Pastaria International DE 1/2023 • January

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Pastaria International DE 1/2023
January

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
ROC no. 23238

EDITOR-IN-CHIEF
Lorenzo Pini

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Pasta and the new scenarios dictated by inflation

Pastaria Centre for Economic Research

The NielsenIQ analysis presented at Pastaria Festival 2023 at the conference on *Consumption, trends and opportunities for pasta in national and international markets*.

The high cost of living will set the pace for consumption in the months to come, with inflation – which shows no signs of slowing down – rising to 13.7 per cent in October, more than two points higher than the previous survey.
Presenting its report at the Pastaria Festival 2022, NielsenIQ assessed the implications by the end of the summer of a crisis which was already clearly on the horizon prior to the arrival of the pandemic. A state of affairs with a backdrop featuring an international crisis of almost unprecedented gravity, due to the serious consequences of the war in Ukraine and the earth-shattering energy shock following the breakdown of relations between Russia and the European Union, which turned the continent's economic scenario on its head.
Due to inflation, CPG (Consumer Packaged Goods) closed August with a 10.5% growth in turnover while volumes tended to be flat. The same wide gap in trends can be observed in the August progress report, which shows a +5.5% increase in value with a +0.2% annual increase in volume.
The price transmission mechanism, triggered by the maxi-price rises in gas and other energy products, had an almost immediate effect on the dynamics of household purchases, also impacting the shopping trolley and the entire food sector. According to NielsenIQ's observations, considering the entire Modern Trade business, inflationary growth was across the board affecting all product sectors, with the entire CPG aggregate positioned at +10.1% in August, but with peaks of up to +15% for fish and +17% for meat.
On the flip side of the coin, there was less pressure from sales promotions, which reached their lowest level in Italy since the beginning of the year, at 22.7% against 25.2% in the same month of 2021 (the data refer to August).
Among the various distribution channels, the value share of discount stores has grown by almost one percentage point (from 21.1% in 2021 to 22% this year). In contrast, supermarkets and self-services have suffered a slight downturn, from 38.8% to 38.4% and from 10.2% to 9.8%, respectively. The rest, have hung on, including e-commerce which recorded a 2.2% share in the CPG.
Private label (PL) products have experienced the most rapid growth, with +9.2% of CPG value sales in August, a trend that reversed the -0.9% of 2021. The dynamics of the Top-20 players (+2.6%) were much more subdued, in contrast to that of the Followers (+5.3%). The Small Players (+2.8%) slow advance nevertheless strengthened the already


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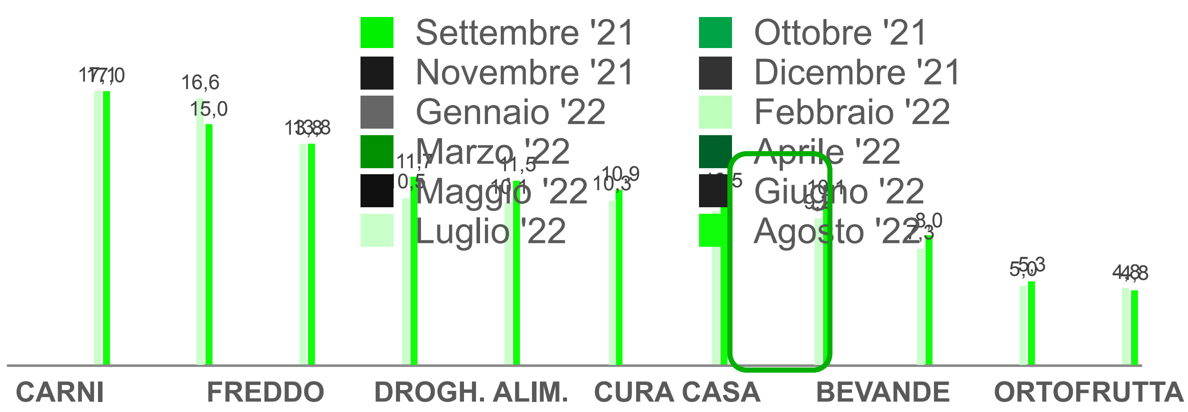
Cross-sectoral growth in inflation



Source: NielsenIQ Inflation Observatory – Hyper+Super+Self-Service

The Italians' shopping trolley - Private Labels on the up

Followers also performed well

CPG Sales Trends

Hyper+Super+Self-Service+Discount – Prog. August 2022

	Top-20 (no Private Labels)	Followers (from 21 to 200)	Small Players (from 201 upwards)	Private Labels (with Discount Stores)
2022	+2.6%	+5.3%	+2.8%	+9.2%
2021	-2.8%	-0.2%	+2.4%	-0.9%
2020	+4.5%	+6.0%	+6.5%	+9.0%
2019	-0.1%	+0.6%	+0.3%	+4.5%
2018	-0.8%	-0.3%	+3.7%	+2.8%

Year 2021: Total CPGs +0.4%
Prog. August 2022: Total CPGs +5.3%

Source: NielsenIQ Trade*Mis, Hyper+Super+Self-Service+Discount – Sales by Value Trend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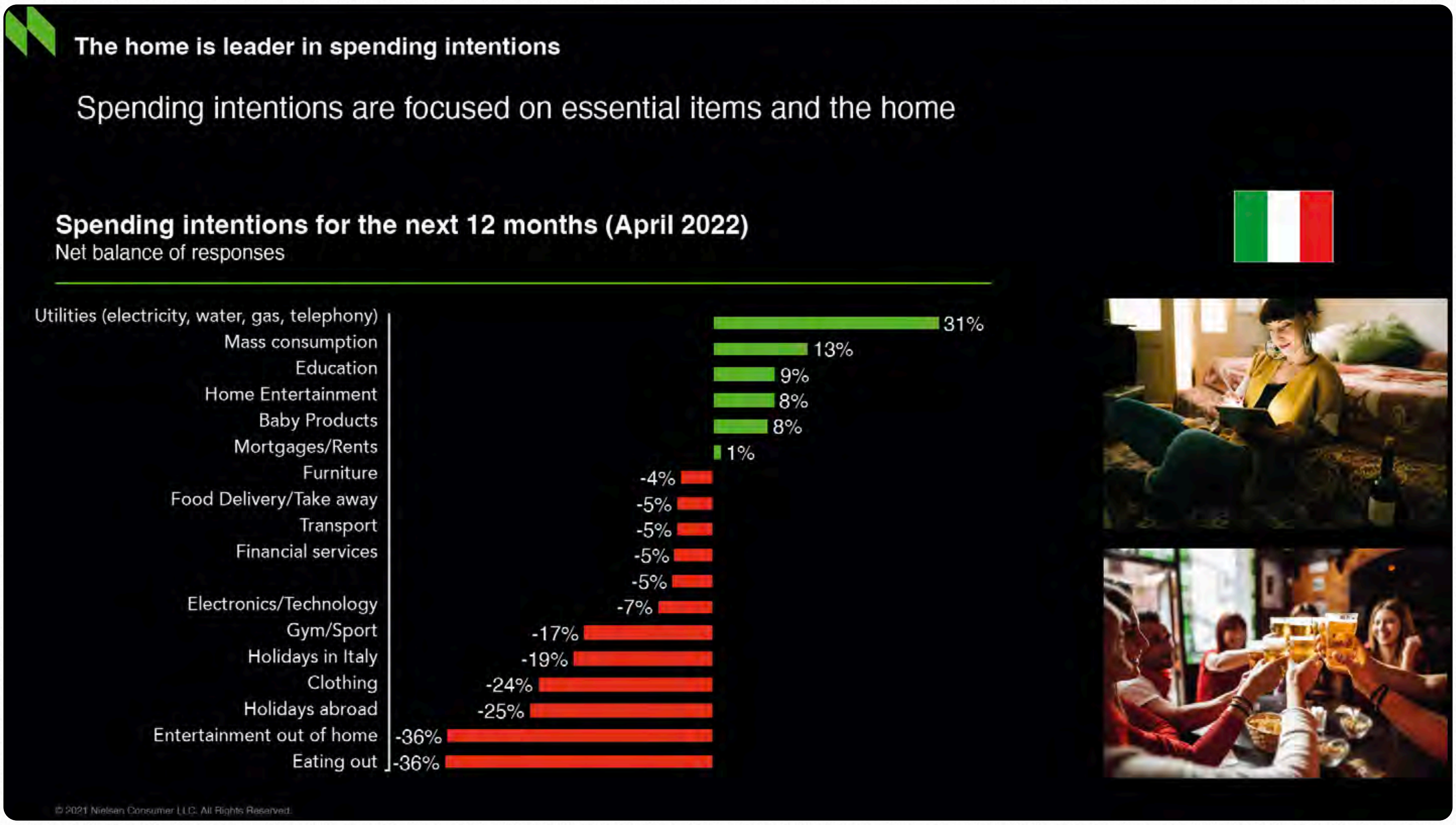
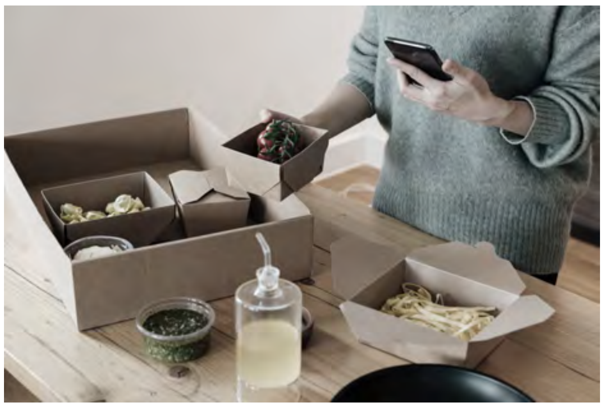


positive trend of 2021.
The spending intentions of Italian households speak volumes: over the next 12 months they will be focused on essential items and strictly on the home. In fact, based on their statements, spending priorities for Italians will be utilities (electricity, water, gas, telephony), consumer goods, education, home entertainment and baby products; all non-domestic items, including eating out at restaurants, food delivery services, sports, clothing, transport, entertainment and holidays will all be penalised. Being compelled to reshuffle their spending plans, the Italians, 96% of whom are intent on adopting saving strategies, will tend to buy less expensive products from the usual categories (according to 68% of those interviewed by NielsenIQ), or chase after promotions by selectively targeting the cheapest products available at any given moment (28%).
Although penalised as regards purchasing intentions, since last February, the away from home sector has experienced a maxi-rebound, returning to pre-Covid levels. NielsenIQ data for August shows a 4.7% growth in sales on a like-for-like basis, compared to a 13.2% increase in 2021 and a 21.4% decrease in 2020, the year of the first and strictest lockdown.
The unknown factors, in this phase of tremendous uncertainty, are mainly related

The first course: flat in volume but up in value

dry semolina is in the lead, positively reversing the trend in volume, driving growth in value with an average price increase of over 22%.

	Volume	Value
Total First Course	**838 K tonnes** +0.2%	**€2.1 bn** +10.8%
Dry Semolina	**480 K tonnes** +0.6%	**€794 m** +23.3%
First Course Without dry semolina	**358 K tonnes** -0.4%	**€1.3 bn** +4%



Source: NielsenIQ Market Track – Italy Total – Volume and volume trend – Trend value – YTD value (14/08/2022)

to the fate of away from home consumption, expected to be affected by the reduction in household purchasing power. But other questions remain in the background, including the performance of discount stores in the coming months and the development of promotional sales, once the increases in list prices have passed.

First course

Focusing on first courses, based on NielsenIQ data, there appears to be an almost flat volume trend (+0.2%) and double digit growth (+10.8%) in turnover. Dry semolina is leading performance regarding the first course total, with a growth of +0.6% in volume and of +23.3%in value; other types of first courses show a slight downturn in volume (-0.4%) and lower sustained growth in value (+4%).

