a more solid methodology for insights. For example, large marketplaces such as Amazon can feature a variety of large bulky items that do not reflect a typical family or consumer’s purchases and are not a good input to use for monitoring inflation rates. This sample only examines potato chip SKUs that are found in the 14 grocery retailers and mass merchandisers tracked in Euromonitor International’s e-commerce tracking tool Via. As evident from the chart, both prices

at the SKU level and the unit price for potato chips continued to rise through the first third of the year in 2023. While a rise in the SKU price of 5.2% indicates what consumers are seeing with regards to pricing changes, these rates can be more an indication of changes in pack sizes or product assortment. However, at the unit price level, potato chip SKUs rose 2.5% from January to April due to a number of inflationary factors as suppliers have reported rises in fertilizer costs due to the war in Ukraine, as well as cooking oil prices which have doubled since before the pandemic, in addition to overall transportation costs. Promotions are an important way for retailers and suppliers to help mitigate the impact of rising prices and stand out amongst a variety of other options. For potato chips, promotional incidence, which is the number of SKUs on promotion compared to the total number of SKUs to purchase, was highest in January for this sample at 31% for the month. Consumers are extremely conscious of their budgets following the holiday season and it is clear how aggressively companies seek to capture attention, but as the year unfolds, it is evident that promotional incidence declines and grocery retailers struggle to maintain unit prices given such strong inflationary pressures.

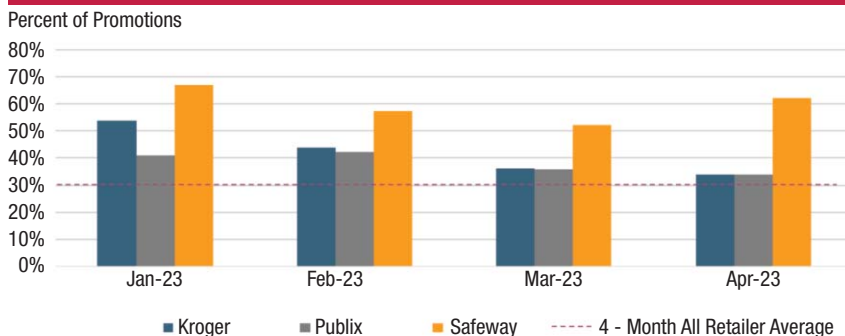
**UNIT PRICES INCREASE WHILE PROMOTIONAL RATES DECLINE IN GROCERY STORES**



Source: Euromonitor International Via.  
 Note: Potato Chips Grocery/Mass Merchandiser in the US SKUs = 1,360



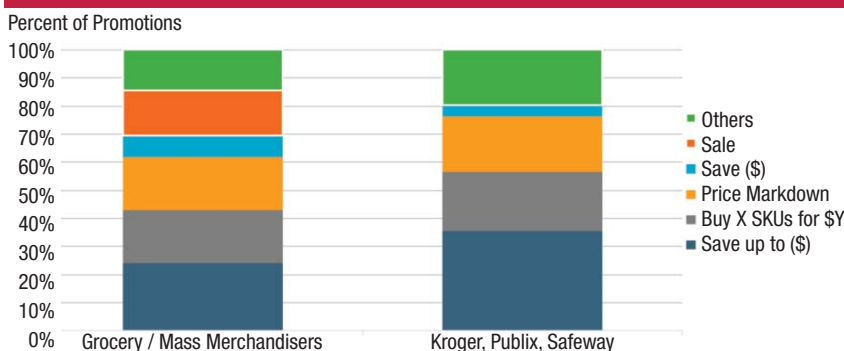
### Promotional Incidence of US Potato Chips in Leading Grocery/Mass Merchandisers January -April 2023



Source: Euromonitor International Via.



### Potato Chips SKUs Online Promotional Language at US Grocery Retailers Jan - April 2023



Source: Euromonitor International Via.



#### LEADING SUPERMARKET RETAILERS AGGRESSIVELY PROMOTE PRODUCTS

Promotional frequency at grocery retailers and mass merchandisers is an important strategy; too much promotion and consumers do not see any urgency or importance in changing their purchasing behavior, while limited promotion can mean consumers do not feel any appreciation or support, and they might move on to different retailers and brands that offer more attractive discounts.

Monitoring and benchmarking are important strategies for companies in determining promotional frequency. Kroger, Publix and Safeway are the three leading supermarkets in the US by retail sales in 2022, and in this sample for potato chips, it is clear that all players were consistently higher than the 4-month average for promotional frequency, indicating how aggressive these companies are to retain consumers and communicate their support to them in combating inflation. However, strategies and frequency of promotions can provide competitive advantages; despite Kroger and Publix reducing the number of promotions in this space as the year unfolds, Safeway maintains high promotional

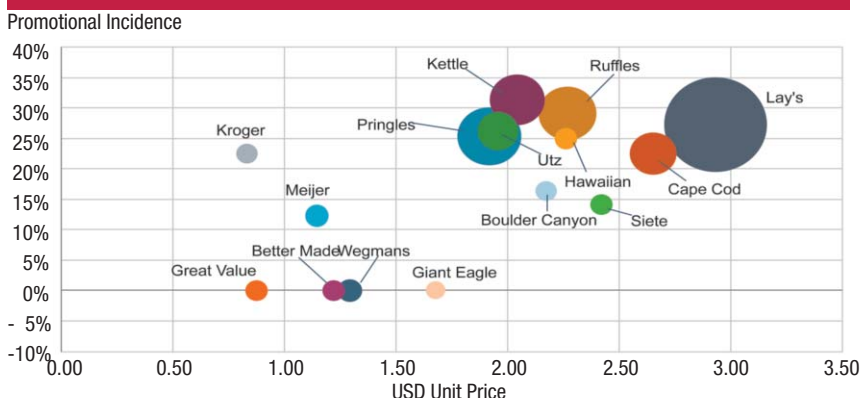
incidence rates and even increases its promotions in April from March. Retailers have many options when it comes to promotions, such as how much of a discount to provide, but also the promotional language. Companies must select the right language consumers perceive as being more impactful to their budgets and purchasing decisions. The leading three supermarkets drastically differ in the promotional language used compared to the larger sample of grocery/mass merchandisers. For this basket of potato chips SKUs, Kroger, Publix and Safeway not only promote “save up to

(\$)” and “buy X SKUs for \$Y” promotions more often, but also do not simply state “sale” with little added information compared to other retailers in the larger average, as they seek to generate more psychological triggers to create higher perceived value and urgency for the promotion.

