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international

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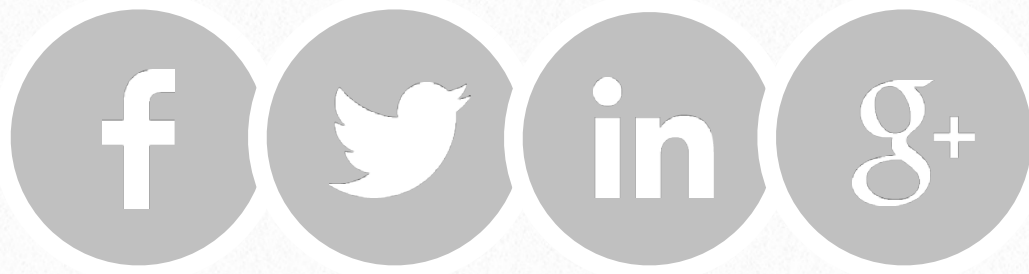
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seeds and cultivate them in Italy, adopting and improving farming techniques adapted to the Mediterranean climate, thus keeping the organoleptic features intact. Kronos is a durum wheat with a unique protein content, resistance to cooking, taste and color, ideal for tasty and always al dente pasta.

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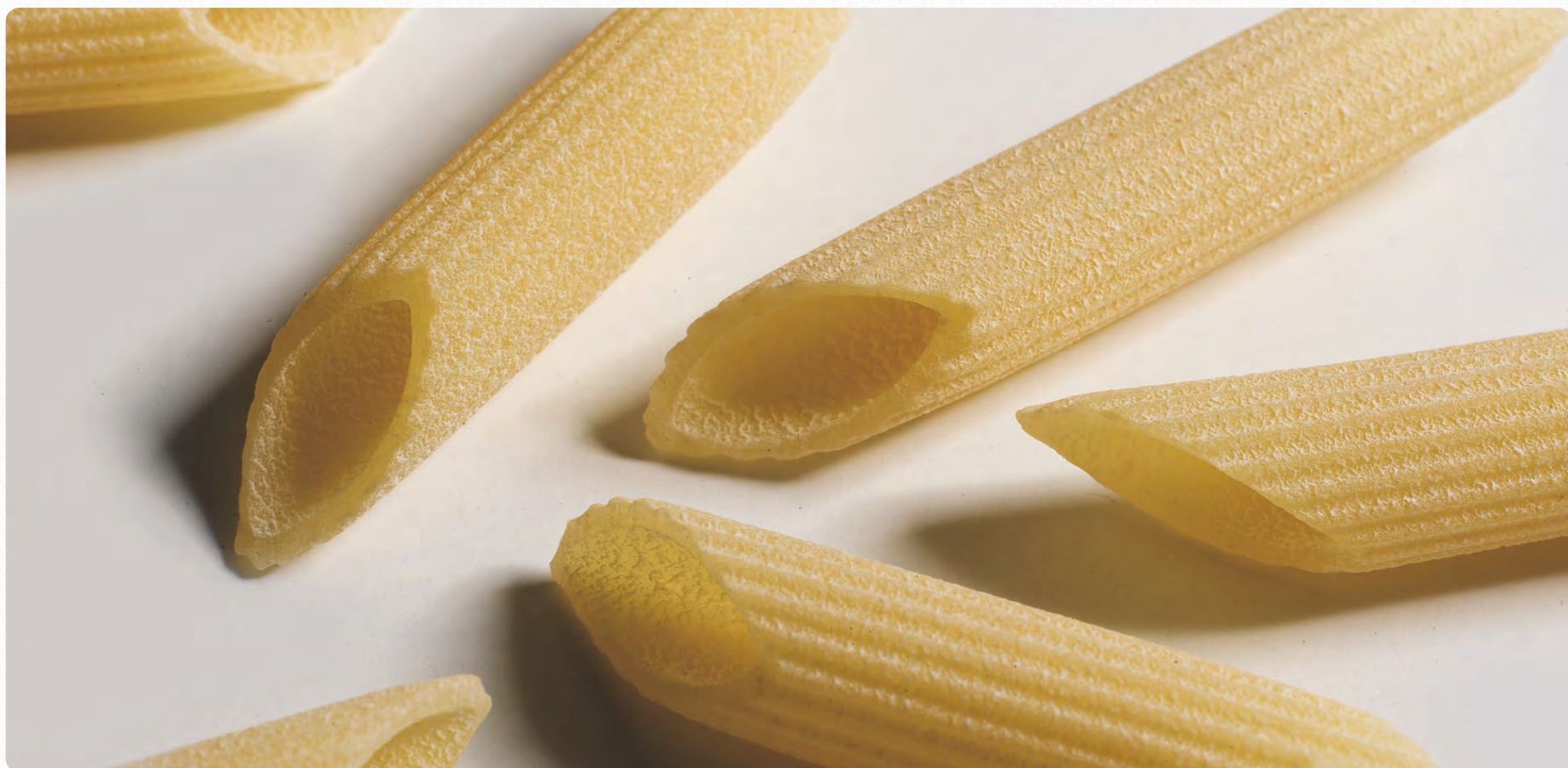
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# Colophon

Pastaria International DE  
5/2023  
September



## **PUBLISHER**

**Kinski Editori S.r.l.**

*registered office*

Via Possioncella 1/1 • 42016 Guastalla

*operational headquarters*

Via Dall'Aglio 21/2 • 43122 Parma (Italy)

tel. +39 (0)521 1564934

fax +39 (0)521 1564935

Email [redazione@pastaria.it](mailto:redazione@pastaria.it)

ROC no. 23238

## **EDITOR-IN-CHIEF**

Lorenzo Pini

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## References in Italy



## Gluten free references



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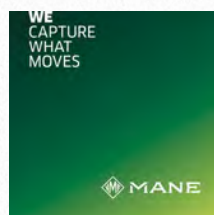




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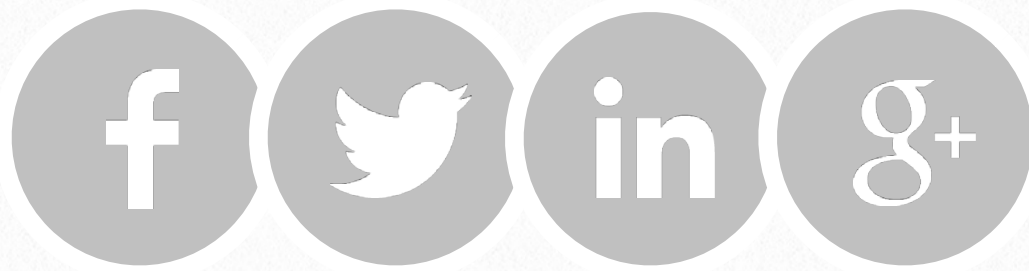
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# 1



## The complete programme of the seventh edition of the Pastaria Festival

Editorial staff



With just days to go to the seventh edition of the Pastaria Festival (Parma, 29 September), we are pleased to publish the complete programme of the event. Pasta manufacturers interested in taking part still have a few days to register for free.

Not long now until 29 September 2023, when Parma will be hosting the seventh edition of the Pastaria Festival, the training and professional development event that brings together operators in the pasta supply chain for a free day of conferences, seminars, encounters and exhibition spaces.

In these pages, you'll find the packed programme of the event, which can also be consulted on the Pastaria app and downloaded from [pastaria.it](http://pastaria.it).

All pasta manufacturers interested in taking part are invited to register on the [Eventbrite](https://www.eventbrite.com) platform.

## The programme

8:30-9:00 a.m.

### Admission of participants

9:00-10:00 a.m. | room no. 1 AUDITORIUM

### Opening of the proceedings

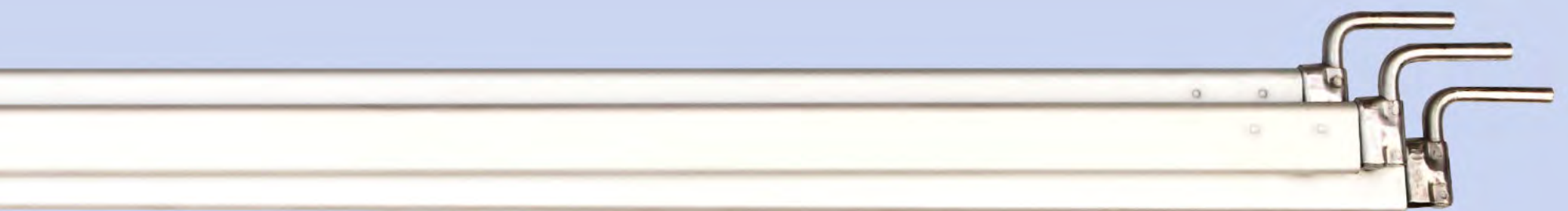
Paolo Barilla (Barilla G. e R. F.lli), Gherardo Bonetto (APPF), Margherita Mastromauro (Unione Italiana Food), Fabio Fontaneto (APPAFRE), Lorenzo Pini (Pastaria), Carl Zuanelli (IPO, NPA)

10:00 a.m. - 5:00 p.m. | room no. 5 GILDA

### Exhibition area



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10:15-11:30 a.m. | room no. 6 AFRODITE  
**Consumption, trends and opportunities for pasta in national and international markets**

- *Challenges, needs and opportunities for pasta: national and global markets and consumption trends*

Matteo Bonù (NielsenIQ), Alessandro Cosentino (NielsenIQ);

- *Away-from-home consumption of pasta in Italy and Europe*

Matteo Figura (Circana).

