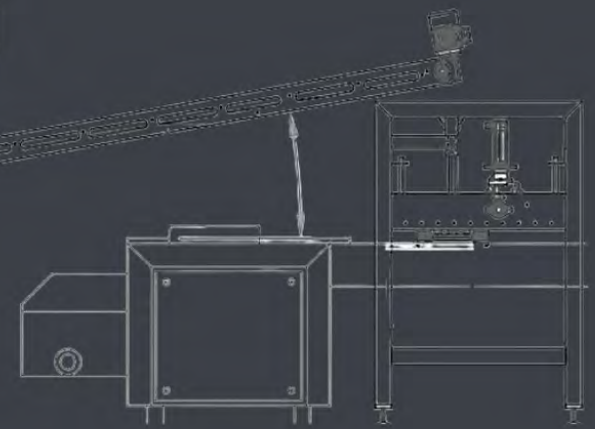


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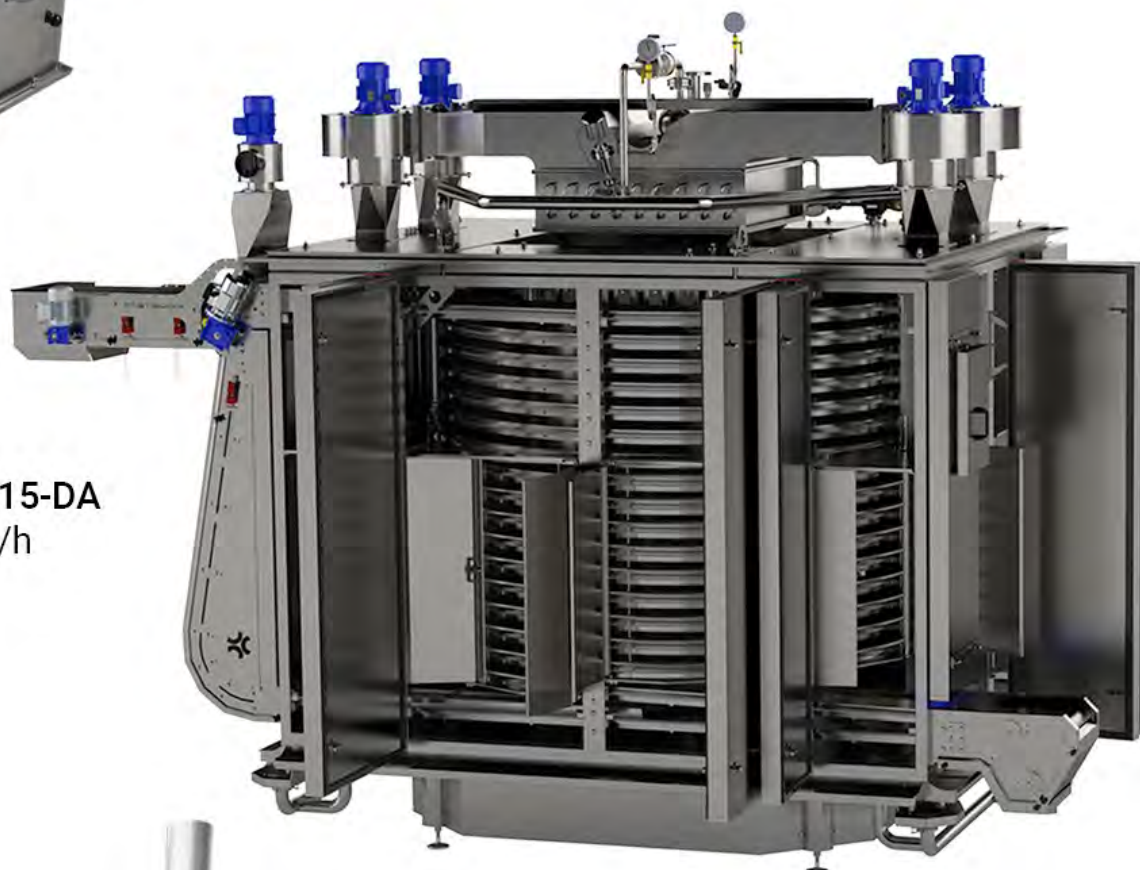
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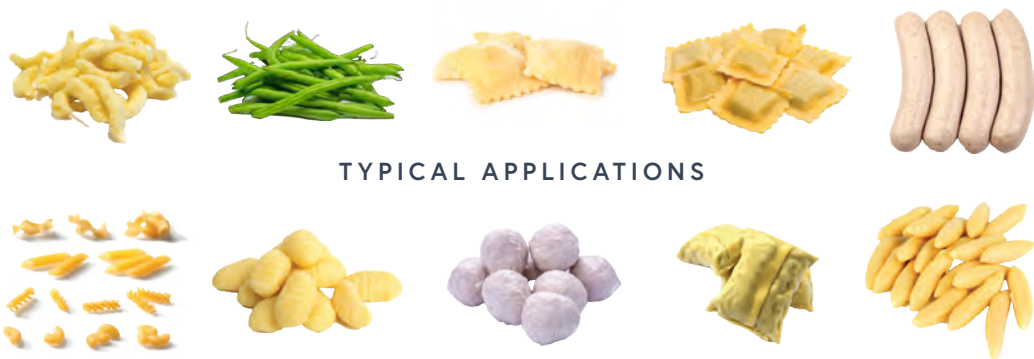
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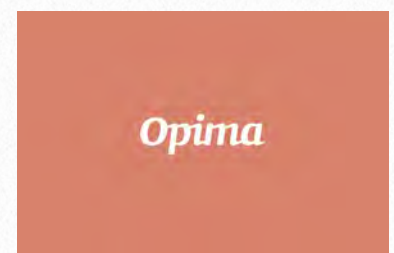


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# 1



## Wheat and enriched pasta: ingredients, effect on health and Glycaemic Index

Giuseppe Di Pede<sup>1</sup>, Rossella Dodi<sup>2</sup>, Cecilia Scarpa<sup>1</sup>, Margherita Dall'Asta<sup>3</sup>, Francesca Scazzina<sup>1</sup>

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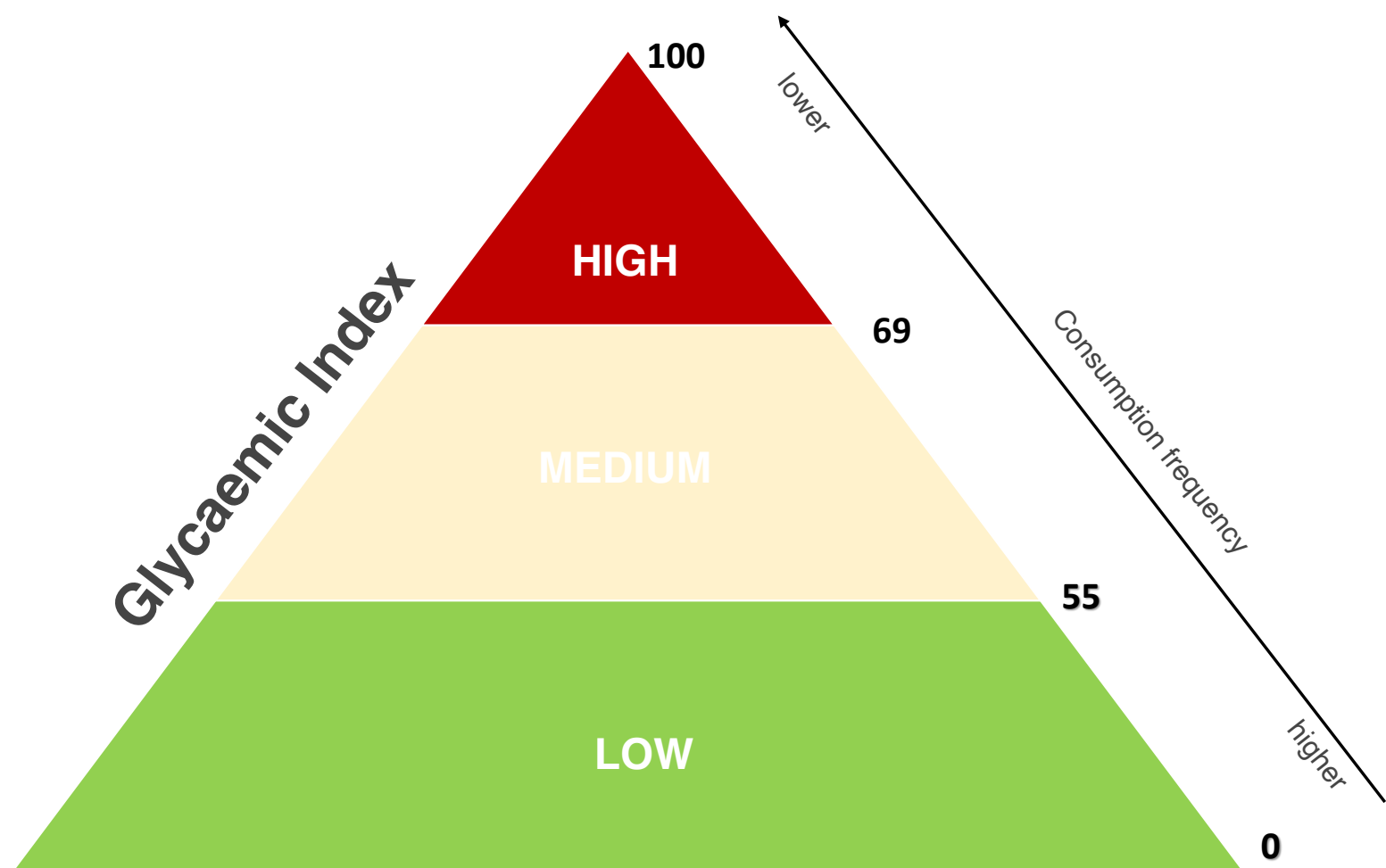
Here is a brief summary of the contribution of Giuseppe Di Pede at the conference *Pasta, ingredients, health and nutrition*, held at the 2020 edition of the Pastaria Festival.

