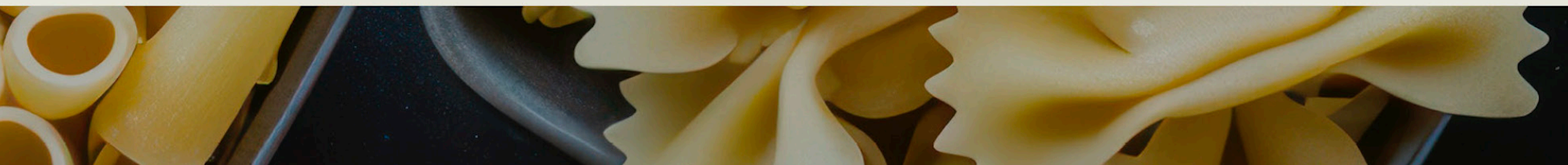




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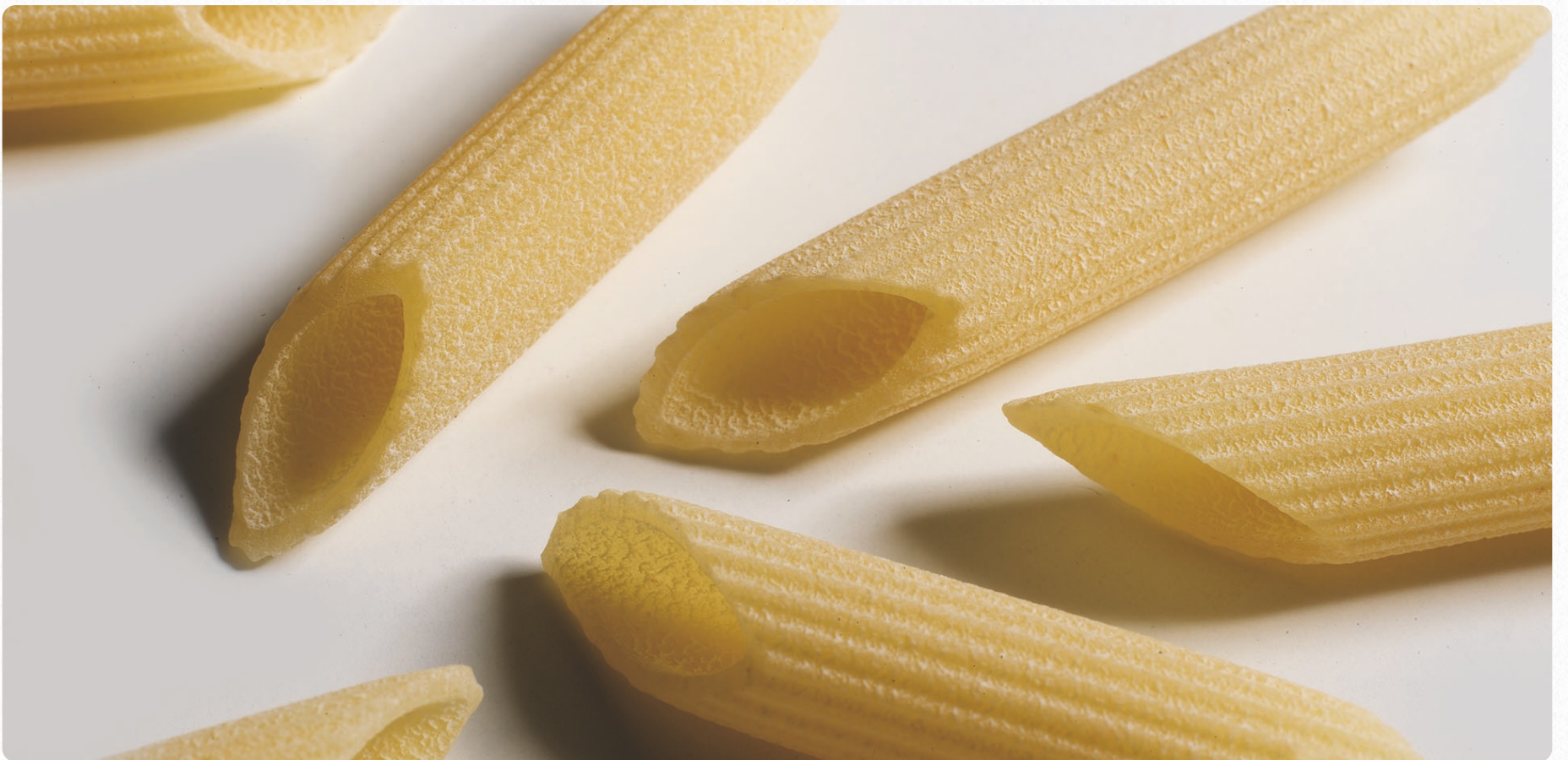






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Pastaria International DE  
4/2024  
July



## **PUBLISHER**

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

*registered office*

Via Possioncella 1/1 • 42016 Guastalla

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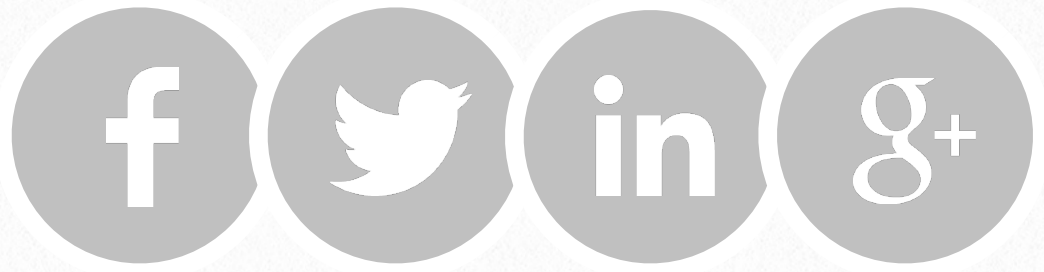


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1



# Fiera Pastaria & Festival 2024, outstanding first edition of the new Pastaria event

Editorial staff



**Fiera Pastaria & Festival, the innovative event for the pasta supply chain born from the combination of the Pastaria Festival, the well-known and eagerly awaited conference event for professional training and refresher courses for operators, and Fiera Pastaria, the new trade fair that attracts the most important suppliers of machines, systems, ingredients and services for pasta production took place in Florence on 20 and 21 May. Many sector operators from all over the world took part.**



The prestigious venue and original lay-out without doubt impressed everyone who entered Stazione Leopolda in Florence on 20 and 21 May to visit Fiera Pastaria & Festival, the new business-to-business event organised by the specialised magazine Pastaria.

What was once the first railway station in the Tuscan city, designed by architect Enrico Presenti and inaugurated in 1848, is now used as a venue for exclusive events. It was chosen to host Fiera Pastaria & Festival, the event held alongside the wide-ranging programme of conferences of the Pastaria Festival, now in its eighth edition and an annual appointment for pasta manufacturers, and the first edition of Fiera Pastaria, the new exhibition that brings together important international suppliers of machinery, systems, ingredients and services for pasta factories.

Over 500 operators from all parts of Italy and many foreign countries (including Algeria, Germany, Tunisia, Hong Kong, USA, Poland, Germany, Portugal, Spain, Albania, Croatia, India, Mexico, Russia, Czech Republic, Belgium, Great Britain, Denmark, Morocco, Egypt, Hungary, Brazil, Jordan) visited Fiera Pastaria & Festival.

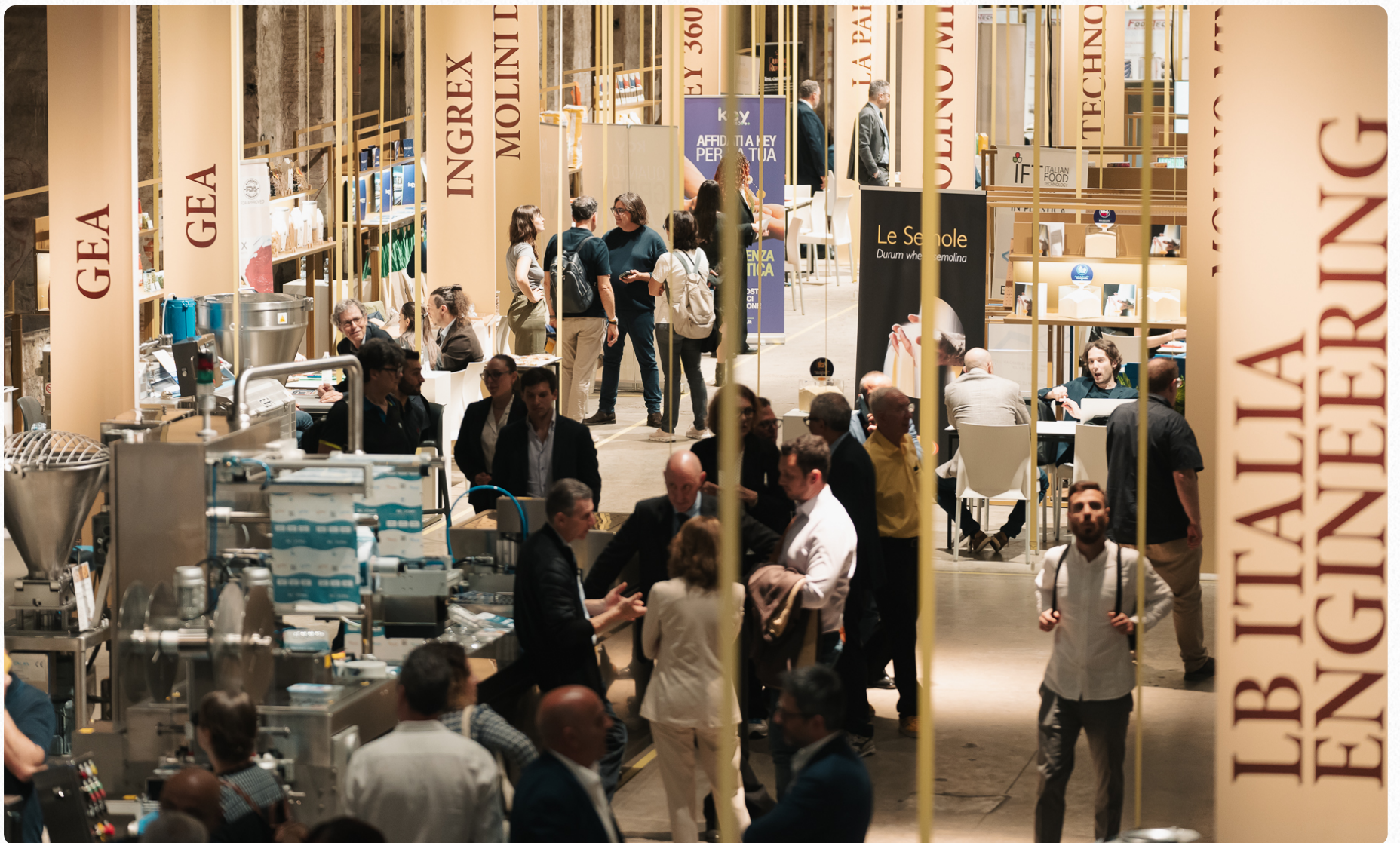
## **The Fiera Pastaria exhibition spaces**

Pasta-yellow ribbons hanging from the ceiling and duct tape on the floor marked out the spaces used by dozens of leading companies in the sector to show off their new pasta-making technologies, ingredients and services; this original layout was the brainchild of Pastaria and its development was entrusted to the architects of Pitti Immagine (owner of Stazione Leopolda).

The aim of Fiera Pastaria – bringing together a wide range of suppliers of pasta factories, and only pasta factories, in a single exhibition – was already clear from event's pay-off: *International pasta factory suppliers trade fair*.

The stands of process machine manufacturers were flanked by those of milling industries, spaces fitted out for aromas and semi-finished product suppliers, and other stands of manufacturers of packaging machines and





accessories. The advantage of this set-up for the ideal visitor to Fiera Pastaria, i.e. pasta manufacturers, is clear: the possibility of finding everything the pasta production business needs, in all its possible forms, at a single, highly specialised and non-dispersive event. Pasta Technologies Group, Sarp, Cepi and Colimatic were assigned and shared the largest stand at the show – over 200 square metres – where an imposing 7-metre high silo (Cepi), a large press (PTG), flanked by a spiral pasteuriser (Sarp), and a packaging line (Colimatic) for fresh pasta vied for attention. The exhibition of forming machines and a

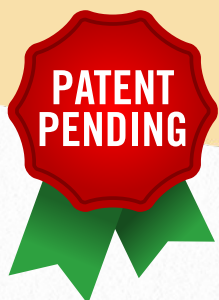
packaging line for fresh pasta by ALMA Packing and Packaging Machinery, a flagship product of the well-known company from Cadorago (Como), was also highly appreciated. Numerous machines of different types (from forming machines to pasta cookers) were also presented to the public by Italgi. A world premier was, however, the presentation of the Direct Drive free-standing coil by Side Protech, launched at Fiera Pastaria. The tasting proposed by Aromatagroup and Ipam, ingredient suppliers, was specially appreciated. The other exhibitors at the first edition of