Moderator: Nicola Lasorsa.

*International<sup>1</sup> conference prepared by the Pastaria Centre for Economic Research.*

10:30-11:00 a.m. | room no. 4 CARMEN  
**RAM Elettronica presents: vision systems for long and short pasta production lines to support quality control**

Riccardo Scarcelli (RAM Elettronica).

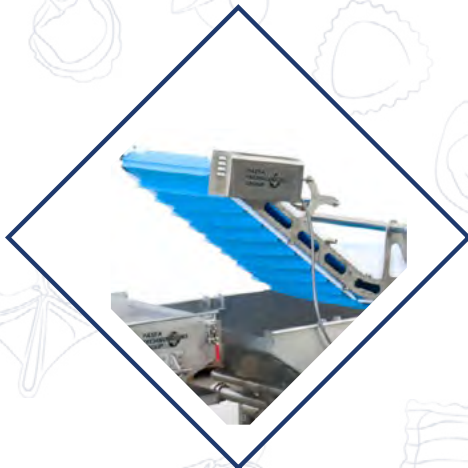
*“Companies and Innovation” presentation.*

11:00 am - 1:00 pm | room no. 7 VENERE  
**The revolutionary role of natural, organic flavours and of packaging in the pasta supply chain**

- *Communicating corporate sustainability “without lies”, but with action. Choices and consequences of greenwashing and green blushing*



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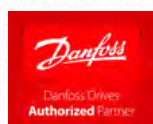


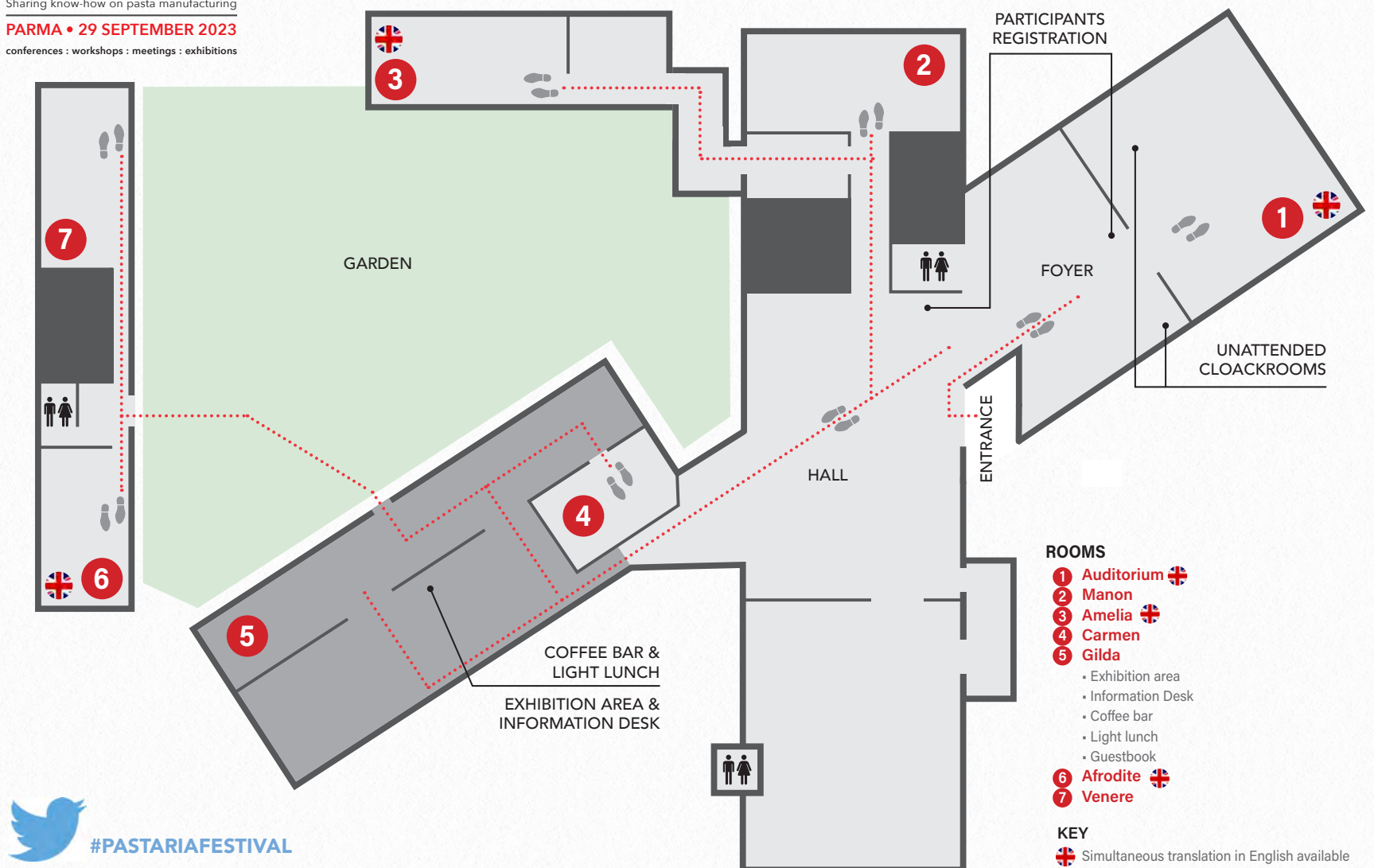
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- Luisa Errichiello (CNR of Naples);
  - *Labels that talk, the transparency of organic and natural flavours: a distinctive mark of a quality product*  
Monia Floridi (New Flavours), Virginia Tonanni (New Flavours);
  - *Flavours from standardised ingredients: extraction and characterisation of bioactive compounds*  
Gianni Sagrantini (University of Camerino), Samanta Corsetti (University of Camerino);
  - *Choosing packaging: sustainability and innovation for food quality and shelf life*  
Laura Alessandrini (University of Camerino);
  - *Sustainability and tradition: bringing back pulses with Legù. The experience of Itineri*  
Monica Neri (Itineri), Federica Di Candia (Itineri);
  - *Transparency as a competitive advantage: Why use the QR Code?*  
Ciro Borrelli (QualityChain)
  - *Sustainability certification: opportunities for businesses*  
Alberto Alberini (CCPB).
- Moderator: Letizia Bellucci (New Flavours)  
*New Flavours Conference.*

# CONIUNTION SOLUTION DESIGNER DESIGNER





#PASTARIAFESTIVAL

11:15 a.m. - 1:00 p.m. | room no. 3 AMELIA

**Product innovation and environmental sustainability in fresh pasta**

- *New technologies for pasteurizing fresh pasta: energy sustainability and maximum organoleptic quality for the finished product<sup>3</sup>*

Simone Bertoncetto (GEA);

- *Strengthening of gluten-free fresh pasta with chestnut flour*

Emma Chiavaro (University of Parma);

- *New formulas of fresh egg pasta enriched by bioactive compounds*

Roberto Ciccoritti (CREA);

- *Environmental impact of fresh pasta*
- *Development of gluten-free gnocchi using heat-treated pea flours*

Valeria Imeneo (University of Milan).

Moderator: Cristina Alamprese (University of Milan).

*International<sup>1</sup> - academic-based<sup>2</sup> conference.*

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11:30 a.m. -12:45 p.m. | room no. 2 MANON

**Pasta: scientific truth versus fake news.**

- *Pasta makes you fat, creates inflammation and shouldn't be eaten in the evening: false!*

Elena Bertolotti (University of Parma, Italian Society for Human Nutrition);

- *Pasta contains furosine and is harmful to health: false!*

Emanuele Marconi (CREA);

- *Recent increases in the price of pasta in Italy are due to speculation: false!*

Cristiano Laurenza (Unione Italiana Food);

- *True and false rumours about ancient and modern grains*

Luigi Cattivelli (CREA).

Moderator: Francesca Romana Barberini.  
*Round table.*<sup>2,4</sup>

11:45 a.m. - 12:45 p.m. | room no. 4 CARMEN

**Main concessions and contributions to help companies in the pasta supply chain**

Chiara Chiarabini (ATS Associated Consultants), Alessandro Faletti (ATS Associated Consultants), Mirco Siciliano (ATS Associated Consultants)

*Pastaria Seminar.*

With the collaboration of ATS Associated Consultants.



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1:00-2:00 p.m. | room no. 5 GILDA

### Light lunch

2:00-3:45 p.m. | room no. 2 MANON

### Pasta: health, well-being and pleasure

- *Wheat germ: potential molecular markers<sup>3</sup>*  
Stefania Iametti (University of Milan);
- *Pasta and other low-GI starchy foods flatten the post-prandial blood sugar and insulin spike, including in non-diabetics: impact on preventing cardio-metabolic disorders*  
Gabriele Riccardi (University of Naples Federico II);

- *Neuroscience: why a plate of pasta makes you happy*  
Vincenzo Russo (IULM);
- *Role of the Mediterranean diet model in physical performance*  
Patrizia Riso (University of Milan);
- *Effect of the Mediterranean diet on sleep quality*  
Carlotta Mutti (University of Parma),  
Francesco Rausa (University of Parma).  
Moderator: Cristiano Laurenza (Unione Italiana Food).  
*Academic-based conference.<sup>2,4</sup>*  
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2:15-3:45 p.m. | room no. 6 AFRODITE

## **Packaging e shelf life della pasta alimentare**

- *The perspective of Packaging and Packaging Waste Regulation (PPWR) users*

Giacomo Canali(GSICA, Italian Scientific Group for Food Packaging)

- *Plastic Value Chain: the mechanical recycling of rPET and rXPS, validation protocols, risk assessment and GMP adopted by the supply chain*  
Francesca Mostardini (University of Parma);

- *Shelf life and expiry information and potential impact on food waste*  
Fabio Licciardello (University of Modena and Reggio Emilia);
- *Optimisation of process and packaging to extend the shelf life of pasteurised gnocchi*  
Valentina Lacivita (Università degli studi di Foggia).