#### HIGHER-PRICED BRANDS HAVE HIGHER PROMOTIONAL INCIDENCE RATES

Finally, while retailers and suppliers can track and monitor a variety of strategies for promotional and pricing changes at the category level, decisions need to be taken at the brand and SKU level so understanding differences at this level can shed light on promotional strategies. It is evident that more expensive brands, such as Kettle and Ruffles, have much higher promotional rates, indicating how competitive this space is and the need to balance value and discount when attracting consumers. Meanwhile, private label SKUs, with the exception of those from Kroger, have low promotional incidence rates given the already reasonable price positioning of private label. While this is a narrow sample for a specific snack category in a specific retail channel, as companies navigate the complex landscape of inflation, finding the right balance of promotions and pricing by benchmarking competitors and SKUs provides data-driven decisions that can be tracked, evaluated and revised. •

### Potato Chip Brands Unit Price and Promotional Incidence at US Grocery/Mass Merchandisers Jan - Apr 2023



Source: Euromonitor International Via

Note: Bubble size indicates number of SKUs in sample



# South America: Production and Consumption Trends

In the dynamic world of global agriculture, the potato stands as a vital commodity with far-reaching implications for the South American market. Through a data-driven lens, we shed light on the market forces, investment opportunities, and potential challenges that influence the profitability and viability of this essential crop in the region.

By Tudor Vintiloiu

**T**he trends in potato cultivated areas vary greatly among the South American countries. Some countries, such as Peru, show a steady increase in potato acreage over the years. This suggests that potato cultivation has expanded in these countries, possibly due to factors such as increased demand for

potatoes, improvements in farming techniques, or favorable government policies. On the other hand, some countries, such as Argentina, have experienced a decline in potato acreage. Analysts attribute this to changes in market conditions, shifts in agricultural policies, or environmental factors affecting

potato yields. The fluctuating trends highlight the uncertainties and challenges faced by farmers and underscore the need for supportive measures to ensure the sustainability of potato production. Peru has had the highest average potato area since 2000, followed by Brazil and Argentina. This indicates that Peru is a major player in potato production in South America, likely due to its favorable climate and soil conditions for potato production, as well as its long history and rich diversity of potato varieties. It's worth noting, however, that large planted areas don't necessarily translate into high potato yields or profits. Factors such as the efficiency of farming techniques, the quality of the soil, and the prevalence of pests and diseases can also affect the productivity and profitability of potato farming. Overall, potato production in South America as a whole has increased,





likely due to factors such as growing population and food demand, advances in agricultural technology, and the development of potato varieties with higher yields and better resistance to pests and diseases.

However, the general trend masks differences between countries, and these unique circumstances and challenges are extremely relevant to local industry players.

#### **CONSUMER PREFERENCE AND GROWTH DRIVERS**

In South America, the consumption of potatoes as food is experiencing a shift as consumers actively seek fresh potatoes over added-value, processed potatoes. However, there is also a rise in demand for potatoes for applications such as snack foods and prepared ready meals, and the growth in consumer preferences for convenience foods to save time and efforts, are a few factors driving this growth in the region. Another

driver is the increase in industrial development that is witnessed in Brazil and Argentina, as well as existing potato processing operations that are expanding their production lines in other geographies, which is also propelling the demand for potatoes in the market.

Driven by competition, the local potato processors in South America strive to improve their processing technology and product quality. The processing industry in Argentina, for example, has evolved technologically, creating new standards for performance and quality, due to the rise in exports to countries such as Russia, Brazil, the Netherlands, Italy, and the US. Chile has also developed as a major player in the international agriculture and processed food markets, which has resulted in significant growth in its potato processing and packaging equipment industries.

According to Vitafoods Insights, South America offers immense growth opportunities to domestic as well as international potato processing players. Brazil is one of the most attractive markets in terms of both internal sales and export potential. The demand for processed potatoes is expected to grow strongly in Brazil as it has the largest consumer market. Like in many other places, the Brazilian government decided a few years ago to impose anti-dumping duty on frozen potatoes (mostly frozen French fries) imported from Germany, Belgium, France, and the Netherlands, as these countries were exporting at significantly lower prices, making it a concern for local producers. Thus, Brazilian manufacturers, because of the support by the local government, are harnessing opportunities, which act as an aid to the South American processed potato industry. •



Jonathan Thomas

# Flake It, 'till You Make It

Use of both potato flakes and mashed potato remains high across much of the world. The global market appears to have recovered after the disruptions caused by the pandemic (which severely impacted demand for these products from foodservice channels), with both potato flakes and mashed potato used in the manufacture of various foodstuffs.

By Jonathan Thomas

Other growth drivers within the market include a move towards convenience and processed foods in the world's emerging economies, as well as greater appreciation of the health benefits offered by potatoes. As an example, potato flakes have a high flavonoid content, which has been linked with lowering of cholesterol levels.