Entering further into detail, the categories which, with the return to “post Covid normality”, manage to satisfy the need for service content, i.e. ready first courses, both chilled and shelf-stable, are confirmed to be on the rise; similar proposals linked to frozen technology (frozen first courses and soups) are suffering. Dry semolina and traditional rice, i.e. ‘classic first courses’, are on the up, benefiting in volume from the performance recorded in the first months of the year

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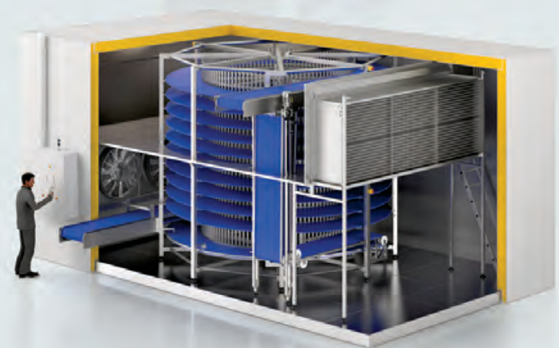

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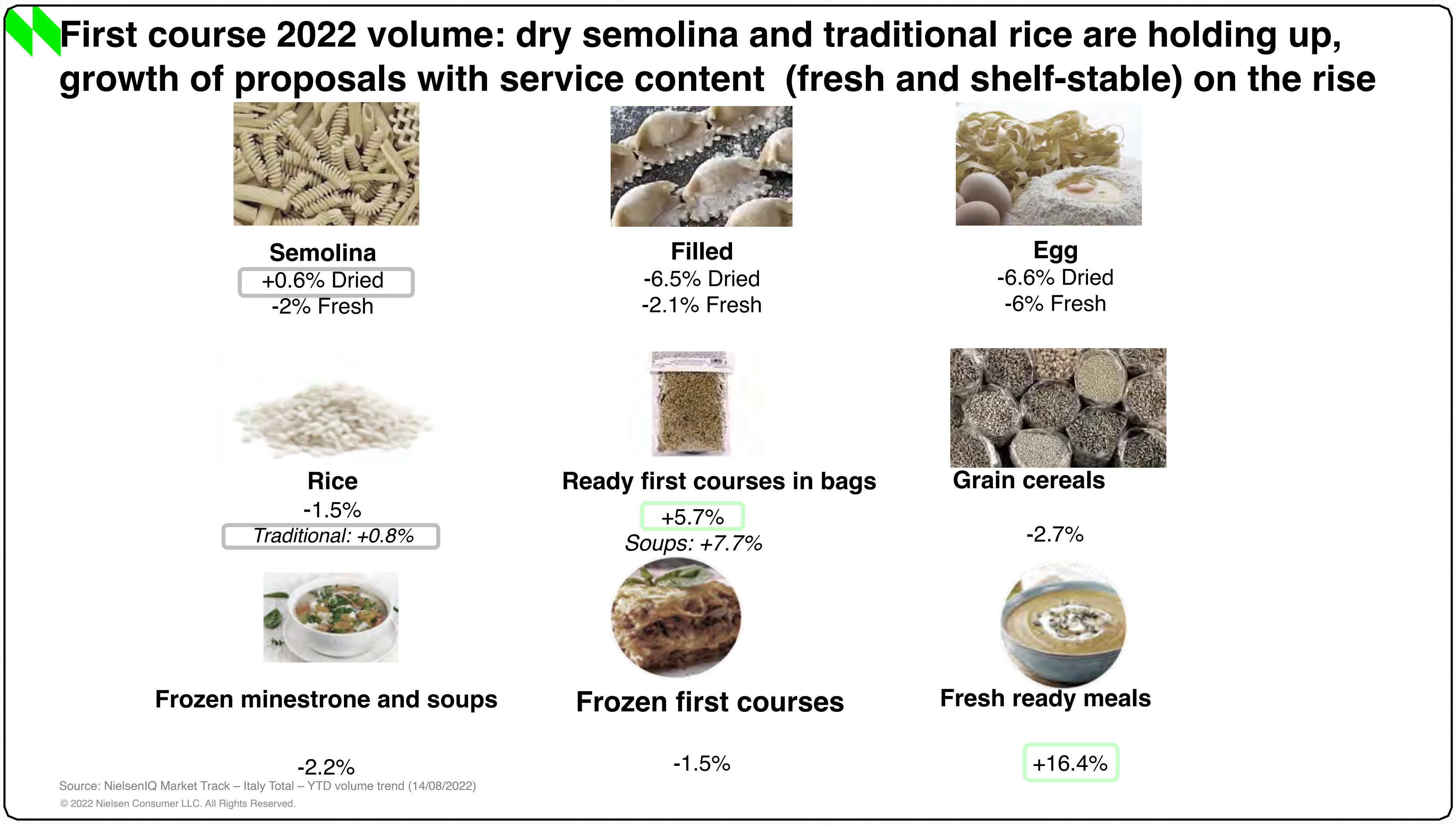


(February/March), as macro-economic phenomena that changed the balance in the national/international scenario (Ukraine war, wheat crisis and the first signs of inflation) began to emerge.

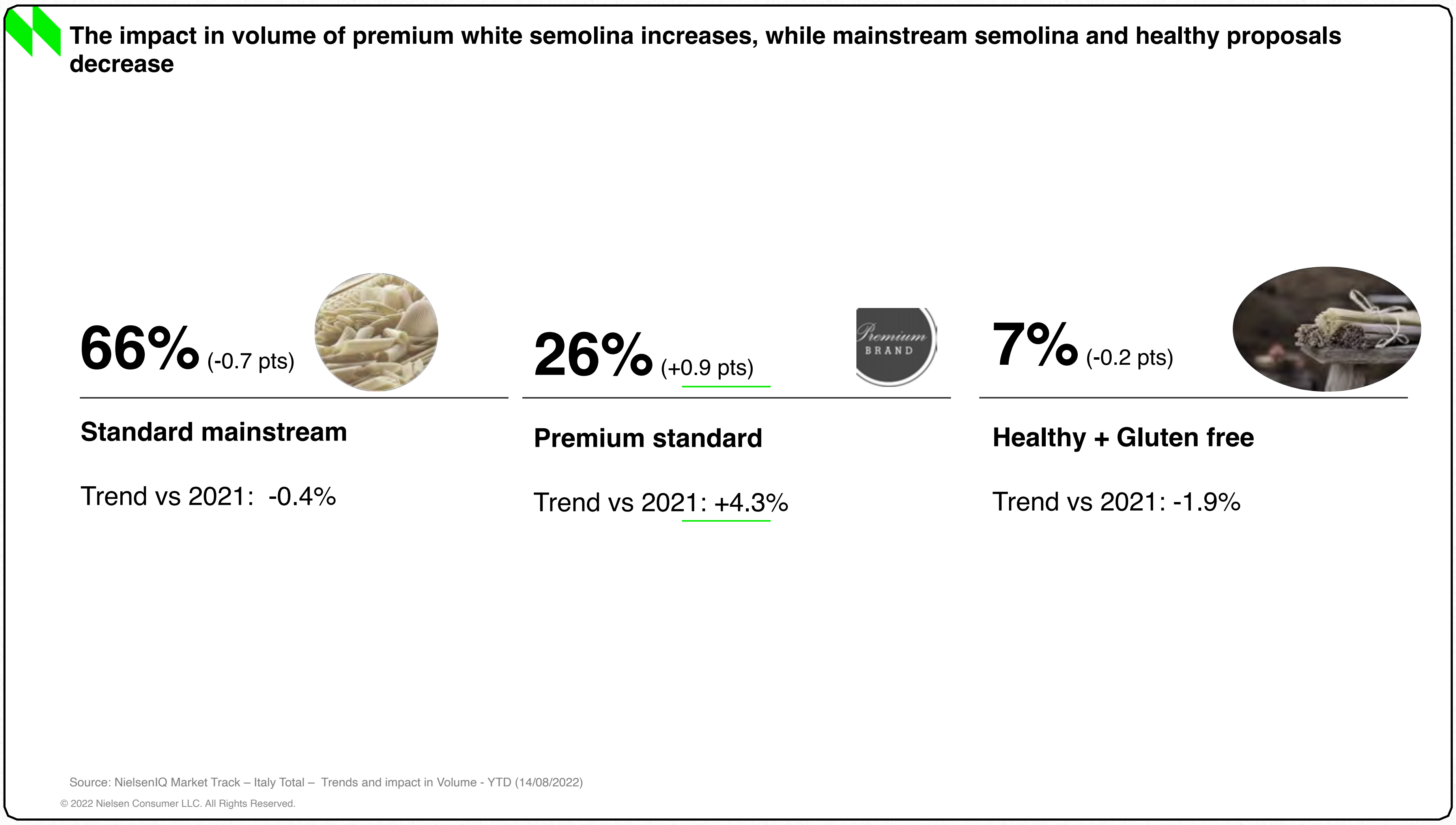
The price increase affects all first course proposals, impacting the “traditional” categories with production processes and use of the raw materials that have been most affected by the changed macro-economic scenario. Specifically, dry semolina shows the highest growth in average €/kg price, with an increase of 22.6%, followed by dry egg pasta (+10.4%) and rice (+7.8%).

Focusing on the internal dynamics of the semolina market, the progressive increase of the impact in volume of premium white semolina and the progressive decrease of mainstream white semolina is confirmed.

In terms of value, over the last year there was a greater impact in mainstream, despite the higher price increase, compared to premium.

A premium that does, however, manage to limit its price increase and keep up the normal level of promotions, while changing the promotional mix by offering smaller discounts.

Semolina products linked to the wellness concept are suffering: wholemeal and other grains are struggling to recover after the slowdown of the Covid period. Among the other healthy products, the Gluten Free



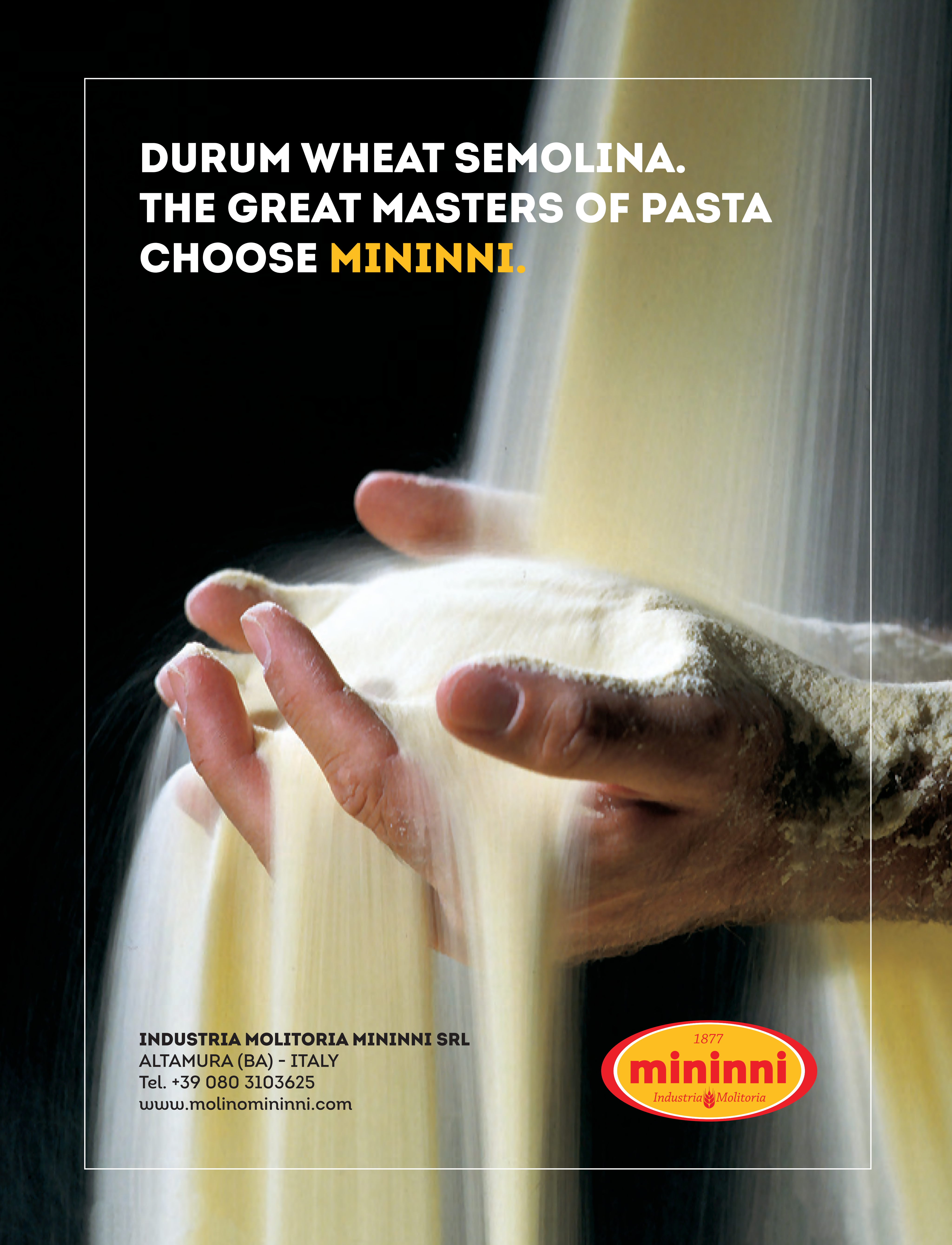
Classic is doing well, while legumes are suffering.

Approaching the semolina market from a long-term perspective (2017 to the present), linked to household consumption dynamics, what can be observed is a mature and stable market in terms of households reached, but over time these families have gradually reduced their shopping volumes. Since 2017, Italian families have been purchasing 100 grams less of pasta. These dynamics may have been impacted by attitudinal rather than structural-demographic factors.

The spread of alternative diets, which has intensified thanks to the exponential power of social media and the social status of some of their advocates, have over time generated false myths about pasta, effectively demonising its values and its functional – as well as nutritional – benefits.

Finally, the downsizing of the family shopping trolley may also be dictated by a preference for eating pasta at lunchtime, a moment which many Italians actually spend outside the home.