Moderator: Fabio Licciardello (University of Modena and Reggio Emilia).

*International<sup>1</sup> - academic-based<sup>2</sup> conference.*

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2:30-4:15 p.m. | room no. 3 AMELIA

**Dried pasta: quality, innovation and technological aspects of the process**

- *Pasta beyond tradition: technological prospects<sup>3</sup>*  
Maria Caboni (Università degli studi di Bologna);
- *The impact of the drying process on the organoleptic characteristics of dry durum wheat semolina pasta*  
Vanessa Giannetti (La Sapienza University of Rome);
- *Quality of the pasta obtained with pigmented and ancient grains*  
Francesca Pompei (University of Camerino);
- *Optimisation of high-temperature drying diagrams for reducing the Maillard reaction in pasta*  
Emanuele Marconi (CREA, Bio-Medical Campus of the University of Rome);
- *Antioxidant compounds and technological quality of gluten-free pasta enriched with tomato and linseed by-products*  
Lorenzo Estivi (University of Milan).

Moderator: Gabriella Pasini (University of Padua).

*International<sup>1</sup> - academic-based<sup>2</sup> conference.*

Sponsor: Casillo Next Gen Food.

2:45-4:15 p.m. | room no. 4 CARMEN

**Innovative, sustainable solutions for fresh pasta packaging: compostable, paper, plastic**

- *Welcome addresses*  
Fabio Fontaneto (President of APPAFRE), Paola Freccero (President of Pasta Makers of the CNA Food association);
- *Innovative compostable packaging solutions for fresh pasta*  
Federico Faiella (Novamont);
- *Packaging as an agent of sustainable change*  
Giorgia Francini (G. Mondini);
- *Mono-material packaging, a sustainable solution*  
Luca Santandrea (Masterpack);
- *Experiences of member producers*  
Vito Arra (I sapori d'Ogliastro di Vito Arra), Matteo Delfino (Delfino Fratelli), Federico Gobita e Nicola Braga (Casanova Food), Dino Ligorio (Al Mattarello).

Moderator: Virna Soncin (APPAFRE).

*APPAFRE Conference.*

4:15-4:45 p.m. | room no. 1 AUDITORIUM

**Pastaria Prize Award Ceremony (fifth edition)**

4:30-5:00 p.m. | room no. 5 GILDA

**Greetings and close of proceedings**

Siamo i principali produttori  
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- Ottimizzare il mercato italiano ed inserirsi maggiormente in quello europeo con l'incentivazione e l'adozione anche nel mondo della pasta fresca dei **"piatti pronti o da cuocere a base di pasta fresca"**.
- Per tutelare pasta fresca e gnocchi, anche da un punto di vista legislativo nel loro progressivo inserimento nei mercati europei attraverso **ECFF** (European Chilled Food Federation).

#### **I NOSTRI SERVIZI**

- **Una guida anticipata sui trend di mercato e su quelli tecnici.**
- Un appoggio sicuro su problemi legislativi generali ed aziendali dove A.P.P.F. è tradizionalmente informata.
- Una gestione associativa concorde e non burocratizzata dove il Presidente e gli Associati hanno diritto ad un voto e la segreteria è sempre vicina.

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## Information

The Pastaria Festival 2023 will take place on 29 September in Parma, at the Hotel Parma & Congressi, Via Emilia Emilia Ovest 281/A, from 8:30 a.m. to 5 p.m.

## Taking part

Attendance to Pastaria Festival is free and reserved for pasta manufacturers, with mandatory registration until all places are filled.

## To sign up

Pasta manufacturers can register for the event via the Eventbrite platform, following [this link](#). Registration closes on 28 September. Places are limited.

## The Steering Committee

The Steering Committee of Pastaria Festival consists of a Scientific Committee composed of Cristina Alamprese (University of Milan), Marco Dalla Rosa, (University of Bologna), Daniele Del Rio (School for Advanced Studies on Food and Nutrition) Gabriella Pasini (University of Padua), Fabio Licciardello (University of Modena and Reggio Emilia), Emanuele Marconi (University of Molise), Francesca Scazzina (University of Parma), and an Advisory Committee composed of Federica Calcagno (Fontaneto), Roberto Ciati

(Barilla), Marco Loschi (Hilcona), Federico Marotta, (Rana), Michele Minucciani (MassimoZero), Stefano Zardetto (Voltan Group), Cristiano Laurenza (International Pasta Organisation), Gherardo Bonetto (APPF). The Steering Committee is coordinated by Lorenzo Pini, editor-in-chief of Pastaria.

## Notes

1. Simultaneous translation in English.
2. Topics and speakers drawn up by the Pastaria Festival Steering Committee.
3. Sponsored presentation.
4. Sessions open to general interest media (upon invitation).

The programme may be subject to variations.

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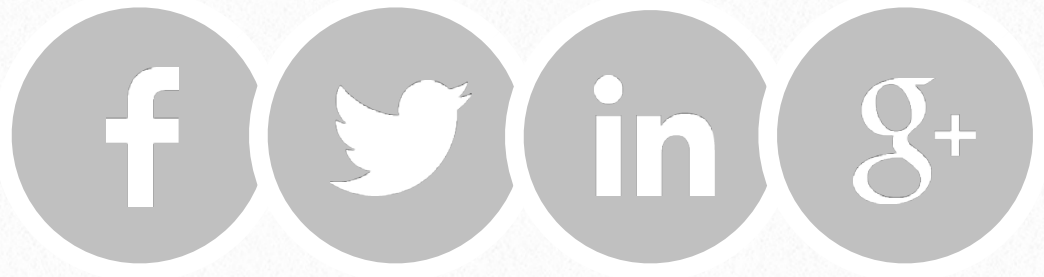
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# 2



## Pastaria Awards 2023: and the winners are...

Editorial staff



The winners of the Pastaria Awards 2023 for best doctoral and master's degree theses on pasta have been announced. The initiative, now in its fifth year, sees Pastaria honour the work of young graduates and researchers.



The evaluation committee has announced the names of the winners of the Pastaria Awards 2023 for best doctoral and master's degree theses on pasta, now in its fifth year.

The award for best doctoral thesis went to Martina Angelicola (PhD course in Agriculture technologies and biotechnologies, University of Molise), for her work titled *Use of high-amylose wheat flours to develop healthy grain-based foods*. Martina Angelicola will receive € 700 in prize money and a diploma issued by Pastaria.

A special mention in the doctoral thesis category (and a € 150 prize) went to Andrea Bresciani (PhD course in Food Systems, University of Milan), for his work titled *Interaction between raw materials and process conditions in the formulation of legume-based products*.

Winners of the award for the two best master's degree theses were Lucrezia Fasola (Degree course in Food Science and Technology, University of Milan), for her thesis titled *Effect of modified atmosphere composition on the shelf life of filled fresh egg pasta products* and Davide Russo (Degree course in Food Science and Technology, University of Milan), for his work titled *Using chestnut flour to develop gluten-free products*.

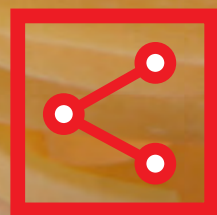
The best master's theses will receive € 400.00 in prize money and a diploma issued by Pastaria.

The award ceremony will take place at the Pastaria Festival 2023, the information and professional development event for pasta producers, which will be held in Parma on 29 September.

The winners of the Pastaria Awards 2023 will have their work published in the form of summary scientific articles by Pastaria, starting in this edition (see the article [\*Influence of modified atmosphere composition on the shelf life of fresh filled egg pasta\*](#)).

Pastaria's editor announces that details on how to participate in the Pastaria Awards 2024 will be published soon.

# *P*astaria



**PASTARIA  
FESTIVAL**

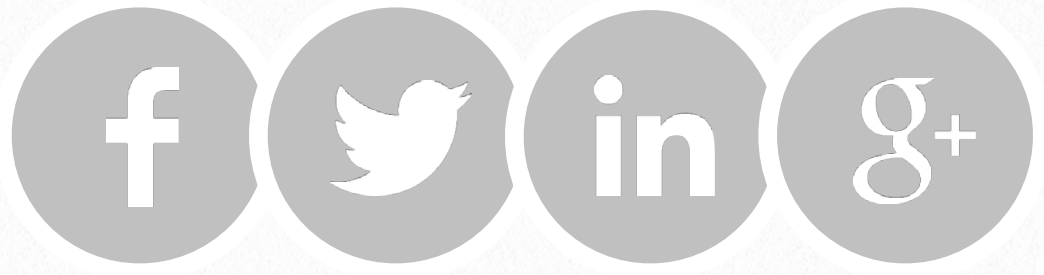
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The initiative is reserved  
for pasta manufacturers.

3



# Influence of modified atmosphere

# composition on the shelf life of fresh filled egg pasta

Lucrezia Fasola, Federica Calcagno, Cristina Alamprese, Sara Limbo



The article illustrates the work carried out for the honours degree thesis of Lucrezia Fasola (University of Milan), who won one of the 2023 Pastaria Awards.