## Introduction

Cereals, derivatives, tubers and legumes are the primary sources of carbohydrates in our diet (Fao, 2019). The Italian recommendations for the daily consumption of macronutrients in adults set out in the guidelines “*Livelli di Assunzione di Riferimento di Nutrienti ed Energia*” (Reference Nutrient and Energy Intake Levels) (LARN) (SINU, 2014), focuses attention on the role of dietary carbohydrates. As our body’s main source of energy, these must be consumed in

sufficient quantities to meet 45-60 % of our daily energy requirements. The Glycaemic Index (GI) proposed by Jenkins et al. (D. J. Jenkins et al., 1981), is applied inasmuch as it is a useful parameter for evaluating the nutritional quality of foods rich in carbohydrates, on the basis of their capacity to generate a greater or lesser increase in blood glucose levels after a meal. The GI is obtained from the ratio between the incremental area under the blood glucose curve, (IAUC) calculated following consumption of the *test food*

**Figure 1 CLASSIFICATION OF FOODS ACCORDING TO GLYCAEMIC INDEX (D. J. JENKINS ET AL., 1981; T. M. WOLEVER ET AL., 1991)**





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(that for which the GI value is to be calculated) and the IAUC value obtained following consumption of a *standard food*, usually a glucose solution or white bread, both containing the same quantity of available carbohydrates (25 g or 50 g) [ISO - ISO 26642:2010 - Food Products – Determination of the Glycaemic Index (GI) and Recommendation for Food Classification; D. J. Jenkins et al., 1981; Willett et al., 2002]. Based on their GI value, foods are classified as having a ‘low’, ‘medium’ or ‘high’ GI ([Figure 1](#)). Numerous studies have shown that increased compliance with ‘low-GI’ diets has led to several positive effects on health, such as a reduction in body weight and in the risk of chronic degenerative diseases (Ludwig, 2002; Willett et al., 2002). For this reason, the main national (SINU, 2014) and international guidelines (Arnett et al., 2019; Sievenpiper et al., 2018) recommend the consumption of “low GI” foods. Since pasta and bread are derived from the processing of wheat, they are important sources of complex carbohydrates (starch). (Mastorakou D, Rabaeus M., Salen P, Pounis G, 2019). According to the latest dossier drafted by the International Pasta Organization (IPO), global pasta production has increased by 63% in the last 20 years, with countries such as Italy, Tunisia, Venezuela, Greece

and Chile among the top five in the world for its consumption (International Pasta Organisation, 2018). The nutritional quality of pasta is mainly attributable to the formulation and structure of the food matrix, (Colonna et al., 1990; Granfeldt & Björck, 1991), factors that determine its higher content of slowly digestible starch and lower susceptibility to the action of enzymes during digestion (Giacco et al., 2016; Petitot et al., 2009). Due to its ‘low’ GI value (Atkinson et al., 2008a; Camelo-Méndez et al., 2016; Foster-Powell et al., 2002; Giacco et al., 2016; F. Scazzina et al., 2016), wheat pasta increases blood glucose and insulin values to a lesser degree than the other starchy foods commonly present in our diet, such as bread, rice and potatoes (Granfeldt et al., 1991; D. J. A. Jenkins et al., 1983; T. M. S. Wolever et al., 1986). Considering the important role of pasta in our diet and its many nutritional and other advantages (long shelf-life, low cost, ease of preparation and consumption), different types of pasta made with legumes, vegetables and cereals have spread throughout the market in recent years (Firdaus et al., 2017; Goñi & Valentín-Gamazo, 2003; Oliviero & Fogliano, 2016; Turco et al., 2019; Wahanik et al., 2018). In fact, although wheat pasta is a food of good nutritional quality in its

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**Figure 2 METHODS USED TO PRODUCE ENRICHED PASTA WITH HIGH NUTRITIONAL VALUE**



own right, certain micronutrients (vitamins and mineral salts), fibre and bioactive compounds are very commonly impoverished during the production of refined semolina, reason for which whole-wheat flour is used (Giacco et al., 2016). However, since wheat lacks certain essential amino acids such as lysine and threonine, (Abdel-Aal & Hucl, 2002), adding legume flour to the pasta dough improves its protein biological value (Duranti, 2006). So wheat pasta can be used as a *carrier* of nutrients, vitamins, mineral salts or phytochemicals by adding various types of ingredient during the kneading phase (Figure 2) (Aravind et

al., 2012; Gallegos-Infante et al., 2010; Goñi & Valentín-Gamazo, 2003; Khan et al., 2013; Oliviero & Fogliano, 2016). At this stage, 'functional' foods come into play (Bogue et al., 2017; Karelakis et al., 2020). These produce an additional effect due to the presence of compounds (nutrients and non-nutrients alike) that are naturally present or added, and which affect a wide range of the body's physiological functions, facilitating the maintenance of a good state of health and/or reducing the risk of disease (*Handbook of Research on Food Science and Technology Volume 3: Functional Foods and Nutraceuticals*). In addition, the formulation of pasta from



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alternative ingredients such as legumes has also become widespread, also due to the growing market demand for gluten-free products.

## Consumption of enriched pasta and state of health

In recent years, several studies have investigated the positive impact of enriched pasta on the maintenance of a good state of health and on the reduction of the risk of certain non-transmissible diseases. A very recent study showed daily consumption of whole-wheat pasta rich in polyphenols and supplemented with  $\beta$ -glucans from barley and probiotics to be beneficial in obese subjects suffering from hyperglycaemia, by reducing levels of resistin (a molecule produced by inflamed adipose tissue) and C-reactive protein, which is also involved in the inflammatory process, as well as significantly decreasing the low density lipoprotein/high density lipoprotein (LDL/HDL) ratio (Angelino et al., 2019). Similarly, another study showed that consumption of whole-wheat pasta enriched in  $\beta$ -glucans and in spores of the probiotic *Bacillus coagulans* improved cholesterol homeostasis in overweight or obese patients, (Favari et al., 2020), probably due to beneficial changes induced by the prebiotic and probiotic

activity of  $\beta$ -glucans and *Bacillus coagulans* on the gut microbiota (Davis, 2018). The enrichment of pasta also appears to have effects on our sense of satiety. In fact, Martini et al. (Martini et al., 2018) demonstrated that the consumption of pasta enriched with a combination of fibre and protein by a group of 20 volunteers brought about a greater feeling of fullness, thereby significantly reducing energy intake at the next meal. In addition, the consumption of pasta to which certain flours such as legumes or whole grain red sorghum have been added has also had positive effects on cardiovascular health and antioxidant capacity (Bruno et al., 2019; Khan et al., 2015). Pasta formulated with fibre-enriched buckwheat has also been shown to induce a better and more stable postprandial glycaemic response than its corn counterpart in coeliac subjects with type 1 diabetes (Vetrani et al., 2019).

## Glycaemic index of wheat and enriched pasta

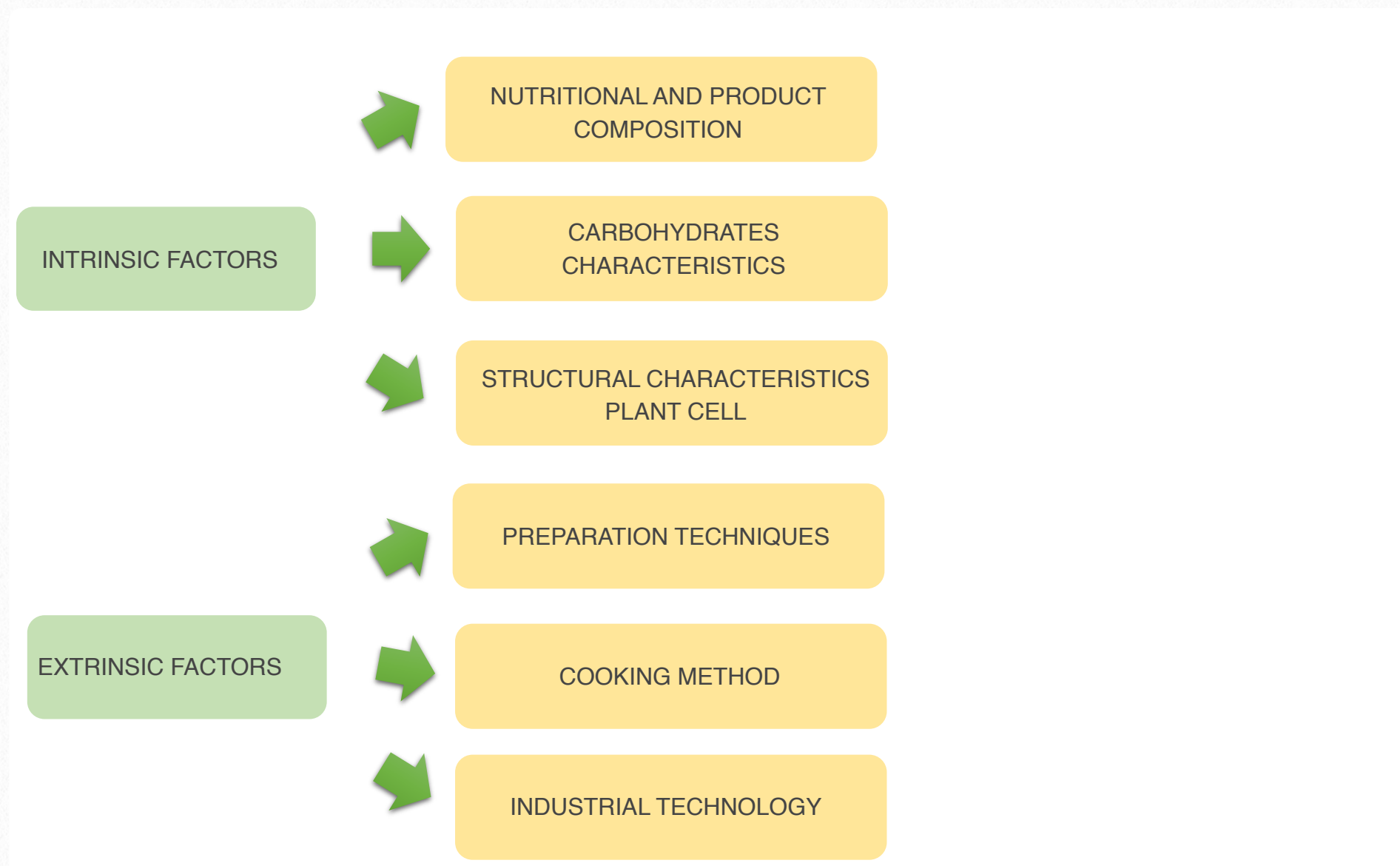
Nutritional composition and product quality are the main intrinsic factors (related to the origin or nature of the product) affecting GI (Englyst & Englyst, 2005) ([Figure 3](#)). Honey, jam and fruit juice, for example, due to their high simple sugar



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**Figure 3 MAIN FACTORS AFFECTING THE GLYCAEMIC INDEX OF A FOOD**



content, tend to have a higher GI than foods rich in complex carbohydrates (starch) and fibre such as wheat and legume pasta (F. Scazzina et al., 2016). Likewise, the production technology used may also influence the bioavailability of carbohydrates, by modulating blood glucose concentration in a different manner (Dall’Asta et al., 2020; Englyst & Englyst, 2005). Several intervention studies have highlighted the impact of the different formulations used in the production of enriched pasta and the GI (Blair et al., 2006; Firdaus et al., 2017; Marinangeli et

al., 2009; Francesca Scazzina et al., 2015; Turco et al., 2019).