In the short-to-medium term, with clouds on the horizon and a somewhat unfathomable scenario, pasta is still a must on the Italian table, with a consumption rate of around 4.4 times a week for 91% of the population (who eat pasta at least once a week) and an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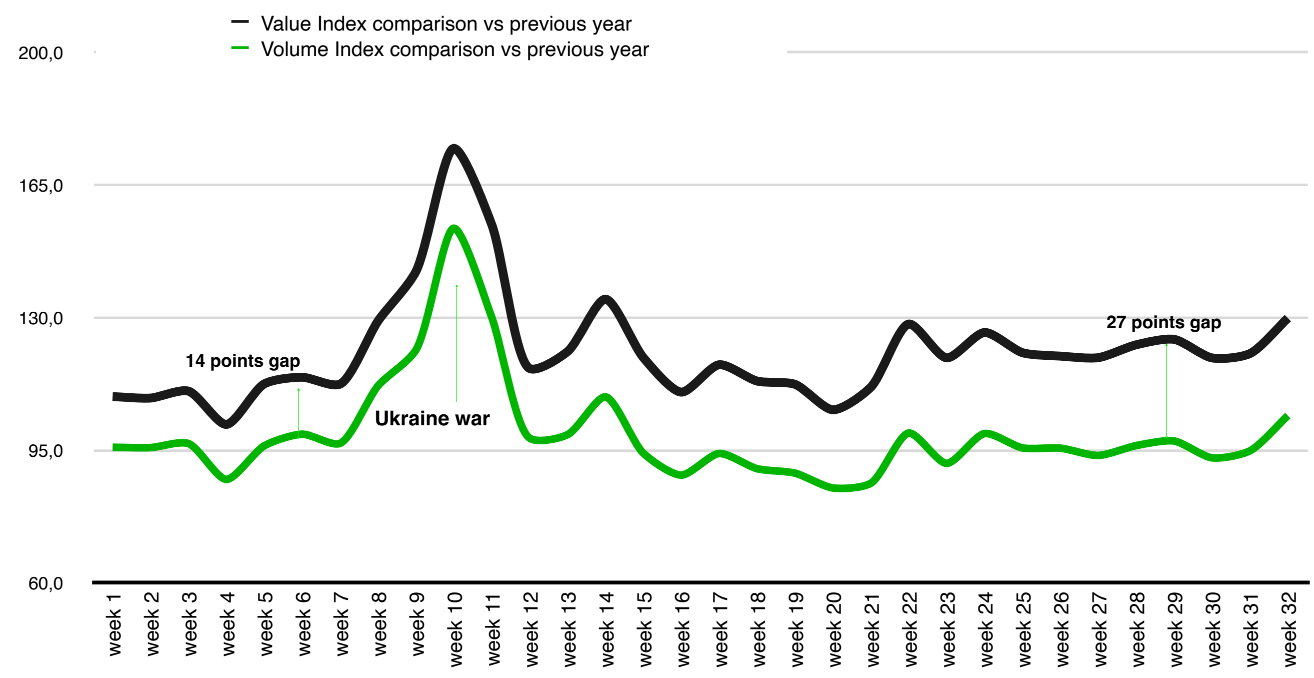
Dry Pasta within Top 3 European countries (IT, FR, DE)

TOP 3 COUNTRIES I DRY PASTA I VOLUME and VALUE WEEKLY INDEX COMPARED TO PREVIOUS YEAR



YTD 2022
VALUE INDEX
121

YTD 2022
VOLUME INDEX
100

Source: NielsenIQ, Strategic Planner, IT + FR + DE

average cost of around 0.18 cents for a 100 g portion. In a nutshell, for less than a euro (500 gram packet of dry semolina pasta) a nutritional intake for at least five people is guaranteed at meal time.

Finally, looking to the future of the pasta and first course market, the evolution in demographics (explains Nielsen IQ) is the predictive variable that should be given greatest consideration. The Covid effect on births was highly negative, considering that in just a little over a decade, newborns in Italy decreased by 30%. Demographics have a crucial impact on mass consumption trends and, in the absence of catastrophic events, represent a variable with an increasingly long-term evolution.

How can we expect demographics to evolve over the next ten years?

Today, the barycentre of the Italian population is in the 46-56 age bracket and, since time does not run backwards, we can be certain that this peak will shift over the next decade to those aged 56-70, with a continuous decline in the younger age brackets (down to 18 year-olds and those aged 35-55).

Overall, there will be two million people less in the Italian population which will be more aged, peaking in the 56-70 bracket.

This will have significant implications:

- the demographic evolution will have a neutral impact on mass consumption, fewer customers who will spend more

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Category	Dry Pasta	Rice	Frozen Pizza	Frozen Soup
Price €/Kg	*€1.81*	*€2.60*	*€5.98*	*€3.56*
Grams per Portion	*100*	*80*	*330*	*150*
Price per Portion	*€0.18*	*€0.21*	*€1.97*	*€0.53*

...bringing to a low price elasticity

«Hard-to-replace» categories	
CATEGORY	ELASTICITY
BABY FOOD	-0.95
FLOUR	-0.86

Pasta	
CATEGORY	ELASTICITY
SEMOLINA PASTA	***-1.38***
EGG PASTA	***-1.10***

«Elasticity-sensitive» categories	
CATEGORY	ELASTICITY
WINE	-2.30
GROUND COFFEE	-1.76

Dry Pasta Sales Worldwide

LAST 6 MONTHS (end. 14/8)

58 COUNTRIES I DRY PASTA I LAST 6 MONTHS VS 2021 (last week ending 14 August)

<u>Modern Trade</u> Dry Pasta sales account for €5.5 bn (2.5 bn tonnes) in the last 6 months

- Volume sales are generally growing
- Value sales are widely impacted by inflation

		World Grand Total										
Volume Sales (in mio KG)	Last 6 months ending 14/08	*2.509*	*437*	*306*	*247*	*208*	*193*	*105*	*100*	*89*	*65*	*56*
	% vs last year	2.4	1.5	3.3	1.8	1.8	10.2	4.2	3.7	3.0	9.1	-5.1
Value Sales (in mio €)	*% vs last year*	*24.9*	*21.9*	*23.9*	*30.0*	*22.0*	*35.4*	*33.7*	*26.8*	*16.9*	*37.7*	*14.4*

Source: NielsenIQ, Strategic Planner – Modern Trade

(the average mass consumption expenditure rises as people age), therefore the quantitative impact will be negligible;


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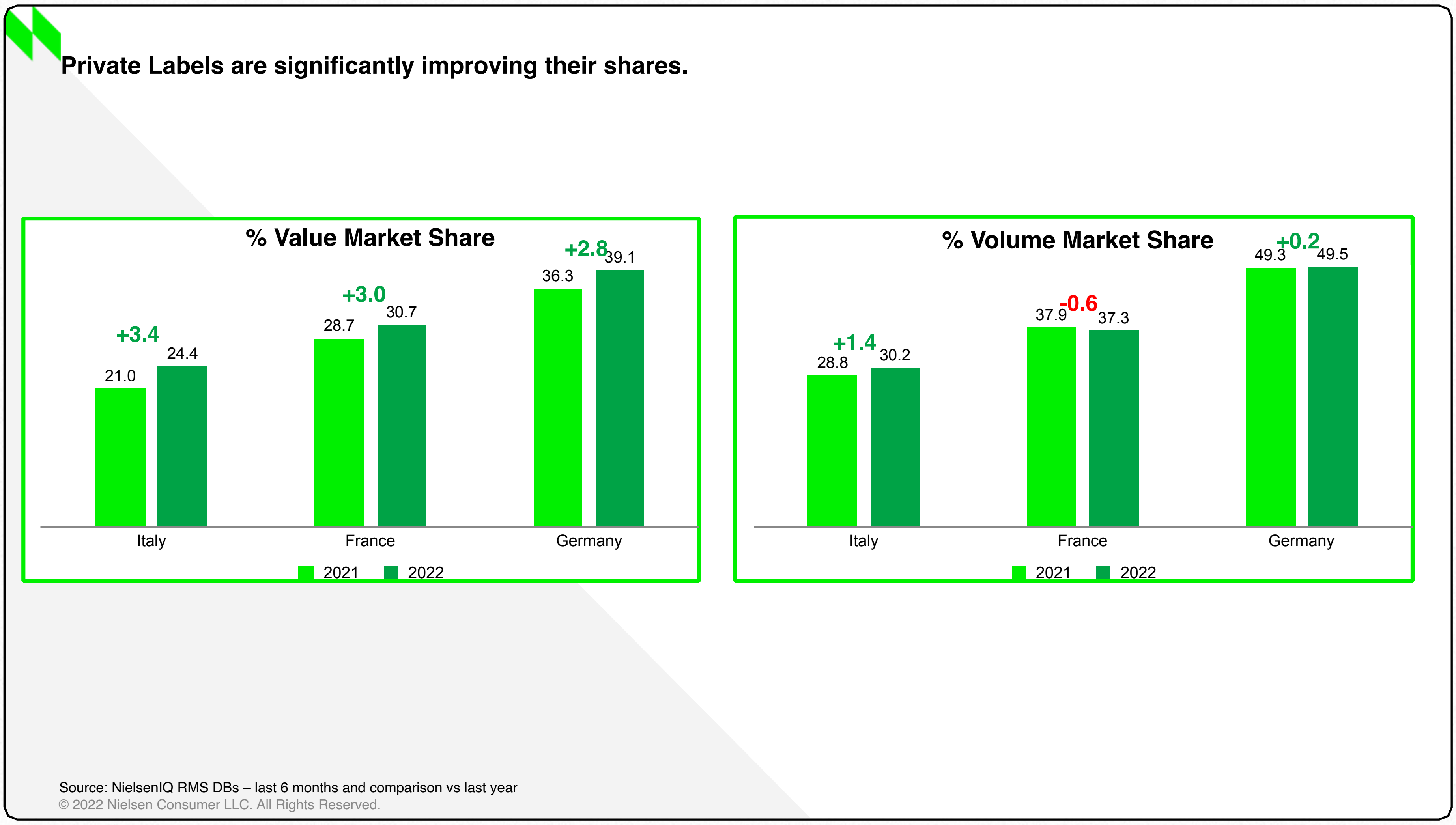


- on the qualitative level, however, the prospects will be weightier: the drivers and underlying motivations regarding dietary choices change considerably with age and while those in older age brackets are concerned with health and well-being, enjoyment is what interests younger brackets. In coming years, the macro-area of health and well-being will grow significantly as a result of demographic change. And there is more, because the concept of well-being is broad and is interpreted differently depending on age. While older age brackets are grounded in a very traditional concept of well-being with “medical” overtones (no sugar, no salt, easy to digest, etc.), central age groups favour a more all-round concept of well-being that is advanced and more-inclusive involving questions of sustainability, certification and services – in short, well-being without compromise that offers players in mass consumption an open field in terms of added value.

2

An innovative process extends the shelf life of fresh pasta by 30 days

Delia Sebelin

The result of a 100% Italian study, the method combines conventional analytical technologies with highly innovative technologies.

By adding “good bacteria” and changing the packaging protocols, the shelf life of fresh pasta can be extended by 30 days. The new method, outlined in the *Frontiers in Microbiology* journal, was developed by a group of researchers at the Institute of Biomembranes, Bioenergetics and Molecular Biotechnologies of the Italian National Research Council (Ibiom-Cnr), in collaboration with the University of Bari Aldo Moro and the Food Safety Lab private laboratory.

The researchers worked in various ways to optimise the modified atmosphere packaging (MAP) of trofie, a specific type of short pasta. On the one hand, they made changes both to the plastic films used in the packaging and to the proportion of gases; on the other, they added a particular mix of commercial bioprotective probiotic micro-organisms to the pasta itself.

A portion of the fresh pasta sample was produced and packaged conventionally. A second set was produced traditionally but stored under the experimental MAP conditions. The mix of probiotic micro-organisms was added to a third set of fresh trofie, which was then stored in the experimental packaging.

The fresh pasta was then examined up to the expiry date and beyond, to monitor the appearance of deterioration. The sets were tested by applying a multi-omic approach that combined the conventional analytical technologies (traditional chemical analysis and microbiological analysis) with highly innovative technologies such as metagenomic analysis of the bacteria and fungi communities, proteomic analysis, and mass spectrometry aimed at profiling volatile organic compounds. The integrated data obtained clearly demonstrated the effectiveness of the experimental protocols tested, giving rise to a 30-day extension of the shelf life of fresh pasta.