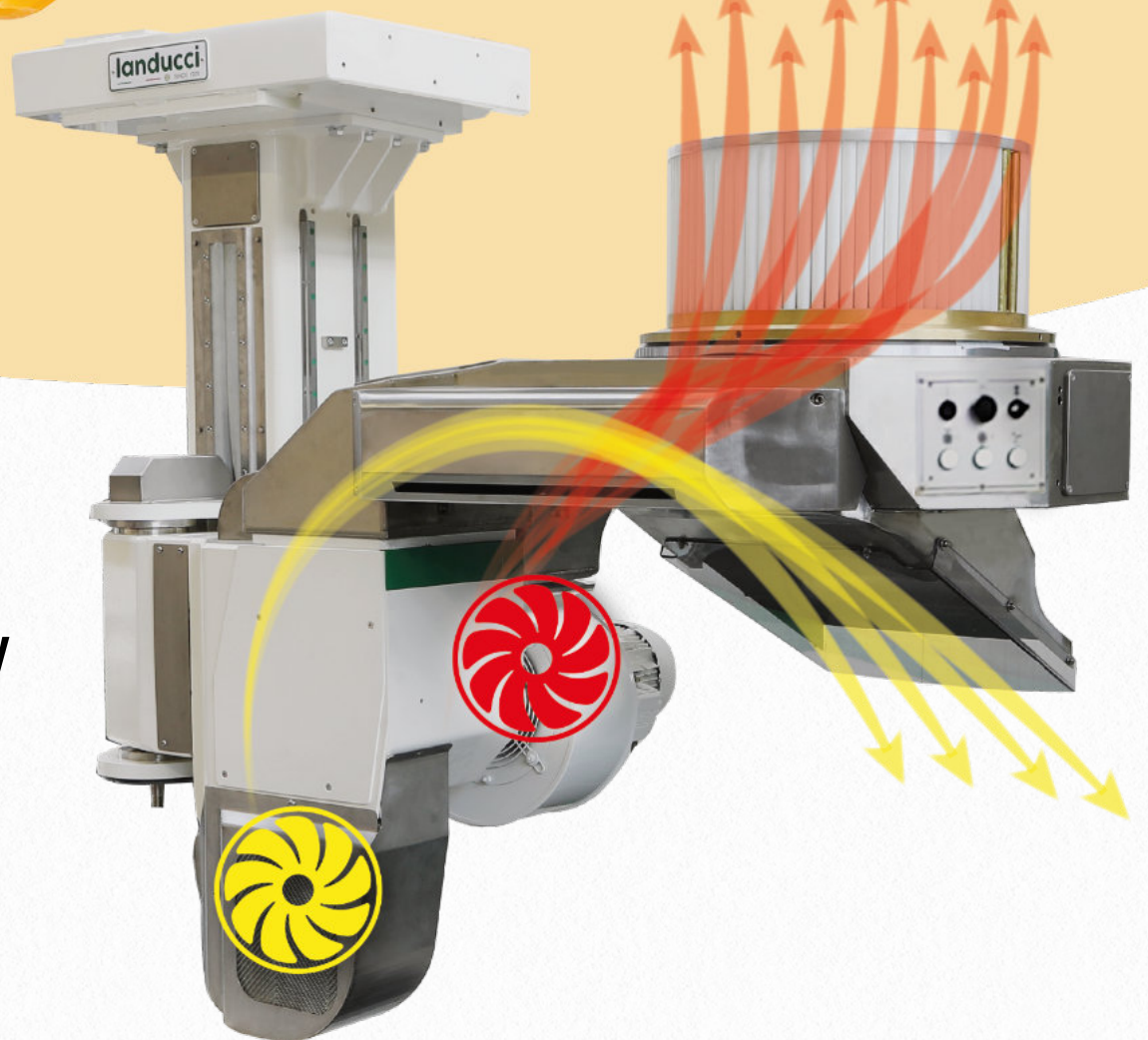
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The opening of the proceedings of the Pastaria Festival 2024. From the left, Virna Soncin (APPAFRE), Margherita Mastromauro (Unione Italiana Food), Lorenzo Pini (Pastaria), Carl Zuanelli (IPO, NPA), Claudio Zanão (ABIMAPI), Gherardo Bonetto (APPF)

Fiera Pastaria included:

Aldo Cozzi, ALMA Packing and Packaging Machinery, AromataGroup, Brambati, CEPI, Colimatic, Eurovo, Fava, Foodtech, Foss, GEA, IFT, Industria Molitoria Mininni, Ingrex, Ipam, Italgil, Key 360, Klüber Lubrication, Landucci Zamboni, La Parmigiana, LB Italia Engineering, Mane, MartinoRossi, Molini del Ponte, Molini Loizzo, Molino Borgioli, Molino De Vita, Molino Grassi, Multi Import, Niccolai Trafile, Omar, Omet Foodtech, Pasta Technologies Group, Prodotti Gianni, Progeo Molini, Pro-Tech Italia, SIDE Protech, Sarp, Technobins.

## The eighth edition of the Pastaria Festival

As always, the spirit of *sharing know-how on pasta manufacturing*, as the slogan says, was the inspiration for the Pastaria Festival 2024.

Two hundred seats in the auditorium, simultaneous translation into English of all the conferences and presentations, and a programme for the first time spread over two days characterised the eighth edition of the Pastaria Festival, which confirmed its standing as a reference point for information and professional refresher courses for pasta factory operators and suppliers.



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Many universities took part in the conferences and researchers and lecturers illustrated the results to pasta factory operators of the most recent studies on pasta conducted at academic institutions over the last 18 months.

Finally, never before have so many companies taken part in the extensive Festival programme.

Indeed, there were two conferences (*Advanced technologies and services for the production of pasta* by Fava and *An encounter of cultures in the world of pasta, organic and natural flavours: sustainable taste that conceals a memory* by New Flavours), two presentations (*Reflections on food safety: the role of lubricants and*

*processing aids* by Klüber Lubrication and *Microwave oven pasteurisation: product innovation and environmental sustainability in fresh pasta* by GEA), and a panel discussion (*Vegetable proteins: sustainable approaches and emerging trends* by Martino Rossi) organised by supplier companies sponsoring the event.

The following programme was offered on Monday 20 May.

### **Opening of the Pastaria Festival**

Gherardo Bonetto (APPF), Margherita Mastromauro (Unione Italiana Food), Virna Soncin (APPAFRE), Lorenzo Pini (Pastaria), Claudio Zanão (ABIMAPI), Carl Zuanelli (IPO, NPA).



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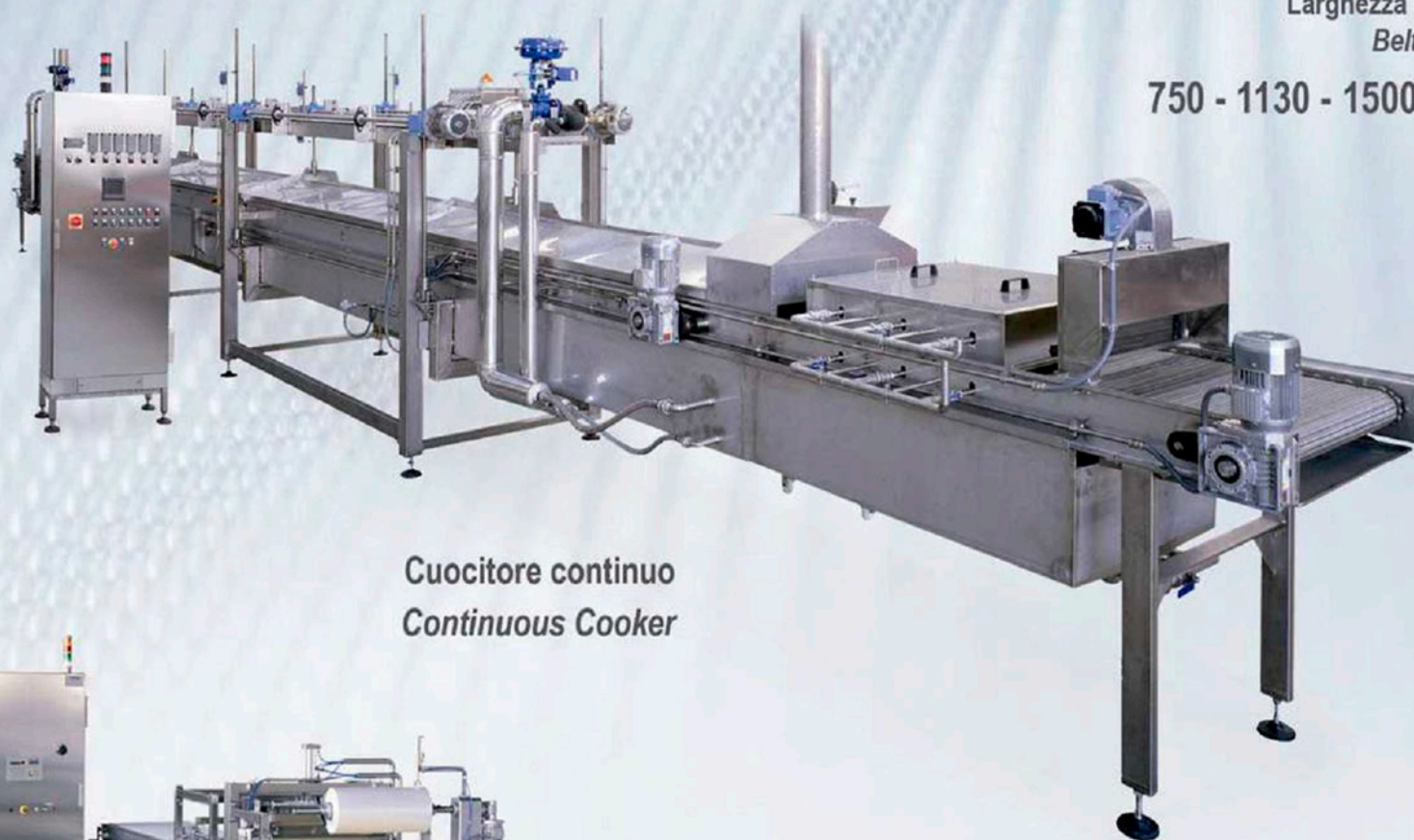
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### **Advanced technologies and services for pasta production**

Renato Dall'Agata (Fava), *LPG 180 long pasta production technology*

Alessio Marchesani (Fava), *Fresh pasta: technologies and innovation*

Federico Martini (Fava), *IIOT applications to maximise overall equipment effectiveness (O.E.E.)*

Alessia Lolli (Fava), *Applied research services for product development and optimisation.*

Moderator: Michele Storci (Fava).

Fava (Main sponsor of the Pastaria Festival) conference.

### **Reflections on food safety: the role of lubricants and processing aids**

Speakers: Andrea Marotta (Klüber Lubrication), Federico Provenzani (Klüber Lubrication).

Klüber Lubrication presentation.

### **An encounter of cultures in the world of pasta, organic and natural flavours: sustainable taste that conceals a memory**

Virginia Tonanni (New Flavours), *Aromas in movement: understanding US and European labels. Different cultures and flavour trends. The new frontiers for successful pasta*

Veronica Pero (New Flavours),





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consequences of greenwashing and  
greenblushing*

Gianni Sagratini (University of Camerino),  
Samanta Corsetti (University of Camerino),  
*Study and enhancement of bioactive  
compounds in natural aromas*

Salvatore Pizzo (DNV Assurance Italy), *The  
new frontiers of sustainability in food  
processing*

Federica Di Candia (Itineri), *Legù’s  
experience puts peasant food back on the  
table*

Ciro Borrelli (4BMC), *The QR code: pasta*

*and aromas, much more than a simple link.*  
Moderator: Letizia Bellucci (New Flavours).  
New Flavours conference.

**Fresh pasta and innovative ingredients**  
Alessio Cimini (University of Tuscia), *Use of  
malted legumes in the production of fresh  
pasta*

Vladimiro Cardenia (University of Turin),  
*New technological challenges to control  
cholesterol and its oxidation in tannins  
enriched egg pasta*

Valeria Imeneo (University of Milan),  
*Thermal treatment of legume flours used to  
make pasta.*



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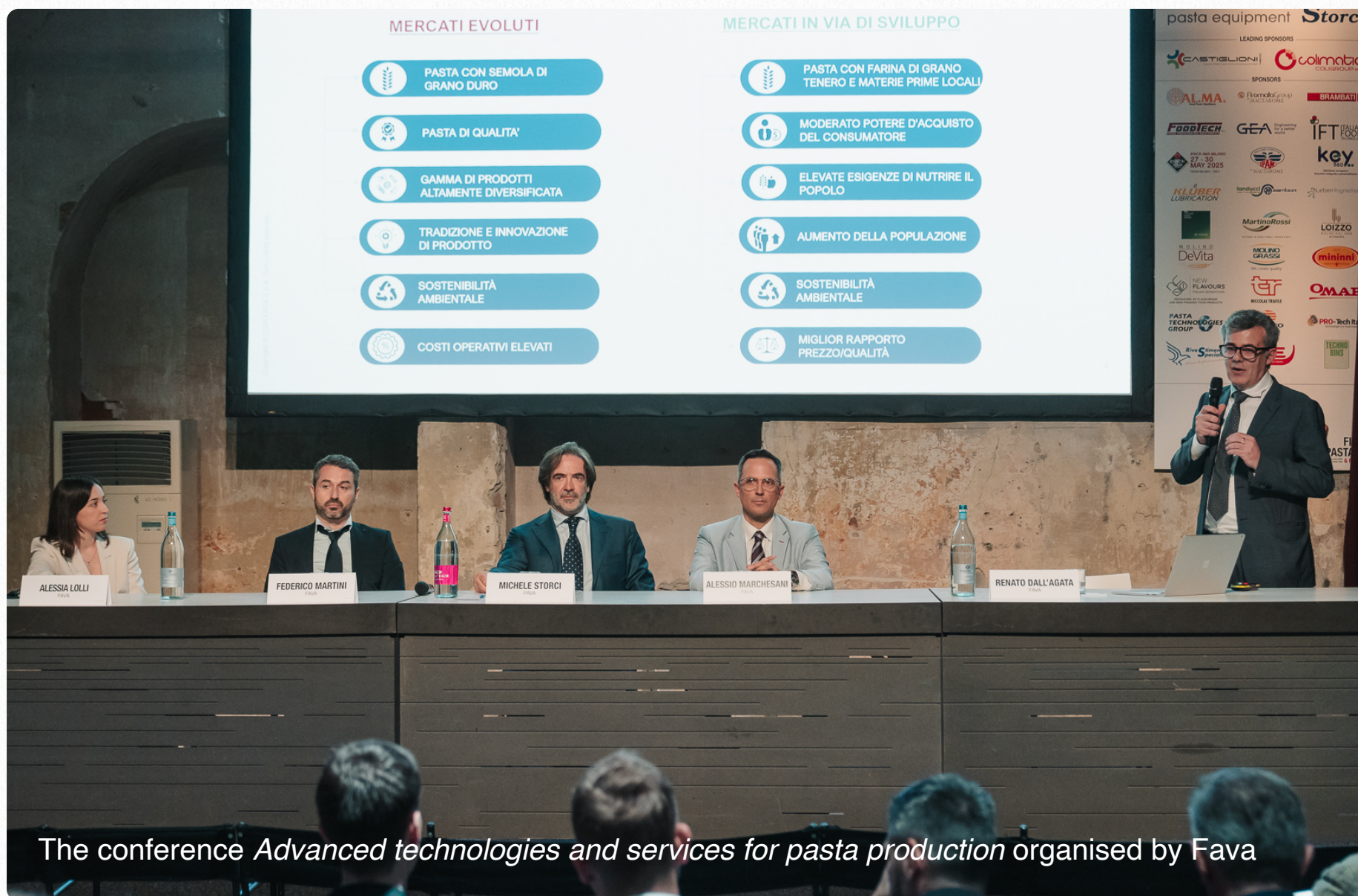
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Moderator: Cristina Alamprese (University of Milan).