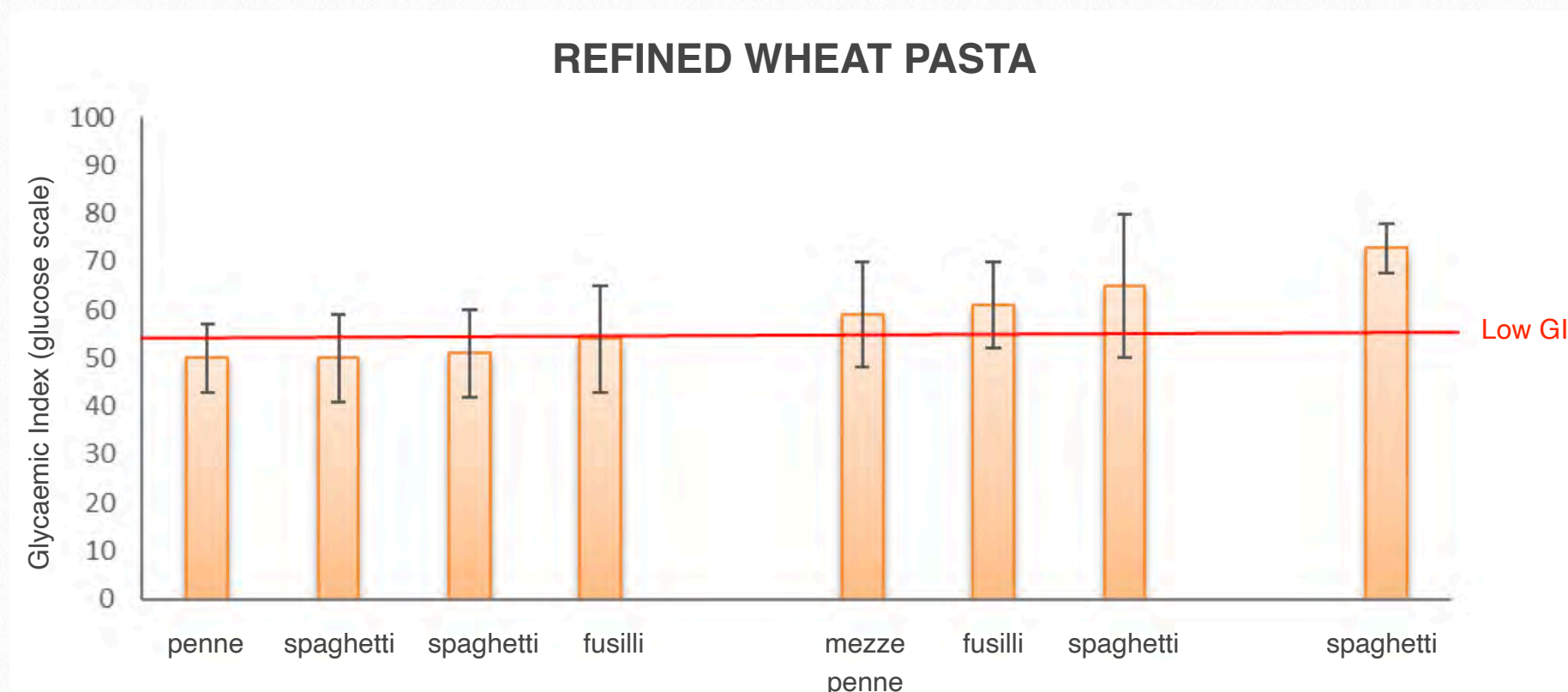
However, although bread has a fairly similar nutritional composition to pasta, it generates a greater increase in postprandial glycaemia due to the different technological process to which the raw materials are subjected. (Granfeldt et al., 1991; Kristensen et al., 2010). Although the reduced bioavailability of starch from refined wheat pasta is known, (Colonna et al., 1990; Granfeldt & Björck, 1991; Petitot et al., 2009), there is a tendency for the GI to increase in some cases for the same

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**Figure 4 GLYCAEMIC INDEX OF REFINED WHEAT PASTA (ATKINSON ET AL., 2008B; GOÑI & VALENTÍN-GAMAZO, 2003; C. JEYA K. HENRY ET AL., 2005; C J K HENRY ET AL., 2006; F. SCAZZINA ET AL., 2016)**



product (Figure 4). This could be attributable to the origin of the wheat, for example, or to the production technology used, which differ according to the country in which the food is formulated, and which could alter quality of the product, and hence affect its impact on postprandial glycaemia. The GI values of some types of pasta formulated with whole-wheat flour, flour produced from other cereals [spelt and barley (refined and whole-grain)] and egg are shown in Figure 5 A/B/C, respectively.

The higher fibre content in whole-wheat pasta appears to keep the GI of the pasta low (Figure 5A). Although fibre has been widely shown to modulate postprandial glycaemia by contributing to reducing the

risk of diabetes (Anderson et al., 2009) or by reducing the GI of bread (Francesca Scazzina et al., 2013), a higher GI has been observed in pasta and bread formulated with whole-wheat (Kristensen et al., 2010) and barley flour (Aldughpassi et al., 2012) (Figure 5B). The fibre carried by the bran part of the whole wheat caryopsis could have a negative effect on the structure and complexity of the food matrix, facilitating the action of the alpha-amylases involved in the digestion of carbohydrates (Bock et al., 2015; Manthey & Schorno, 2002). However, the tendency for pasta made with barley flour to have a higher GI could be attributable to the different technological properties of the flour obtained from this cereal during the



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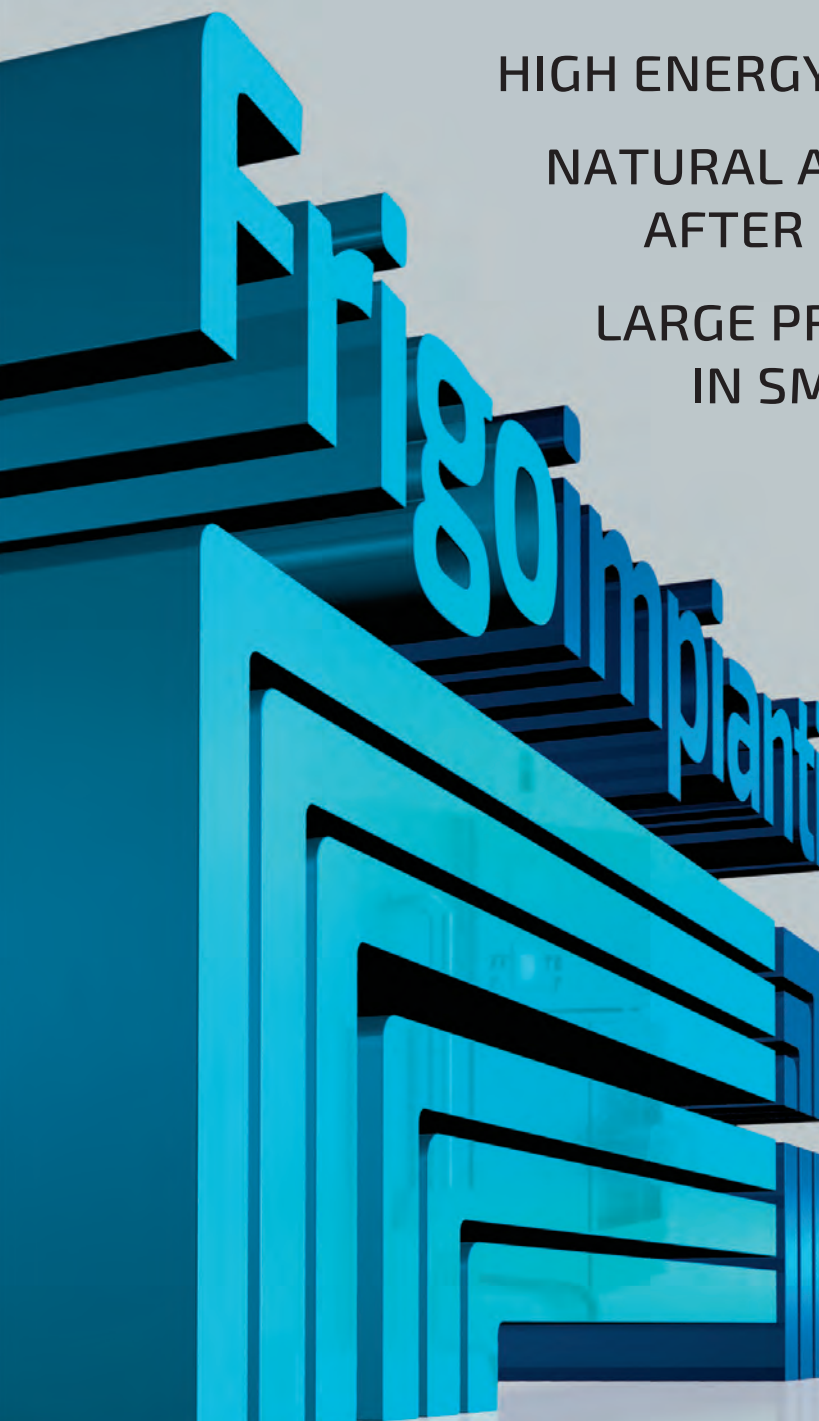
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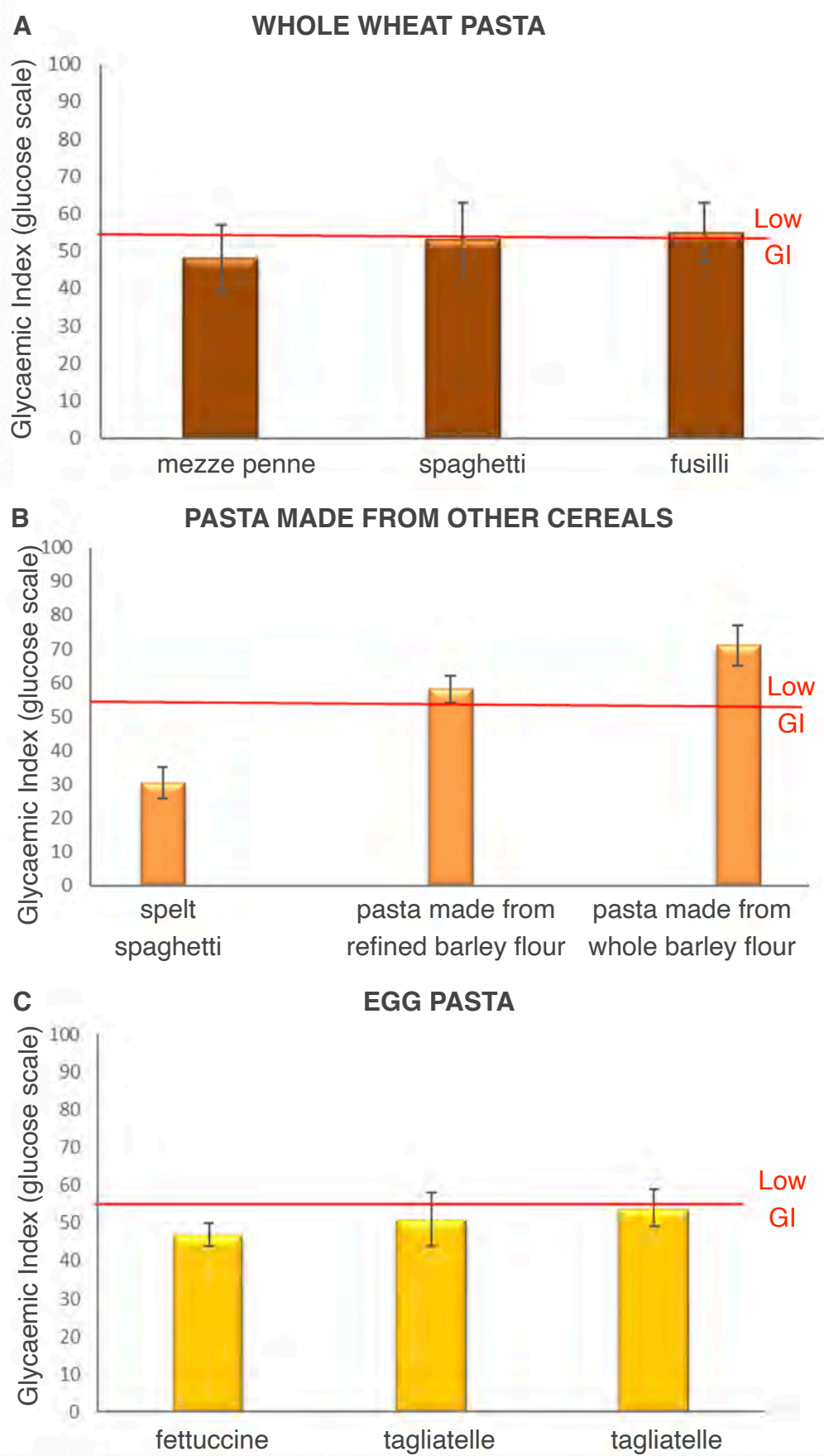