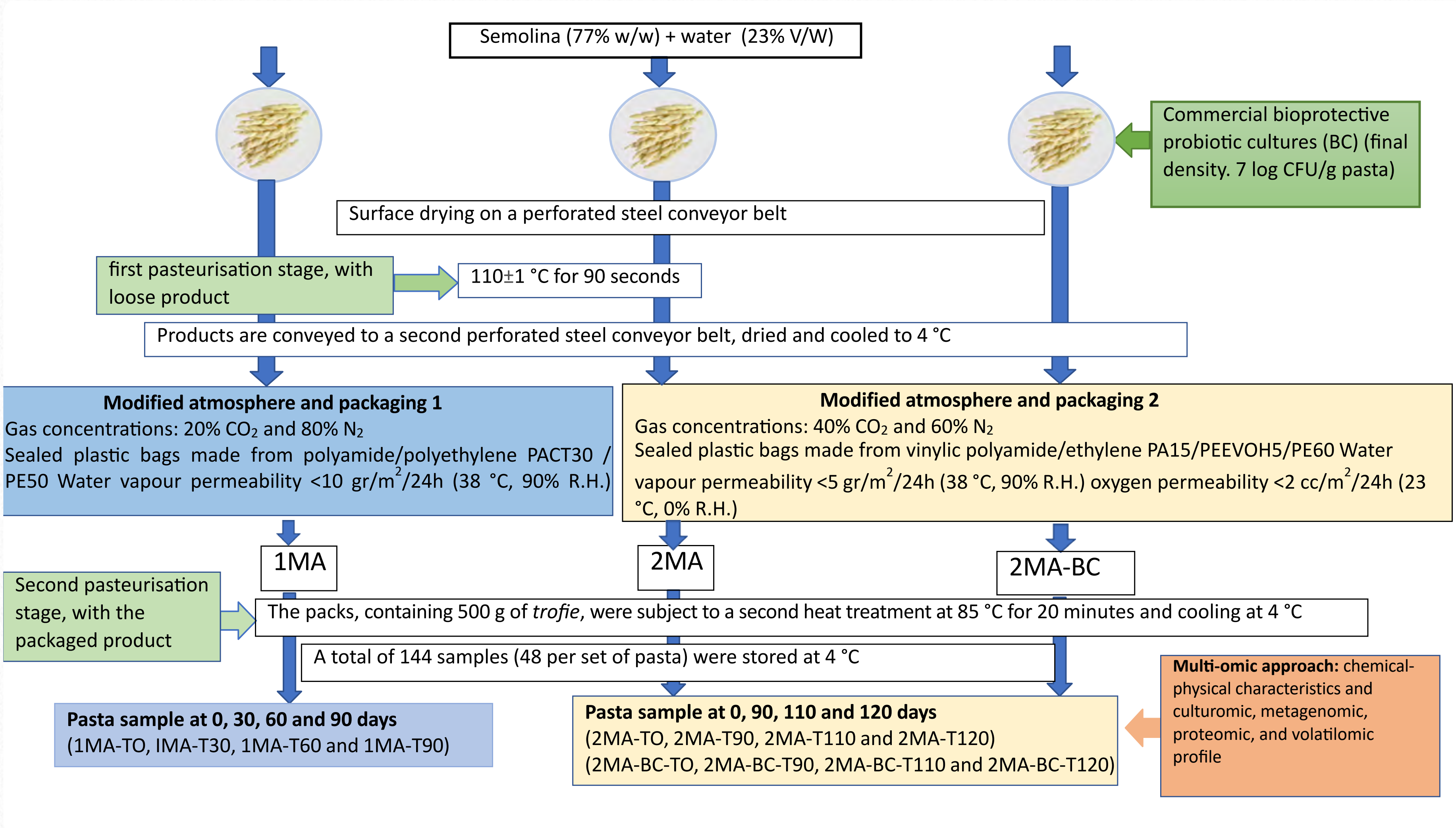
Not limited to short pasta

While trofie pasta was used for the study, the method can also be applied to long shapes.

“The results demonstrate that the change in MAP conditions combined with the use of probiotic bioprotective cultures acted in synergy to control the microbial deterioration of fresh pasta during refrigerated storage”, explained Francesca De Leo, researcher at Cnr-Ibiom. The technique developed by the team could be implemented at an industrial level, adding 30 days’ shelf life compared to a standard product.

Indeed, “the probiotics used are easy to obtain and work with, as they are

Figure 1 **DIAGRAM OF THE NEW METHOD FOR EXTENDING THE SHELF LIFE OF FRESH PASTA**



commercial products. The mix contains: *Lactobacillus acidophilus, Bifidobacterium animalis, Lacticaseibacillus paracasei* (*basonym Lactobacillus paracasei*), *Lacticaseibacillus casei* (*basonym Lactobacillus casei*) and *Bacillus coagulans* (Montefarmaco OTC Spa, Bollate, Milan, Italy)."

"From a consumer perspective, the advantage of this product is its greater shelf life, as well as that it is easy to store while retaining the typical organoleptic properties", continued De Leo. "This could be particularly important given the increasing trend among consumers towards reducing the frequency of their food shopping, and therefore towards storing products for as long as possible between purchasing and consuming".

It should be noted that no medium-long term feasibility plan has been carried out to date at a company level, and therefore the costs associated with applying this technology in an artisanal production facility are unknown.

3

National Pasta Association's 2023 Annual Meeting: registration is now open

National Pasta Association

Closing dinner and awards ceremony at the Annual Meeting of the National Pasta Association 2022

The 2023 Annual Meeting of the National Pasta Association is scheduled for 19-21 March. Registration for the event is now open.

The National Pasta Association (NPA) will hold its 2023 Annual Meeting in Ponte Vedra Beach, FL, from March 19-21, 2023. The NPA Annual Meeting is the premier industry event each year that allows for critical conversations to be had and relationships to be built leading to a better and bigger pasta industry.

The annual meeting brings together pasta manufacturers, millers, ingredient suppliers, pasta equipment manufacturers, and others in the field for industry updates, education, and networking opportunities, including the popular executive one-on-one sessions, and the annual golf and bocce tournaments where attendees can spend time forming relationships with customers, suppliers, and partners.

"The NPA Annual Conference is a space for the industry to come together to connect on issues of importance and share knowledge," said NPA Executive Director, Delia Murphy. "The impressive lineup of speakers, industry-leading presentations and networking opportunities are not to be missed."

The program will feature presentations on a variety of relevant topics, including:

- *A State of the Industry report, featuring data and trends in the industry*
- *Understanding and Influencing Modern Consumers*
- *Pasta Solution Trends Using Novelty Ingredients*
- *2023 Economy Outlook - What Now? Recession, Recovery, Another Black Swan?*
- *2023 World & U.S. Durum Situation*
- *Legislative & Regulatory Updates*
- *Updates on NPA ongoing programs, including work on communications, nutrition research, and U.S. Standards of Identity*.

Sponsorship opportunities will be available for companies to promote their brand and gain exposure to number manufacturers and product/services providers in the industry.

Registration for the event is now open. Please visit www.ilovepasta.org for more details on registration, sponsorship opportunities, and the full schedule of events. Registration is discounted for NPA members, but non-members are encouraged to attend to network and participate in conversations to help the industry grow.

4

Attributing value to chickpea bran in the production of gluten-free fresh pasta high in fibre and bioactive compounds

Michela Costantini, Carmine Summo, Michele Faccia, Francesco Caponio, Antonella Pasqualone
University of Bari “Aldo Moro”, Department of Soil, Plant and Food Science

The evaluation of the effect produced by adding chickpea bran to the nutritional and sensory characteristics of gluten-free Apulian *orecchiette*. A summary of Antonella Pasqualone’s presentation[1] at the *Fresh pasta: production, innovative ingredients and preservation* conference held as part of the Pastaria Festival 2022.

Introduction

Fresh pasta is ideal for the production of traditional shapes with a wide appeal to local consumers and tourists, such as Apulian orecchiette (Delvecchio and Pasqualone, 2013; Pasqualone *et al.*, 2017). The demand for gluten-free products, including fresh pasta, has notably increased over the years, but these products do not always meet nutritional requirements in terms of dietary fibre and micronutrients (Thompson *et al.*, 2005). Some studies have recommended increasing the fibre content of gluten-free fresh pasta by adding spirulina (Fradinho *et al.*, 2020), or fenugreek, tiger nut and chickpea flour (Llavata *et al.*, 2020). The latter, in particular, important for a healthy and sustainable diet, is also widespread in Apulia, where the local pigmented variety known as the '*Apulian black chickpea*' is cultivated. This variety differs genetically from the common black desi chickpea variety (Pavan *et al.*, 2017) and has been the subject of a nutritional characterisation that has underlined its high concentration of antioxidant compounds, such as anthocyanins (Summo *et al.*, 2019). Apulian black chickpea flour is used in bakery products (Pasqualone *et al.*, 2019) and dried pasta (De Pasquale *et al.*, 2021). But the production of chickpea flour generates waste in the form of bran, which should – in a circular economy perspective – be retrieved, being a source of dietary fibre and bioactive compounds (Niño-Medina *et al.*, 2017). The aim of this work was, therefore, to evaluate the effect produced by adding chickpea bran to the nutritional and sensory characteristics of gluten-free Apulian orecchiette. Both black Apulian chickpeas and the more common beige-coloured kabuli chickpeas were considered.

Materials and methods

Production of gluten-free fresh pasta

The dough was made by mixing equal parts of rice flour and a gel consisting of 2.5 g of xanthan gum and 2.5 g of carob seed flour, mixed in 100 g of room temperature water. The dough was then shaped by hand into Apulian orecchiette, as described by Pasqualone *et al.* (2017). The pasta was then placed on trays and left for a few hours at room temperature until it reached 28% humidity and 0.95 a_w. The enriched pasta was obtained by incorporating Apulian black chickpea or kabuli chickpea bran at 8% w/w instead of rice flour, but no other modifications were made.

Chemical, physical and sensory analyses

The protein, fat, fibre, ash and moisture content was determined according to AOAC methods 979.09, 945.38 F, 991.43, 923.03 and 925.10 (AOAC, 2006). Carotenoids and anthocyanins were quantified according to Pasqualone *et al.* (2013), while phenolic compounds and antioxidant activity (AA) according to Pasqualone *et al.* (2015). For the cooking tests, the pasta was cooked in boiling water at a ratio of 1:10 (w/v) pasta/water, without salt being added, as reported by Pasqualone *et al.* (2017). The optimal cooking time (OCT) was determined according to the AACC method 16-50 (AACC, 2000). Cooking loss was evaluated as described by Pasqualone *et al.* (2016). The texture of the cooked pasta was determined by means of a shear test using the Z1.0 TN texture analyser (Zwick Roell, Ulm, Germany) equipped with a guillotine blade, according to AACC method 66-50.01 (AACC, 2000). All experimental results were statistically analysed by a one-way ANOVA test, followed by Tukey's HSD test ($p < 0.05$).

The sensory test was conducted by 17 semi-trained panelists on the basis of a sorting test (ISO 8587:2006), i.e. the 3 types of pasta were sorted on a rating scale of 1 (least appreciated) to 3 (most appreciated). The sum of the ratings for each pasta type were analysed using the Friedman test. Post hoc analysis with the Wilcoxon test was conducted, applying the Bonferroni correction ($p < 0.05$).

Results and discussion

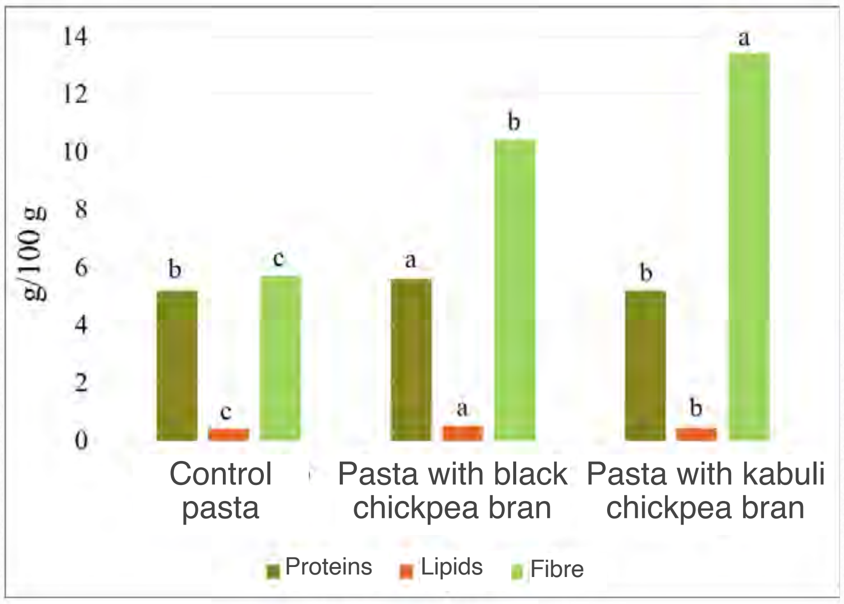
Nutritional composition and firmness during cooking

The nutritional composition of gluten-free Apulian orecchiette pasta enriched with chickpea bran, shown in Figure 1 and Figure 2, was significantly different from the control ($p < 0.05$) for all of the parameters considered. In particular, pasta fortified with Apulian black chickpea bran was distinguished by a higher protein and fat content than the other pasta types analysed, while pasta enriched with kabuli chickpea bran had the highest fibre content. The addition of chickpea bran always brought about a reduction in energy value. The results observed are in line with the composition of legume brans (Kaya *et al.*, 2018).

The fibre content found in the enriched pasta was higher than the minimum value required (6 g/100 g) for the use of the “high fibre” label in accordance with EU Regulation 1924/06.