Academic conference.

The Pastaria Festival offered the following programme on Tuesday 21 May.

**Vegetable proteins: sustainable approaches and emerging trends**

Matteo Angri (MartinoRossi), Francesco Barba (Barilla G. e R. F.lli), Alberto Cartasegna (Miscusi), Monica Maj (Catholic University of the Sacred Heart of Piacenza), Pier Luigi Rossi (University of Bologna).

MartinoRossi Round Table.

**Self-regulation code on voluntary claims used in pasta advertising. A commitment of Unione Italiana Food pasta makers to make pasta claims increasingly transparent**

Cristiano Laurenza (Unione Italiana Food), Emanuele Marconi (Bio-Medical Campus of the University of Rome, CREA – Food and Nutrition Research Centre, Rome), Margherita Mastromauro (Unione Italiana Food).

Moderator: Roberta Russo (Unione Italiana Food).



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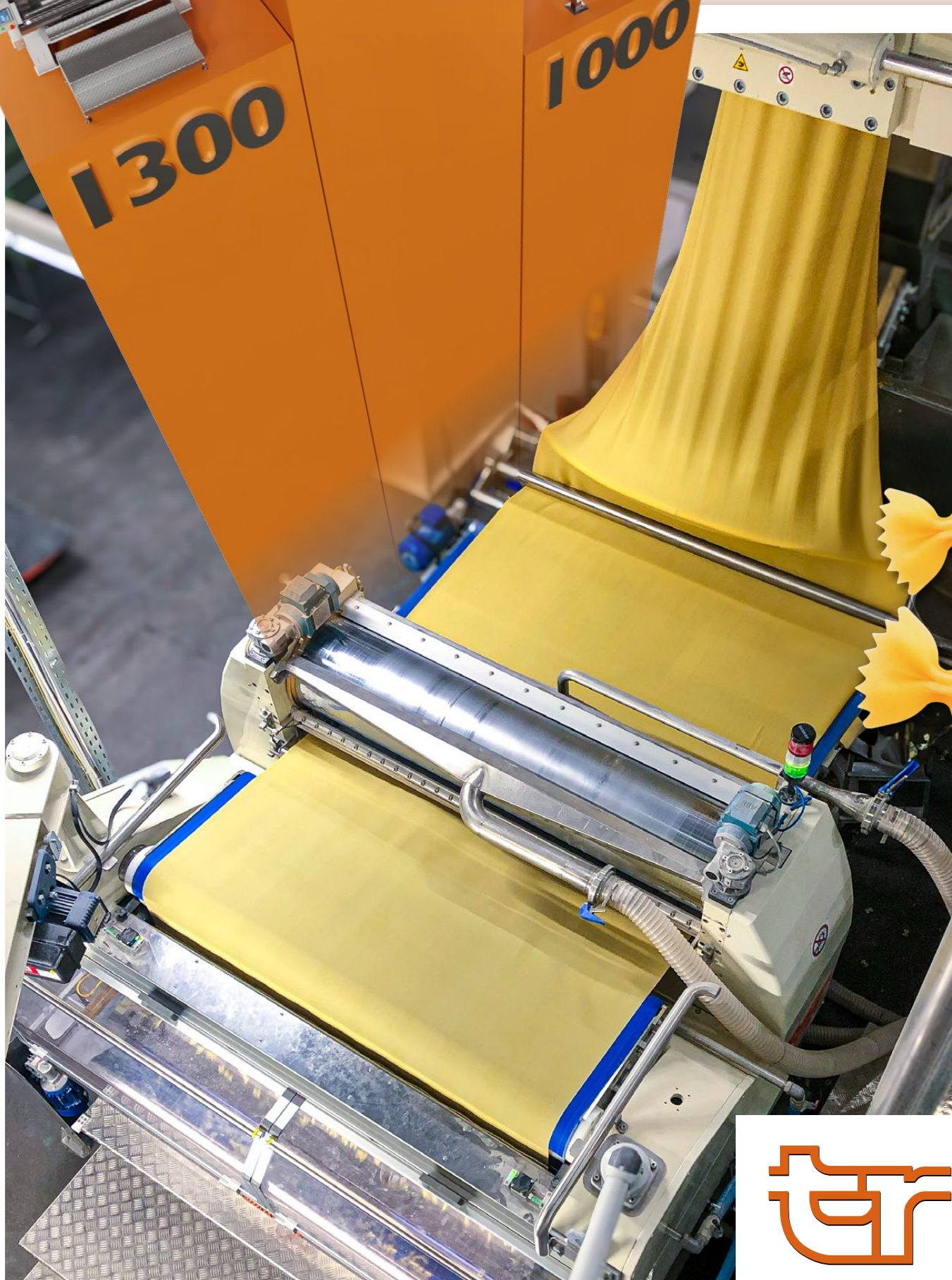
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**Microwave oven pasteurisation: product innovation and environmental sustainability in fresh pasta**

Speaker: Simone Bertoncetto (GEA).  
GEA presentation.

**Pasta and international markets: consumption and trends in the retail and food service channels**

Serena Colacino (NielsenIQ), *Time goes by but you never go out of fashion*  
Matteo Figura (Circana), *Away-from-home pasta consumption in Italy and Europe.*

**Dry, traditional, gluten-free and wholemeal pasta: ingredients, quality and process optimisation**

Alessandra Marti (University of Milan), *The quality of wholemeal pasta: from the raw material to the production process*  
Pasquale Trematerra (University of Molise), *Insect pests in pasta and some considerations on the packaging*  
Emanuele Marconi (Bio-Medical Campus of the University of Rome, CREA – Food and Nutrition Research Centre, Rome), *Optimisation of pasta drying diagrams to limit the Maillard Reaction and lipid oxidation*  
Lorenzo Estivi (University of Milan), *Bioaccessibility of antioxidant compounds in gluten-free pasta enriched with industrial by-products*

Riccardo Guidetti (University of Milan), *Sustainability in catering: the case of pasta cooking equipment*

Laura Gazza (CREA – Agri-Food Engineering and Transformation Research Centre, Rome), *Parboiled Wholemeal Rice Pasta: innovative transformation processes for varieties with different amylose content*  
Cinzia Montemurro (Università degli studi di Bari), *Varietal characterisation of pasta using DNA markers.*

Moderator: Emanuele Marconi (Bio-Medical Campus of the University of Rome, CREA – Food and Nutrition Research Centre, Rome).  
Academic conference.

**International associations of pasta producers play a leading role at the Pastaria Festival**

During the eighth edition of the Pastaria Festival, the general assemblies were held at Stazione Leopolda of the International Pasta Organisation (IPO), the Union des Associations de Fabricants de Pâtes Alimentaires de l’E.U., (UNAFPA) and the Association of Small and Medium Fresh Pasta Manufacturers (APPAFRE), bringing many prestigious Italian and foreign pasta manufacturers to Florence.

The role of representative of ABIMAPI (the



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Brazilian association of pasta manufacturers) at the event in Florence was held by the executive president, Claudio Zanão, who opened the Pastaria Festival alongside another well-known American pasta manufacturer, Carl Zuanelli, who brought the warm greetings of the National Pasta Association (association of US pasta manufacturers) and the International Pasta Organisation (of which he is president). Margherita Mastromauro, president of the pasta manufacturers of Unione Italiana Food, Gherardo Bonetto, secretary general

of the Association of Fresh Pasta Producers (APPF), and Virna Soncin, secretary general of APPAFRE, represented the Italian pasta manufacturing sector at the opening of the Pastaria Festival. Unione Italiana Food was also the promoter of an interesting panel discussion organised in the Pastaria Festival during which an innovative self-regulation code on voluntary claims for pasta advertising was presented (see the article [Self-regulation code on voluntary claims used in pasta advertising](#)).





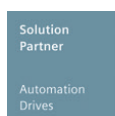
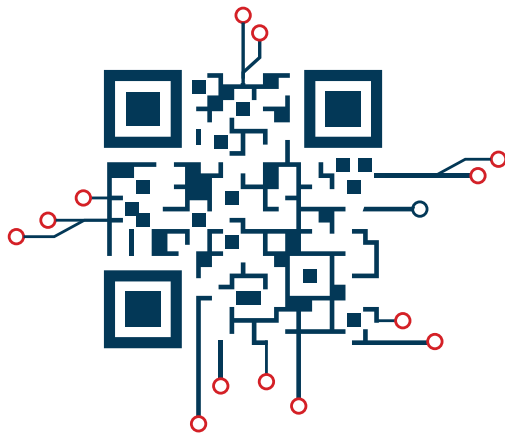
## First national meeting of small top-quality pasta factories

Getting to know each other and comparing notes on topics of interest for all artisan dry pasta makers: this was the goal that brought numerous Italian pasta makers to Fiera Pastaria & Festival on Monday 20 May, to take part in the *First national meeting of small quality pasta makers*, accepting the invitation of Dino Martelli from the well-known pasta factory in Lari (Pisa). “A real success”, according to Martelli, that highlighted the need to effectively

communicate the distinctive characteristics of artisan pasta production, also using social media.

The pasta factories that took part in the event, which will very likely be repeated in future editions of the Pastaria Festival, are listed below: Famiglia Martelli, Pastificio Fratelli De Luca, Rustichella d’Abruzzo, Pastificio Cav. Cocco, Pastificio Fratelli De Luca, Pastificio Masciarelli, Pastificio Caterina, Alica, Pastificio Nicola Russo, Pastificio Carmiano, Pastificio Antonio Massa, Pastificio Ducato di Amalfi, Pastificio Gentile, 28 Pastai, Gerardo Di





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Dino Martelli at the *First national meeting of top-quality small pasta factories*

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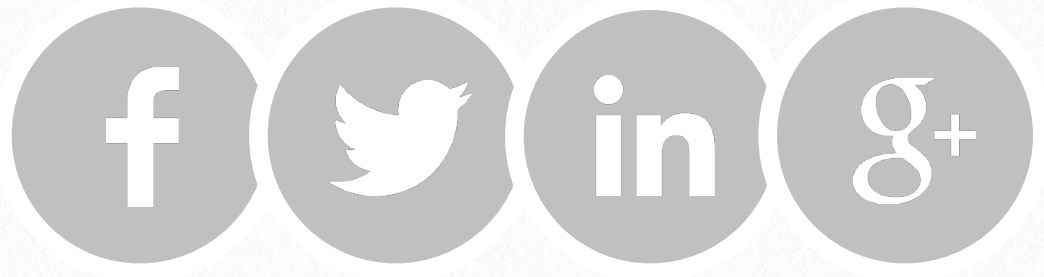


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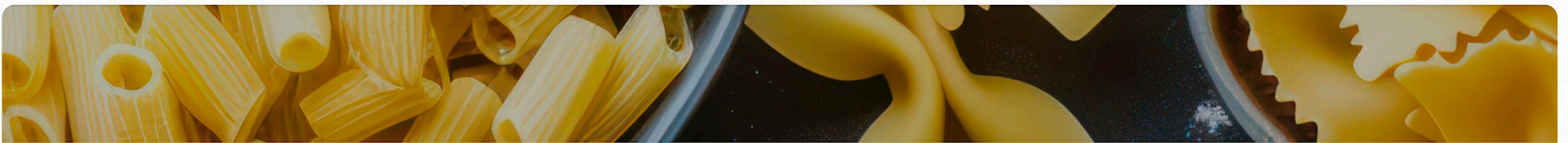


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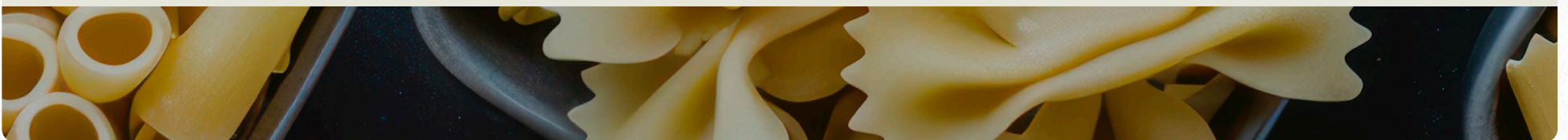
National Pasta Association



**NATIONAL PASTA  
ASSOCIATION**

**2024 Annual Meeting &  
WORLD PASTA CONGRESS**

**Philadelphia, PA • October 23-25, 2024**



To learn more about the event, join our conversation with leaders of the National Pasta Association.



The National Pasta Association (NPA) is holding its 2024 Annual Meeting in conjunction with the World Pasta Congress from October 23-25, 2024, in Philadelphia, PA, USA. To share details about the event, we conducted a question-and-answer interview with Nora Stabert (NPA Chair), Jim Meyer (NPA Treasurer), and Melissa Tendick (NPA Vice Chair). Look at what they had to share.

**Nora, can you tell us about NPA and your organization's mission?**

*Nora:* Of course. NPA is made up of pasta manufacturers, marketers, millers, and suppliers in the United States. It serves as a unified advocate, promoter, and center of knowledge for the industry, members of the government, and consumers. Our goal is to increase pasta consumption, so the pasta industry thrives.

**What is your role at NPA? And how long have you been involved with the organization?**

*Nora:* I serve as the Chair of the National Pasta Association which I took over in March 2023. I became an active member of the NPA in 2018 when I joined Philadelphia Macaroni Company (PMC). As a member of the 5th generation of the Marano family, the founding family of PMC, I was familiar with the important work of the NPA and was excited to follow in my family members' footsteps.

I'm thrilled to be a part of this international pasta event, as it provides an opportunity for the global pasta industry to discuss innovations, advancements and relevant trends including Sustainability and AI, while also providing a relaxed atmosphere for the industry to meet face to face.