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**Figure 5 GLYCAEMIC INDEX OF PASTA MADE FROM WHOLE WHEAT (A) (C. JEYA K. HENRY ET AL., 2005; F. SCAZZINA ET AL., 2016), FROM OTHER CEREALS (B) (ALDUGHPASSI ET AL., 2012; FARES ET AL., 2008) AND FROM EGG (C) (ASTON ET AL., 2008; PERRY ET AL., 2000; F. SCAZZINA ET AL., 2016)**



pasta making process, compared to wheat. The main strategies used to formulate gluten-free pasta include replacing wheat flour with that obtained from gluten-free cereals such as rice and corn, or from legumes (partial or 100% formulation), or implementing food technologies that provide the gluten-free food matrix with a solid structure (Capriles & Arêas, 2016; Foschia et al., 2017; Woomer & Adedeji, 2020). Egg pasta tends to maintain a low GI (Figure 5C) due to the properties of certain macronutrients contained in eggs (e.g. fats and proteins) which have been demonstrated to have the power to positively modulate the postprandial glycaemic response (Pelletier et al., 1996). As can be seen in Figure 6A, the GI of gluten-free pasta tends to vary depending on the type and quantity of ingredients used in the formulation. Although the food industry and food design research are extremely interested in formulating a food that is not only gluten-free but also able to bring about a reduced postprandial glycaemic response (Bacchetti et al., 2014; Capriles & Arêas, 2016; Francesca Scazzina et al., 2015),



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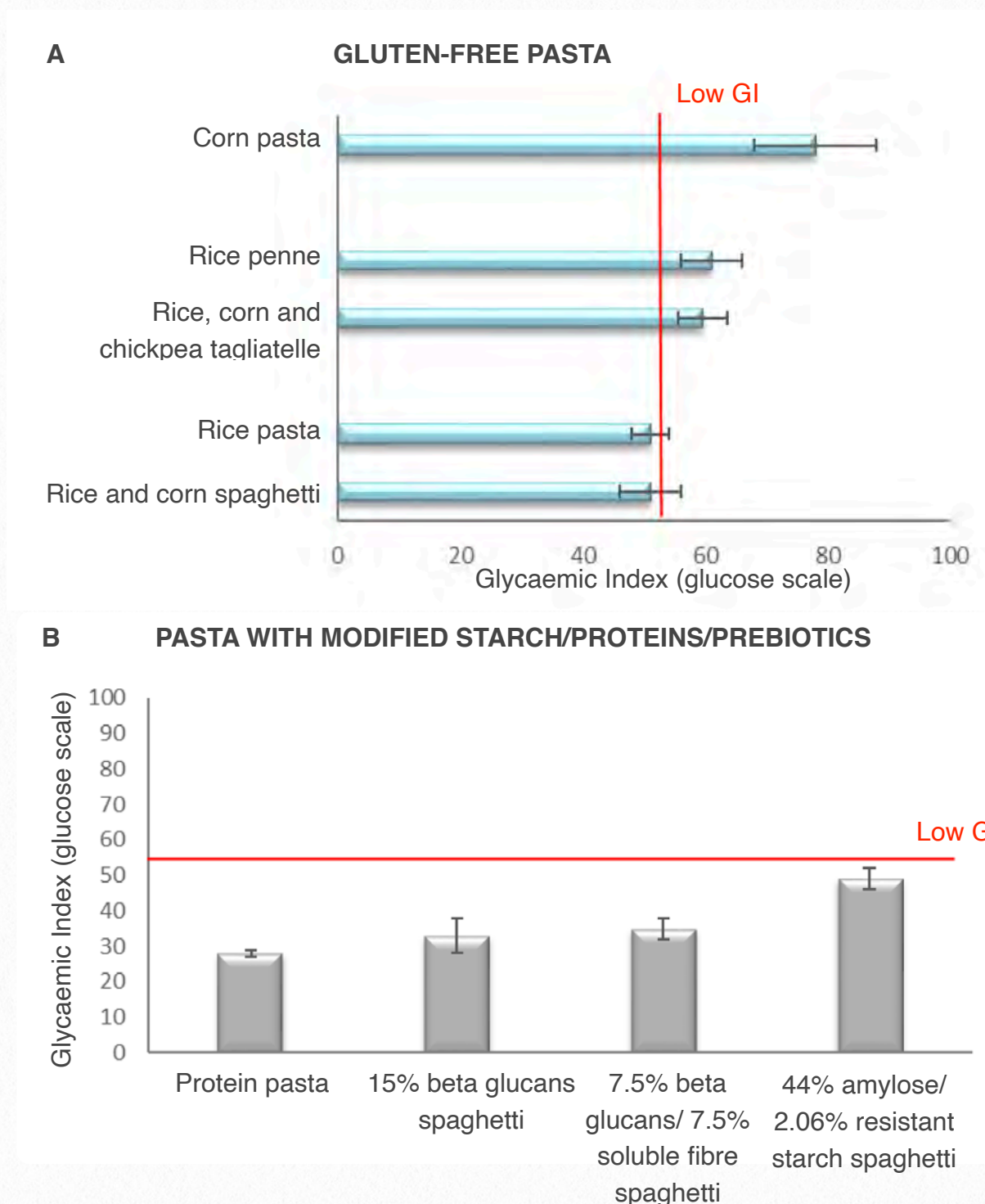
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**Figure 6** GLYCAEMIC INDEX OF GLUTEN-FREE PASTA (A) (ATKINSON ET AL., 2008B; BARBIROLI ET AL., 2013; FRANCESCA SCAZZINA ET AL., 2015) AND PASTA WITH ADDED MODIFIED STARCHES, PROTEINS AND PREBIOTICS (B) (ATKINSON ET AL., 2008B; PERESSINI ET AL., 2020; SISSONS ET AL., 2020)



some cases (e.g. pasta made from 100% corn flour) show the tendency of the absence of gluten to facilitate the digestion of carbohydrates and thus increase the GI of the product (Johnston et al., 2017; Pellegrini et al., 2020). However, the low GI of some gluten-free formulations could be

attributable to the addition of hydrocolloids and/or soluble fibre or modified starches during the kneading phase, (Belorio & Gómez, 2020; Capriles & Arêas, 2016; Sissons et al., 2020), as shown in [Figure 6B](#) which refers to pasta to which  $\beta$ -glucans, amylose and resistant starch

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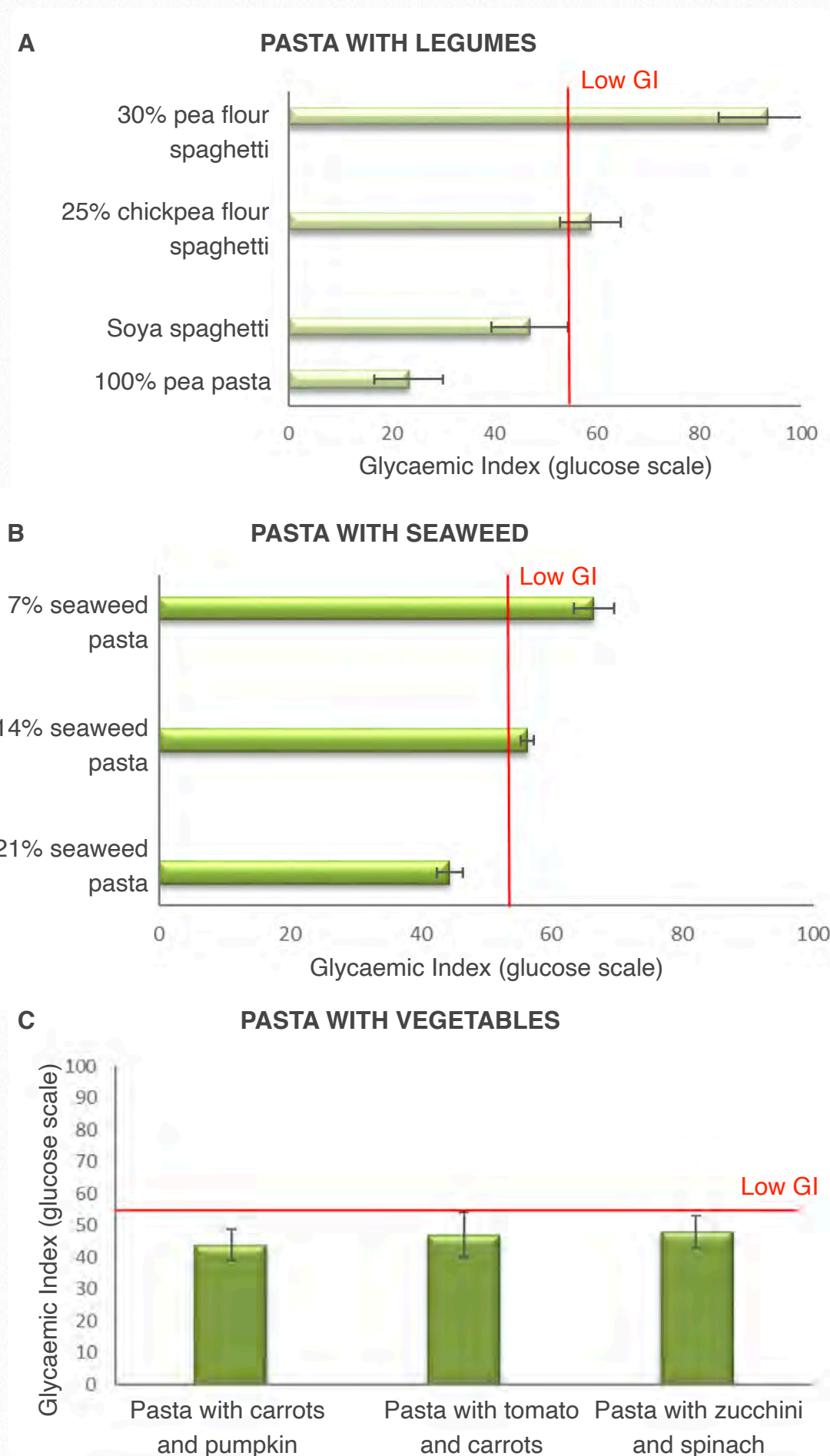