## Introduction

The shelf life of fresh pasta is heavily impacted by the way in which it is packaged; currently, in addition to pasteurisation, modified atmosphere packaging is used to increase product life, by means of gas mixtures consisting of 30% CO<sub>2</sub> and 70% N<sub>2</sub>, using materials with specific mechanical properties and gas and vapour permeability (Zardetto et al., 2022). If the product is kept refrigerated, its shelf life is between 42 and 52 days.

Given the growth of the fresh filled pasta market ([www.forbes.it](http://www.forbes.it)), it is extremely topical to conduct a shelf life extension study applying a simulation approach, using mixtures with a high CO<sub>2</sub> content, which can reduce the growth of microorganisms that have survived the heat treatments, while maintaining the traditional sensory properties intact and guaranteeing the hygienic quality of fresh pasta (Del Nobile et al., 2009). This would make it possible not only to extend product life, but also to meet the global challenges of reducing the wastage of food and resources highlighted by the United Nations and set out in the 2030 Agenda for Sustainable Development (Goals 2 and 12, [www.unric.org.it](http://www.unric.org.it)) and the targets proposed by the European FIT FOR FOOD 2030 policy ([www.fit4food2030.eu](http://www.fit4food2030.eu)) according to the logic of the circular economy.

## Materials and methods

### Production of fresh filled egg pasta

The fresh filled egg pasta under study was produced at the Fontaneto S.r.l. pasta factory. The pasta sheet was obtained by means of a traditional tilting kneading machine and a laminated rolling machine (1 mm thick). In the subsequent shaping phase, the pasta sheet was combined with the filling made in the company's kitchens.

### Heat treatment

The products were pasteurised with a continuous steam injection pasteuriser and cooled with cold air fans. As a precautionary measure, Fontaneto considered optimising the pasteurisation processes in order to achieve  $F^{10}_{70}$

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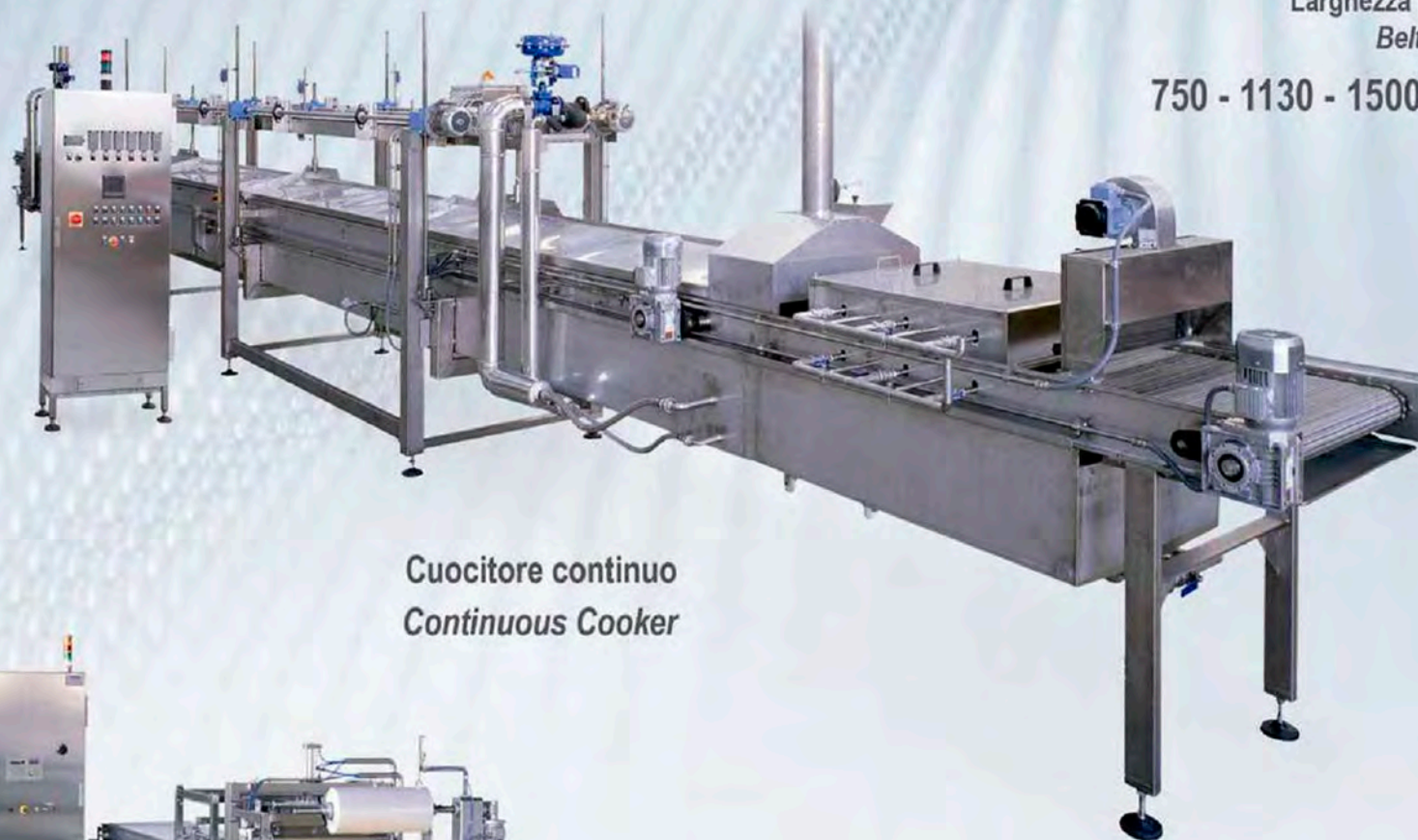
100 - 1000 kg/h

Prodotti: paste ripiene, sfoglie con interfoglio, cannelloni  
For processing filled pasta, sheet with interleaf film, cannelloni



Larghezza nastro  
Belt width

750 - 1130 - 1500 mm



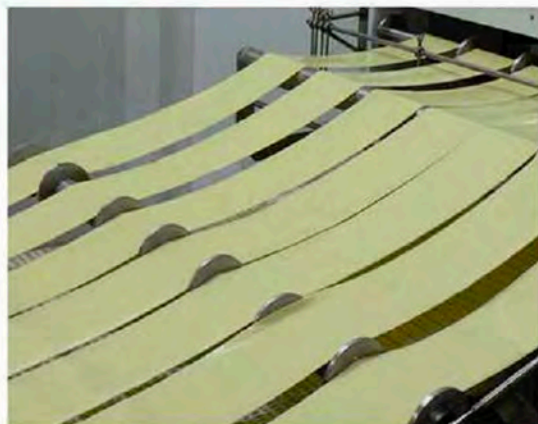
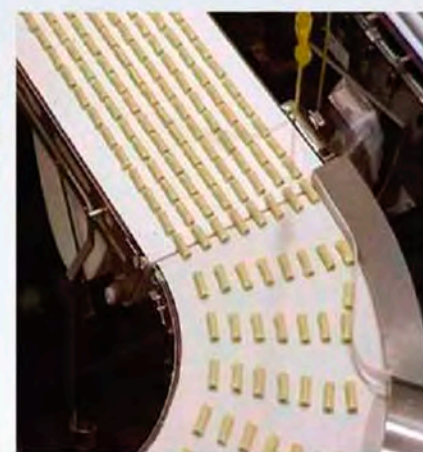
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values of at least 10 min.

### **Preliminary test**

The preliminary screening test was conducted on 18 different types of fresh filled egg pasta: 5 with meat filling, 7 with ricotta and vegetable filling, 1 with ricotta and fish filling and 5 with ricotta and other cheese filling; considering different methods of packaging, totalling to 36 possible packaging-product combinations. The packaging methods considered were as follows:

- ATM: 500 g packs in PP CX, adhesive, PP EVOH PP. Having  $PCO_2$  at 23°C 0% RH of 2.5 cm<sup>3</sup>/m<sup>2</sup> 24h atm,  $PO_2$  at 23°C 0% RH of 5 cm<sup>3</sup>/m<sup>2</sup> 24h atm,  $PH_2O$  at 38°C 90% RH of 16 g/m<sup>2</sup> 24h atm, dimensions of 220 x 40 x 230 mm and unit weight of 10.4 g;
- MAP: 1 kg PP trays with PET top film, adhesive, EVOH PP. Having as top film  $PCO_2$  at 23°C and 0% RH of 2.5 cm<sup>3</sup>/m<sup>2</sup> 24h atm,  $PO_2$  at 23°C and 0% RH of 5 cm<sup>3</sup>/m<sup>2</sup> 24h atm,  $PH_2O$  per pack at 38°C and 90% RH of 16 g/m<sup>2</sup> 24h atm, dimensions of 320.5 x 262 x 60 mm and unit weight of 82.4 g;
- Take-away: 250 g tray in A-PET and top film PET SIOX, adhesive, SEALING PET. Having as top film  $PO_2$  at 23°C and 0 % RH of 5 cm<sup>3</sup>/m<sup>2</sup> 24h atm and  $PH_2O$  at 38°C and 90% RH of 3 g/m<sup>2</sup> 24h atm,

dimensions of 230 x 145 x 45 mm and unit weight of 27 g;

- Compostable take-away: 250 g compostable tray made of Mater-Bi with top film in PLA, fully certified OK COMPOST by TUV Austria. Having as top film  $PCO_2$  at 23°C and 0% RH of 5 cc/m<sup>2</sup> 24h bar and  $PH_2O$  at 38°C and 90% RH of 20/m<sup>2</sup> 24h atm, dimensions of 230 x 145 x 45 mm and unit weight of 22 g.