**You are holding your 2024 Annual Meeting & World Pasta Congress this October. Who should attend and what can attendees expect at this event?**

*Nora:* If you're a pasta producer, miller, ingredient supplier, retailer, food service company, or equipment manufacturer, this is an event you should consider attending. Educational sessions include a variety of presentations





**NATIONAL  
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# **120 Years of the National Pasta Association**

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at the NPA's Annual Meeting &  
World Pasta Congress**

**October 23-25**

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Nora Stabert, NPA Chair

on trends and critical industry topics. The meeting includes structured networking opportunities, like the Executive One-on-Ones, and informal activities including historical and cultural tours of Philadelphia. We're also hosting the World Pasta Congress gala on Thursday night. Come for the education, but we all know the best part is building new relationships and celebrating pasta!

**It's the 120<sup>th</sup> Anniversary of NPA. How are you celebrating this milestone?**

*Nora:* I'm going to let Melissa Tendick (NPA Vice Chair) address the 120<sup>th</sup> anniversary, as she has been involved in



Jim Meyer, NPA Treasurer

planning as a board member.

*Melissa:* Thanks Nora. To commemorate NPA's remarkable 120-year journey, we've curated reasons to join leaders in the pasta industry at this worldwide event. A few of the 120 reasons include:

- Connecting with 120+ pasta leaders from around the world.
- Gaining insights into global pasta perspectives from North America, Europe, South America, and Asia.
- Discovering new equipment innovations.
- Gaining valuable insights on pasta market trends.
- Viewing a live pasta making





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demonstration and sampling a ravioli creation from NPA's Chef Spokesperson, Chef Rosario.

- Learning how pasta connects to wellness and happiness in new research.
- Understanding how the pasta industry is embracing sustainable practices. And....
- Celebrating World Pasta Day (October 25<sup>th</sup>) and your love of pasta!

### **The World Pasta Congress is part of this event. What is the World Pasta Congress?**

*Nora:* The World Pasta Congress celebrates pasta's cultural and culinary significance and promotes the consumption of pasta. The first World Pasta Congress was held in Rome in 1995, and led to the creation of World Pasta Day, which is celebrated annually on October 25<sup>th</sup>.

### **Do you have to be an NPA member to attend the 2024 Annual Meeting & World Pasta Congress this October? What are the costs to attend? How do I register for the event?**

*Nora:* No, you do not need to be a member of NPA to attend. However, there is a discounted price for both NPA and IPO members. The cost to attend the event is \$1,125.00 for members and \$1,325.00 for non-members. You can visit

[ILovePasta.org](https://ILovePasta.org) to register for the event and get specific information for travel.

### **Who comes to this event, and will there be networking opportunities?**

*Nora:* This year will bring together global industry leaders, innovators, and passionate professionals to celebrate pasta. And YES, there will certainly be plenty of time to meet and get to know others in the industry. We have scheduled breaks for participants to engage with each other, the World Pasta Congress gala to share a meal and celebrate pasta, and offer food and cultural tours of Philadelphia, my hometown. I'm excited to share my love of pasta and the vibrant and historical city of Philadelphia with our attendees.

### **What topics will be covered at the 2024 Annual Meeting & World Pasta Congress?**

*Nora:* For that, I'm going to introduce you to Jim Meyer (NPA Treasurer), one of our selected speakers for the event.

*Jim:* Thanks Nora, I'm happy to share some details about education at the event. A few sessions of note include the Durum global market update, global pasta perspectives, pasta and its connection to wellness research, a culinary presentation and pasta tasting by NPA's Chef



Spokesperson, sustainability in the pasta industry, and the use and implication of artificial intelligence (AI) for the pasta industry.

**What are you most excited about for this event?**

*Nora:* ‘m excited to see others from the global pasta industry and to host everyone in Philadelphia. It will be great to see old friends and meet new innovators in our industry.

*Melissa:* One of the highlights I’m looking forward to is the live pasta demonstration and tasting that will be presented by Chef Rosario. Who doesn’t want to share pasta with friends?

*Jim:* I believe one of my most anticipated sessions will be the global pasta perspectives and hearing insights from South America, Asia, Europe, and other pasta professionals from around the world.

**How will pasta be celebrated at this event?**

*Nora:* We are weaving pasta into almost every aspect of this event. From our receptions to the World Pasta Congress gala, pasta will be featured. Also, Philadelphia has a rich history of food and culture, and we can’t wait to show you all the great places to see and exceptional food to eat – including pasta, of course.

But one of the best ways of celebrating pasta is our industry’s philanthropic initiative, the 100 Billion Meal Challenge, as we are committed to making sure everyone can enjoy and celebrate pasta for years to come!



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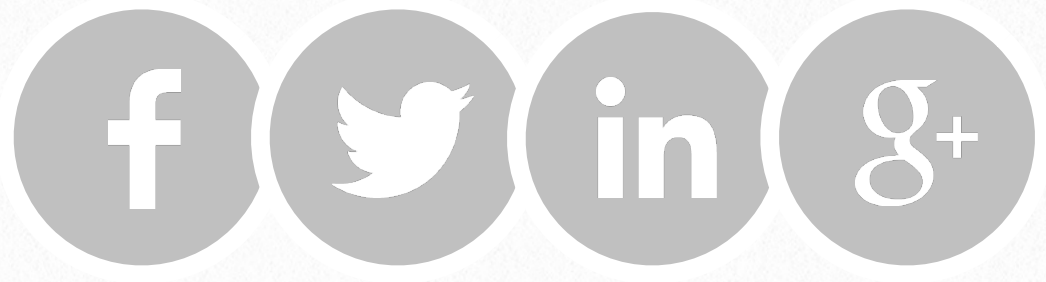
3<sup>rd</sup> place for **biscuits** in the world;  
3<sup>rd</sup> place in the dried **pasta** in the world;  
9<sup>th</sup> package **bread** in the world.

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# 3



## Environmental impact of fresh pasta

**Alessio Cimini, Mauro Moresi**  
Department for Innovation in Biological,  
Agrifood and Forest Systems, Tuscia  
University, Viterbo, Italy



**In this study, the environmental profile of unfilled, eggless, fresh pasta was estimated and compared with that of dry durum wheat semolina pasta, using a well-known life cycle assessment software package in compliance with the standard European Product Environmental Footprint method.**



## Introduction

In Italy, fresh pasta can be made by kneading soft wheat flour or durum wheat semolina with water and/or eggs, and can contain different ingredients for the filling. Its moisture content must be greater than 24% (w/w), and its water activity must be between 0.92 and 0.97. After being pasteurised, it is packaged in modified atmosphere and kept at  $4 \pm 2$  °C, to guarantee a shelf life of 60 days from the date of production (Italian Presidential Decree, 2001). Soft wheat flour and eggs are the basic ingredients in Northern Italy, while durum wheat semolina and water are more commonly used in Southern Italy. In 2019, the turnover of pasta in Italy reached  $4.8 \times 10^9$  € (Italianfood.net, 2021). Dry pasta accounts for 86% of total production, while fresh pasta accounts for 11% and frozen pasta for the remaining 3% (Ruffo, 2017). In 2021, due to the growing demand from restaurants, hotels and households, the turnover, in Italy, of fresh pasta alone was around  $890 \times 10^6$  € (Soressi, 2021).

Although the environmental impact of dry pasta has been assessed by numerous authors, among whom Bevilacqua et al. (2007), Cibelli et al. (2021), Cimini et al. (2019), Rööös et al. (2011) and Zingale et al. (2022), that of any type of fresh pasta is

still to be assessed, with the exception of the cradle-to-grave environmental profile of a new high-amylose soft wheat fresh pasta with a low glycaemic index (Cimini et al, 2022a).

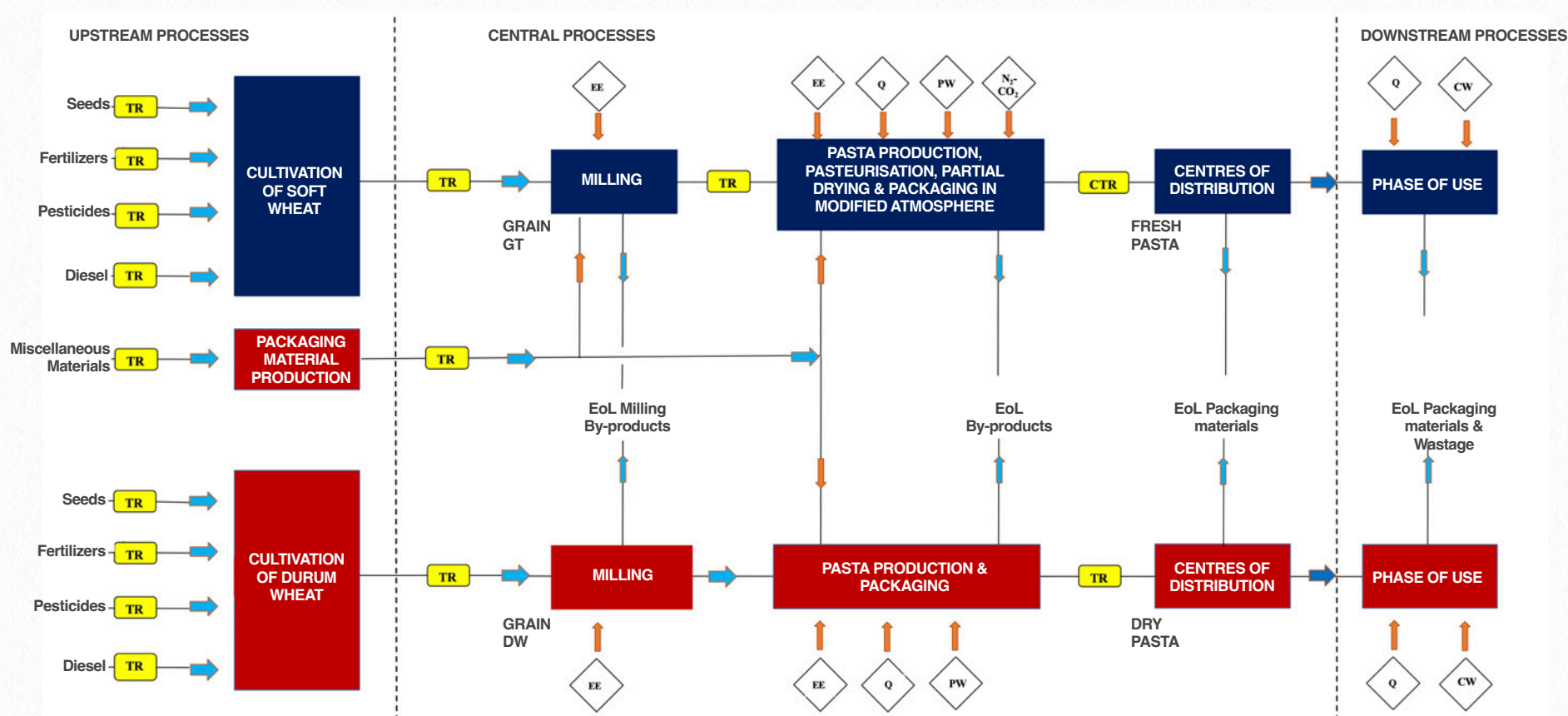
The aim of this study was to compare the cradle-to-grave environmental profile of unfilled, eggless, fresh pasta with that of dry durum wheat semolina pasta, using a well-known life cycle assessment software package, and the standard Product Environmental Footprint method (EC, 2018).

## Methodology

The life cycle analysis was conducted in compliance with the ISO 14040 and 14044 (ISO, 2006ab) standards, with the aim of comparing the environmental profile associated with the production and consumption of 1 kg of fresh pasta made from soft wheat flour (GT) (produced and packaged in 0.5 kg bags in modified atmosphere, in a small pasta factory located in Central Italy) with that of 1 kg of dry durum wheat semolina (DW) pasta (produced and packaged in 0.5 kg polypropylene (PP) bags in a medium-sized pasta factory located in Northern Italy, previously described (Cimini et al., 2021), in order to pinpoint the most impactful phases of each life cycle.



**Figure 1 BOUNDARIES OF THE FRESH OR DRY PASTA SYSTEM INCLUDING UPSTREAM, CENTRAL AND DOWNSTREAM PROCESSES**



*CTR, refrigerated transport; CW, cooking water; DW, durum wheat; EE, electrical energy; EoL, end of life; GT, soft wheat; PW, process water; Q, thermal energy; TR, transport.*

Figure 1 shows the boundaries of the systems examined.