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**Figure 7 GLYCAEMIC INDEX OF PASTA WITH LEGUMES (A) (BLAIR ET AL., 2006; GOÑI & VALENTÍN-GAMAZO, 2003; MARINANGELI ET AL., 2009; TURCO ET AL., 2019), ALGAE (B) (FIRDAUS ET AL., 2017) AND VEGETABLES (C) (F. SCAZZINA ET AL., 2016)**



have been added.

As with gluten-free pasta, the addition of vegetable raw materials such as legumes (peas, chickpeas, soya), algae or vegetables (carrots, pumpkin, courgettes, spinach, tomatoes) (Figure 7 A/B/C) can be seen to change the GI of the product, depending on the heterogeneity of the various formulations used and marketed. In the case of pasta with legumes and algae, the GI of the product tends to decrease as the % of added ingredient increases. In fact, legumes, like vegetables, are low GI foods by virtue of their nutritional composition (fibre, slowly digestible carbohydrates, protein) (Trinidad et al., 2010; Venn & Mann, 2004). The hypoglycaemic properties of algae may be attributable to the content of certain phytochemicals (polyphenols), which inhibit the action of the enzymes involved in the digestion of carbohydrates after their consumption (Parada et al., 2019).



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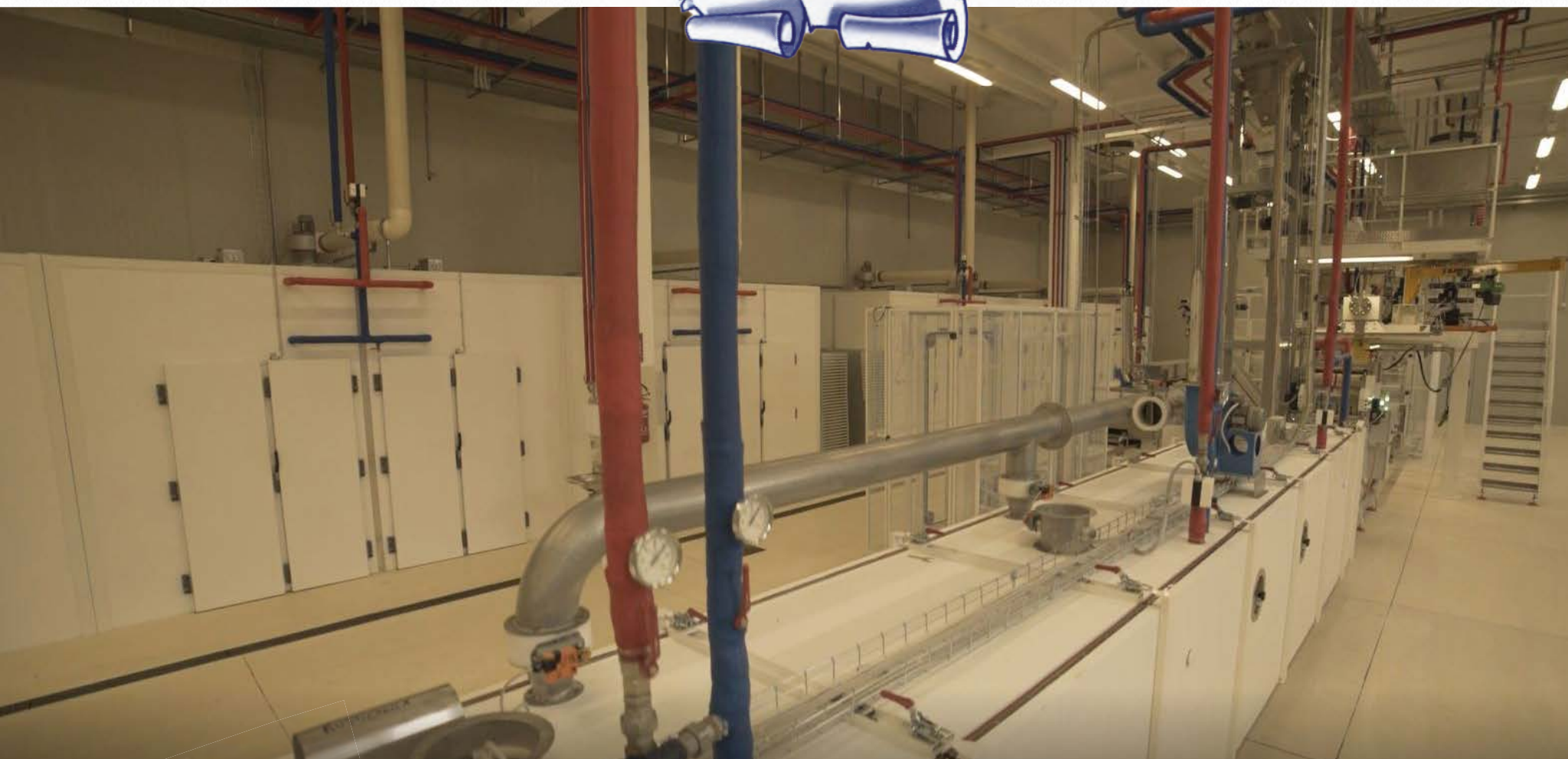
## Conclusions

Although only a few *in vivo* studies investigating the impact of enriched pasta on health have been conducted so far, their consumption appears to be beneficial. Since the results obtained to date on the relationship between the consumption of enriched pasta and health are preliminary, future studies will be required to clarify the potentially positive role of these foods. GI has been acknowledged as a useful parameter for the nutritional classification of carbohydrates. Given that the consumption of high-GI foods has been found to have a negative impact on health (Ludwig, 2002), it is important to pinpoint all the factors connected with the production of a food that increases postprandial glycaemia and thus the GI. While wheat pasta is acknowledged to be one of the main low GI foods in the Mediterranean diet, the effect on its GI of adding various ingredients should be taken into account when formulating a product with high nutritional quality.

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# 2



## The importance of water to Molino Dallagiovanna

Molino Dallagiovanna  
Press release



**An age-old good manufacturing practice kept alive by Molino Dallagiovanna: washing the wheat.**



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## **Premium flours from washed wheat**

The common denominator and strength of all Molino Dallagiovanna flours lies in the immersion washing of the wheat. Key to this process is the wheat-washing machine, a closed tank in which augers of various sizes move the wheat through the machine, immersing it under jets of water, like a large washing machine, and removing all the impurities.

This good practice, abandoned for economic reasons by most modern mills, lives on at Molino Dallagiovanna, where the value and many benefits of washing wheat have always been recognised.

## **The benefits of washed wheat**

### **Softer grains, easy to grind**

At Molino Dallagiovanna, each individual variety of wheat is ground in its pure state, allowing the grain to absorb the correct quantity of water, making it softer and ready for the milling stage.

Indeed, each type of wheat has its own absorption level. If wheat were simply sprayed with water rather than being washed thoroughly, not all varieties would receive the right quantity of water, preventing the caryopsis from softening properly.

Once properly wet and softened, and free from impurities, the wheat is ground slowly, cold, and consistently, using less invasive methods that better respect its specific properties. Indeed, washing the wheat facilitates the hulling of the grain, making it easier to peel and divide properly into all of its various parts, such as the bran, middlings, groats and germ.