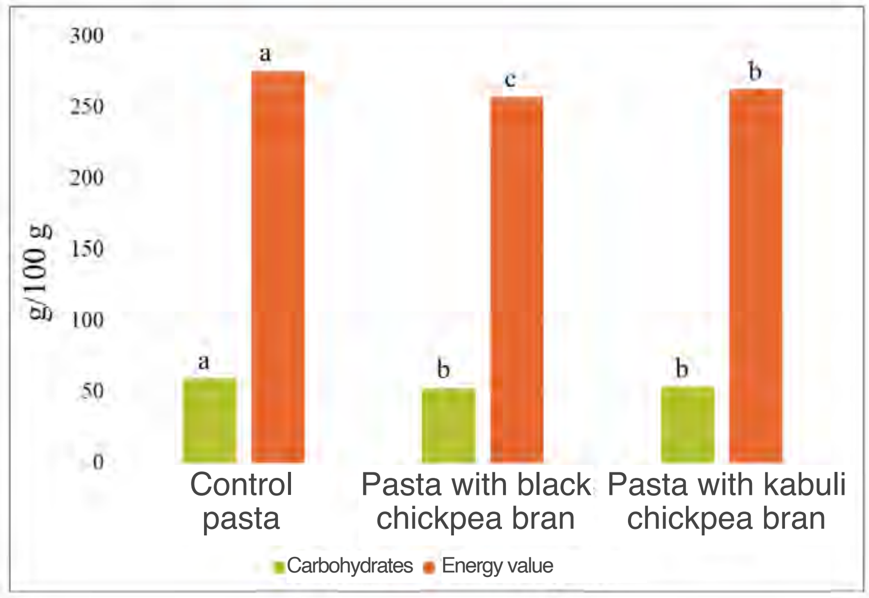
The pasta enriched with chickpea bran had greater firmness during cooking than

Figure 1 **PROTEIN, FAT AND FIBRE CONTENT OF GLUTEN-FREE APULIAN ORECCHIETTE MADE FROM RICE (CONTROL) OF APULIAN BLACK CHICKPEA OR KABULI CHICKPEA BRAN**



Different letters for the same parameter indicate significant differences when $p < 0.05$

Figure 2 **CARBOHYDRATE CONTENT AND ENERGY VALUE OF GLUTEN-FREE APULIAN ORECCHIETTE MADE FROM RICE (CONTROL) OR ENRICHED WITH 8 g/100 g OF APULIAN BLACK CHICKPEA OR KABULI CHICKPEA BRAN**



Different letters for the same parameter indicate significant differences when $p < 0.05$.

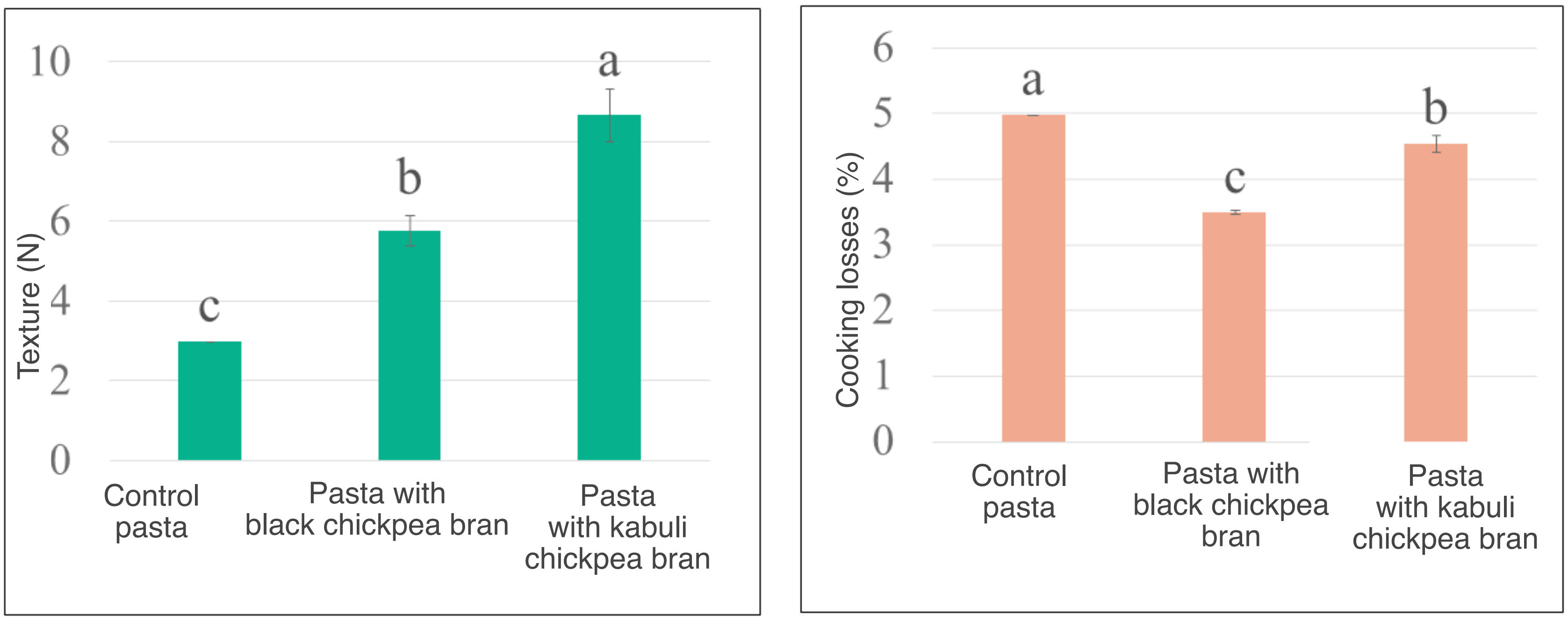
the control pasta, a superior texture and a lower cooking loss (Figure 3). These characteristics are typical of a good quality product.

Bioactive compound content after cooking

The cooked pasta had interesting levels of bioactive compounds, even although these compounds are subject, to a certain extent, to thermal and oxidative degradation during cooking. Furthermore, phenolic compounds and anthocyanins are hydrophilic molecules that tend to pass into the cooking water (Fradinho *et al.*, 2020).

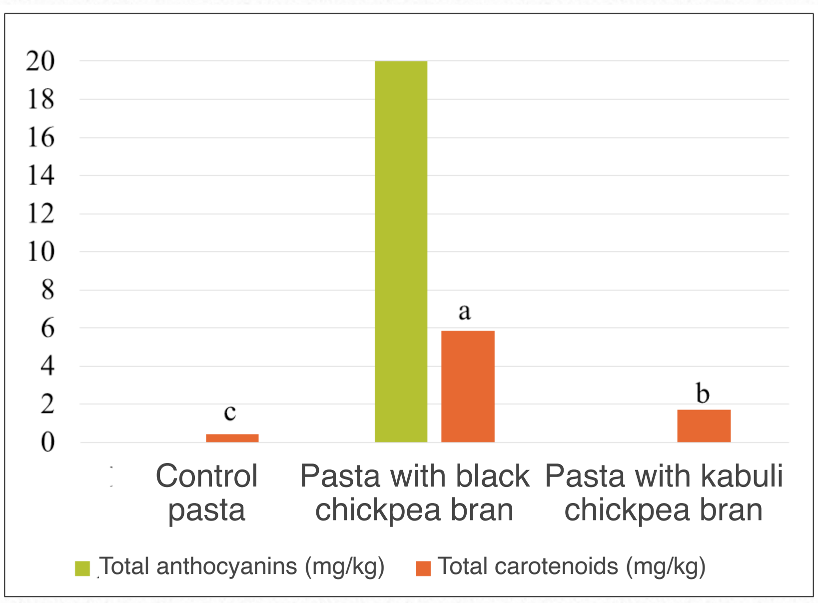
In particular, the pasta enriched with Apulian black chickpea bran showed a very high anthocyanin content (around 20 mg/kg), which was totally absent in the other two types of pasta (Figure 4). This result was expected, since the dark appearance of black chickpea bran is due to the anthocyanins, which are red and so concentrated that they generate a dark purple or black colour. Carotenoids and total phenolic compounds were also greater in the pasta with black chickpea bran than in the other two types (Figure 5). The higher content of bioactive compounds brought about a higher antioxidant activity in the pasta enriched with the black chickpea bran than in the

Figure 3 TEXTURE AND COOKING LOSS OF GLUTEN-FREE APULIAN ORECCHIETTE MADE FROM RICE (CONTROL) OR ENRICHED WITH 8 g/100 g OF APULIAN BLACK CHICKPEA OR KABULI CHICKPEA BRAN



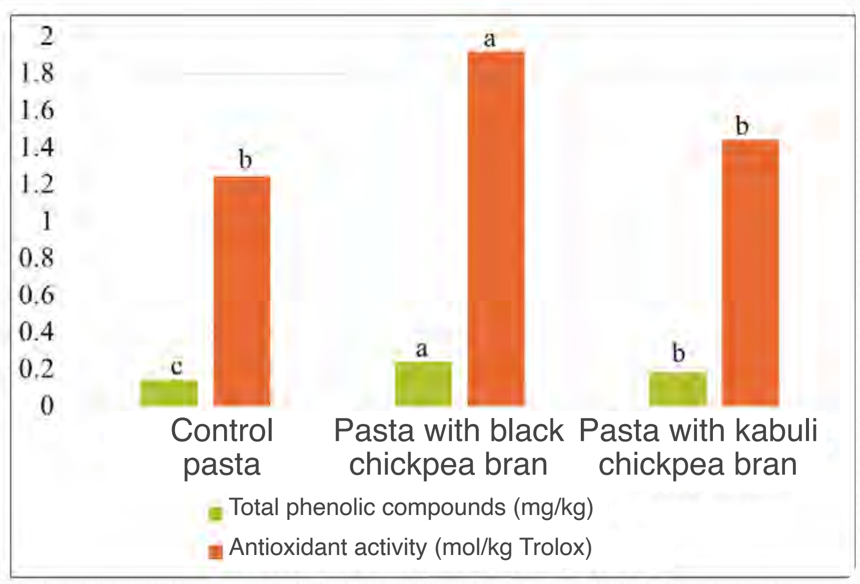
Different letters for the same parameter indicate significant differences when $p < 0.05$

Figure 4 TOTAL ANTHOCYANIN AND TOTAL CAROTENOID CONTENT IN GLUTEN-FREE APULIAN ORECCHIETTE MADE FROM RICE (CONTROL) OR ENRICHED WITH 8 g/100 g OF APULIAN BLACK CHICKPEA OR KABULI CHICKPEA BRAN



Different letters for the same parameter indicate significant differences when $p < 0.05$

Figure 5 TOTAL PHENOLIC COMPOUNDS CONTENT AND ANTIOXIDANT ACTIVITY IN GLUTEN-FREE APULIAN ORECCHIETTE MADE FROM RICE (CONTROL) OR ENRICHED WITH 8 g/100 g OF APULIAN BLACK CHICKPEA OR KABULI CHICKPEA BRAN



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other two types of pasta. Pasta enriched with kabuli chickpea bran presented characteristics halfway between the control pasta and that containing the black

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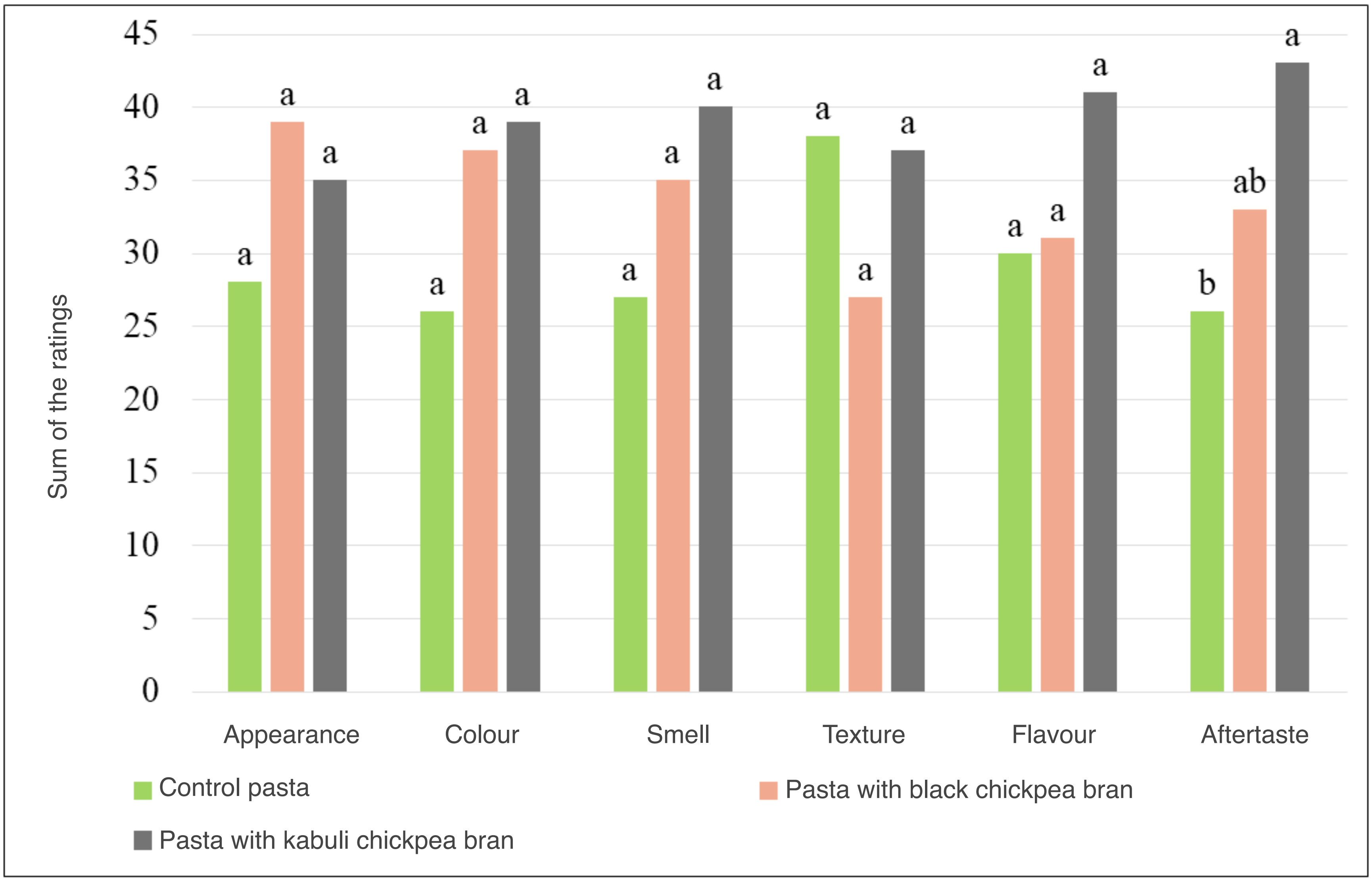
Figure 6 THE SCORE OBTAINED IN THE SENSORY SORTING TEST OF THE GLUTEN-FREE APULIAN ORECCHIETTE MADE FROM RICE (CONTROL) OR ENRICHED WITH 8 g/100 g OF APULIAN BLACK CHICKPEA OR KABULI CHICKPEA BRAN