## POTATO FLAKES

Dehydrated potato flakes are prepared by cooking and mashing raw potatoes. The mashed potatoes are then pressed on to a drum drier by a roller to form sheets, when then undergo the process of quick drying, which brings humidity levels to an acceptable value. Afterwards, the sheets undergo a breaking and grinding process to produce the potato flakes, with manufacturers typically adding various ingredients at this stage to improve their texture, color and taste.

Potato flakes offer many attributes as an ingredient in food manufacture. They are frequently used as a thickener, to add volume to products such as soups, sauces and gravies. They also represent popular binding agents due to their starchy qualities, for applications such as sausages, burgers and other meat-based dishes. The growing adoption of gluten-free diets in parts of the world has also benefited demand for potato flakes – they are recognized as offering an acceptable alternative to wheat-based flour due to their water retention capabilities, which also ensures greater freshness and extended shelf-life. For similar reasons, usage of potato flakes as an alternative to breadcrumbs for coating foods such as meat and



converting their land to organic has fallen in recent years, despite investment worth up to USD300m from the Department of Agriculture to encourage this switch.

Growth in demand for potato flakes has also been high across much of Asia, driven in part by the increasing westernization of diets amongst urban consumers in countries such as China, Japan and South Korea. The Chinese market for potato flakes, for example, continues to increase by an average of over 11% per annum, and is expected to reach a value of USD3bn at some point in the next decade. The potential for future growth within the Chinese market can be illustrated by recent corporate developments, such as the decision by Aviko Rixona in 2020 to construct a new production facility for potato flakes in the city of Zhangye-Gansu, which has an annual

2022, having grown by 13% from the previous year.

However, it is estimated that just 1% of

US farmland is certified as organic, with the result that many organic foods must be imported. Furthermore, the number of US farmers

poultry is also believed to be increasing. According to Future Market Insights, worldwide sales of potato flakes were worth USD7.05bn in 2022. Annual growth within the market is expected to average more than 5% in the years leading up to 2032, by which time value sales are forecast to reach USD11.8bn. The dehydrated potato flakes sector continues to represent one of the largest within the global market for processed potato products, due in part to the wide range of applications within the food industry.

With sales worth an estimated USD1.9bn at present, the US has one of the world's largest markets for potato flakes. Market growth is expected to average around 8% per annum during the rest of the current decade, with usage of potato flakes as an ingredient remaining widespread for foods such as soups, sauces and meat products (e.g. burgers and meatballs). The US market has begun to witness a growing demand for organic products and food ingredients, which are becoming more popular with consumers – the US market for organic foods was worth USD63m in





capacity of 15,000 tonnes. More recently, domestic manufacturer Snow Valley Food announced a major investment during 2022, which will involve the installation of fully automated equipment from Tomra Food to manufacture French fries and potato flakes. As a result of this development, production capacity of potato flakes at the site is set to increase to 10,000 tonnes per annum. Elsewhere in Asia, major developments are also taking place within the Indian market. India represents the world's second largest producer of potatoes, trailing only China with output amounting to almost 55 million tonnes. However, prices have fallen within the last year, caused by an oversupply resulting from the introduction of higher-yield seed potatoes. Within the Indian market, one of the most significant applications for potato flakes is in the manufacture of Aloo Bhujia, a crispy snack food made using potatoes and rice and gram flour. Aloo Bhujia originates in the western state of Rajasthan and although often consumed as a snack, is also a popular meal accompaniment. In European countries such as Germany, potato flakes are finding increasing favor as a substitute for fresh potatoes in the manufacture of

a range of foods. Not only does this help to lower production costs, but it alleviates some of the supply chain issues which have affected the industry of late. EU potato imports are worth around 591,000 tonnes by volume according to latest data, valued at more than EUR235m. Some of the region's leading importers of potatoes include Belgium, the Netherlands and Spain, even though the Benelux countries also rank as major producers. In 2021, Belgium and the Netherlands accounted for a combined 20% of EU potato output, trailing Germany (21%) but ahead of Poland (16%) and France (16%).

## MASHED POTATOES

The global market for mashed potato also continues to increase, driven by factors such as its ease of preparation and popularity as a side dish or meal accompaniment/component. According to recent data from Future Market Insights, the global market for mashed potato was valued at more than USD2.46bn in 2022. This figure is projected to increase by an annual average of almost 5% in the years leading up to 2032, by which time worldwide market value is anticipated to reach USD3.9bn. Although Europe represents the world's largest regional market, some of the fastest growth over the next decade is expected to come from North and Latin America.

Varieties such as Maris Piper and King Edward are widely regarded as the most suitable for making mashed potato. This is chiefly due to their floury and fluffy nature, although qualities such as flavor and texture also come into consideration. When making mash, the potato is blended with butter and milk or double cream, as well as other ingredients and seasonings – popular examples include salt, black pepper, sour cream and olive oil.

Although mashed potato continues to represent one of the world's most popular side dishes, its position is coming under greater threat as consumer tastes become more sophisticated and people seek out a wider range of options. Not only does it compete against other popular forms of cooked potato products – examples of which include French fries/chips, roast potatoes, boiled potatoes, sweet potatoes and potato croquettes – but the popularity of meal accompaniments such as vegetables (e.g. boiled, stir-fried, etc.), onion rings, coleslaw, salads, rice and noodles continues to endure. Nevertheless, research from McCain predicts that global demand for side dishes will continue to expand as the decade progresses, driven by the growth in social eating occasions. The mashed potato sector is expected to derive some benefit from this trend. In the second half of 2022, Campbell Soup Company released the results of a survey carried out in association with SWNS Media Group and Dotdash Meredith regarding the most popular side dishes for Thanksgiving dinners amongst US consumers. According to the research, around two-thirds of all respondents claimed to prefer the side dishes to the main entrée. The top five side dishes identified by the survey were as follows:

1. Stuffing
2. Mashed potatoes
3. Sweet potatoes
4. Green bean casserole
5. Mac and cheese.

The survey found that 22 states ranked mashed potatoes as the most popular side dish for Thanksgiving dinners. Some distinctive regional variations in taste emerged throughout the US,

with mashed potatoes proving most popular in Mid-West and North-West states such as Oregon, Idaho, Washington, Wyoming, South Dakota, Nebraska and Colorado, as well as further south in California, Nevada and New Mexico. This should perhaps come as no surprise, given that much of US potato production is largely concentrated in these parts of the country. Mashed potato is also popular in countries such as the UK and Ireland. According to recent data from YouGov, 76% of UK consumers are positively inclined towards mashed potato, with approval rates highest amongst millennials and baby boomers. The same source found that mashed potato represents the fifth most popular British dish, while it also forms an essential component of meals such as Bangers & Mash and Shepherd's Pie. In Ireland, one of the most popular dishes based upon mashed potato is Colcannon, a traditional Irish dish made from mashed potatoes and either cabbage or kale. This is typically served on occasions such as Halloween and St Patrick's Day, while its name is derived from the Gaelic for 'white headed cabbage.' Some regional variations of the dish exist across Ireland, with some recipes adding ingredients such as chopped bacon, chives or leeks. Elsewhere, mashed potato also features in the preparation of meals such as dumplings and gnocchi. It is also worth noting – in the light of heightened consumer concern over food waste – that options for leftover mashed potatoes are numerous. These include potato croquettes, potato cakes or potato pancakes, while they can also be used as an alternative to flour in gluten-free foods. As the market has developed, more varieties of mashed potato have appeared, usually in the form of flavored products catering towards the consumer desire for interesting taste profiles. Cheeses such as Cheddar and Parmesan have typically been popular accompaniments, as have various herbs and vegetables –

examples include onions (sometimes caramelized), shallots, leeks, chives, mushrooms, garlic and chopped peppers. Chopped pieces of bacon or ham are also finding favor, while mustard is sometimes used to impart a novel and spicy taste to mashed potato. The growing popularity of various ethnic cuisines is also influencing the market – for example, some consumers appear to have taken to adding coconut milk when preparing mashed potatoes, often as part of a Thai-inspired recipe. Potato is usually perceived as a food that offers health benefits – for example, they are rich in vitamin C, calcium and potassium, as well as having links with improved digestive health. Furthermore, they are also ideally positioned to capitalize on the recent growth in popularity of plant-based diets in many parts of the world. However, there is evidence that suppliers of mashed potatoes are also making additional efforts to address consumer health concerns. In the US market, the Simply Potatoes range includes mashed potatoes supplied under the 'Skinny' banner. These mashed

potatoes – which appear in flavors such as Sea Salt & Cracked Pepper and Roasted Garlic & Sea Salt – have 40% lower fat levels than standard equivalents. Industry supply within the mashed potatoes sector tends to be dominated by the world's leading potato producers, examples of which include multinationals (e.g. McCain, Lamb Weston, JR Simplot, Unilever and Aviko), as well as companies with a more limited geographical reach. The North American market, for example, is serviced by several US-based suppliers, the largest of which include Ore-Ida and Idahoan Foods. For manufacturers such as these, much is made in promotional and packaging activity of the local provenance of the potatoes used in the finished product, to emphasize support for farmers as well as addressing environmental concerns over food miles. Many multinationals continue to expand their presence in parts of the world such as Asia in recent years, to take advantage of the growth in the local processed foods industry. •



# Seasoning Technology Options for Complex Flavor Profiles

Seasoning technology options for potato processors have advanced significantly, providing an extensive range of choices to elevate flavor profiles. From traditional drum seasoning to innovative vacuum tumbling and infusion systems, each technology offers unique benefits in terms of flavor control, consistency, and customization.

**By Tudor Vintiloiu**

**W**ith the advent of advanced seasoning technologies, potato processors now have a wide array of options to infuse innovative flavors and textures into their products. There are 2 main ways processors can season a product: 1. Use a tumble drum style system, for example on-machine seasoning (OMS) or mainline seasoning (MLS) and 2. Use a flatbed oiling system. The selection of a seasoning method is largely determined by the type of product being produced. For example, OMS systems often provide greater production flexibility from a control perspective, allowing several flavors to be produced at once for multipack or fulfilling direct sales needs, as opposed to bulk warehousing. The cleaning and maintenance of OMS systems is typically much simpler too – allowing for quick flavor changes and more continuous production runs. MLS systems are better suited to larger production lines and more complex applications of slurries and liquid flavors and are typically a

lower capital cost option. The size and fragility of the base product is also an important consideration when choosing a seasoning method, with large, brittle items better suited to flatbed oil spray systems, whereas smaller products like potato chips favor the tumble-drum seasoning method. “Our latest and most advanced seasoning solution is the tna intelli-flav® OMS 5.1; a flexible on-machine seasoning (OMS) system that can accommodate both powder flavoring and liquid oil in a single seasoning drum – making it the ideal choice for applications where flexibility and quick product changeover is key. The tna intelli-flav® OMS 5.1 is especially popular with our customers thanks to its responsive variable mass seasoning system and dynamic vibratory weigh conveyor. These features allow for the highly accurate control of product, oil spray and seasoning powder flow into the drum for consistent and even flavor dispersion across all applications, and can be precisely tailored to the scale of the run or bagger. For

larger production lines and more complex applications of slurries and liquid flavors, we also offer high performance, gravimetrically controlled mainline seasoning (MLS) systems, such as the tna intelli-flav® MLS 3,” says Simon Hill, Regional Sales Manager, tna Europe. Minimizing food waste is a key consideration in the design of all processing equipment, but it is especially important in seasoning applications where overuse of flavoring agents or damaged products can lead to costly wastage. The tna intelli-flav® OMS 5.1 helps keep food waste to a minimum thanks to intelligently designed features, such as the mass-based gravimetric spraying and dry seasoning control, which weighs raw materials to ensure only the exact amount of seasoning or



oil required by the pre-programmed recipe is applied to the product.