### **Chemical and physical characteristics**

The following parameters were assessed at start-of-life and at expiry: water activity ( $a_w$ ), moisture, pasta sheet/filling ratio, pH, gas composition in the head space of the package, characteristic sensory attributes (official UNI CEI EN ISO 13299:2016 method) of the products after cooking under standard conditions.

### **Shelf life extension test**

The shelf life extension test was conducted on four products found to be particularly critical (one for each type of filling), by investigating behaviour during storage under real conditions (simulation approach), considering packaging in ATM bags with the use of different gas mixtures with high CO<sub>2</sub> content. In particular, in addition to the standard atmosphere (30% CO<sub>2</sub> and 70% N<sub>2</sub>), the effect of a “test”



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mixture was investigated for each product as follows: for the Agnolotto Piemontese, 60% CO<sub>2</sub> and 40% N<sub>2</sub>; for the Quadrone with ricotta and spinach and the Quadrone pizzaiola-style, 50% CO<sub>2</sub> and 50% N<sub>2</sub>; for the Delizia al branzino (seabass delight), 55% CO<sub>2</sub> and 45% N<sub>2</sub>.

### **Qualitative parameters**

The following parameters - a<sub>w</sub>, pasta sheet/filling ratio, pH of pasta sheet and filling and gas composition in the head space of the package were analysed at the start-of-life, mid-life, expiry and 1/3 after expiry. The acidity of the pasta sheet was also measured one third past its expiry date. A series of microbiological indices were also evaluated at start-of-life, expiry and 1/3 after expiry, storing the samples in the packaging in which they will be sold, in order to simulate real storage conditions at 4°C for 1/3 of their life, and then subjecting them to controlled temperature changes:

- for the remaining 2/3 of their life, they were kept at 8°C;
- thermal shock at 20°C for two hours at 2/3 of their life.

The microbiological indices investigated are presented in Table 1 together with the official ISO methods

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used; they refer to the main altering agents of filled pasta and the indicators of the product's hygiene conditions (in accordance with Ministry of Health Circular No. 32 of 03/08/1985).

To assess the presence or absence of sensory changes between samples packed in "std" and "test" atmosphere, during storage (mid- and end-of-life and 1/3 after expiry), a triangular sensory test (UNI U590A2520, 2001) was applied, involving 7 experienced tasters.

In order to assess the pasta's firmness in cooking, the Optimal Cooking Time (OCT; AACC method 16-50, 2000) and Weight Gain during Cooking (WGC), expressed as a percentage of the initial weight, were evaluated.

### **Statistical data analysis**

In order to determine any significant differences between the samples packed in std and test atmosphere subjected to the shelf life extension test, a one-way analysis of variance (ANOVA) was performed, followed by the Least Significant Difference (LSD;  $p < 0.05$ ) test.

## **Results and discussion**

### **Preliminary test**

The products considered were characterised by their high  $a_w$  (around

0.97) and a moisture content of almost 45% for all products except those with meat filling, which had a lower moisture content (around 30%).

The pasta sheet/filling ratio tends to increase during storage, with slight variations, due to the migration of water from the filling to the pasta sheet, a phenomenon more pronounced in small-sized, low-moisture products, such as Raviolo del Plin.

Deviations from the initial pH values were different depending on the product considered, inasmuch as they were characterised by the composition of the filling. In any case, variations at expiry compared to start-of-life were minimal (within  $\pm 0.2$ ) for all products. In particular, as expected, the products with ricotta and vegetable filling and ricotta and other cheese filling showed a natural acidification of the filling and an increase in the pH of the pasta sheet; in contrast, the products with meat and fish fillings showed a slight increase in the pH of both components. All packaging methods studied performed well, maintaining end-of-life oxygen contents of less than 3% and showing a constant decrease of the  $\text{CO}_2$  initially injected, from almost 10 percentage points for MAP and compostable Take-away, to 8 for PET Take-away. The ATM bag alone showed a

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**Table 1 MICROBIOLOGICAL PARAMETERS INVESTIGATED DURING THE STORAGE OF FRESH FILLED PASTA AND OFFICIAL ISO METHODS USED**

Official methods	
ISO 21528-2:2017	Enumeration of Enterobacteriaceae at 37°C
ISO 16649-2:2001	Enumeration of beta-glucuronidase-positive <i>Escherichia coli</i>
ISO 6888-1:2021	Enumeration of coagulase-positive staphylococci
SO 7932:2004/Amd 1:2020	Enumeration of presumptive <i>Bacillus cereus</i> at 30°C
NF V08-061:2009	Enumeration of sulphite-reducing bacteria - <i>Clostridium perfringens</i> (only for Agnolotto Piemontese at start-of-life)
ISO 21527-1:2008	Enumeration of yeasts
ISO 21527-1:2008	Enumeration of moulds

non-systematic CO<sub>2</sub> trend that can only be described as random.

For each product, the sensory profile was drawn up and displayed on a radar graph (example in [Figure 1](#)), APS (Agnolotto Piemontese), RQM (Quadrone with ricotta and spinach), RBRS (Delizia al Branzino, seabass delight) and PIZ (Quadrone pizzaiola-style with buffalo milk mozzarella) were the products with the highest development of perceived acidity at expiry.

### Shelf life extension test

On the basis of the results obtained in the preliminary test and considering as critical factors the highest values of water activity (0.97) and moisture (between 43 and 47%) and the low pH values at start-of-life (around 5.2-5.3), four products were selected, one per filling type, for the shelf life extension test: Agnolotto Piemontese with meat filling (APS); Quadrone with

ricotta and spinach, with a ricotta and vegetable filling (RQM); Delizia al branzino (seabass delight) with ricotta and fish filling (RBRS); Quadrone pizzaiola-style with ricotta and other cheese filling (PIZ).

Water activity tended to decrease in the “test” packs along with the acidity of the pasta sheet, which, 1/3 after expiry - with the exception of APS, which scored a value of  $7.2 \pm 1.1$  - remained consistently lower than 7 degrees. In contrast, in the “std” packages, a<sub>w</sub> values tended to maintain their initial values over time, and there was a greater and more significant loss of initial moisture.

The pasta sheet/filling ratio tended to increase significantly during the storage of APS and RQM, albeit with minor variations, while there was a decrease for RBRS and a constant trend for the PIZ product. For the packages with “std” atmosphere, there was generally a lower

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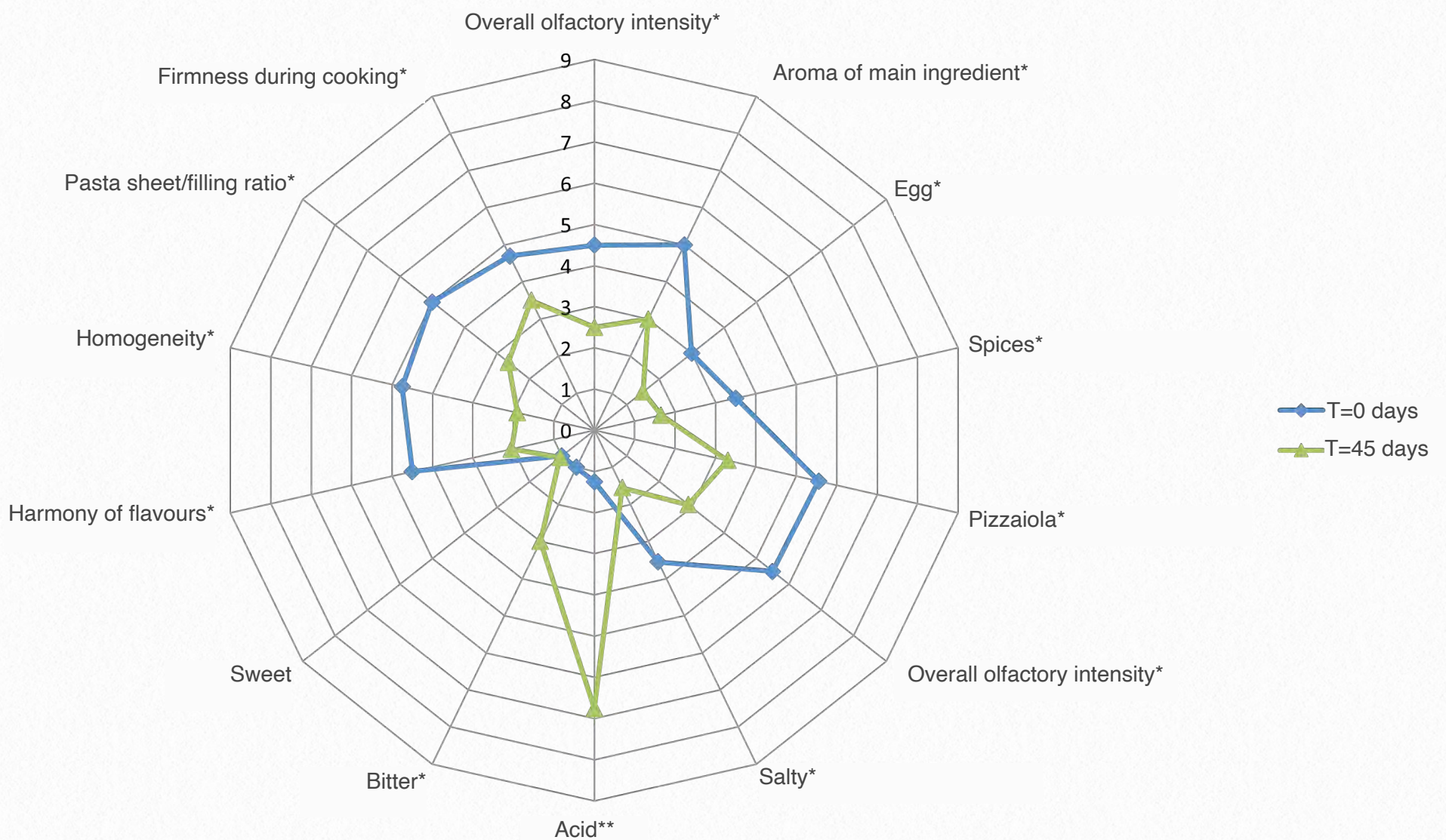