Different letters for the same parameter indicate significant differences when $p < 0.05$

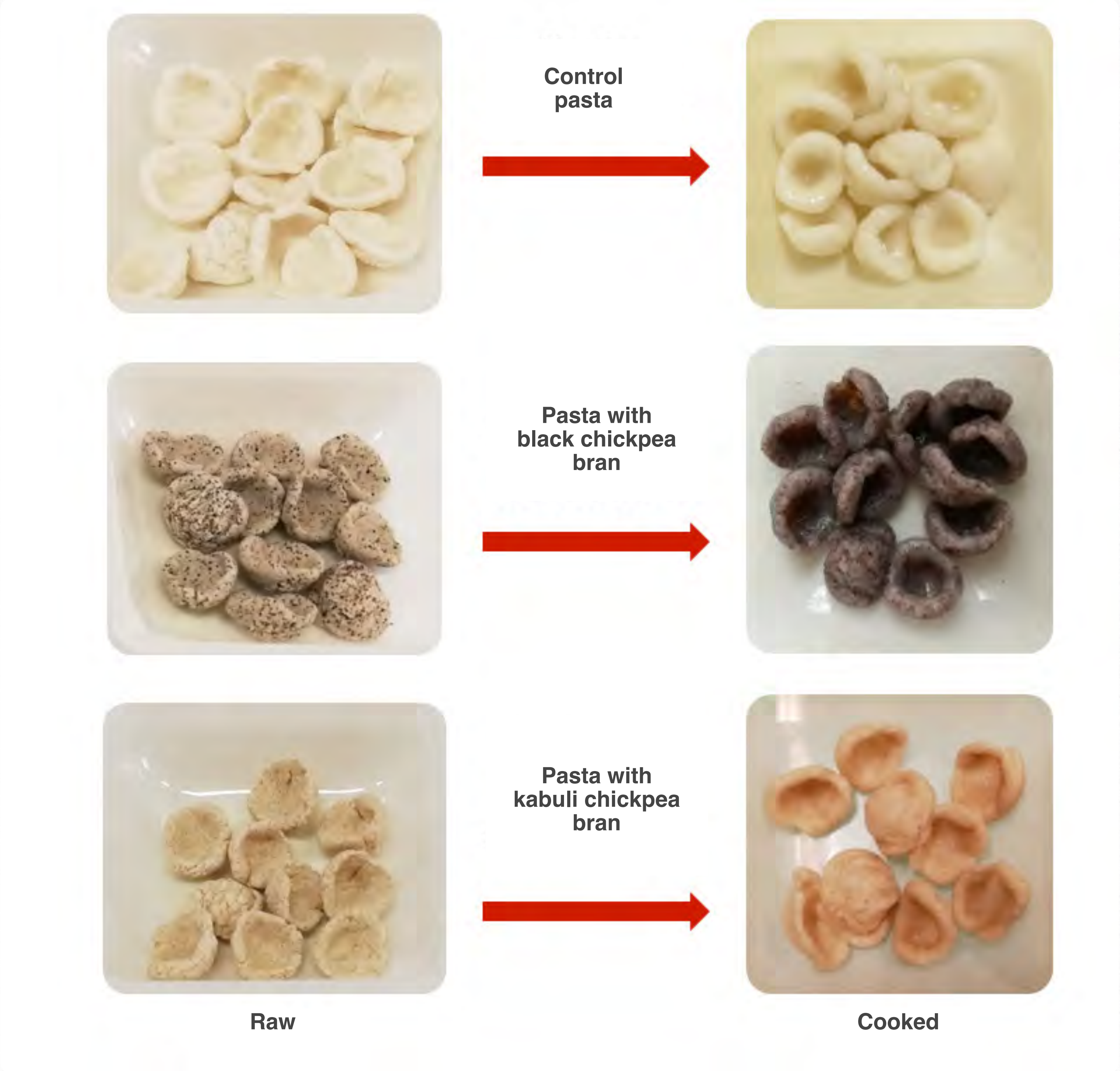
chickpea bran for all of the parameters considered.

Sensory test

The sensory appreciation of the three types of pasta was not significantly different (Figure 6), with the exception of the "aftertaste" of the pasta containing the kabuli chickpea bran, which was the most appreciated, followed by the pasta enriched with the black chickpea bran and the control pasta.

In general, although not statistically significant, the pasta enriched with thekabuli chickpea bran was more highly appreciated than the pasta enriched with the Apulian black chickpea bran. Furthermore, the "appearance" and "colour" of the enriched pasta were judged to be more aesthetically pleasing than the control, indicating that the presence of bran particles on the surface of the dough (Figure 7) was considered a positive aspect.

Figure 7 **APPEARANCE BEFORE AND AFTER COOKING OF THE GLUTEN-FREE APULIAN ORECCHIETTE MADE FROM RICE (CONTROL) OR ENRICHED WITH 8 g/100 g OF APULIAN BLACK CHICKPEA OR KABULI CHICKPEA BRAN**



Conclusions

A high content of fibre and bioactive compounds makes the chickpea bran, particularly that of the Apulian black chickpeas, a suitable ingredient for the development of new functional food products. The results obtained show, in fact, that it is possible to improve the nutritional, structural characteristics and the cooking performance of gluten-free fresh pasta, even with a relatively low enrichment (8 g/100 g). This strategy adds value to the chickpea milling waste and helps increase the dietary intake of

bioactive compounds with antioxidant properties.

Notes

1. Contribution presented at Pastaria Festival 2022 by Antonella Pasqualone and taken from Costantini, M., Summo, C., Faccia, M., Caponio, F. and Pasqualone, A., 2021. *Kabuli and Apulian black chickpea milling by-products as innovative ingredients to provide high levels of dietary fibre and bioactive compounds in gluten-free fresh pasta*. Molecules, 26(15), p.4442.

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Commodity price observatory 1/2023

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

The dominant theme in commodity markets is still uncertainty. But the feeling – if the prevailing opinions of economic research offices and institutes are to be believed – is that a phase of stagflation is imminent: flat, or, at worst, marginally negative growth, associated with a still highly inflationary environment, albeit one that is gradually improving. This is something closer to stagnation than to the full-blown recession feared in recent months, when Prometeia's experts were forecasting a 0.4% growth in Italy's GDP for the whole of 2023, but a 0.3% drop in the first quarter. In the meantime, the central banks seem – and declare themselves to be – determined, the ECB first and foremost, to keep tightening their monetary policies, choices that symbolise and will in fact take the form of new rises in interest rates and further cash haemorrhaging, for as long as inflation remains far from its target of 2%. Predictably, in response to these dynamics and worsening expectations, speculative activities are likely to be less audacious, and lower consumption pressure, dampened by the fall in household purchasing power, is likely to reduce inflationary pressure, starting from commodities, including agricultural and food commodities. At the beginning of January, thanks to the mild winter and the EU price cap agreement, which put a ceiling of €180 per megawatt-hour on the Dutch TTF, i.e. the European reference market, the price of natural gas fell to less than € 70 in Amsterdam, a level far below the peaks of last summer (which reached € 350 in August), and to the lowest level since February 2022, prior to the outbreak of the war in Ukraine. On the basis of this evidence and the importance of the energy component in the weighted basket of consumer prices, a scenario characterised by a gradual easing of inflationary pressures is expected, the effects of which could, however, become more evident and more firmly-rooted in the course of 2024. Entering into the details of certain commodities, it is also useful to assess the impact of the current (and future) prices of staples, which seem at this stage to confirm, albeit with the necessary caution, the forecast that prices are likely to cool, especially in the cereal market. For wheat in particular, high availability on international markets and the pressure of Russian grain (with Moscow retaining its world leadership in export volumes this year), together with the renewal of agreements on the Black Sea corridor for the passage of Kyiv's merchant vessels, are all factors that should steer prices onto a downward path, with knock-on effects also downline of the agricultural phase,

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	341.5	-7.9%	4.8%	▼
Fine durum wheat from North Italy	Price (€/ton)	Monthly variation	Annual variation	Forecast
	484.5	-3.2%	-10.1%	▼
00 type common wheat flour	Price (€/ton)	Monthly variation	Annual variation	Forecast
	725	-3.3%	9%	▼
Semolina above min. leg. req.	Price (€/ton)	Monthly variation	Annual variation	Forecast
	817.5	-2.2%	-6.8%	▼
Eggs M	Price (€/100 pcs)	Monthly variation	Annual variation	Forecast
	18.5	0.8%	28.5%	▼
Pork hams for Prosciutto 12 kg and over	Price (€/kg)	Monthly variation	Annual variation	Forecast
	4.9	0.4%	24.1%	▼
Beef – veal meat half-carcass, prime quality	Price (€/kg)	Monthly variation	Annual variation	Forecast
	6.86	2.1%	24.5%	▼
Raw milk	Price (€/100 kg)	Monthly variation	Annual variation	Forecast
	63.94	-5%	34.2%	=
Centrifuged butter	Price (€/kg)	Monthly variation	Annual variation	Forecast
	5.6	-10.3%	0.5%	▼
Grana Padano aged for 9 months or more	Price (€/kg)	Monthly variation	Annual variation	Forecast
	9.43	1.3%	32.8%	=
Extra virgin olive oil	Price (€/kg)	Monthly variation	Annual variation	Forecast
	6.15	0%	43%	▲

Source: Centro Studi Economici Pastaria 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.

PRICE MONITORING				
FAO Food Price Index	Price (2014-2016=100)	Monthly variation	Annual variation	Forecast
	132.4	-1.9%	-1%	▼
Hard Red Winter US Gulf port	Price (USD/ton)	Monthly variation	Annual variation	Forecast
	422.68	-3.5%	12.2%	▼
Mais, U.S. No. 2 Yellow FOB US Gulf port	Price (USD/ton)	Monthly variation	Annual variation	Forecast
	320.92	-6.6%	21.3%	▼
Fao Food Price Index: December 2022; Hard Red Winter, Mais: November 2022				

particularly on flour and pasta price lists. This phenomenon, which is already underway, could further undermine wheat prices on the national commodity exchanges, even although high production costs and probable further price flutters, concerning fertilisers and other technical equipment used in agriculture, could limit the deflationary tendencies currently in course. On the subject of staples, China, which does not seem to be sailing in calm waters, has also to be taken into consideration. The serious health emergency, due to the escalation of Covid infections, and the country's lower economic growth due to the long-term repercussions of the pandemic and the initial difficulties in maintaining consumption levels, signify that China is likely to be less dominant on international markets, with spillover effects on global demand. On the supply side, climate change will still be the factor to be considered most closely due to its potential repercussions on the upcoming harvests, which look positive so far, at least in terms of wheat allocations, also in Europe. With regard to the livestock sectors (meat and dairy), a slower downward adjustment of prices is expected, with possible further tensions attributable to the still limited supply, and tensions relating to production costs, especially for the feed component. Supply gaps pave the way for inflationary scenarios in the olive oil markets, given the deficits experienced in Spain and Italy, where – in addition to the phenomenon of productive off years linked to the alternating cycle of the olive groves – the weather also played a significant part in the season's results. On the basis of these assessments, 2023 should, therefore, be a year of transition, ushering in a gradual exit

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from the hyperinflationary environment that has characterised the past twelve months.
In its usual monthly food commodity monitoring, the FAO too certified the ninth consecutive drop in agricultural and food commodity prices in December. The further downward correction, of 1.9% compared to November, reflects in the summarised data the negative trend of international prices for cereals, vegetable oils and meat, partially offset by moderate increases in December in sugar and dairy products.
The year 2022, assessed as a whole in economic terms, left as its legacy a maxi-increase of 14.3% for aggregated agricultural and food commodities, although the trend in December reduces the positive year-on-year gap to just one percentage point.
The cereal price index reached a new all-time high, with an increase of 17.9% compared to 2021. Vegetable oils and dairy products also set a new record, with price increases of 13.9% and 19.6%, respectively, over the past twelve months. Meat is up by 10.4%, but there are indications of possible deflationary developments for beef cuts, which have been subject, in the medium term, to a gradual flagging in global demand.

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The out-of-home market and performance of pasta

Matteo Figura
NPD Group

Based on its most recent surveys, the NPD Group has updated the data on pasta consumption in Italy and Europe in the “out-of-home” channel, presented at the 2022 edition of the Pastaria Festival.