"Intelligent control and monitoring software, included as standard with all our seasoning systems, is another vital tool producers can use to reduce food waste. By collecting detailed and reliable data from as many parts of the seasoning process as possible, automated control systems can quickly detect faults or inconsistencies and automatically adjust product flow and flavoring application for efficient, sustainable and profitable production," Hill added.

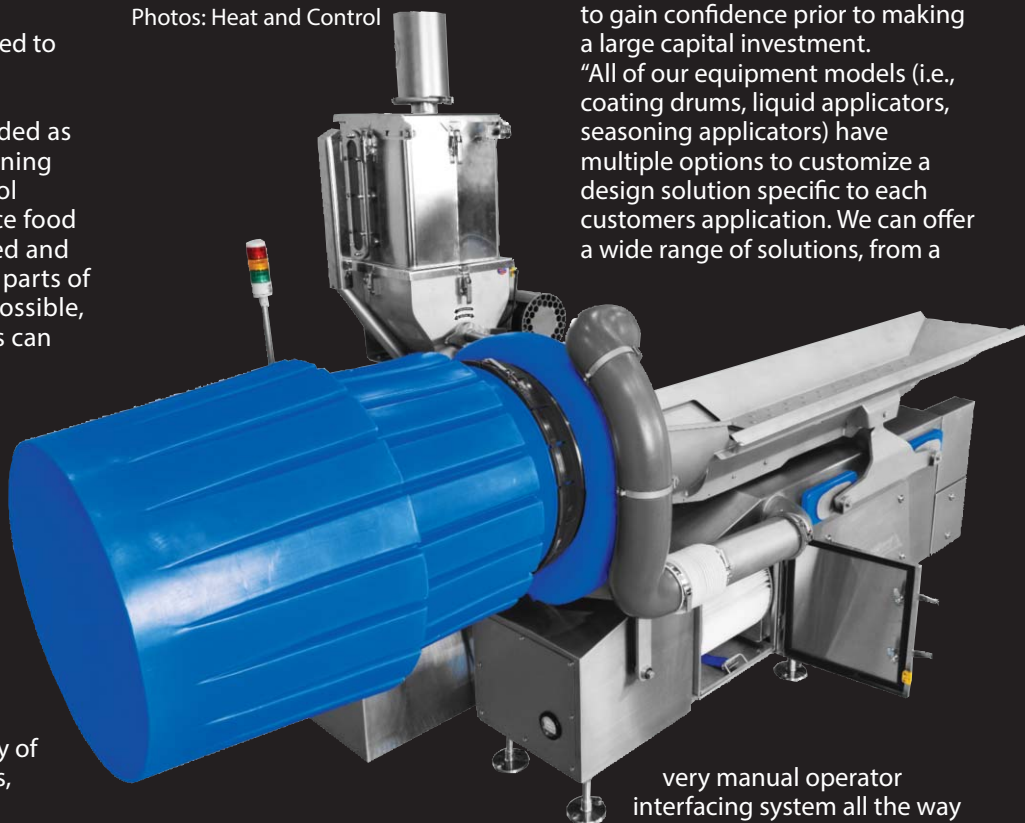
## PRECISION & CUSTOMIZATION

Heat and Control is another global supplier of such machinery, offering a variety of coating drum styles/designs,



liquid applicator designs, and dry seasoning applicator designs to optimize the end-product and process for their customers. "Based on the different base products and processes at hand, we carefully select the correct coating and seasoning equipment for the job. Oftentimes, depending on the rates and the base product/liquid/seasoning type, we work through our catalog of

Photos: Heat and Control



equipment offerings to ensure we choose the correct applicators for the process. Oftentimes, coatings (i.e., water, oil, slurry) require different handling and application methods, and our equipment can cover any of these scenarios. Free flowing seasonings (e.g., salt, trickier seasonings containing non-free flowing ingredients) require different approaches to hopper agitation and distribution, and our equipment can also cover a full range of dry applications," said Lucas Bell, Spray Dynamics Group General Manager for Heat and Control.

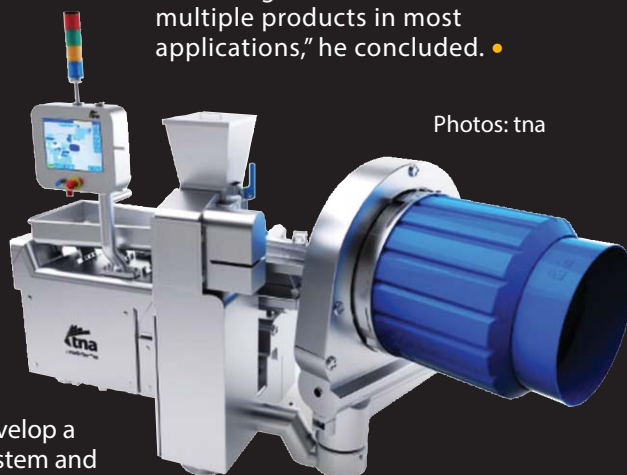
The company has been in the seasoning/coating industry for more than 40 years and has a broad range of experience with many products and processes. They have adapted their equipment designs to the ever-changing needs of their customers and have several world-class test facilities to test seasonings and coatings so their customers can develop a proper proven process/system and

to gain confidence prior to making a large capital investment.