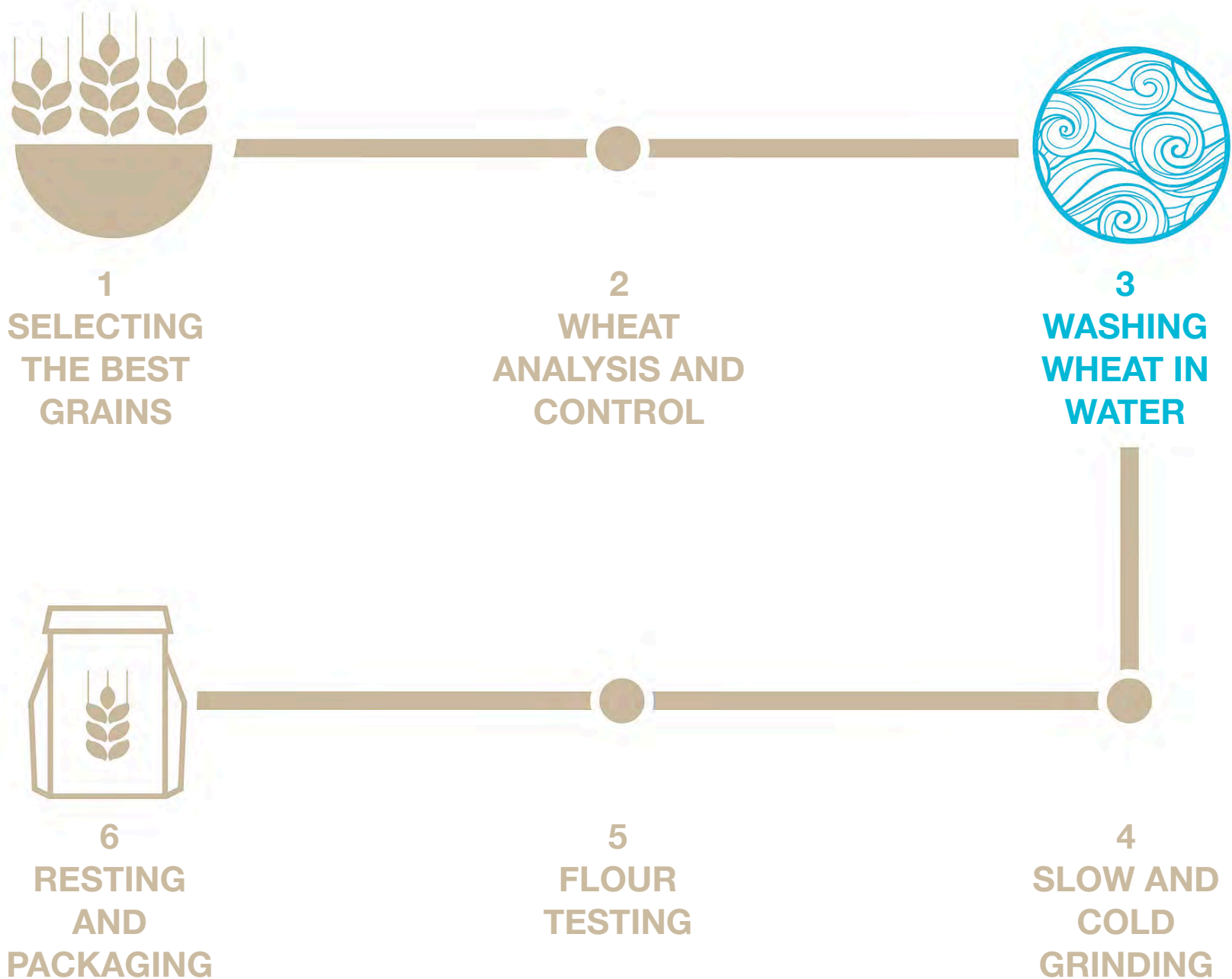
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**Washed wheat produces a pure, white flour with an intense aroma**

Another benefit of washed wheat is the purity of the resulting flour, together with its intense colour and authentic scent. What stands out upon opening a bag of Molino Dallagiovanna flour is that the dominant colour is white, not grey, while the scent is of pure wheat, rather than paper.

It is akin to working on a canvas: the white base emphasises all the other colours the artist chooses to use. In the same way, “white art” professionals will start with a

white base, before adding other ingredients that become perfectly absorbed and their colours exalted. Fresh pasta, for example, will absorb the yellow of the egg, and will not tend to turn grey even during storage. Vanilla will be perfectly discernible in deserts, and the aromas and scents of other ingredients will also be absorbed more easily, allowing the various scents of each creation – sweet or savoury – to stand out.



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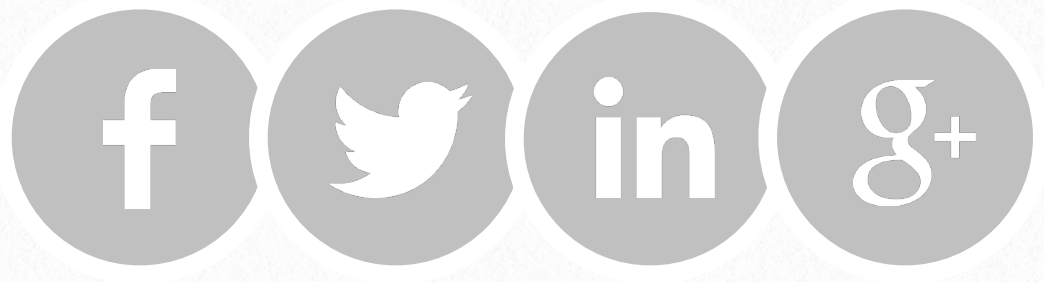
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Piemonte Nord

3



# Commodity price observatory 2/2021

Pastaria Centre for Economic Research



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



The escalation of commodity prices, which on international circuits has also involved the most important food raw materials, is alarming operators and economists, who are concerned about the worsening of inflationary phenomena in a context of persistent expansionary monetary policies. Statistical evidence points to an increase in the cost of living in the Eurozone from 0.9% in February to 1.3% in March, within a framework of even faster price growth, as reported by the US Census Bureau across the Atlantic. Although some operators are convinced that this is only a transitory situation, the double-digit increases in agricultural commodity prices are already having repercussions on the 'ex-factory' prices of processed products, from tinned tomatoes to pasta, from vegetable oils to bakery products.

At this stage, the industrial cost structure is also struggling to contain inflationary pressure from the energy and sea freight sectors (and also, in the US, from rising wages), the implications of which, at least in a short-term perspective, explain the growing concerns of the analysts. World Bank estimates, published in the Commodity Markets Outlook for April 2021, expect an average price increase of 14% this year for agricultural and food raw materials. The double-digit increases in cereals and oilseeds (soya in particular), which proved to be just as significant for high-protein content flours, contradict forecasts for 'moderate' growth, which actually rose well beyond expectations.

The prospect for a gradual normalisation of the situation remains in the background, and World Bank experts expect prices to stabilise as early as 2022. If nothing else, these evaluations seem to diminish the likelihood - feared by some analysts - of a commodity price "supercycle", in the food sector, at least, a forecast that undoubtedly contributed to increasing tensions, especially in financial circuits.

In general, markets appear to be sufficiently supplied, also in view of the positive prospects for cereal and soya bean harvests in the 2021-22 season, which officially starts in July. International Grains Council estimates, released at the end of April, confirm the forecast of a record worldwide wheat production (both soft and durum) of 790 million tonnes,

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**PRICES AND TRENDS OF CERTAIN FOOD RAW MATERIALS (APRIL 2021)**

	Price (€/ton)	Monthly variation	Annual variation	Forecast
<b>National fine common wheat</b>	237	0.6%	12.6%	=
	Price (€/ton)	Monthly variation	Annual variation	Forecast
<b>Fine durum wheat from North Italy</b>	289	-0.3%	2.6%	=
	Price (€/ton)	Monthly variation	Annual variation	Forecast
<b>00 type common wheat flour</b>	455	0%	5.8%	=
	Price (€/ton)	Monthly variation	Annual variation	Forecast
<b>Semolina above min. leg. req.</b>	493.5	0%	-0.4%	=
	Price (€/ton)	Monthly variation	Annual variation	Forecast
<b>Eggs M</b>	13.75	0.9%	-1.8%	▲
	Price (€/100 pcs)	Monthly variation	Annual variation	Forecast
<b>Pork hams for Prosciutto 12 kg and over</b>	3.38	1.2%	17.4%	▼
	Price (€/kg)	Monthly variation	Annual variation	Forecast
<b>Beef – veal meat half-carcass, prime quality</b>	5.08	0%	-7%	=
	Price (€/kg)	Monthly variation	Annual variation	Forecast
<b>Raw milk</b>	32.13	-5.8%	5.8%	▼
	Price (€/100 kg)	Monthly variation	Annual variation	Forecast
<b>Centrifuged butter</b>	4.05	2.3%	33.7%	▲
	Price (€/kg)	Monthly variation	Annual variation	Forecast
<b>Grana Padano aged for 9 months or more</b>	7.18	-2.7%	5.9%	=
	Price (€/kg)	Monthly variation	Annual variation	Forecast
<b>Extra virgin olive oil</b>	4.8	0%	45.5%	=
	Price (€/kg)	Monthly variation	Annual variation	Forecast

*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.*



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## PRICE MONITORING

FAO Food Price Index	Price (2014-2016=100)	Monthly variation	Annual variation	Forecast
	118.5	2.1%	24.6%	▲
Soft Red Winter FOB US Gulf port	Price (USD/ton)	Monthly variation	Annual variation	Forecast
	276.63	0.1%	15.8%	=
Mais, U.S. No. 2 Yellow FOB US Gulf port	Price (USD/ton)	Monthly variation	Annual variation	Forecast
	245.24	4.6%	45.4%	▲

*IMF Food Price Index: February 2021; Soft Red Winter, Mais: March 2021*

albeit with the expectation of a “monstrous” consumption of 782 million tonnes, revised upwards by 4 million compared to March estimates. The output of corn, a ‘sensitive’ product, along with soya beans, because of its implications for the livestock sector, is also expected to reach an all-time high of 1,192 billion tonnes this year. This level is, however, below global consumption and, so further reductions in global stocks are likely. Current forecasts, as mentioned above, incorporate inflationary elements associated with possible “triggers” along the price transmission chain, originating in the energy sector. Already in the upstream stages of the food & beverage production chain, the phenomenon has materialised in the form of a sharp increase in fertilisers, the prices of which are closely linked to crude oil

prices. In 2021, according to World Bank estimates, prices of fertilisers and soil improvers will increase, on balance, by almost 30%, and this is likely to affect the prices of primary products. These estimates also forecast increases of 14% for cereal products as a whole, 29% for oilseeds and flours, and an average increase of 5.2% in 2021 for the remaining agri-food commodities. An overview of national Commodity Exchanges shows that, while they appear to be in line with global dynamics, prices seem to be going in different directions. Only some livestock productions - particularly beef and eggs - have bucked the trend, showing some year-on-year declines. In contrast, the gap has widened, compared to April 2020, for pork, butter and extra virgin olive oil. Among cereals and cereal by-products,



# NATIONAL PASTA ASSOCIATION

## Annual Meeting | October 17-19, 2021

2020 has been a year of change, and our 2020 Annual Meeting was canceled due to the risks that COVID 19 posed on an in person meeting.

As the NPA Member Education Committee began to plan for 2021, the current state of the country, member safety and comfortability had to be taken into consideration. After much deliberation, the NPA Board of Directors has made the decision to postpone the NPA 2021 Annual Meeting from its originally scheduled dates of March 21-23 to **October 17-19, 2021** to allow for an in person event in Florida.

The meeting will be held in the same hotel, the Ponte Vedra Inn & Club in Ponte Vedra Beach, FL, and registration rates from the March 2020 meeting will be rolled over and applied to the new October dates for those who had previously registered.

On a positive note, this allows us to be together during National Pasta Month and celebrate National Pasta Day (October 17) in person! More information about registration will be forthcoming in a few months. We are excited to see you in October!

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current listings on the Bologna Commodity Exchange indicate positive deviations of around 13% for soft wheat and 6% for flours. Prices were also around 3% higher for durum wheat, while semolina showed a fractional 0.4% year-on-year decrease. Further confirmation of the ongoing tensions in the food commodity circuit comes from the monthly FAO Price Food Index, which is 25% higher than it was a year ago. In March 2021, the index

notched up its tenth consecutive monthly increase, reaching its highest level since June 2014.