In Italy and across Europe, the autumn got off to an uncertain start for the eating-out-of-home market. Months after the end of the pandemic, we now find ourselves in a situation characterised by dynamics that inevitably impact upon the decisions of consumers when they choose to eat out of home. Of greatest concern is the increase in prices resulting from the increase in energy and ingredients costs. Both phenomena are associated with the tail end of the pandemic, but also with the conflict in Ukraine.

The surveys by The NPD Group, which has measured consumer sentiment over the past two years, reveal that 43% of consumers interviewed believe their financial situation will worsen in the coming months. Recorded in October, this figure represents a net worsening compared to previous surveys. Increased prices and economic security are obviously a source of concern for Italian consumers. This crisis and this state of uncertainty differ from the crises we have faced in the past. Previous crises were characterised by caution, but the consumer did not sacrifice gratification as an element in their decision-making. Now we are faced with a systemic crisis that is impacting the purchasing power of households, inevitably requiring them to make choices.

The most recent NPD survey found that, faced with the increased prices, 33% of interviewees are thinking of reducing, postponing, or giving up eating at bars and restaurants. The good news is that, though bars and restaurants are among the top five items Italians are considering giving up, they come after live events, shopping, hairdressers, cinemas, theatres, museums and gyms. That said, the sacrifices indicated by Italian consumers paint a picture of reduced mobility, with all of these activities linked in some way, albeit indirectly, to opportunities to eat out of home.

This scenario, characterised by reduced activity outside the home, goes a long way to explaining the current state of the eating-out-of-home market. Since the end of the pandemic, the market continued to grow, to the point of approaching 2019 levels. CREST – the NPD tool that monitors eating OOH (out of home) in Europe – recorded a shortfall of -9.3% in spending and -17% in trade in the first half of the year compared to 2019. The figure for the first half of the year is negatively offset by a winter marked by restrained consumption. In the summer months, consumption exceeded pre-pandemic levels in terms of spending, driven by an increase in prices, while trade for the month of June was found to be down -4%

compared to the same period in 2019. NPD's continuous tracking revealed a similar picture in Italy. The trade and spending figure suggests that consumers in Italy are already implementing strategies. While individual average spending per visit increased by +6.4%, the number of items purchased fell. In other words, while spending more, Italians are consuming less. Strategies to reduce menu components are under way. These strategies may take the form of forgoing a component of the meal, or choosing venues that offer simpler menus.
In fact, 81% of consumers interviewed stated that they prefer restaurants that offer clear and simple menus, painting a picture in which frugal choices help satisfy consumer needs. In this context, the consumer goes from rational to strategic, evaluating different alternatives. Just 8% are thinking of giving up eating out of home entirely, while the rest will implement strategies primarily associated with reducing spending. How is pasta performing in Europe and Italy given the dynamics characterising consumer choices? In the past year, 2.7 billion portions of pasta were eaten out of home across


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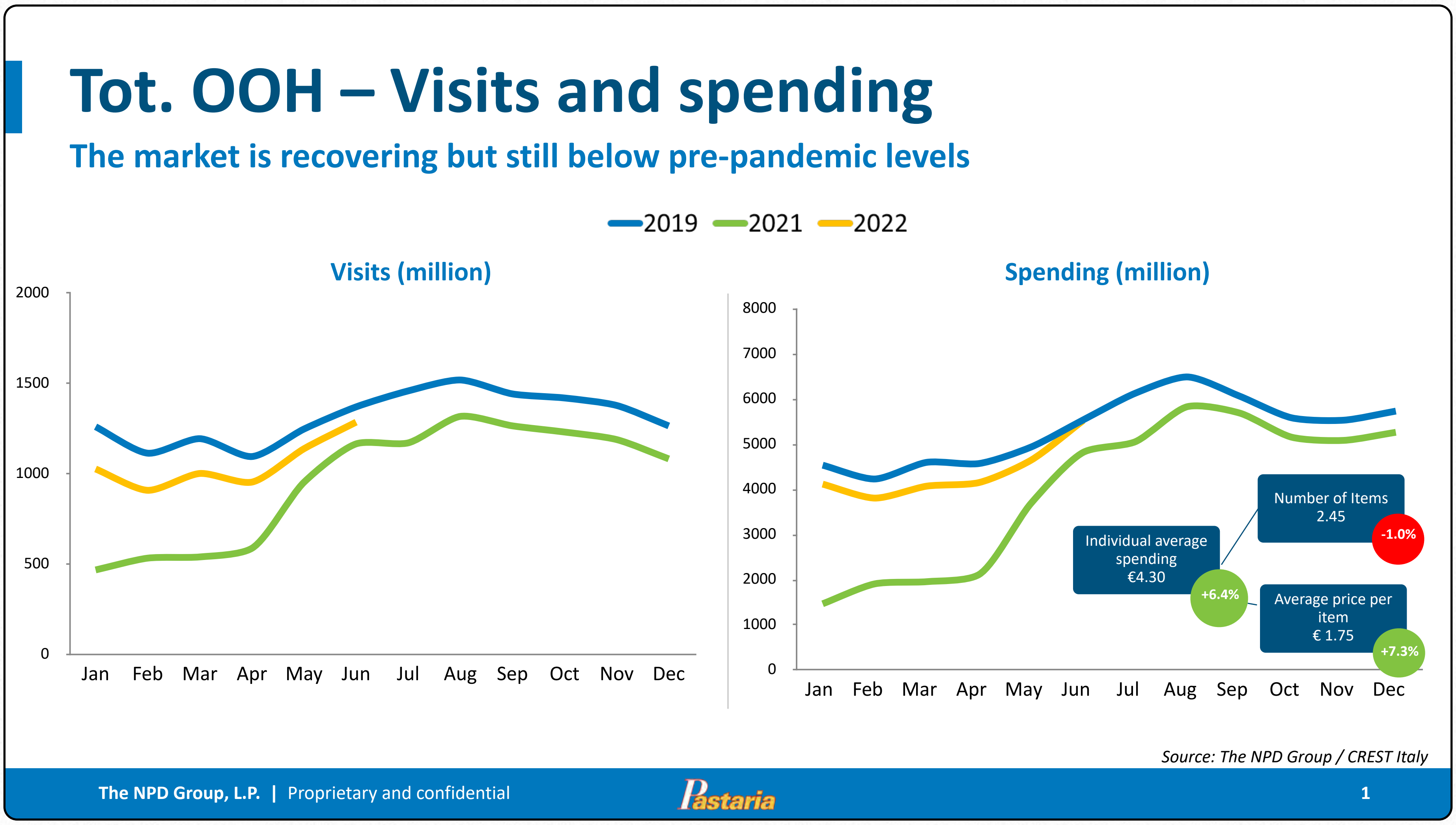


the 5 leading countries in Europe: Italy, UK, Spain, France and Germany. The inclination to eat pasta has not changed in recent years in Europe, but has remained stable, with an incidence of 4.2% of total visits. Across Europe, the consumer chooses pasta on 4 out of 100 visits. The drop in volume of -26% recorded by NPD compared to 2019 is not linked to consumer choices, but to a decrease in consumers eating out of home.

The general decline in mobility already mentioned has in fact impacted pasta consumption, with the negative impact seen across non-commercial channels such as workplace and university canteens. Indeed, in France, where these channels carry greater weight than in other countries, a greater decline is recorded in pasta eaten out of home. Overall, at a European level, the share of pasta dishes served in non-commercial channels dropped from 47% to 38% in 3 years.

In Italy, the tendency to eat pasta out of the home, which we measure in terms of incidence, is recorded as 7.2%, an increase of 0.2 points over the past two years. Italians are more likely to choose pasta when eating out of home. In the year ending June 2022, 722 million dishes of pasta were served in Italy compared to 735 million in the same period in 2019. The gap has now reduced to -1.5%.

Consumers' needs for greater frugality and simplicity offer fertile ground for the out-of-home pasta sector. Furthermore,

TECHNOLOGY PERFORMANCE RELIABILITY

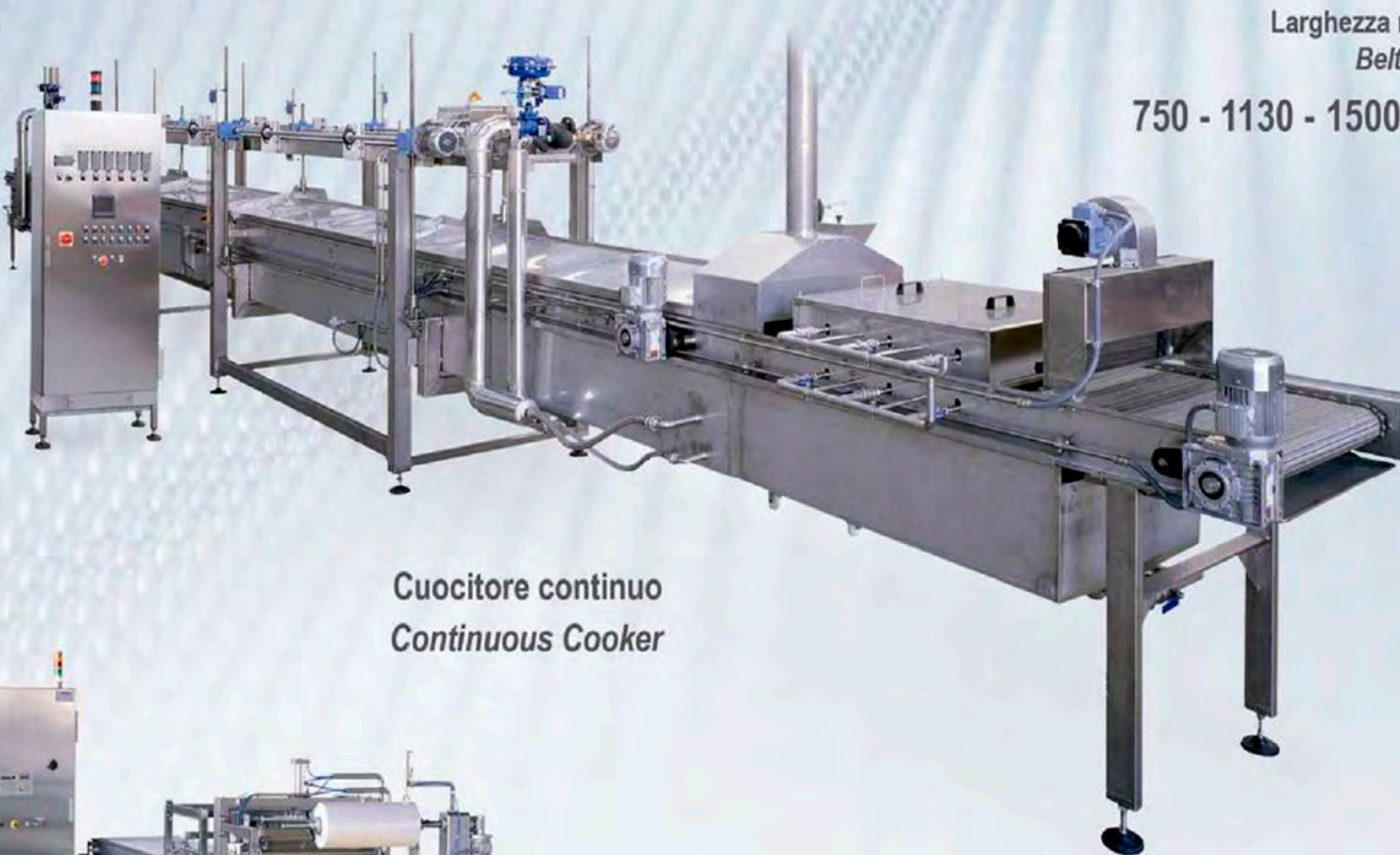
CUOCITORE LINEARE
LINEAR COOKER

FOODTECH S.R.L.
FOOD PROCESSING EQUIPMENT

100 - 1000 kg/h

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

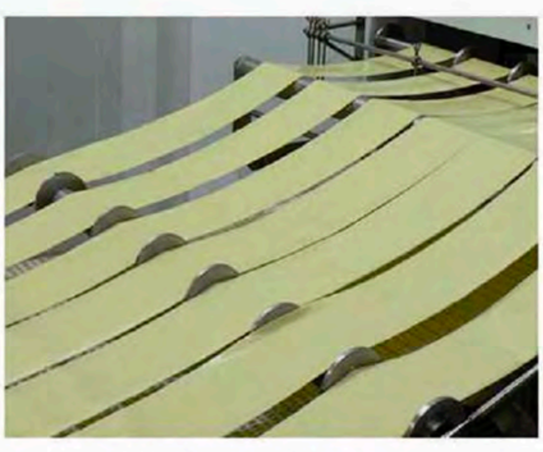
Larghezza nastro
Belt width
750 - 1130 - 1500 mm