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**Figure 1 SENSORY PROFILE OF QUADRONE PIZZAIOLA-STYLE ATM START- VERSUS END-OF-LIFE**



**KEY**

	Median variation		CV (%)
absence of *	< 1 point	#	<20% at start-of-life
*	Between 1 and 2 points	##	<20% at end-of-life
**	> 2 points		

reduction in the pasta sheet/filling ratio during storage.

The pH of the pasta sheet and filling showed a tendency to increase slightly but significantly over time in all samples; the “test” atmosphere did, however, make it possible to limit the pH increases, the

values of which remained closer to the characteristic initial values.

All products studied were microbiologically stable up to 1/3 after expiry. The RBRS product was the most critical, inasmuch as, one third after expiry, in “std” atmosphere, it exhibited unacceptable

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levels of Enterobacteriaceae (40,000 cfu/g) and yeast growth of up to 1000 cfu/g, while in the “test” atmosphere the growth of Enterobacteriaceae was low, within the limit of 10,000 cfu/g, as was that of the yeasts (<100 cfu/g). The RQM product maintained stability under “test” atmosphere, but showed significant fungal and yeast development at expiry under “std” conditions.

During storage of APS and RQM in the “test” atmosphere, an increase of approximately 0.32 min in optimal cooking time (OCT) was recorded, compared to that of the samples with “standard” atmosphere, probably due to the reduction

in  $a_w$ . In each case, OCT was between 4 and 5 min, as correctly stated on the label. Weight gain during cooking (WGC) for samples with “test” atmosphere continued gradually to increase during storage for APS and RBRS, but remained stable over time for the two Quadrone products. For all products in “std” atmosphere, significant changes in the sensory profile were recorded over time starting from expiry, especially in terms of increased dryness and reduction in flavour and palatability, while for the samples of the products APS and RQM in “test” atmosphere, a greater softness of the filling was noted together with better



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retention of flavours over time, up to 1/3 after expiry. For RBRS there was an off flavour from expiry onwards and for PIZ no flavour at all.

## Conclusions

Following the validation of the results obtained for APS and RQM, it is deemed possible to extend shelf life under the conditions studied for all products with meat and vegetable fillings. For the other products, such extension is not considered possible, given the poor sensory palatability of RBRS and PIZ from expiry onwards and the microbiological instability of RBRS, notwithstanding the acceptability of the variations in the quality parameters. Therefore, a change of formulation and further studies are recommended for products filled with ricotta and fish or ricotta and other cheeses.

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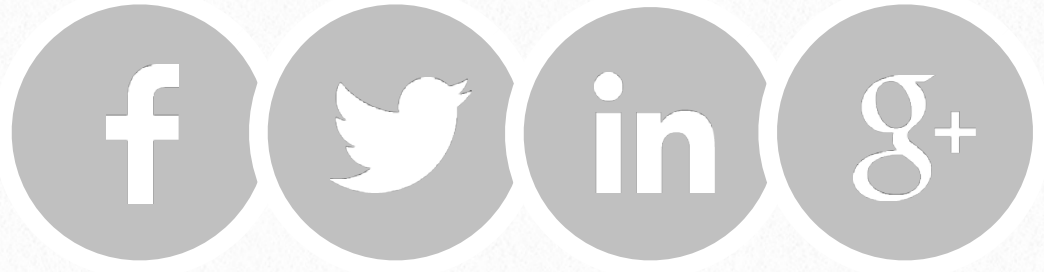
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# 4



## **Grain supply chain meeting: prices solely dictated by market dynamics**

Editorial staff



**Called by the Italian Ministry of Agriculture, Food Sovereignty and Forests, the meeting offered a chance to take stock of the situation regarding the upcoming trade year. In the case of wheat, imports are essential to address the structural supply deficit.**

No forces at play beyond the laws of the market. And nor is there any interference or influence by lobbyists. No such factors have ever, to date, affected wheat prices in Italy and the rest of the world, and nor could they in the future (under free market conditions).

This point was reiterated by Italmopa, the Association of Italian Millers, at the grain supply chain meeting called in August by Francesco Lollobrigida, Minister for Agriculture and Food Sovereignty, which brought together all players in the supply chain, from farming representatives to industrial and commercial operators involved in processing and storing wheat and its products.

The trend in prices of Italian wheat (both soft and durum), is closely tied to developments on international markets, Italmopa clarified. Price is a variable over which “the national supply chain operators, and the primary processing industry (millers, ed.) in particular, has no influence of any kind”.

It is pointless to refer to the diatribe on wheat prices (see the analysis *Wheat-pasta, data responding to price transmission mechanisms*) by the agricultural sector when tensions were naturally abating from the peaks seen over the previous summer, which saw chamber of commerce price indexes record unprecedented highs. Grievances reiterated at the end of August, in light of the durum wheat price retracement following the rises seen in July.

The meeting also provided the opportunity to restate the importance and role of imports for a country experiencing a structural raw material supply deficit, while also being the world leader in processing wheat products (pasta, flours, and confectionery and baked products), which contribute to the prestige enjoyed by the Made in Italy agrifood sector overseas.

“Wheat imports have always supplemented, rather than replaced, national production” explained Italmopa “and are carried out in full compliance with all EU and national regulations, particularly as regards food safety”.

In this regard, any form of, or attempt at, disinformation can only serve to cause confusion, and negatively impact the entire supply chain, including primary sector operators.

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In reiterating his support and defence of Made in Italy, Lollobrigida confirmed his commitment to transparency regarding the value chain and final prices, and to the traceability of products. With specific reference to the durum wheat supply chain, Italmopa noted that the foregoing must also be considered in the context of a need to boost, rather than suspend, the work of the Commodity Exchange price commissions, which already operate effectively and transparently. Equal emphasis was placed on the importance of supply chain contracts, regarded as an indispensable tool in overcoming critical issues in national production, not always suited to the needs of processing on a technical criteria level, as well as strongly incentivising competitiveness in the supply chain.

He clarified that Italmopa does not support the introduction of a loading/unloading register, deeming it redundant in light of the control procedures already implemented by the authorities responsible for monitoring production and the origin of the processed wheat. The proposed register would give rise to needless and onerous bureaucratic

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burdens, which would impact end consumers at what is already a challenging time due to inflationary pressure and reduced purchasing power for Italian households.

On international markets, meanwhile, the uncertainty and logistical and distribution challenges arising from the conflict in Ukraine, and Russia's failure to renew Black Sea grain corridor agreements, are driving significant increases in price volatility. Wheat harvest quality ratings are also deteriorating in Europe and across North Africa. On the other side of the Atlantic, meanwhile, the lack of rainfall following a summer ravaged by record heat and fires has had a significant negative effect on yield prospects.

Durum wheat production in Canada is now forecast to be 10% lower than last year.

The soft wheat harvest is expected to remain largely unchanged, but this is in the context of a strong increase in investments for the year (+8%), set to be offset by the drop in yields for the season.

The United States Department of Agriculture (USDA) also slashed (overall) wheat harvest estimates for the US by one million tonnes, to a current figure of less than 47.2 million tonnes. The outlook is negative for exports, down 6.5% on the previous season.

With regard to Italy, Anacer (the Italian Grain Producers Association, participating in the ministerial meeting as a trade representative) noted that the forecast durum wheat production of less than 4 million tonnes, against estimated consumption (including exports) of over 6 million tonnes, confirms that the national harvest is inadequate to meet demand, and that this gap must be bridged in qualitative as well as quantitative terms. "In Italy," Anacer explained, "grain purchases from abroad are often viewed as being in competition with domestic produce whereas, in fact, they are simply a necessary supplement, due to the national structural supply deficit".

Most recent data, covering the first five months of this year, show a growth of nearly 7% in grain imports (from 5.8 to 6.2 million tonnes), with the arrival of higher volumes of durum wheat (+490,000 tonnes approximately) only partially offset by fewer purchases of soft wheat, corn, and barley from abroad.

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# 5



## Price observatory 3/2023

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Pastaria's four-monthly feature on the prices of the main raw materials used by pasta manufacturers.

The drop in GDP in Italy, down 0.4% on a quarterly basis between April and June, has raised concerns among some analysts regarding developments in the national economic context, exacerbated, among other things, by further weakening of the international situation.