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### SUGGESTED APPLICATIONS



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4

# Short news



Editorial staff



## **Barilla, partnership with illustrators and designers.**

### **Pasta as “a sign of love”**

Barilla, seeking new dried pasta shapes for a different consumption experience, has launched a competition on the Desall.com platform. Contestants are asked to design new concepts of pasta distinct from those generally used. The purpose of the new product is to revolutionize the aesthetic, functional and gastronomical aspects of pasta which, in addition to shape, may also cover the use of new raw materials. The shapes should be clear, well-defined, new and innovative, able to spark consumers' curiosity at the time of purchase and to unleash their creativity when using the product. Surfaces can have different types of finish, from super-smooth to super-rough and it is possible to imagine a type of pasta that changes shape during cooking. The new shape should attract the sauce, containing or holding it inside it, naturally without the use of additives.

But the creativity drive does not end here. Recently eleven Italian artists have used their art to tell the story of the 100% Italian wheat in Barilla's "Grani D'Autore" initiative. Using the language of art, the company wished to convey its values and its work from sowing through to

harvesting, in order to promote a responsible, high-quality and sustainable Italian agricultural supply chain. The departure point and inspiration for this art project was the innovative vision of the product and supply chain summarised in the "Barilla Durum Wheat Manifesto", a ten-point statement listing the company's commitments, and its guiding values, for quality pasta. The following artists were involved: Irene Rinaldi, Giulia Conoscenti, Andrea Boatta, Celina Elmi, Emiliano Ponzi, Ale Giorgini, Massimiliano di Lauro, Alessandro Baronciani, Francesco Poroli, Elisa Seitziger and Cristian Grossi. With a new campaign launched all over the world, Barilla also returns to a more emotional approach. Underneath the new message "Barilla. A sign of love" cooking pasta becomes a way of communicating what we often cannot say with words; difficult admissions such as "I love you", "I missed you" or "sorry, it's my fault" can be summed up in a simple dish of pasta. This is the story at the heart of the brand film that represents Barilla's communication manifesto and opens with the question: "What can you say without words?". A host of stories with a classic, yet highly contemporary flavour: these will be the subjects filmed for the integrated global campaign to be aired in 40 countries.

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## **Rana turns pink and makes a super donation to the food bank, Banco Alimentare**

In four regional recipes, ravioli and fresh filled pasta come in pink boxes, the colour of the cyclists' most coveted jersey, that of the Giro d'Italia 2021, for which Rana is the official pasta brand. And just as the athletes cycle through Italy, Rana will travel from North to South, from kitchen to kitchen, with four stages of taste in the name of tradition: from Creamed salt cod to Pasta alla Norma, from Ossobuco and Risotto with saffron to Carbonara. Through this new range, the pasta factory renews its commitment to fight poverty at a difficult time for many Italian families: for every pack bought, Rana will donate a fresh product to Banco Alimentare, the Italian Food Bank.

A similar solidarity initiative was promoted by the pasta factory as of last October when, for every pack of sweet ravioli with chocolate, two packs of fresh pasta were donated to Banco Alimentare. The results achieved were beyond expectations: 2,136,456 dishes of fresh pasta were donated and roughly 267 tonnes of Rana products were served at the tables of people in need. This is how the Rana family has involved consumers in recent

months, turning a simple purchase into an act of generosity.

## **Alessia Marcuzzi testimonial for Pasta Felicia**

Alessia Marcuzzi is the new face of Pasta Felicia, a brand of Andriani S.p.A., one of the most important companies for innovation in the food industry. Pasta Felicia is an innovative type of pasta based on cereals and legumes, organic and naturally gluten-free. Alessia Marcuzzi interprets the values of the brand to perfection: a healthy diet that helps generate optimism, not only at the table but in life in general. The commercial is designed for TV and social media. Its Leitmotif "Let's feed optimism" expresses the values of a product that is both healthy and versatile, ideal for everyone's lifestyle, a product that has revitalised the alternative pasta market, with a wide range of recipes and pasta shapes, produced in Italy's only allergen-free pasta factory with an incorporated multigrain mill.

## **Abruzzo features in Pastificio Rustichella's first pasta commercial**

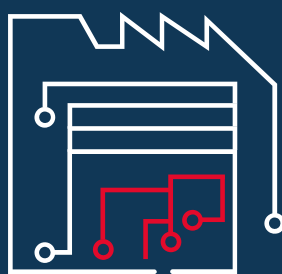
In the 30 seconds of its first commercial, Rustichella d'Abruzzo has focused on some of the symbols of the region of

# RAM

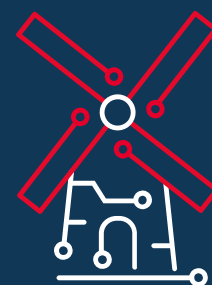
## ENGINEERING SOLUTIONS



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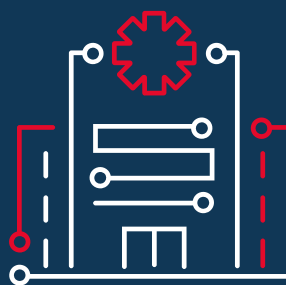
**Storage  
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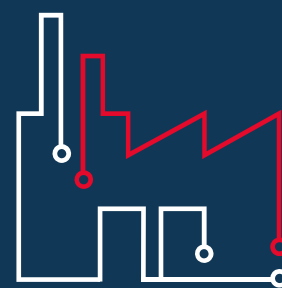
**Milling  
Industry**



**Feed  
Industry**



**Pharma  
Industry**



**Other  
Industry**



Abruzzo, recounting its traditions and values: the “Presentosa”, the region’s symbolic jewel, gleams on the neck of a young woman who recalls D’Annunzio and Michetti’s Mila, as she moves gracefully in the midst of linen sheets, with pasta in the background. The commercial, designed by director Pierluigi Di Lallo, will be aired on Sky channels. “The video represents what we have been doing this year,” said the president of the Peduzzi pasta factory. “We have reviewed our business and digitalization processes, and focused on personnel training.” The long-established pasta factory, founded in Penne in 1924 at the initiative of Gaetano Sergiacomo, is now located in Pianella, managed by the founder’s grandchildren, brother and sister Gianluigi and Stefania Peduzzi.

## **Garofalo: record turnover, solidarity and sustainable cuisine**

2020 was a record-breaking year for Pastificio Garofalo, which closed the financial year with a turnover of €220 million, up 35% on 2019, and with a stable EBITDA of just under 13%, but up in terms of absolute value. The year 2020 was very important for Gragnano’s renowned pasta factory. Notwithstanding a market scenario

severely burdened by the pandemic and a large-scale distribution system taken by storm, particularly in the first few months of the lockdown, Garofalo managed not only to immediately implement all the safety measures required to guarantee a safe workplace for its personnel and non-stop production, but also to keep abreast of the unprecedented stocking requirements of large-scale distribution, ensuring a continuous supply. These efforts paid off and the company ended the year on a positive note and even increased its exports, notwithstanding the period of adversity. Today, exports account for 60% of the company’s turnover.

“Garofalo is growing abroad but continues to invest and manufacture in its place of origin, Gragnano, where at the end of 2019 we had 203 employees, including 14 new entries in 2019 alone, a 75% increase in hiring compared to the previous year,” comments Massimo Menna, CEO of Pastificio Garofalo.

Nor has the Gragnano pasta factory rested on its laurels in terms of initiatives and new projects. On International Women’s Day, Pasta Garofalo promoted the new initiative “L’Amore ha un Peso” (Love has a Weight), developed in cooperation with Carpisa. The two brands chose to join forces to support the food bank, Banco Alimentare, by donating 10,000 kg of pasta to people



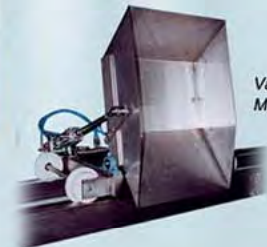
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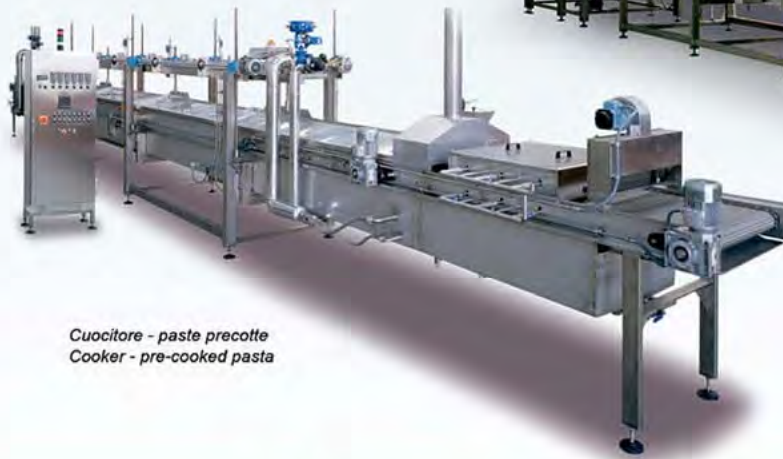
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TECHNOLOGY PERFORMANCE RELIABILITY

in need. The campaign also involved 14 Italian chefs who created their own video-recipe especially for the occasion, based on pasta and simple ingredients. Pastificio Garofalo has also chosen Alta Cucina, a media-tech company and food community that promotes Italian cuisine worldwide, for the multichannel project “Adesso Pasta!” (Pasta Now!), a campaign that, starting from a Social Observatory created through interactive stories on Instagram and Facebook, aims to encourage people to reflect on the importance of sustainability in cooking: from the use of seasonal products to recyclable packaging, and from creative recycling to ingenious ideas for avoiding waste.

## **La Molisana: pasta for every sign of the zodiac**

The Campobasso-based pasta factory, La Molisana, has assigned a specific pasta shape to each sign of the zodiac. A G-astrological stroke of genius! A weird but unquestionably wonderful idea that no one had ever had before La Molisana. It is also the basis for a collection of serving dishes, whose design was handmade by Florentine craftsmen. A dish for each sign of the zodiac, with a graphic detail that changes into the pasta shape assigned by

the G-astrology. They can be purchased in sets of three, according to their classification: air, water, earth and fire. An original gift idea for those who love cooking or astrology. The pasta-sign combination follows certain character traits traditionally associated with people of a particular sign: there is a pasta shape for the determination of Capricorn, one for the apparent roughness of Aquarius, another for the edginess of Taurus and so on. Over recent months the pasta factory has also dedicated time to solidarity. Thanks to the “Associazione Nazionale Stelle e Palme al Merito Sportivo” (National Association of Stars for Athletic Achievements), La Molisana donated 500 kilos of pasta to Casa Santa Marta, a Vatican organisation that takes care of sick children and their families.