Upstream processes concern the cultivation of GT or DW, the production of seeds, fertilisers, pesticides, lubricants and packaging materials, and include the consumption of diesel used for the field work. Central processes include the transportation of GT or DW grain to the mill to obtain flour or semolina. The milling phase was carried out internal to the dry pasta plant, but external to the fresh pasta plant, which meant that the soft wheat flour was subjected to an additional phase of transport to the gates of the pasta

factory. As soon as it was extruded, the fresh pasta was pasteurised, partially dried to a moisture content of  $\geq 24\%$  (w/w), cooled to 4-6 °C, packed in 500 g PE bags in modified atmosphere using a mixture of N<sub>2</sub> e CO<sub>2</sub> and then kept in cold storage. The dry pasta, on the other hand, having a final moisture content of less than 12.5% (w/w), was stored at room temperature. Both the fresh and dry bagged pasta was packed in cardboard boxes and stacked on Europallets for delivery to distribution centres and retailers, in refrigerated or conventional trucks, respectively. Packaging and processing waste was



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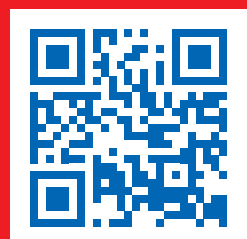
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**Table 1** INPUT/OUTPUT DATA OF THE MAIN LIFE CYCLE PHASES OF DRY DURUM WHEAT SEMOLINA PASTA (DW) OR SOFT WHEAT FRESH PASTA (GT) FROM SGAMBARO (2014) AND CIMINI ET AL. (2021, 2022A), RESPECTIVELY: PF, FINAL PRODUCT

Life Cycle Phase	Input/Output Data	DW	GT	Unit
Field	NH <sub>4</sub> NO <sub>3</sub> (N: 26%)	400	150	kg ha <sup>-1</sup> a <sup>-1</sup>
	Urea (N: 46%)	100	150	kg ha <sup>-1</sup> a <sup>-1</sup>
	(NH <sub>4</sub> ) <sub>2</sub> HPO <sub>4</sub> (N: 18%, P <sub>2</sub> O <sub>5</sub> : 46%)	-	200	kg ha <sup>-1</sup> a <sup>-1</sup>
	Ca(H <sub>2</sub> PO <sub>4</sub> ) <sub>2</sub> (P <sub>2</sub> O <sub>5</sub> : 19%)	250	-	kg ha <sup>-1</sup> a <sup>-1</sup>
	Sowing density	200	250	kg ha <sup>-1</sup> a <sup>-1</sup>
	Pesticides	3.25	1.8	kg ha <sup>-1</sup> a <sup>-1</sup>
	Diesel	130	70	L ha <sup>-1</sup> a <sup>-1</sup>
	Grain	6100	7260	kg ha <sup>-1</sup> a <sup>-1</sup>
	Straw	6038	12400	kg ha <sup>-1</sup> a <sup>-1</sup>
	Milling	Electrical Energy	0.088	0.147
Thermal energy		0.0012	-	MJ/kg grain
Water		0.435	0.033	kg/kg grain
Kraft paper bags		-	4.64	g/kg PF
Durum wheat semolina		4442	-	kg ha <sup>-1</sup> a <sup>-1</sup>
Soft wheat flour		-	5300	kg ha <sup>-1</sup> a <sup>-1</sup>
Milling by-products		1658	2210	kg ha <sup>-1</sup> a <sup>-1</sup>
Pasta production		Water	1.810	0.221
	Electrical Energy	0.179	0.221	kWh/kg PF
	Thermal energy	2.278	0.288	MJ/kg PF
	NaCl	0,016	-	g/kg PF
	Lubricating oil	0,062	0.029	g/kg PF
	Liquid chlorine	0,105	0.016	g/kg PF
	Liquid nitrogen	-	10	g/kg PF
	Liquid CO <sub>2</sub>	-	5	g/kg PF
	Dry pasta	3558	-	kg ha <sup>-1</sup> a <sup>-1</sup>
	Fresh pasta	-	5980	kg ha <sup>-1</sup> a <sup>-1</sup>
	Pasta-making by-products	0.2482	19.6	g/kg PF
	Waste waters	0.0026	0.00007	m <sup>3</sup> /kg PF
	Urban solid waste	0.0041	0.0062	kg/kg PF
	Packaging I	PP bags	12.21	-
PE bags		-	31.4	g/kg PF
Packaging II	Cardboard boxes	42.98	93.3	g/kg PF
Packaging III	Europallets	0.0083	0.0917	kg/kg PF
	PE shrink wrap	1.66	2.85	g/kg PF
	Paper labels	1.03	0.026	g/kg PF
Pasta assembly	Electrical Energy	0.03732	-	kWh/kg PF
Consumption	Optimal cooking time	10	3.5	min
	Cooking water	10	10	L/kg PF
	Thermal energy	2.8	1.976	kWh/kg PF
	Table salt	-	100	g/kg PF
	Electrical energy (refrigerator)	-	2.46	kWh/kg PF
	Cooked pasta wastage	-	0.02	kg/kg PF



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disposed of as urban solid waste on the basis of Italian end-of-life scenarios (Cimini et al., 2022a), while milling by-products were used as animal feed. Downstream processes include the cooking phase of the pasta and the disposal of post-consumer waste (i.e. cooked pasta wastage and primary packaging) as urban solid waste. With regard to the analysis of the inventory, the so-called primary data (e.g, input/output resources, transport modes and distances travelled) were extracted from Cimini et al. (2022a) and Sgambaro (2014), respectively, while the secondary data were taken from the Ecoinvent database (v. 3.8 or v. 3.5) using the allocation and cut-off system model, incorporated in the LCA software Simapro (Prè Consultants, Amersfoort, NL), and from other technical reports, as indicated below.

Table 1 summarises the farming practices and yields per hectare of the conventional cultivation of both grains.

Emissions from fertilised soils were estimated using the recently updated Intergovernmental Panel on Climate Change (IPCC) guidelines (Hergoualc'h et al., 2019), while allocation factors for GT or DW grain, straw and root biomass, flour or semolina and milling by-products, as well as fresh or dry cooked pasta wastage, were estimated as suggested by UNAFPA


(2018). The conventional milling of 1 kg of DW yielded approx. 0.71 kg of semolina (Sgambaro, 2014), while that of GT yielded approx. 0.73 kg of type 00 soft wheat flour (Kanojia et al., 2018). The primary, secondary and tertiary packaging of fresh or dry pasta consisted of 500 g PE or PP bags, cardboard boxes labelled and sealed with adhesive tape, assembled on wooden Europallets and bound tightly with low-density PE shrink wrap. Energy and water requirements for cooking dry or fresh pasta were extracted from UNAFPA (2018) and EPD® (2022), while cooking times (10.0 and 3.5 min) were taken from Cimini et al. (2021, 2022b).

Environmental impact was assessed using SimaPro 9.3.0.3 software (Prè Consultants, Amersfoort, NL), the standard EF 3.0 (adapted) methods v. 1.02, IPCC 2013 and IPCC 2021. While the IPCC methods only take into account one environmental impact category, that of climate change, which makes use of global warming potentials that refer to a 100-year time horizon, the EF 3.0 method provides the Product Environmental Footprint (PEF) through as many as 16 environmental impact categories, such as climate change (expressed in kg CO<sub>2e</sub>), the depletion of the stratospheric O<sub>3</sub> layer (kg CCl<sub>3</sub>F or Freon-11 equiv., R-11<sub>e</sub>), ionising radiation that is harmful to human health (kBq <sup>235</sup>U<sub>e</sub>),





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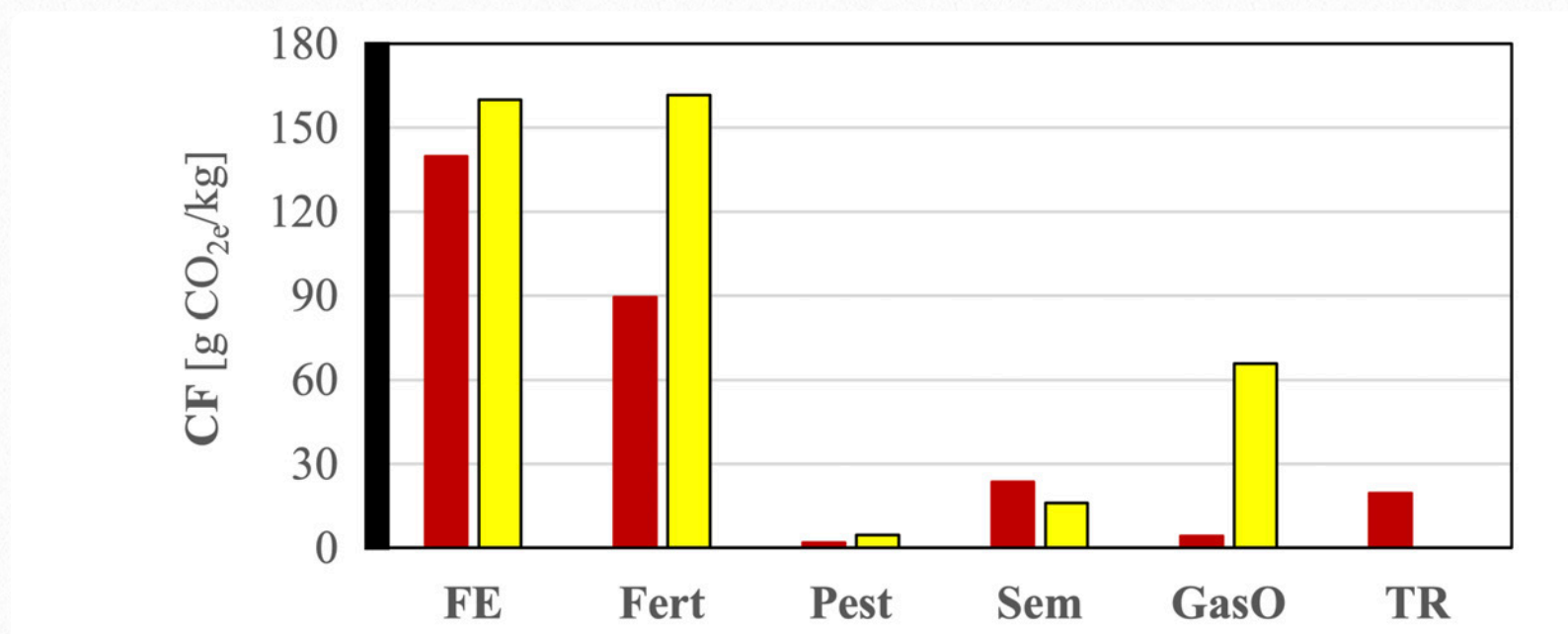
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**Figure 2 CONTRIBUTION OF THE VARIOUS RESOURCES TO THE OVERALL CARBON FOOTPRINT OF SOFT (RED BARS) AND DURUM (YELLOW BARS) WHEAT GRAIN**



*FE, field emissions; Fert, fertilisers; GasO, diesel and lubricating oil; Pest, pesticides; Sem, seeds; TR, transport.*

the formation of photochemical O<sub>3</sub> (kg Non-Methane Volatile Organic Compounds equiv., Z<sub>e</sub>), particulate matter (incidence of respiratory diseases), human toxicity with both carcinogenic and non-carcinogenic effects (Comparative Toxic Unit for human, CTU<sub>h</sub>), acidification (mol H<sup>+</sup><sub>e</sub>), eutrophication of freshwater (kg P<sub>e</sub>) and seawater (kg N<sub>e</sub>) and soil (mol N<sub>e</sub>), freshwater ecotoxicity (Comparative Toxic Units for ecotoxicity, CTU<sub>e</sub>), and use (points, Pt), water scarcity (m<sup>3</sup> deprived for other uses), use of fossil (MJ) and mineral (kg Sb<sub>e</sub>) resources. These impact categories, once normalised with respect to the relative global per capita impacts (Sala et al., 2017) and then weighted (Sala et al., 2018), enable the estimation of an

overall eco-indicator (EI), where the contribution of the categories pertaining to human and ecosystem toxicity can be cancelled out by attributing a zero-weight factor to them, given the poor robustness of the respective assessment models (UNAFPA, 2018).

## Results and discussion

### Carbon Footprint of Soft and Durum Wheat Grain

[Figure 2](#) describes the percentage contribution of greenhouse gas (GHG) emissions from resources (seeds, fertilisers, pesticides, diesel and lubricating oil, crop residues, transport) used to cultivate soft (GT) and durum (DW) wheat grain. In the case of GT, the primary contribution (50%)



was due to direct and indirect greenhouse gas emissions (FE) from fertilised soils, while the secondary contribution (32%) came from the production of the fertilisers used. Seed cultivation and transport account for 8% and 7% of total GHG emissions, respectively.

In total, GHG emissions associated with GT production amounted to  $299 \pm 44$  g CO<sub>2e</sub>/kg, while those associated with DW production were approximately 408 g CO<sub>2e</sub>/kg (Cimini et al., 2021). Both of these carbon footprints at the farm gate are in line with those estimated for the conventional cultivation of both soft wheat – without (319 g CO<sub>2e</sub>/kg) or with (264 g CO<sub>2e</sub>/kg) irrigation according to the World Food LCA database – and durum wheat grown either in France (405 g CO<sub>2e</sub>/kg) or Italy (430 g CO<sub>2e</sub>/kg) according to the Agribalyse database v. 3.0.1 or the World Food LCA database. Using different crop rotation methods at 13 farms located in the main durum wheat growing areas in Italy, Ruini et al. (2013) estimated a carbon footprint increase from 440 to 540 g CO<sub>2e</sub>/kg as crop yields decreased from 7.4 to 4.2 Mg/ha.

### **Environmental profile of fresh pasta**

[Table 2](#) compares the environmental impact categories (IC<sub>j</sub>) of fresh pasta with those of conventional semolina dry pasta (Cimini et al., 2021). The field phase is


found to chiefly affect the impact categories of land use and marine eutrophication, while the production of packaging materials contributes primarily to the IC of particulate matter. In contrast, the use phase greatly affected the impact categories related to the use of mineral and fossil resources, ozone depletion, ionising radiation, climate change, human toxicity both carcinogenic and non-carcinogenic, and so on. In the case of dry pasta, the field phase contributes not only to the impact categories of land use and marine eutrophication, but also to those of mineral resource use, particulate matter, the eutrophication of freshwater, seawater and soil, and water scarcity. As in the case of fresh pasta, the dry pasta consumption phase had a predominant effect on the impact categories of fossil resource use, ozone depletion and climate change. Due to the lower yield per hectare of durum wheat grain ([Table 1](#)), the contribution of the field phase was higher than that of the consumption phase. In contrast, the fresh pasta consumption phase had a much greater impact than that of the field phase due to mandatory refrigeration during storage and transport. The production of packaging materials also had a greater impact because fresh pasta is packaged in thicker PE bags to limit the permeation of the gas mixture



## Pasta sheets production line

Automatic line for the production of pasta sheets consisting of: automatic feeder, continuous kneading machine, feeder belts, scraps recovery belts and two dough sheeting machines.

The line is designed to feed forming machines for the production of filled pasta. The plant is entirely made of stainless steel, engineered with easy-clean design.



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used for the modified atmosphere. With reference to the cradle-to-grave carbon footprint alone ([Table 2](#)), the consumption of 1 kg of fresh pasta brought about the emission of 2.59 kg CO<sub>2e</sub>, approx. 38% greater than that of dry pasta (1.88 kg CO<sub>2e</sub>/kg).

The overall environmental characterisation of fresh and dry pasta according to the PEF method is shown in [Table 3](#). The overall eco-indicator (EI) associated with the consumption of fresh pasta amounted to ~236 µPt/kg, i.e. 67% higher than the EI for dry pasta made of conventional semolina (~141 µPt/kg: Cimini et al., 2021). The fresh pasta eco-indicator derived 54.5% from the consumption phase and 19.4% from the field phase. The percentage contribution of the above-described phases was inverted in the case of dry pasta ([Table 3](#)) for the reasons mentioned above.

### **Options for reducing the environmental profile of fresh pasta and future prospects**

As shown in [Table 3](#), any mitigation option should first aim to reduce the contribution of the consumption phase, followed by the phases of soft wheat cultivation and packaging material production.