The conditions required to gradually overcome the inflationary crisis would seem to exist, at least on paper, even if the cost of living is hitting harder in Italy than elsewhere in Europe. The potential for stagnation in 2023 – or a possible recession in the worst-case scenario, though this seems less likely – arises against the backdrop of general weakening of domestic demand and GDP dynamics being unaffected by foreign demand, which may in fact turn negative given the recent developments with regard to exports.

According to Banca d'Italia, the uncertainties associated with the conflict in Ukraine – which may give rise to further raw material cost increases and a deterioration in confidence among businesses and households – are coupled with fears regarding the evolution of global economic activity, due to ongoing monetary restrictions resulting in credit supply conditions becoming more rigid.

International food commodity prices saw a mini recovery in July, up just over one percentage point on June, but the general trend, indicating the price performance over the course of the year, remained decidedly negative.

The price index prepared on a monthly basis by the Fao, drawing together the performances of various agrifood sector commodities, was down an average of 11.8% on July 2022. In general, however, taking August's developments into account, the outlook is one of greater volatility, with uncertainty surrounding the dynamics of the fundamentals, and fear of renewed tensions in the energy sector.

Soaring fuel prices, only partly driven by the deliberate cut in production by the Opec+ countries (extended to 2024), could contribute to pushing up raw materials in the food sector again, due to an increase in production and transport costs. Repeated heat waves and extreme events this summer, meanwhile, means that supply may be lower than



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**PRICES AND TRENDS OF CERTAIN FOOD RAW MATERIALS (JULY 2023)**

<b>National fine common wheat</b>	Price (€/ton)	Monthly variation	Annual variation	Forecast
	244.75	-7.5%	-31.3%	▼
<b>Fine durum wheat from North Italy</b>	Price (€/ton)	Monthly variation	Annual variation	Forecast
	376.25	9.9%	-25.6%	▼
<b>00 type common wheat flour</b>	Price (€/ton)	Monthly variation	Annual variation	Forecast
	562.5	0.4%	-25%	▼
<b>Semolina above min. leg. req.</b>	Price (€/ton)	Monthly variation	Annual variation	Forecast
	685	5%	-19.5%	▼
<b>Eggs M</b>	Price (€/100 pcs)	Monthly variation	Annual variation	Forecast
	16.92	-3.3%	4.4%	▼
<b>Pork hams for Prosciutto 12 kg and over</b>	Price (€/kg)	Monthly variation	Annual variation	Forecast
	5.11	1.2%	4.9%	▼
<b>Beef – veal meat half-carcass, prime quality</b>	Price (€/kg)	Monthly variation	Annual variation	Forecast
	6.76	-1%	6.8%	▼
<b>Raw milk</b>	Price (€/100 kg)	Monthly variation	Annual variation	Forecast
	51.4	1.5%	-21.1%	▼
<b>Centrifuged butter</b>	Price (€/kg)	Monthly variation	Annual variation	Forecast
	4.56	-3%	-35.3%	▼
<b>Grana Padano aged for 9 months or more</b>	Price (€/kg)	Monthly variation	Annual variation	Forecast
	8.73	0%	-1.9%	▼
<b>Extra virgin olive oil</b>	Price (€/kg)	Monthly variation	Annual variation	Forecast
	8.4	14.6%	90.5%	=

*Source: Pastaria Centre for Economic Research elaboration based on various data sources. Grain, flours and semolina: Granaria, Bologna; Eggs: CCIAA, Forlì; Pork and beef: Commodity Exchange, Modena; Milk, butter and Grana Padano: Commodity Market, Milan; Olive oil: CCIAA, Bari.*



# MACCHINE ED IMPIANTI PER PASTA



**PRICE MONITORING**

<b>FAO Food Price Index</b>	Price (2014-2016=100)	Monthly variation	Annual variation	Forecast
	123.9	1.2%	-11.9%	▼
<b>Hard Red Winter US Gulf port</b>	Price (USD/ton)	Monthly variation	Annual variation	Forecast
	345.5	0%	-9.7%	▼
<b>Mais, U.S. No. 2 Yellow FOB US Gulf port</b>	Price (USD/ton)	Monthly variation	Annual variation	Forecast
	242.38	-9.2%	-25%	▼

*Fao Food Price Index, Hard Red Winter, Mais: July 2023*


expected due to the climate crisis, a factor affecting the grain and oilseed segment in particular. This could have knock-on effects on the livestock supply chains, subject to pressure on feed prices, though this seems unlikely given current corn and soy forecasts. It will be a matter of assessing which “forces” prevail over the coming months, against the backdrop outlined above in which all demand components could, on the other hand, weaken further, given the decline in optimism among Italian consumers regarding their personal financial situations and the objective loss of household purchasing power. The greatest tensions, across the various agrifood segments, can be seen in the vegetable oils chain, following the major rebound in July (+12.1% on a monthly basis), which sharply interrupted the negative trend that had continued for

seven months. In the case of sunflowers oils, in particular, the increases (+15% over the course of thirty days) are attributable to the failure by Russia to renew the Black Sea corridor agreements, a decision that has once again led to logistics bottlenecks and abrupt gaps in supply from Ukraine, the world’s leading exporter. Also pushing up global prices have been palm oils, in a market affected by the prospect of a drop in production due to the effects of El Niño across all of the world’s leading supply regions (and Indonesia and Malaysia in particular). Meanwhile, olive oil prices have now broken all records. On the Bari market in August, extra virgin olive oil hit a record high of €9 per kilo, with stocks nearly depleted and mixed forecasts for the upcoming production season, which does, however, look set to see higher





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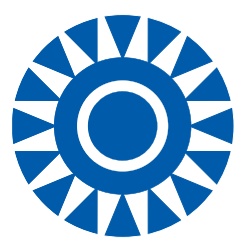
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yields, at least in Europe, following the terrible performance in 2022.

On the contrary, a clear bear market trend is evident in the price performance of the dairy sector, weakened by increased pressure on supply compared to the current capacity to meet global demand. The same dynamics can be seen in the meat sector, under pressure on international markets due to worsening consumption forecasts, particularly in

Europe and China.

Following a 9-month uninterrupted downward trend, wheat prices were up 1.6% on a monthly basis in July, once again attributable to the failure to renew the Black Sea Grain Initiative and the damage to the Ukrainian port infrastructure both on the Black Sea and the Danube. Another factor placing further pressure on prices came in the form of worsening harvest forecasts in



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Canada and the United States – two significant sources of supply to Italy, of durum wheat in particular – following major losses from drought. In terms of prices, however, bear market trends are set to prevail in the coming months.

Finally, new tensions are noted with regard to rice prices, up 2.8% in July to the peak levels seen in September 2011, following a ban imposed by India on exports of white rice and broken rice, with a view to securing domestic supply and limiting inflationary pressure.

On the contrary, global sugar prices are slowing, but could potentially rise again in the autumn when the situation concerning cane and beet harvests becomes clearer. Forecasts by the International Sugar Organisation (Iso) for the 2023-24 year point towards a global deficit of 2.23 million tonnes, in a market that remains tense despite the reversals seen this summer, with prices of the sweetener currently approximately 30% higher than a year ago.

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# Cibus Tec 2023, the countdown is started to the leading Food Tech show

Press release



Koeln Parma Exhibitions (KPE) presents the 2023 edition of Cibus Tec which will be held in Parma from 24 to 27 October and announces the birth of the First Machinery Observatory for Food & Beverage.

Recently in Milan, at the presence of the Italian and international press, the program of the 53<sup>rd</sup> edition of Cibus Tec the highly specialized event dedicated to technologies for the food and beverage sector was announced. The highlights of the trade fair event and the scenario data were presented by Thomas Rosolia (President of Koeln Parma Exhibitions and CEO Koelnmesse Italia), Antonio Cellie (CEO Koeln Parma Exhibitions and CEO Fiere di Parma), Emanuele Di Faustino (Head of Industry, Retail and Nomisma Services) and Matteo Zoppas (President of ICE-Agenzia).

The meeting was also an opportunity to announce the birth of the first Machinery Observatory for Food & Beverage – created with the support of Nomisma – dedicated to the Italian food-mechanical industry, which aims to identify dimensions, performance, markets and competitiveness indexes of the supply chain on an international scale. In particular, in this context, the analysis of the positioning of Italian machinery on international markets was recently presented in light of the strong propensity for exports of the sector, which in the first quarter of 2023 recorded a growth of 20% on the same period compared to 2022. A few months after the opening of Cibus Tec 2023, the available exhibition area is

already almost sold out, with 1200 confirmed exhibitors, including the best Made in Italy food-mechanical companies and more than 400 foreign brands from 30 countries, including Germany, France, Turkey, Denmark, India, United States of America and China.

Over 40,000 visitors from Italy and 120 countries around the world are expected in Parma from 24 to 27 October, with an important presence of visitors from Europe, the United States, the markets of South America and Africa.

Furthermore, thanks to important investments, the collaboration with the ICE Agency and the support of the Emilia-Romagna Region, more than 3000 VIP Top Buyers of food&beverage companies from over 60 countries have been invited: remarkable presence of top buyers from the Middle East and from Southeast Asia.

Of all the events dedicated to the food technology sector, Cibus Tec boasts the most exclusive and structured incoming programme, the Top Buyers Program; VIP visitors – top figures of the most important food companies in the world – live an extremely distinctive business experience, complete and assisted in every step by a specialized team.