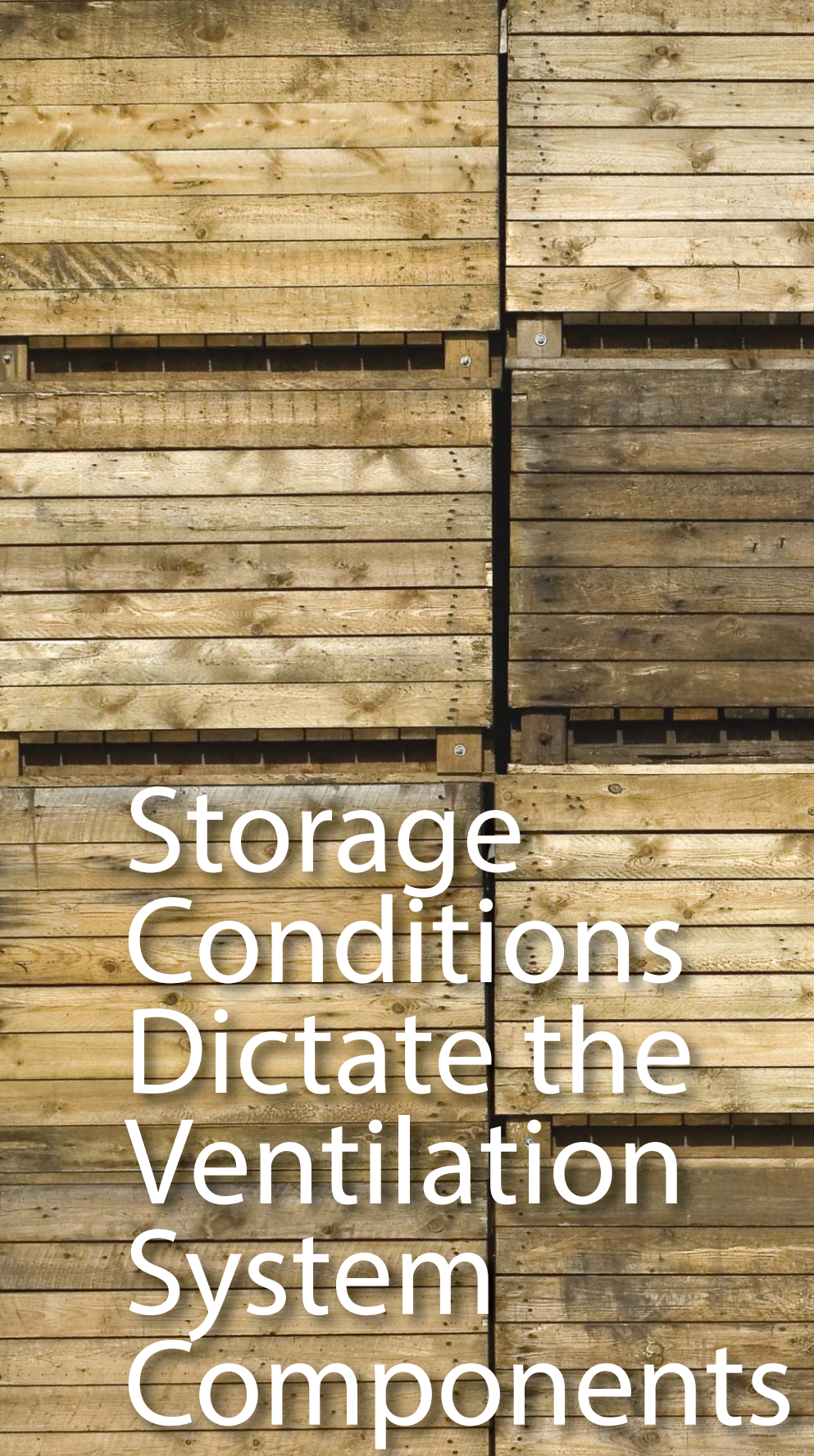
"All of our equipment models (i.e., coating drums, liquid applicators, seasoning applicators) have multiple options to customize a design solution specific to each customer's application. We can offer a wide range of solutions, from a

very manual operator interfacing system all the way through to a fully automated system that requires minimal operator interaction. We offer special designs for the snack, meat/poultry, agricultural, pet food/litter, and other industries," said Bell.

"We have seen the needs for increased capacity and more flexibility evolve over time in the food, agricultural, pet, and other industries. We have taken those needs into account and designed our equipment systems to accommodate an extensive range of production rates while also remaining flexible to run multiple products in most applications," he concluded. •



Photos: tna



# Storage Conditions Dictate the Ventilation System Components

One of the key factors in potato storage is maintaining the right climate. Temperature, humidity, and ventilation are critical variables that need careful management. Automated systems have revolutionized the way these facilities operate, providing precise control and enhancing efficiency.

**By Tudor Vintiloiu**

**S**torage losses are mainly caused by the processes like respiration, sprouting, evaporation of water from the tubers, the spread of diseases, changes in the chemical composition and physical properties of the tuber, and damage by extreme temperatures. These processes are influenced by storage conditions. All the losses mentioned above depend on the storage conditions and therefore can be limited by maintaining favorable conditions in the store. Intelligent climate computers help to measure and control the climate inside the storage to keep the potatoes in an optimal condition. Fans, hatches, heaters, humidifiers and refrigeration equipment are installed to create an optimal climate.

#### **STORAGE SYSTEM LAYOUT**

A typical potato climate control system consists of high voltage electric motors driving fans, hatch motors, compressors and pumps which are controlled by a low voltage control panel with relays, safety switches, circuit breakers etc. This control panel can be controlled manually or by a climate control computer. To measure temperatures, humidity and CO<sub>2</sub>, measuring units are used to measure and present data to the storage operator. Measuring units are most of time integrated in the

climate control computer. As end of the control line remote control of a storage by e.g. mobile phones is possible by climate control computers which are connected to the internet.