To lighten the impact of the consumption

phase, two different strategies could be adopted. Firstly, the gas and electric cookers currently in use in the European Union should be replaced with smart cooking devices, such as the new, previously developed Arduino<sup>®</sup> microprocessor-controlled eco-friendly pasta cooker (Cimini et al., 2020). Using such a cooker, the same quality of cooked pasta can be achieved, while reducing the cooking water and energy requirements from 10 to 3 L and from ~1.3 to 0.6 kWh per kg of fresh pasta, respectively (Cimini et al., 2020). Secondly, the energy consumed to store fresh pasta at refrigerator temperature could be reduced by encouraging, also with tax concessions, the replacement of refrigerators presently in use with new models of a higher energy class, that employ new-generation refrigerants such as propane (R290) with 100-year global warming and stratospheric O<sub>3</sub> depletion potentials close to 3 kg CO<sub>2e</sub>/kg and zero, respectively. Specific advertising campaigns could raise consumer awareness to encourage them to keep fresh pasta in their domestic refrigerators for an average storage period of 10 days (Cimini et al., 2022a), as opposed to the preset period of 30 days (EPD<sup>®</sup>, 2022). In order to mitigate the impact of the soft wheat cultivation phase, the use, at the



**Table 2 ENVIRONMENTAL PROFILE OF 1 KG OF FRESH OR DRY PASTA (CIMINI ET AL., 2021) ACCORDING TO THE STANDARD PEF METHOD: PERCENTAGE CONTRIBUTION OF THE THREE MOST IMPACTFUL LIFE CYCLE PHASES (CULTIVATION, FP; PACKAGING MATERIAL PRODUCTION, PMP; PASTA CONSUMPTION, PU) WITH AN INDICATION OF THE MAGNITUDE OF EACH INTERMEDIATE IMPACT CATEGORY (IC<sub>j</sub>)**

Contribution of life cycle phase	FP	PMP	PU	IC <sub>j</sub>	UdM	IC <sub>j</sub>	FP	PMP	PU
IC <sub>j</sub>	(%)	(%)	(%)				(%)	(%)	(%)
	<b>Fresh pasta</b>					<b>Dry pasta</b>			
Climate change (GW <sub>100</sub> )	11	13	62	2.59	kg CO <sub>2e</sub>	1.88	34	4	41
Depletion of O <sub>3</sub>	9	9	68	2.97x10 <sup>-7</sup>	kg R-11 <sub>e</sub>	1.74x10 <sup>-7</sup>	22	3	45
Ionising radiation	3	23	64	2.79x10 <sup>-1</sup>	kBq <sup>235</sup> U <sub>e</sub>	7.05x10 <sup>-2</sup>	21	10	17
Photochemical smog	17	20	51	6.00x10 <sup>-3</sup>	kg Z <sub>e</sub>	4.07 x10 <sup>-3</sup>	47	7	18
Particulate matter	15	38	35	8.14x10 <sup>-8</sup>	Inc. diseases	5.00 x10 <sup>-8</sup>	62	10	8
Non carcinogenic human toxicity	12	19	59	2.36x10 <sup>-8</sup>	CTU <sub>h</sub>	1.16x10 <sup>-7</sup>	35	11	33
Carcinogenic human toxicity	11	21	60	9.54x10 <sup>-10</sup>	CTU <sub>h</sub>	1.08x10 <sup>-8</sup>	49	7	32
Acidification	26	14	51	1.21x10 <sup>-2</sup>	mol H <sup>+</sup> <sub>e</sub>	6.64x10 <sup>-3</sup>	45	5	14
Freshwater eutrophication	36	19	40	8.18x10 <sup>-4</sup>	kg P <sub>e</sub>	3.01x10 <sup>-4</sup>	62	9	12
Marine eutrophication	47	12	27	4.17x10 <sup>-3</sup>	kg N <sub>e</sub>	2.08x10 <sup>-3</sup>	58	5	16
Soil eutrophication	29	17	43	2.40x10 <sup>-2</sup>	mol N <sub>e</sub>	2.16x10 <sup>-2</sup>	51	4	9
Freshwater ecotoxicity	11	22	58	3.35x10 <sup>1</sup>	CTU <sub>e</sub>	9.26x10 <sup>-1</sup>	38	8	27
Land use	83	12	4	139	Pt	296	102	2	0.1
Water scarcity	24	15	55	1.64	m <sup>3</sup> depriv.	4.23x10 <sup>-1</sup>	51	8	0.1
Use of fossil resources	6	18	66	37.3	MJ	21.9	18	8	51
Use of mineral resources	13	11	72	1.61x10 <sup>-5</sup>	kg Sb <sub>e</sub>	2.16x10 <sup>-6</sup>	72	4	13



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**Table 3 OVERALL ENVIRONMENTAL PROFILE OF A FUNCTIONAL UNIT OF DRY OR FRESH PASTA ACCORDING TO THE STANDARD PEF METHOD: PERCENTAGE CONTRIBUTION OF THE DIFFERENT LIFE CYCLE PHASES AND OVERALL ECO-INDICATOR (EI).**

Product	Contribution of the life cycle phases (%)									EI [μPt]
	FP	MI	PMP	PPR	PPACK	PDISTR	PU	CPW	EoLPM	
<b>Pasta fresca</b>	19.35	1.94	16.29	2.81		3.71	54.46	0.55	0.89	235.6
<b>Pasta secca</b>	44.50	6.36	5.50	11.81	1.06	4.17	29.90	*	-3.30	141.3

*FP, field phase; MI, milling; PMP, packaging material production; PPR, pulp production; PPACK, pulp packaging; PDISTR, pulp distribution; PU, phase of use; CPW, cooked pulp waste; EoLPM, end-of-life packaging materials; \*, negligible.*

moment, of conservative farming practices would seem to be appropriate It should, however, be noted that in the case examined here, the yield per hectare of soft wheat was in line with the average yield in central Italy and that the sowing on the sod technique was applied (Table 1).

Finally, the impact of packaging materials could be reduced by using reduced-gas-permeability plastic bags with a unit mass close to that of the PP bags used in dry pasta packaging (Table 1).

Due to the refrigerated transport of a product with  $\geq 24\%$  moisture content (w/w) and its prolonged storage in domestic refrigerators, consumers should be aware that the consumption of fresh pasta has an environmental impact with a significantly higher eco-indicator than that

of dry pasta, both conventional (Table 3) and organic (Cibelli, et al., 2021).

## Conclusions

The cradle-to-grave environmental profile of unfilled fresh pasta was estimated using an LCA approach and compared to that of conventional semolina dry pasta. Primary and secondary environmental impacts derive from the consumption phase and the agricultural phase, the contributions of which are inverted in the case of dry pasta. The overall eco-indicator of fresh pasta is 1.67 or 1.21 times higher than that of conventional or organic dry pasta, mainly due to the environmental impact of it having to be transported in refrigerated trucks and stored in domestic refrigerators. New smart appliances could help reduce the environmental impact of both types of pasta under study.





# impianti progettati e realizzati su misura

Tunnel di pastorizzazione  
con controllo di temperatura e umidità  
Ideali per pasta fresca

ALTA EFFICIENZA ENERGETICA

ASPETTO PIÙ NATURALE  
DOPO IL TRATTAMENTO

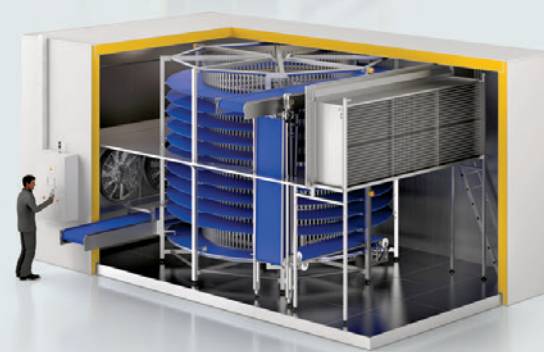
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## Note

This research was funded by the Ministry of Education, Universities and Research, Notice for the presentation of projects of industrial research and experimental development in 12 areas of specialization Directorial Decree No. 1735 of 13 July 2017: project INTEGR1 (ARS01\_00188).

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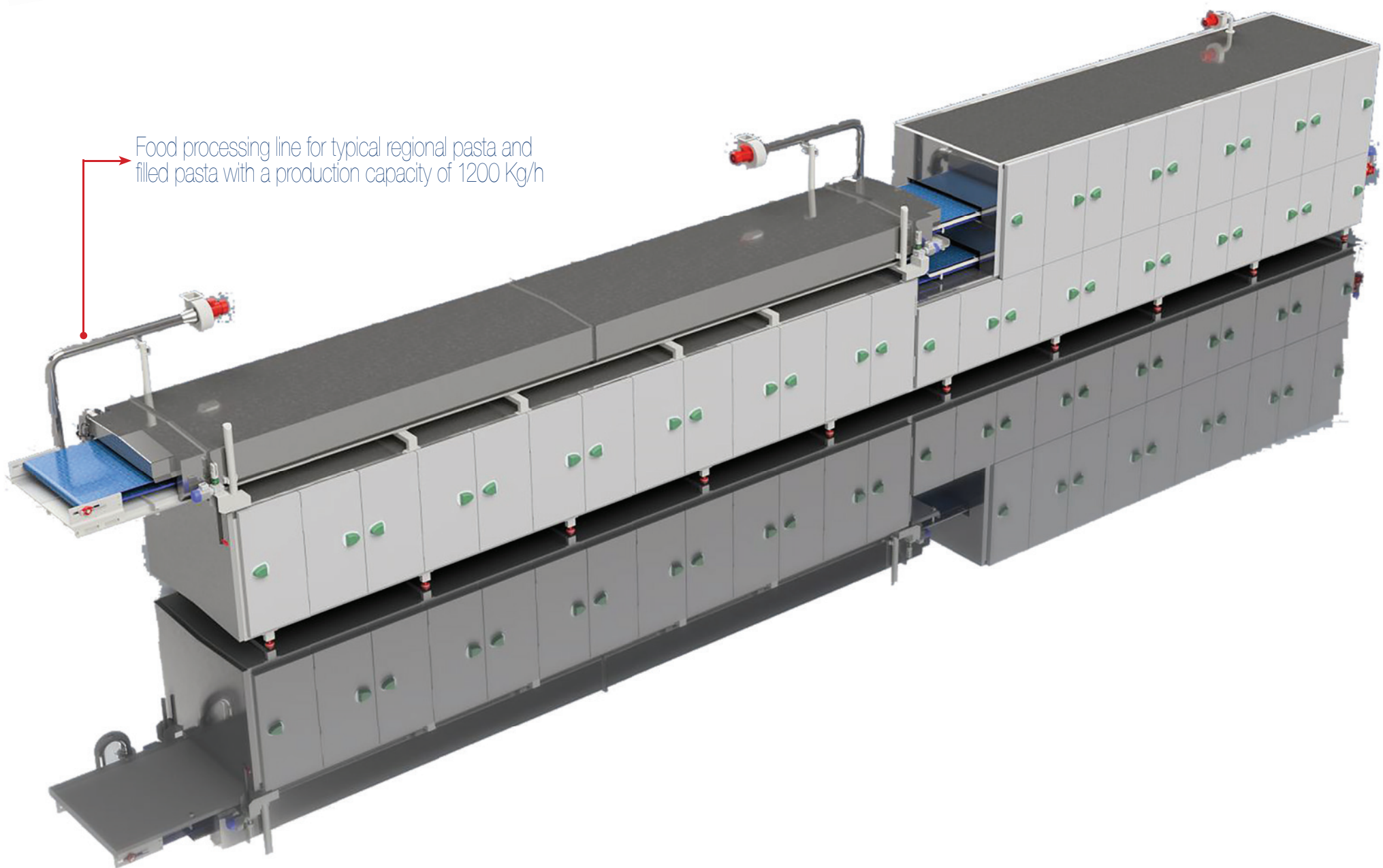


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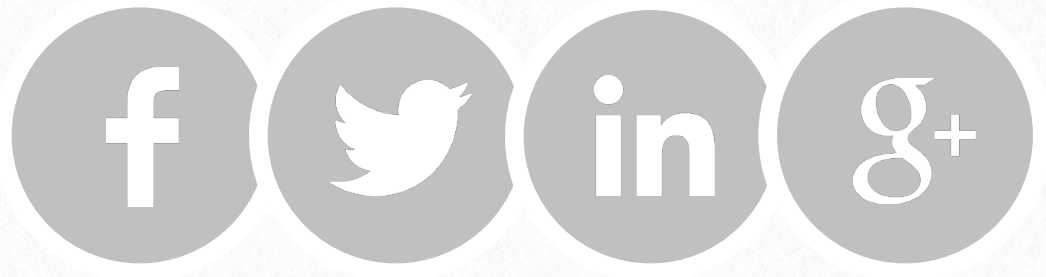


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4



# Self-regulation code on voluntary claims used in pasta advertising

Luigi Cristiano Laurenza  
Unione Italiana Food



Luigi Cristiano Laurenza at Pastaria Festival 2024

The Italian pasta makers of Unione Italiana Food adopt their own self-regulation code on voluntary claims used in pasta advertising.



The objectives of Unione Italiana Food ('Unionfood'), include the “protection, promotion and enhancement of the products represented at national and international level” as well as the “promotion of a business and market culture, with particular attention to the specific development and growth policies of the sector”(articles of association, art. 2).

It was with this in mind that the Union’s pasta makers questioned the content of their commercial communications and whether these really met and clarified the consumer’s expectations and acknowledged that it is necessary to ensure communication that offers a “story” not just in line with current legislation on advertising and self-regulation, but also capable of describing with objectivity, transparency and rigour the multiple characteristics of this product, such as, by way of example, the organoleptic characteristics and nutritional properties of the pasta and the raw materials used; the different production methods, including the grinding and sifting of durum wheat, the drawing, rolling and drying of semolina; the characteristics of the pasta shapes functional to the recipes and seasonings: this in order to clearly and adequately inform all stakeholders (the stakeholders) starting with consumers and catering professionals.