One of the oldest fairs in the world, with an 80-year history, Cibus Tec is today a



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special and global meeting between supply and demand, designed to open up new scenarios, share knowledge in terms of technological innovation and, last but not least, stimulate investments and the growth of the business of the supply chain. The fair has always been organized in Parma, an iconic place for the Italian food sector, which has about 1200 food industries. Furthermore, the ducal city represents the capital of the larger “Food Valley”, an extraordinary territory that gathers 60% of Italian food production within a radius of 200 km. In these places, a passion for quality food and an invaluable know-how emerge, two components that find confirmation in the leadership position that Italy has acquired over the years and today boasts in the food technology sector.

In particular, among the most exported food machinery from Italy in 2022 we find machinery and equipment dedicated to packaging – for a value of 4 billion euros –, technologies dedicated to food processing – 2.5 billion euros – and bottling machines, whose exports, again in 2022, amounted to 1.5 billion euros. In 2022, the markets most controlled by Italian exports of food & beverage technologies were the countries of the European Union, with 39% of exports, North America, with 16% of the

total, followed by Latin America, non-EU Europe and the Far East.

In this scenario, Cibus Tec 2023 confirms itself as “the” international showcase of excellence in which operators, producers and experts find the most advanced food&beverage technologies, from the transformation of raw materials to packaging, passing across all related hot topics.

In particular, the 53<sup>rd</sup> edition, reconfirming its leadership in the events dedicated to processing and packaging technologies for fruit and vegetable-based products and for the dairy sector, was chosen by the market as the reference event for the ready meals sectors, meats, alternative proteins and beverages, hosting all the most important global brands.

A further peculiarity of the 2023 edition is the presence of the largest area dedicated to the best food tech and artificial intelligence start-ups. There will be dozens of selected global companies that will present the most interesting applications of artificial intelligence and robotics to the public: highly innovative solutions which, from cultivation to packaging of transformed products up to nutritional analysis processes, will allow a more sustainable, efficient and safe approach to food. The project makes use of the collaboration with Le Village by Crédit

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Agricole, ICE Agency and other important international partners.

In a period of great change for the food sector, in which the consumer, increasingly attentive to what he brings to the table, is looking for healthy, safe and sustainable products, Cibus Tec enriches its exhibition offer with a path dedicated to packaging: “NextGen. The future perspectives of food pack”. The route is articulated on three different levels. The first, an exhibition, involves hundreds of leading brands in the sector, ready to present the main innovations in terms of alternative packs and highly automated technologies; a second, experiential, sees the activation of three production lines that will take the visitor to the center of the processes of the dairy world and bakery products; finally, a third level designed to indicate emerging trends, also in the fields of digitalisation, sustainability, innovation, ecological transition, alternative packaging and food safety, through a rich program of conferences.

Cibus Tec 2023 is also the reference event for the future of food safety: in addition to boasting the exhibiting presence of the most important Italian and foreign suppliers of laboratory and analysis equipment and solutions, it organizes, with LabWorld.it, the LabWorld Arena (a permanent area for conferences and

meetings on food safety) and hosts the most important Italian conference on challenges and solutions to combat food contamination.

Furthermore, Cibus Tec 2023 was chosen by important Italian and international bodies and institutions as a platform to offer training, discussion and analysis on the great challenges of the food chain. Among these, the National Order of Food Technologists and in particular the Ordini Regionali of Emilia-Romagna, Tuscany, Marche and Umbria will use Cibus Tec as a preferential platform to hold three training events that issue training credits to members.

The press conference was opened by Thomas Rosolia President of Koeln Parma Exhibitions who, after thanking the participants stated that “the almost sold out of the exhibition spaces – including 65% Italians exhibitors and 35% coming from abroad – and the great adhesion of the Top buyers involved – over 3000 key executives of the world’s top brands will arrive in Parma next October – are a confirmation of the extraordinary nature of this event capable of both enhancing the technologies of our country and involving the most important realities and companies across the border. With Cibus Tec, together with the international portfolio of trade fairs organized by

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Koelnmesse in the mechanical sector for food & beverage in Germany (Anuga FoodTec, ProSweets Cologne), India (ANUTECH – International FoodTec India, IIDE – India International Dairy Expo), China (Anufood China FoodTec Zone) and Colombia (Andina Pack) today we are the reference platform for reaching the most strategic global food processing hubs.” Antonio Cellie CEO Koeln Parma Exhibitions he later intervened stating that “the strength and success of a fair are determined by two variables: the vocation to fuel innovation and the ability to attract the key geographies of that sector. We are adding a third element to Cibus Tec, the experience “in the field”, thanks to which the Food Valley, during the days of the fair, is transformed into the setting for an ideal polycentric and multi-sectoral “factory-tour”, during which visitors can connect insights, knowledge and experiences inside and outside the fairground. On the other hand, the Italian food tech sector, in Parma in particular, has an innate ability to interpret the needs coming from abroad and translate them into “tailor-made” solutions, which adapt the knowledge and processes already developed with success for Made in Italy agri-food. With its experiential and international exhibition scope, Cibus Tec is, therefore, the ideal meeting place for operators dealing with

the most complex food-mechanical issues and the most diverse macroeconomic scenarios, from US reshore policies to growth needs, respectively, structural of Africa and qualitative of Asia; this happens because CibusTec is among the very few exhibitions in the world where, for 80 years, they have been exhibiting Food Processing & Packaging technologies that interpret the epochal needs of the Agri-food Industry. The latter, like today, often finds itself facing epochal transitions of which our country is frequently a virtuous laboratory.”

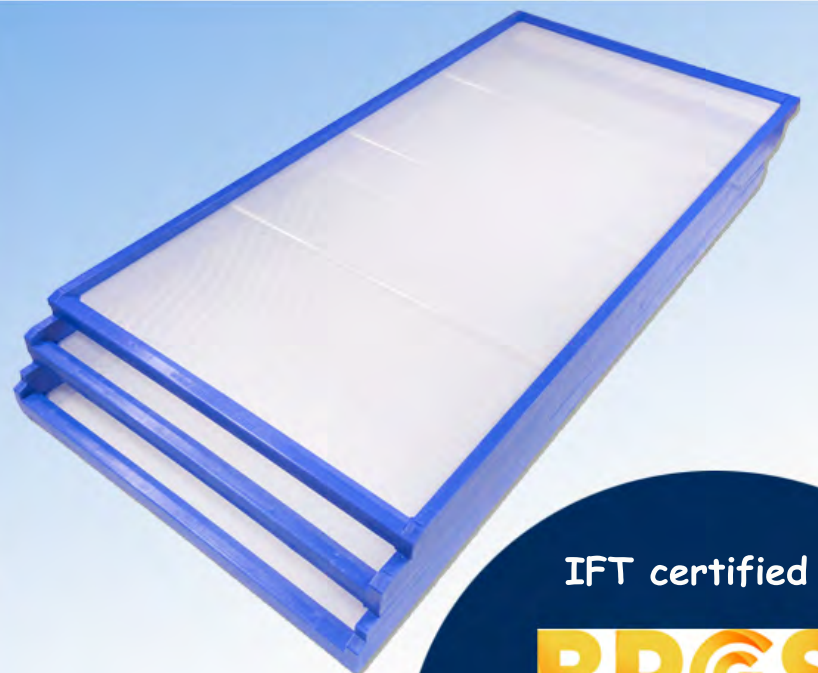
Emanuele Di Faustino, Head of Industry, Retail and Services of Nomisma, speaking of the future and more promising markets, stated: “Despite the current and uncertain international macro-economic scenario, the opportunities for further expansion of Italian food&beverage machinery exports in the next few years are plausible both among the more mature markets and among the emerging ones. In the case of markets where the presence of Italian machinery is already consolidated, the greatest growth opportunities are foreseen for the USA, the first destination market for Italian exports, but with enormous future potential thanks to the important and flourishing national food industry; excellent opportunities can also be glimpsed for Canada, the United Kingdom and

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Australia. Among the noteworthy emerging markets are some markets in the Middle East (primarily Israel, Saudi Arabia and Qatar), Africa (above all Angola, Senegal and Morocco) and Eastern Europe (e.g. Slovenia, Serbia and Romania), thanks to expanding economies and the food industry and significant growth rates in the demand for Italian machinery».

At the end of the meeting, Matteo Zoppas, President of ICE-Agency declared: “The mandate given to us by the Government – and in particular by the control room involving MAECI and MIMIT, led by Ministers Antonio Tajani and Adolfo Urso, – as ICE-Agency, demonstrates a strong push towards the growth of exports and all the activities connected to it. It should be recalled that in 2022 Italy generated exports of 624 billion, up by 9.8% (160 billion euros) in the first three months of 2023. Despite a fluctuating trend, the last ISTAT data confirm this trend: in April, for example, we saw a -5% of exports, a figure which returned to growth of 1.5% in May which, net of shipbuilding sales, becomes +5%. continue to drive this growth, we want to give more and more importance to all those opportunities capable of generating exports, and consequently, capable of pushing our economy. For this reason – continued Zoppas – with ICE-Agency we are giving

more and more prominence and importance to the trade fair sector and other incoming, business matching and B2B activities, and to everything that unites supply and demand. A sector that seemed to have weakened with the pandemic, but which today is seeing new vigor, precisely because operators, buyers and people want to get back in touch with the Made in Italy products, told during these meetings between supply and demand, connections and business development. We are therefore working – concluded Zoppas – to confirm the centrality of the sector and give it new life: with this spirit we support events of great importance such as Cibus Tec, encouraging the collective participation of Italian operators in international exhibitions, to allow them to open up to new markets and grow their exports”.



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