New developments in the electric system layout have brought more electronics in the control panel. This results in better control and more information available in the climate control computer. Rotation speed and power consumption of motors and compressors can be read from a distance as alarms can be shown in case of failures of certain parts of the electric system.

Jan van Maldegem, Marketing Manager of Tolsma-Grisnich explains: "Control panels are less and less used as a daily operating interface nowadays. As most climate control computers are connected to the internet, the user interface is almost exclusively the mobile phone, tablet or climate control computer. What needs attention is the communication between control panel and climate control computer. The control panel itself is always mounted inside the storage and when switches are not set to automatic (but to stop or manual e.g.) the system will not run according to the settings made by the climate control computer. Technical feedback of failures and switches in the "not-automatic" position are essential to avoid misunderstandings. Regular visits (at least once every 2 days) into the storage itself by the storage operator to check the product (smell and check visually) are still essential."

Tolsma's equipment is controlled by their Vision Control climate computer. This computer measures data like temperature, relative humidity, carbon dioxide (but is also able to measure weight loss, energy consumption etc.) and controls the use of fans, hatches, heaters, humidifiers, refrigeration and other equipment. This climate control computer is programmed by their software engineers and is configured during the installation to control the storage facility. This means that it's made modular so it can be configured for each unique

storage solution they supply.

"The system layout is that the processor is installed on a central position (e.g. the canteen) and measuring and control equipment is installed locally and connected with a bus system. The climate control computer switches relays to switch on and off high voltage electric motors of e.g. fans, hatches and compressors. Being connected to the internet means that external data like weather forecast and energy prices can be used to optimize the storage climate."

### CONDITIONS DICTATE THE COMPONENTS

Air movement may not be necessary during the curing period, because the heat and moisture generated by the potatoes may provide an environment that is favorable for wound healing, but subsequently it becomes an important factor to consider. "Many of our units use ambient ventilation when the conditions are correct and only run the refrigeration system when required. We believe the quality of the stored crop is the primary job therefore the equipment needs to run when the crop needs it

regardless of energy efficiency.

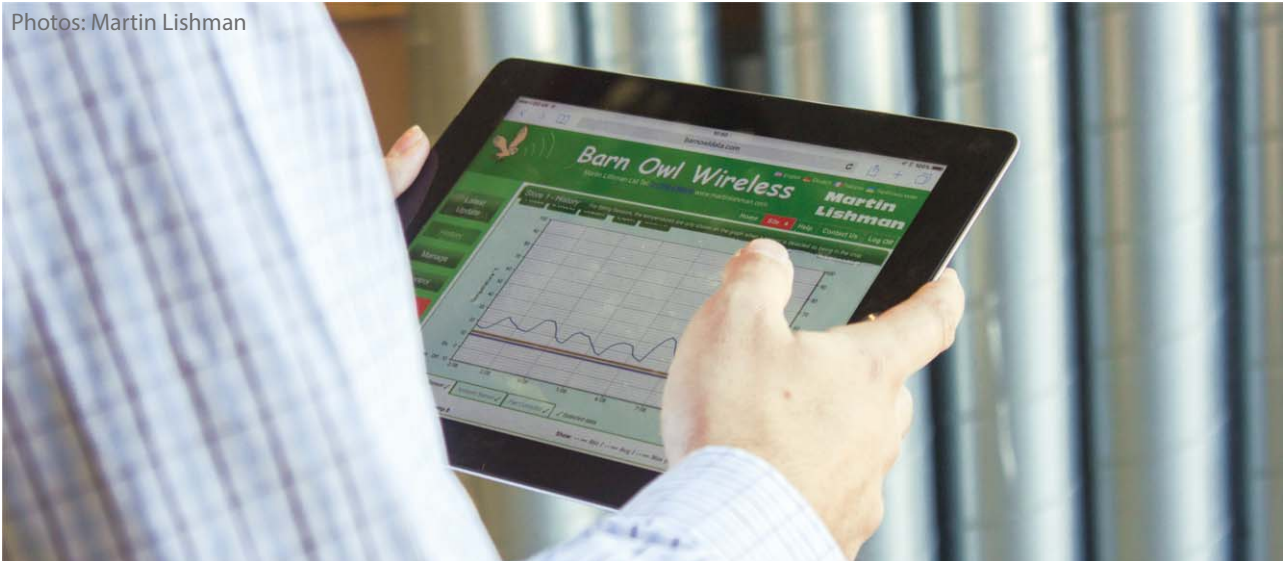
We choose specific fans for each project to keep energy efficiency at an optimum. We work hard with our suppliers and our internal production to make sure we use the best materials available to try and keep the cost of maintenance low and the longevity of the equipment high," says Adam Fryer, commercial director, Farm Electronics. "As always the main aim is to ventilate the air at the correct temperature around the crop at the right time. We have also seen an increase of customers looking at increasing their air volume required due to particular varieties as well as the use of suction walls in stores to evenly distribute the air around the store," he added.

With all suppliers offering modular solutions that can be scaled and adapted to the size of the storage facility, it is important to remember that the measured performance of any control system can only be as good as the hardware it is trying to control (for example, louvres, sensors, fans). So, specialists say a sealed and insulated building is the place to start when environment control is the end-goal.



Photos: Farm Electronics

Photos: Martin Lishman



## REMOTE ACCESS AND AUTOMATED CONTROL

Martin Lishman's 'Barn Owl Wireless' system also gives the user the ability to wirelessly monitor the temperatures at all levels in potato boxes or bulk-stored potatoes and automatically control ventilation systems.