The objective of the regulations is therefore to provide indications on claims of a voluntary nature used in pasta advertising to ensure that the content of messages not only complies with current European, national and self-disciplinary regulations on correct and fair advertising, but also with the regulations on ethical claims which concern social issues, economic justice and sustainability or, more generally, which establish a social implication on the consumption of a product, i.e. a correlation between the purchase of a product and its positive social impact.

The current regulatory landscape is evidently the starting point of the document.

In fact, every advertising claim used to promote pasta must always comply with the indications provided by the regulations on advertising (in particular the Consumer Code and Self-regulatory Advertising Code) as well as with the specific sector regulations (in particular EU Regulations



no. 1924/06 on nutritional and health claims and no. 1169/11 on consumer information, Presidential Decree 187/2001 on the production and marketing of pasta and circulars and ministerial notes from the main relevant departments for the sector, such as MISE, MIPAAF and MINSALUTE (Ministry of Health). Furthermore, according to advertising regulations, every commercial communication must always be inspired by the principles of honesty, truthfulness and correctness (Self-regulatory Advertising Code, art. 1). Consumers, in fact, must be able to make their commercial choice freely and consciously, and it is therefore essential that advertising communication should not mislead them in any way, inducing them to take a decision they would not otherwise have taken (Cons. Code art. 22). In particular, it is necessary to avoid the use of omissions, ambiguities or exaggerations that are not blatantly hyperbolic, in relation to the nature of the product – with particular regard to its characteristics, its composition and the manufacturing method – its possible effects, the price or the recognitions possibly obtained (Self-regulatory Advertising Code, art. 2), while the exclusive use of information that is not only truthful, but also “verifiable” (where

possible, in light of scientific data) is desirable.

The requirements imposed by sectoral legislation are also added to these general indications.

The main regulatory source in this regard is certainly EU Regulation No. 1924/2006, which sets specific parameters for nutrition and health claims.

Finally, by laying down obligations for clear and transparent information rules and comprehensible labelling, Regulation No. 1169/2011 complements the 2006 Regulation with respect to nutritional indications on food products and lays the foundations to allow individual Member States to define a sanctioning framework in case of non-compliance with the provisions.

The framework of the relevant sources is then completed by measures of a national nature and in particular: i) by Presidential Decree No. 187/2001 – as amended with Presidential Decree no. 41 of 2013 – regarding the production and marketing of flours and pasta, which provides extremely precise indications regarding the pasta, its names, the organic substances and the minimum standards that must necessarily be complied with; ii) by the interventions of the various Ministries of reference for the food sector and in particular of the MISE, which constantly provide further





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indications to companies on the correct interpretation of the regulatory framework; emblematic in this regard is, for example, circular 168 of 2003 which, among others, contains references to the use of the claim “artisanal pasta” and to all operators who are in a position to have to use nutritional indications or the recent note on use of the claim concerning palm oil.

As regards voluntary claims, Regulation No. 1169/2011 states that “food information provided on a voluntary basis shall meet the following requirements: (a) it shall not mislead the consumer, as described in Article 7; (b) shall not be ambiguous or confusing for the consumer; and (c) shall, where appropriate, be based on the relevant scientific data”.

As the MISE has recently clarified, misleading voluntary information includes not only untruthful information, but also information that disregards consumers’ legitimate expectations. For example, it is considered incorrect to emphasise the absence of a certain ingredient from the production process if it is replaced with another ingredient which has

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similar qualities to the one being replaced. Therefore, the regulation of voluntary claims on pasta must be limited:

- (i) to true and verifiable statements, not ambiguous or confusing;
- (ii) where appropriate, must be based on relevant scientific data;
- (iii) which ensure an added value still present in the product at the time of purchase and consumption, so that the consumer can benefit from it under one or more aspects (such as, for example, organoleptic, nutritional, consistency, cooking resistance, collection and preservation of the seasoning, conscious purchasing for the purposes of environmental sustainability, etc.);
- (iv) to non-misleading claims in terms of the lack of relevance and influence for the purposes of determining the purchasing choice of consumers and for the purposes of the distinctiveness of the characteristics claimed compared to other products. In fact, art. 7, paragraph 1, letter c) and d), of Reg. EU no. 1169/11, establishes that the information must not mislead “by suggesting that the food possesses special characteristics when in fact all similar foods possess such characteristics, in particular by specifically emphasising the presence or absence of certain ingredients and/or nutrients”. The deceptiveness as a whole is also assessed

by virtue of the provisions of articles. 21 et seq. of the Consumer Code.

Finally, it is necessary to use caution and rigour when registering payoffs that boast a proprietary right, or when using claims that communicate the exclusivity and uniqueness of manufacturing methods and processes that are not recognisable as such.





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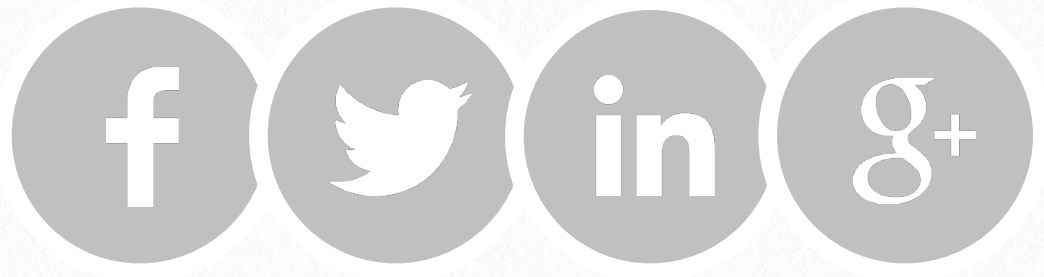
Applied to the automatic stripping machine, it allows to pick the sticks with dried pasta from the trolleys and put them on the machines chain.

Entirely designed and realized by Italtast, managed by PLC, this Robot allows to automate even the insertion and the ejection of trolleys, speeding up the production phases, limiting the presence and timely intervention of an operator, thus avoiding the line downtime.

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5



# Pasta: the premium market is faster than the mass market, but the credit also goes to the promotions

Pastaria Centre for Economic Research



Serena Colacino (NielsenIQ) at Pastaria Festival 2024

The NielsenIQ analysis, presented at Fiera Pastaria & Festival 2024, outlines a positive outlook for pasta sales in 2023. But the first months of 2024 mark a negative trend, especially for dry pastas, with greater critical issues for the one kilo format.



The phase of decline in inflation, which has been going on for some months now, has been accompanied, in this last period, by a physiological recovery in the purchasing power of Italian families which, however, has not been enough to bring back the level of real (i.e. deflated) spending to the one prior to the energy shock and the resulting price surge, the aftermath of which is still evident.

In the Eurozone – as noted by the Bank of Italy – the Italian economy is the one with the lowest product growth per inhabitant. This is the context that the analysis on the “Pasta market between present and future” frames, which Serena Colacino, Senior sales consultant at NielsenIQ, illustrated at the Pastaria Fair & Festival 2024.

Multiple variables – explained the expert – will impact mass consumption in 2024. These are already known variables that were activated and took over immediately after the pandemic period. These variables include inflationary pressures, geopolitical instability, climate change and supply chain fragmentation.

Within this fairly articulated context, rising food prices and utility bills are the two biggest factors of concern for Italians. The inflation trend in Italy was aligned with that of the rest of Europe, but in a context of lower wage growth compared to the

other major economies on the continent. Consequently, faced with the general increase in the cost of living and almost unchanged wages, Italian consumers have implemented “self-defence” strategies which, as they put it, have led them to pay greater attention towards promotions and the quantities purchased on each buying occasion.

The NielsenIQ data also show that the crisis and the inflation have especially affected families with children and with low spending capacity, a phenomenon that has further polarised purchases, reducing (-5.1% in the balance sheet of the last five years) those of the most numerous and low-income households and increasing (+4.1%) the purchases of high-spending families with one or two members.

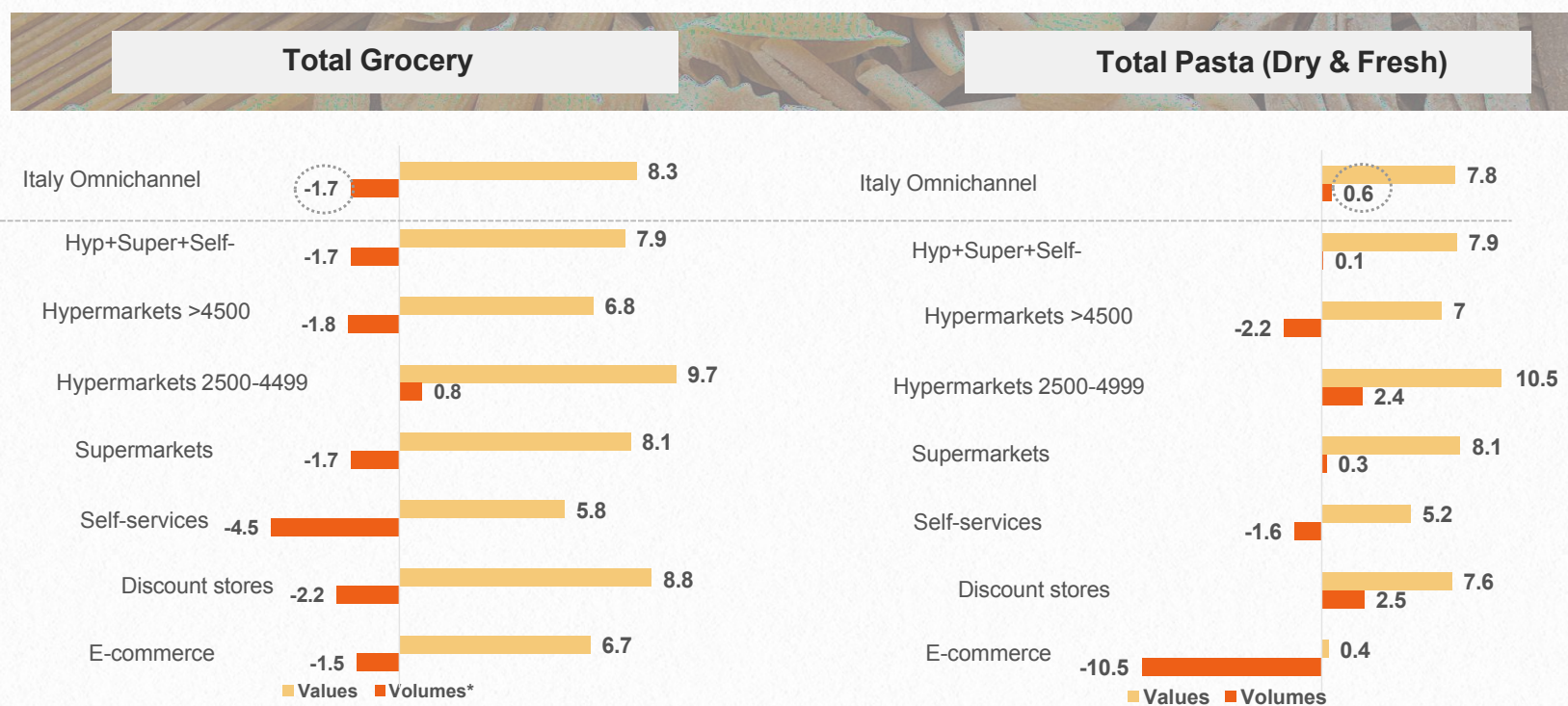
By analysing the performance of the pasta market in the large-scale retail channels at the end of 2023, we notice a better performance in volume than the market average. In particular, total Pasta (Dry and Fresh) closed the year with a growth in volume of +0.6%, compared to total grocery which marked a contraction of -1.7%.

The reference is to the entire past year, which left a legacy of sales growth in value of 8.3% for the entire packaged goods sector and of 7.8% in the pasta department. Returning to volumes, the



## Total Grocery vs. Pasta: the numbers for 2023 speak clearly

The only exception? The e-commerce channel



NIQ GfK

Source: NIQ Trade\*Mis | Year 2023 | Total Grocery & Total Pasta (Dry and Fresh)  
\*Trend at Constant Prices

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minus sign affected almost all channels if we look at the dynamics relating to the entire grocery aggregate. Total Pasta (Dry and Fresh) closed with a flat trend in volume in the modern distribution channels, growing by +2.5% in the Discount market.

The vertical analysis by NielsenIQ is interesting, providing elements on the developments in pasta sales by going into detail on the different types. Dry pasta closed 2023 with 0.5% growth in volume and 8.1% increase in value; fresh pasta showed a slightly faster growth in volume +1.6%, but held turnover slightly back, totalling an overall increase of 7.6%.

Among dry pastas, the dynamics at segment level reward the traditional semolina ones (+0.8%) and, mainly, the gluten-free segment (+5.4%). Stuffed pasta products also did well (+2.5%). Still among the dry pastas, wholemeal/spelt/Kamut/legume-based pasta (-4.6%), flavoured or enriched semolina pasta (-5.7%) and egg pasta (-2.2%) decreased, always on an annual basis.

Among fresh pastas, in terms of volumes, non-stuffed products recorded an increase of 3.2%, while ravioli, tortelli and other stuffed products lost 1.1%. Double digit growth in the sales of fresh gluten-free pasta (+29.7%).