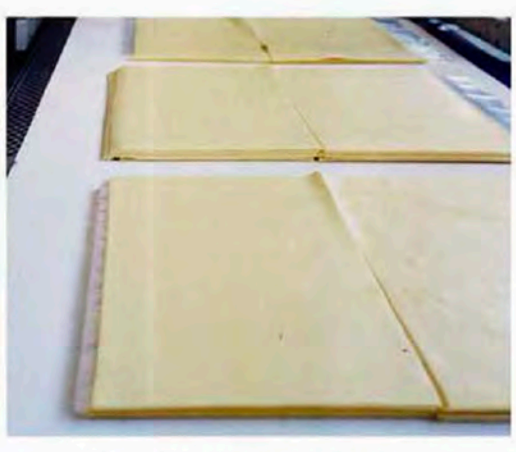
Cuocitore continuo
Continuous Cooker

Interfogliatrice
Line for sheet with interleaf film

Paste ripiene
Filled pasta



Sfoglie per Lasagne
Lasagne sheets

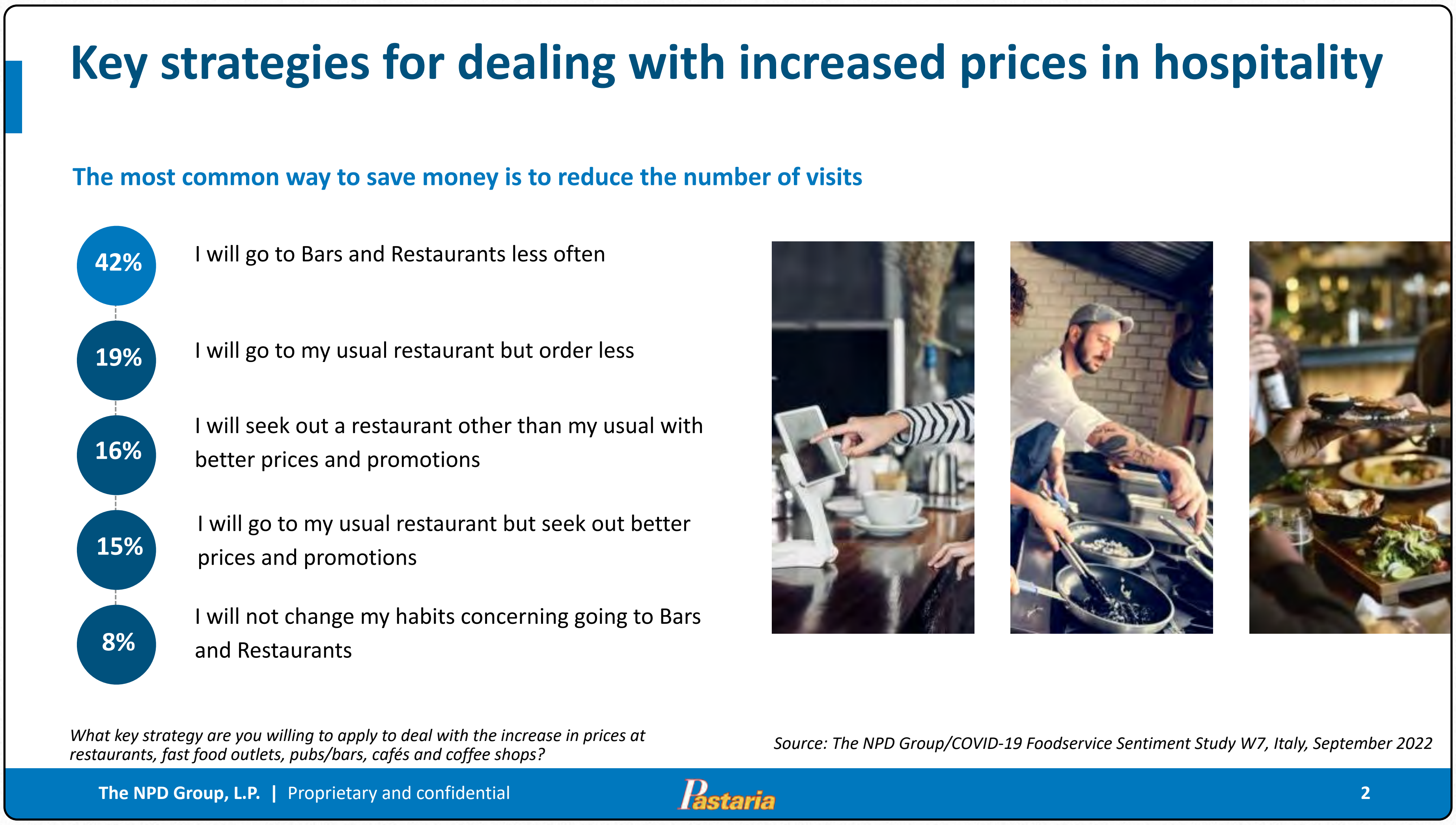


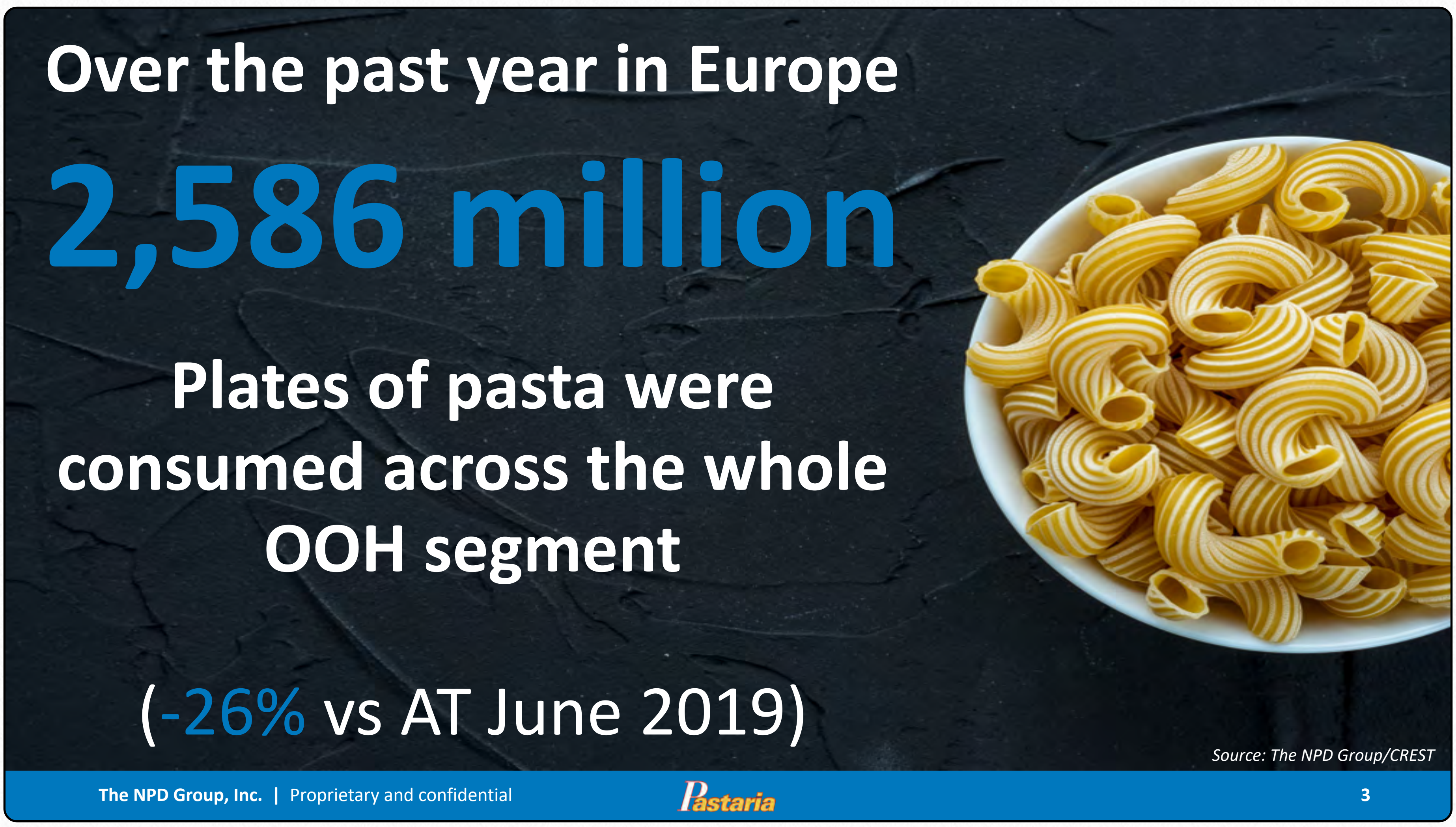
Sfoglia con interfoglio
Sheets with interleaf film

Cannelloni

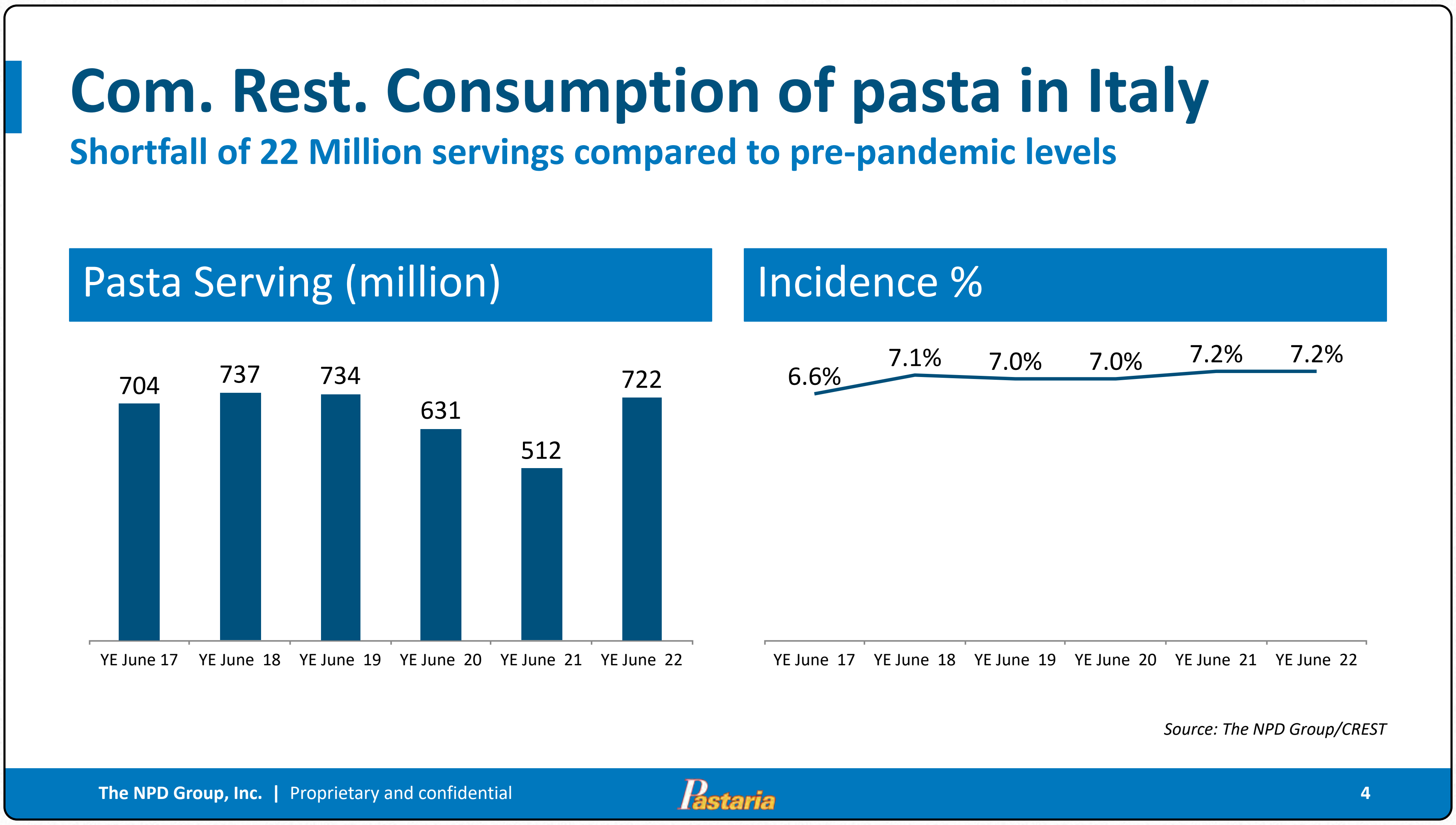
AZIENDA CON SISTEMA DI GESTIONE QUALITÀ CERTIFICATO DA TÜV ITALIA S.r.l. secondo la norma UNI EN ISO 9001:2015

CAMPOSAMPIERO (PD) - ITALY - Via Martiri della Libertà, 6
Tel. (+39) 049 9303590 - Fax: (+39) 049 5791258 - info@food-tech.it - www.food-tech.it





the consumer is currently forgoing eating at times that are not significant for pasta, such as breakfast and snacks, while lunch performs better, driving pasta



consumption. And despite the shift towards frugality, the consumer is not sacrificing experience, leading to an increase in the proportion of fresh and filled pasta dishes, from 31% to 35%. Younger consumers are poorly represented, but this is a structural issue. The 25-34 year age group is in decline in the market, and this is reflected in pasta consumption, which has an ageing consumer profile. Young people are the future of eating out of home, and the most important challenge for the coming months. The industry and operators in the sector are called upon to seriously reflect on how to attract this target group, which is losing interest in eating out of home.
To conclude, while the market has reached pre-pandemic levels, the recovery is slowing in terms of trade. Price increases and financial means are of greatest concern to a more rational and more frugal consumer. Pasta is benefiting from the recovery. Setting aside the data for workplace canteens, the inclination to eat pasta out of home is increasing, thanks to consumers' preference for frugal occasions but greater experience.