"Barn Owl Wireless sends store information over the GSM mobile network so it can be monitored and controlled anywhere in the world on an Internet enabled device. Cooling fans can be automatically controlled by the system to help increase efficiency, reduce trips to the store for routine checks and provide evidence to quality assurance schemes," Gavin Lishman, managing director of Martin Lishman Ltd. explains. "Fans are controlled independently and automatically according to the stored commodity temperature and ambient conditions using a selection of cooling and drying programs. The programs control the fans so that only air good enough to cool or dry the commodity is used for ventilation. Since fans are only being used when it is most efficient to do so, this significantly reduces the energy required to cool or dry," Lishman added.

Due to the scale of potato storage facilities, Barn Owl Wireless utilizes wireless components to make installing and moving sensors easy, the specialist points out. Drying

and cooling potatoes when they are first put into storage must be done as quickly as possible, so the system only cools or dries when it is most efficient to do so, ensuring faster cooling and drying with lower energy costs.

As a result of these advanced automated systems, potato storage facilities have seen significant improvements in quality control and reduced losses due to spoilage. Potatoes can now be stored for more extended periods, extending their availability to consumers and stabilizing market prices.

## CONCLUSION

An efficient and cost-effective potato storage facility is much more than a mere business investment; it stands as a critical pillar of support for both local

economies and global food security. By incorporating automated climate control systems, such facilities ensure the prolonged preservation of potato stocks, minimizing wastage and losses. As a result, growers and suppliers can maintain stable pricing and sustained profitability. Moreover, these optimized storage facilities play a pivotal role in stabilizing food supplies, especially during times of supply chain disruptions or adverse weather conditions. As technology advances and more businesses embrace these innovative storage solutions, the positive impact on economies and food security will continue to grow, reinforcing the crucial role that such facilities play in fostering sustainable and resilient food systems for the future. •



Photos: Tolsma Grisnich

# 2023 FEATURE PLANNING

1

## JANUARY/FEBRUARY

Ad closing 16.01/Publishing 27.01



Key Exhibitors Road Map and Event Agenda

### Processes

Sorting, Pre-cleaning, Washing, De-stoning  
Energy and Water Saving

### Expert View

Cutting/Slicing/Dicing  
Sustainability in Production

### Spotlight

Cleaning and Sanitation

### Markets

Western Europe

### Products

French Fries in Retail and Foodservice

### Ingredients

Batters, Coatings

### Storage Special

Refrigeration and Long-term Storage  
Sprout Suppressants in Storage

Trade shows: Potato Expo 2023, Fruit Logistica 2023

2

## MARCH/APRIL

Ad closing 13.03/Publishing 22.03



Key Exhibitors Road Map and Event Agenda

### Processes

Conveying Systems and Belts  
Process Monitoring

### Expert View

Automation - Ensuring a Reliable and Flexible Production Flow  
Drying - Innovation in Belt and Drum Dryers

### Spotlight

Smart Production/IoT/Industry 4.0

### Markets

North America

### Products

Chips and Potato-based Snacks

### Ingredients

Established vs. New Flavors

### Storage Special

Storage Challenges and Cost-saving Solutions  
Storage Design and Construction

Trade shows: World Potato Congress, Interpack 2023

3

## MAY/JUNE

Ad closing 08.05/Publishing 19.05



Key Exhibitors Road Map and Event Agenda

### Processes

Cutting, Peeling, Slicing  
Seasoning & Coating

### Expert View

PEF Applications and Advantages  
Frying Technologies and Advancements  
Optical Sorting - Increasing Yields, Reducing Waste

### Spotlight

Alternative Energy & Increasing Efficiency

### Markets

Eastern Europe

### Products

Hash Browns and Croquettes

### Ingredients

Frying Oils

### Storage Special

Power Saving and Sustainability  
Sensors and Data Gathering

Trade shows: Europatat 2023

4

## JULY/AUGUST

Ad closing 17.07/Publishing 28.07

### Processes

Blanching, Frying  
PEF Systems

### Expert View

Cutting Accuracy and Equipment Reliability  
IQF Freezing for French Fries

### Spotlight

Supply Chain Management & Logistics

### Markets

South America

### Products

Flakes & Mashed Potatoes

### Ingredients

Seasonings for Chips and Fries

### Storage Special

Automated Climate Control  
Potato Monitoring & Quality Assurance

Trade shows: Potato Association of America Annual Meeting

5

## SEPTEMBER/OCTOBER

Ad closing 04.09/Publishing 15.09

### Processes

Oil Filtration Systems & De-fattening  
Cooling and Freezing  
Starch and By-products Processing

### Expert View

Remote Maintenance and Customer Service  
Complete Lines for Processing  
Conveying And Product Transport

### Spotlight

The Road to Sustainability

### Markets

APAC/ANZAC

### Products

Extruded Potato Products

### Ingredients

Salt

### Storage Special

Disease Management  
Handling Potatoes to & from Storage

Trade shows: Potato Europe 2023

6

## NOVEMBER/DECEMBER

Ad closing 07.11/Publishing 18.11

### Processes

"Forming and Extruding"  
Turnkey Projects  
Waste Management/Upscaling

### Expert View

Batch vs. Continuous Frying  
Cutting vs. Hydrocutting  
Pulsed Electric Field (PEF) Processing

### Spotlight

Increasing Production Capacity

### Markets

Global Market Predictions for 2024

### Products

Seasoning Trends

### Ingredients

Better for you/Clean Label

### Storage Special

Store Preparation and Hygiene  
Bulk vs. Boxed Storage

Trade shows: British Potato 2023



Like our page and join our online community:  
[www.facebook.com/Potatobusiness](http://www.facebook.com/Potatobusiness)



Follow us on Twitter:  
<http://twitter.com/potatobusiness>  
We will update regularly on our activities,  
upcoming features and show attendance.



Join our group on LinkedIn search for:  
**Potato Processing  
International News**

**POTATOBUSINESS**  
on social media