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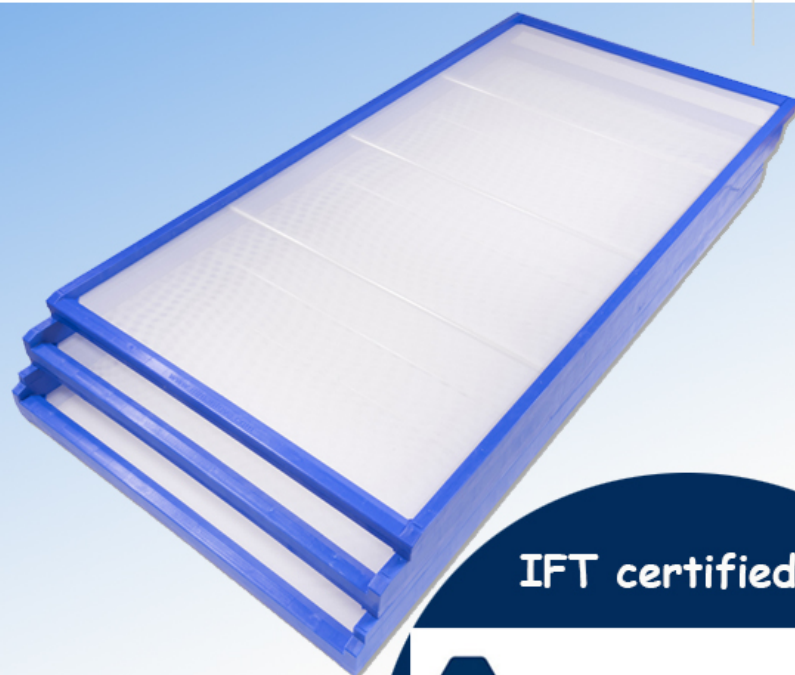
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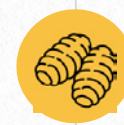




## The power of pasta



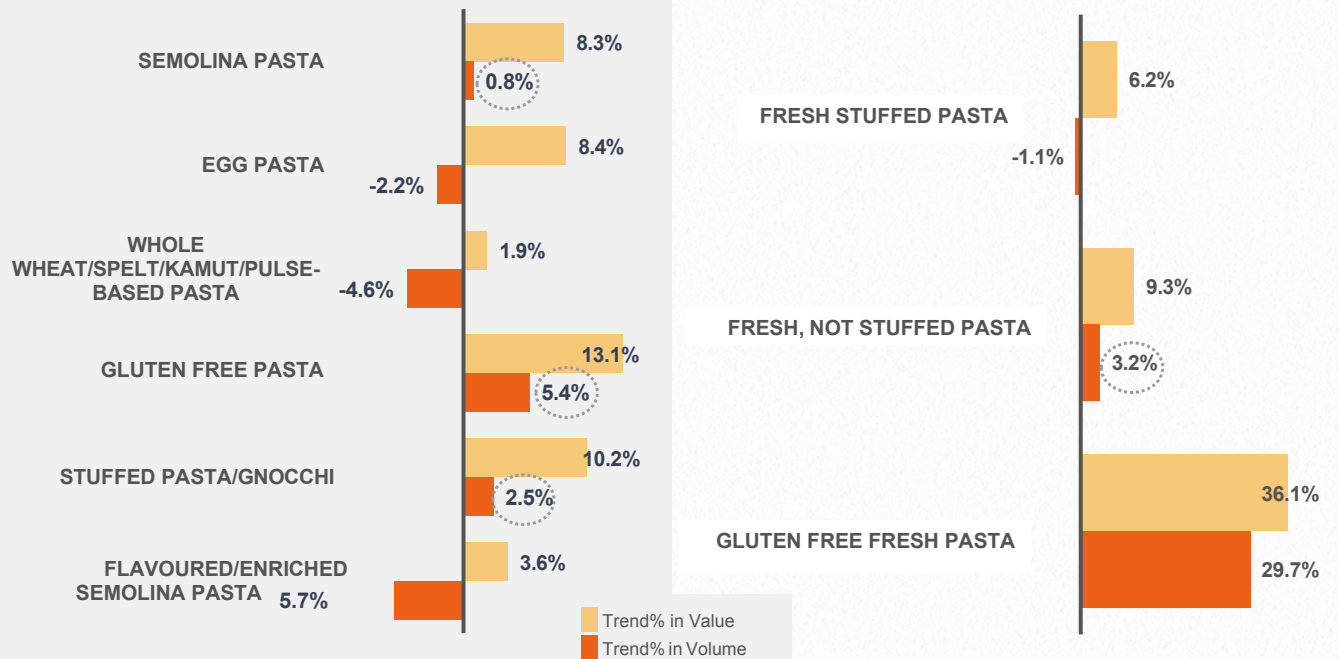
**DRY PASTA 847.6M kg (80.6%)**  
 Trend in Value + 8.1%  
 Trend in Volume + 0,5%



**FRESH PASTA 203.5M kg (19.4%)**  
 Trend in Value + 7.6%  
 Trend in Volume + 1.6%

### Values vs. Volumes

Pasta grows in Value (+7.8%) and Volume (+0.6%)



In the Traditional Semolina pasta market, the Premium market is outpacing the mass market. The turnover of Premium pastas marks an increase of 14.6%, compared to 4.4% for the mainstream ones. The dynamics in volume are even divergent, with a +8.5% for the Premium compared to a 2.6% reduction of the mass market segment.

It is interesting to note the role of promotions, which went deeper for premium brands, implicitly reducing the price differential with mass brands. Still on the subject of promotions, NielsenIQ surveys certify a higher intensity in the pasta department compared to the

grocery total, with a promotional intensity by volume of 36.1% for pasta compared to 22.2% for the entire aggregate of packaged goods.

It should be noted that the most recent data, relating to the first four months of 2024, show a contraction in dried pasta volume sales of 1.5%. As regards fresh pasta, this year's developments are still positive, reporting a 1.9% increase in sales volumes. Gluten-free products, both dry and fresh, continue to perform very satisfactorily. Among the fresh pastas, the stuffed ones do better, while the dry ones are mainly affected by the negative trend of traditional semolina pastas.







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## A question of shape or promotion?

The struggling kilogram pack is holding back the entire Dry Pasta sector



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Trend in Value **-18.6%**  
Trend in Volume **-11.6%**  
Promo intensity 31.6 (-4 points)



**500g**  
Trend in Value **-3.2%**  
Trend in Volume **+0.7%**  
Promo intensity 43.5 (+6 points)



**DRY PASTA**  
Trend in Value **-4.5%**  
Trend in Volume **-1.5%**

In particular, the large kilo format is the one driving the negative trend in volume (-11.6%), while the 500 g format is driving the positive trend (+0.7%). Is the kilo a format problem or a promo problem?

Certainly, in the first part of the year the Kg format recorded a lower promotional push (-4 points vs the corresponding one) and among the Kg producers, those who showed positive trends increased their promotions.

What's next? In general, the market seems to reward, as in the past, innovation (protein, gluten-free pastas, formats and premium brands). A kind of re-run of what emerged in 2019, after four years of upheaval punctuated by the health

emergency in 2020-2021 (lockdown and race to the shelves) and the Russian-Ukrainian conflict (still ongoing) that led to a back to basics.





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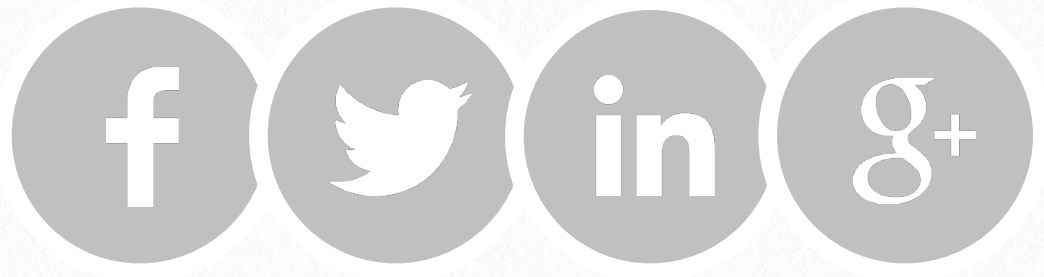
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# 6



## Durum wheat, the most disappointing Italian harvest in twenty years

Pastaria Centre for  
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the uncertainty surrounding the final figure is linked to the correct estimate of cultivated land and climate change; quality standards also affected. However, at a global level there will be a slight surplus compared to consumption, thanks to the rebound in production in North America and the record result in Turkey. North Africa, Russia and Kazakhstan also did well.



It did not go well in Europe, mainly due to the extremely poor harvest in Italy. But in the rest of the world it is estimated that there will be enough grain to cover the needs of an ever-growing global demand and, foreseeably, to leave some in storage for next season.

According to the estimates of Crea, the Council for Agricultural Research and Agricultural Economics, presented at the Durum Days, the traditional annual event for the wheat-pasta supply chain, the durum wheat harvest in Italy this year will fall below the threshold of 3.5 million tonnes, 10-15% less than the historical average and 8% on an annual basis. A consequence of a reduction in investments (surface areas sown) and production losses due mainly to the drought in southern Italy and the islands.

In addition to a reduction in volumes which could, however, prove to be more serious than initial assessments due to the continuing adverse weather conditions in Southern Italy (hailstorms in Puglia and drought in all the major production basins, with signs of even greater production losses in Sicily, Puglia and part of Basilicata), the quality of the grains is also much poorer, in a season that also saw extremely early threshing operations.

The poorer quality (phenomenon which, like the reduced yield, did not occur in the Centre-North) led, to the introduction for the very first time of a new commodity category on the Bologna Commodity Exchange, with the inauguration of the 'sub-commodity'. This category includes grains with a protein content of less than 11 points (compared to 13.5 for the fine variety), and are therefore destined exclusively for the fodder circuit.

Based on this evidence, we can predict a year with marked price differentials, depending on the type of commodity, due to a general shortage of milling wheat (suitable for milling to prepare semolina for pasta factories) – which could command significantly higher prices than the rest of the products – and an excess of poorer quality grains, with exceptionally low market values (in June the spread between the two categories in the Emilia-Romagna capital was already more than 100 euros per tonne).



**Tabella 1 GLOBAL PRODUCTION OF DURUM WHEAT (MILLION TONS)**

	21/22	22/23	23/24	24/25	Variation Y/Y
<b>Main exporters</b>					
EU-27	8	7.5	7	6.9	-1.4%
Canada	3	5.8	4	5.5	36%
USA	1	1.7	1.6	2	23.9%
Mexico	1.8	2.1	2	1.8	-8.6%
<b>Others</b>					
Turkey	3.2	3.8	4.3	4.5	4.7%
Algeria	1.9	2.2	2	2.1	7.3%
Tunisia	1.1	1	0.4	1	134.2%
Marocco	2.5	0.8	1.2	0.7	-37.3%
<b>World</b>	<b>31.5</b>	<b>34.5</b>	<b>31.3</b>	<b>34.6</b>	<b>10.4%</b>
<i>Source: IGC</i>					

It should also be noted that, contrary to forecasts for North America, Russia, North Africa and Turkey, Europe will be the only area to suffer production losses in 2024/25.

Globally, a slight surplus is even forecast in those areas, as mentioned above, resulting in a small accumulation of end-of-year stocks.

The increase in production expected in all the main export areas and the consequent rebound in global supply, after the deficit of 2023/24, should avert inflationary scenarios in the pasta-wheat supply chain, barring unforeseen geopolitical events, within a context of a crisis in international relations that could, in the event of worsening

relations between the two opposing blocs, affect trade volumes and energy source quotations, also through the readjustments of exchange rates.

Estimates by the IGC, the International Grains Council, presented at the two-day Durum Days event, envision a global harvest of 34.6 million tonnes (+10.4%), up from 31.3 million last season, which was the worst in 20 years. Sown surface areas have begun to grow again, but yields, despite the recovery over last year, will remain below potential and the historical average.

In the twenty-seven EU countries, this year's production balance is estimated by the IGC to be down 1.4 percent, with the



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prospect of a harvest below the psychological threshold of 7 million tonnes. Canada, on the other hand, after last year's slump, is expected to post a robust 36% increase to 5.5 million tonnes, also above the average of the last five years, albeit far from the 2020/21 peak. A double-digit increase is also forecast in the US (+23.9%, with a record rise to 2 million tonnes), while in Mexico, which completes the picture of the major exporting countries, production is expected to fall to 1.8 million, down almost 9 percentage points year-on-year.

The most important news, however, is the good performance in North Africa, a structurally loss-making and import-dependent area, as well as the further production growth expected in Turkey (and also in Kazakhstan). British analysts estimate an all-time high of 4.5 million tonnes (+4.7% year on year) in Turkey, which would rank Ankara second in the world behind Ottawa, a strong 7% growth in Algeria and a return to normality in Tunisia, after last season's substantial production deficit. Instead, the balance is negative for Morocco, where durum wheat production is expected to fall by almost 40% due to the drought, which has brought the entire agricultural sector in the country to its knees.

As regards exports, those of Turkish wheat will remain at historically high levels albeit

below last year's peaks, due to the increased pressure expected from Canada this year. Overall, world trade in durum wheat will remain above the multi-year average, while global stocks at the end of the season, while recovering slightly, will remain limited, having reached a 30-year low this year.

## **The role of certified seeds**

Returning to Italy, according to Assosementi – that spoke at Durum Days – the future of Italian durum wheat cannot disregard the support given to innovation and the use of certified seed, an essential element – as explained by the seed industry association – to ensure the wholesomeness and traceability of highly strategic products such as pasta, of which Italy is the world's leading manufacturer and exporter. Similarly, support for research and partnerships with the scientific community will be important in reinforcing actions to combat climate change and pathogens, so necessary for the entire Italian cereal farming sector. This line was also backed by Crea, which emphasised the role of genetics and digital applications, pointing out the need to stabilise the yields and quality standards of grains with the help of new genomic techniques (NGT).



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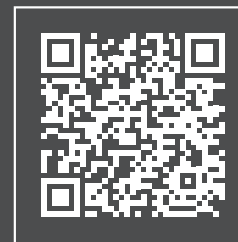
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## **Imports are vital, with a 2.5 million structural deficit in Italy**

Italmopa, the association that represents the Italian milling industry, pointed out that Italian production of durum wheat is structurally in deficit, by 40% in quantitative, and sometimes qualitative, terms.

Annually, the domestic durum wheat requirement stands at 6.5 million tonnes, mostly for the pasta industry, while an average of around 4 million tonnes is produced in Italy. The remaining 2.5 million tonnes represent the physiological need for imports. An element that, as Italmopa pointed out, is often not perceived and that leads to a 'criminalisation' of imports, which are actually essential and not an alternative to national production.

Numbers that need to be considered (and interpreted) in combination with other statistics: the first is the propensity of the Italian pasta wheat system to export, considering that around 60% of the production of pasta made in Italy is destined for foreign countries, a trend that is constantly growing and ensures a considerable contribution to the agri-food trade balance. However, the other prerogative of the primary sector, i.e. the agricultural part of the supply chain, is the

excessive fragmentation of supply, the mirror of a production structure that is itself overly fragmented. Downstream of the system, there are also situations of logistical inadequacy that are reflected, in some cases, in a decline in the quality of the stored grain. Phenomena that contribute to limiting self-sufficiency, due to technical limitations of industrial use, as well as increasing the use of imported grains subject to constant checks by the supervisory and control authorities that have so far demonstrated their compliance with the strict EU hygiene and health regulations.



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