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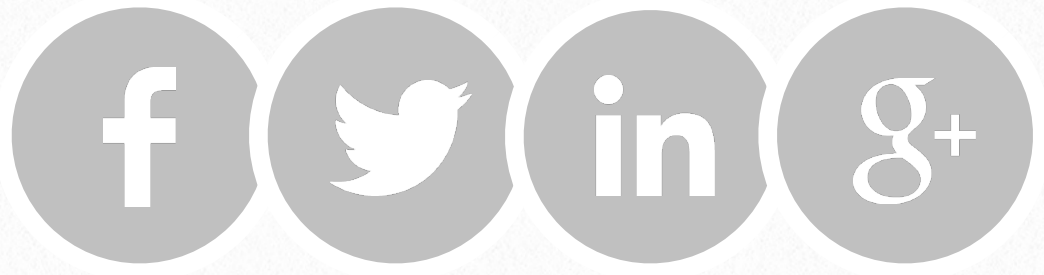
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5



# Land area dedicated to cereals in decline in Italy, but durum wheat counters the trend

Pastaria Centre for Economic Research



Long-term trends regarding agricultural land use indicate an increasing focus on durum wheat cultivation in Italian countryside. This is the finding of an ISTAT survey based on 10 years' data on utilised agricultural area (UAA) which, despite the growth in durum wheat, shows a downward trend in terms of general cereal crop dynamics, mainly attributable to disinvestments in corn.

The analysis shows a slight increase in national UAA in the 2010-2020 period, quantified at around 0.9%. However, this growth is accompanied by a change in the ways land is used, with arable land in decline and permanent grasslands, together with woody crops, instead experiencing strong growth.

According to the experts, the data reflect a progressive reduction in activities that require the presence of the farmer in the field, in favour of extensive crops that, due to their characteristics, generally require less labour.

Official statistics show that just over 3 million hectares were dedicated to cereals in 2020, compared to 3.6 million in 2010 (-14.7%). In contrast, in terms of woody crops, orchards have gained area (+7.2% compared to 2010), although historical trends suggest strong differentiation in long-term dynamics if analysed at a geographical level.

In southern Italy, which is in fact the only macro geographical area where the trend is reversed, the area dedicated to cereals has grown significantly over the course of a decade (+6.1%), accompanied by a considerable increase in its share of the national figure, up from 24.2% in 2010 to 30.3% in 2020.

Particularly noteworthy is the role of Apulia, currently the region with the highest cereal UAA in the country, and where the majority of investments (83% of the total) are in durum wheat, with an area of over 344,000 hectares.

As mentioned, significant changes emerged in the period under observation, particularly in the durum wheat and corn sectors. The former moved from a share of 36.9% in 2010 to more than 40%, while corn lost a total of 6 percentage points, falling to approximately 20% of the share. Areas

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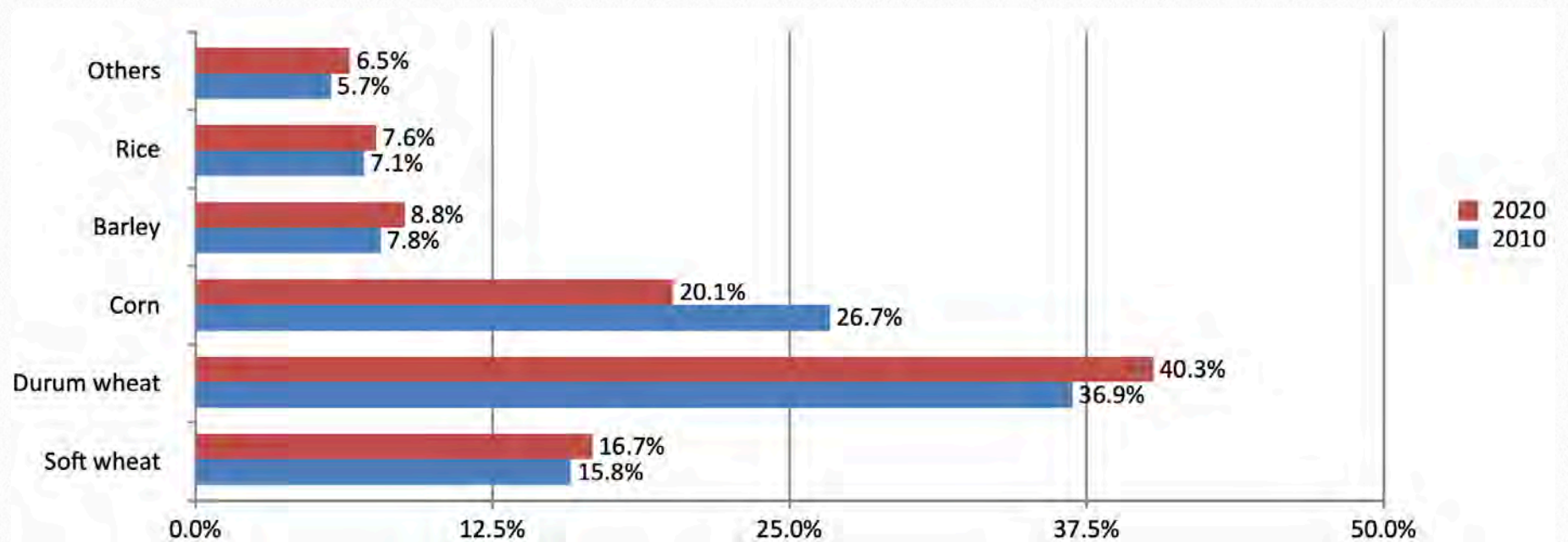
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**Grafico 1 CEREALS, SHARE OF AREA IN ITALY (ISTAT)**



dedicated to soft wheat and barley also saw an increase, albeit relatively modest, while no significant changes emerged in relation to lesser-used cereals.

According to ISTAT, the increasing interest in durum wheat among Italian farmers is driven by the upward price trend attributable to greater industrial use than in the past (the primary end users are pasta factories, but increasing use in bread and cous cous production has also been recorded).

A phenomenon confirmed by the most recent developments in terms of consumption and global trade of pasta, in the context of the pandemic emergency that saw an emphasis on purchases of preservable and generally more affordable food products.

The last business year, which will officially close in June, saw excellent performance at all levels of the supply chain, confirming a strong interest in Italy in durum wheat cultivation.

In this regard, cereal sowing forecasts for the 2021 agricultural year point to predicted annual growth of 1.6%, largely driven by durum wheat.

ISTAT notes that this figure counters the trend seen in previous years, negatively affected by constant erosions of company margins and an increase in production costs.

The change is confirmed by sowing declarations by Italian farmers, gathered by ISTAT as part of its standard annual survey, which, specifically with regard to durum wheat, indicate a 5.6% increase in cultivated area compared to 2020.

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With regard to corn, too, indications suggest a change in direction compared to the dynamics seen over multiple years, following the adoption of a national plan to support the sector.

Losing ground, meanwhile, are barley and soft wheat, down 7.7% and 1.6% this year compared to 2020.

In geographical terms, durum wheat cultivation is growing across all geographical areas, particularly in the North East (+24.7%), driven by Emilia Romagna, which has a concentration of specialised and high-productivity companies.

With regard to the health emergency, ISTAT concludes that there were no significant

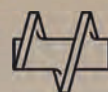
impacts on investments in cereals or on production in 2020, though widespread negative sentiment was observed among farmers due to growing fears of a potential cost increase.

It should be noted that the primary sector availed of extraordinary funds that mitigated the losses associated with the pandemic. The majority of farms (59.2%) declared that they had applied for and received at least one form of financial support, mainly consisting of state aid. Various companies also drew on European funds and other forms of support, including suspension of mortgage payments and the granting of zero-rate loans.



FOOD TECHNOLOGIES

*Fresh filled or non-filled pasta, dry, special, raw flour, pre-cooked, pasteurized, frozen pasta, gluten-free or not, using or not special flours: there are no limits to the customization of your industrial plant of pasta production.*



## PASTA MACHINERY



FRESH PASTA



PRE-COOKED PASTA



DRY PASTA

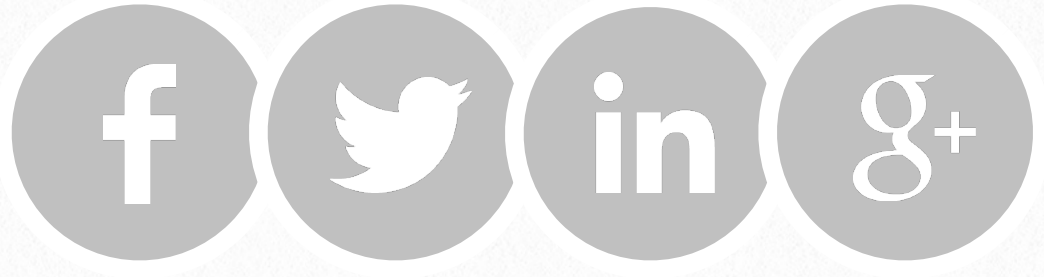


GNOCCHI



# 6

## Eocene



Editorial staff



**A bond with the territory, ancient grains, short supply chain and limited production capacity: these are the hallmarks of the Sicilian pasta factory, Eocene.**



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Even when they reach retirement age, artisans like Vincenzo Lo Castro don't even consider stopping work. Fortunately. After a life dedicated to food products, the Sicilian pasta-maker, former owner of a long-established company specialising in ingredients for ice-cream parlours and pastry shops, decided in 2004 to start a new business involving his children Vito, Sergio and Silvia. Sales manager, food technologist and administration manager, respectively. But what Vincenzo Lo Castro has designed and developed is not just a 'simple' pasta factory, but an experimental project in the real sense of the term, where the production of dried pasta is actually only one phase of a more extensive system. The agricultural producers, all local farmers, are in fact both suppliers and customers. They are the ones who supply the raw materials, but they are also the ones who purchase the finished products, supplied under their own brand name. And they take care of the commercial aspect of selling them. Milling is carried out totally and exclusively by a local mill, while processing, as mentioned earlier, is the responsibility of Eocene, which is both the purchaser of the grain and the supplier of the finished product. And the various players in the chain - which is very short - may either be suppliers or customers but, first and foremost, they are partners working towards a common goal: to create value in their local territory.

Years after the launching of this ambitious project, it may be said, without fear of contradiction, that it has been successful and continues to fulfil its goals. A stable relationship has been established between the primary and processing sectors, in which the exchange is of mutual benefit. The cultivars are not, in fact, the most widespread of the moment; they are exclusively ancient Sicilian grains which, despite having a lower yield, have achieved the right



**FOR LITTLE PASTA MAKERS**

## PASTO-DRYER

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- Pasteurizing
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FOR YOUR GROWTH**

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balance in terms of relationships within the chain.

In the province of Trapani, in the municipality of Salemi bordering with Marsala, in a mostly agricultural area, mainly covered with vineyards, olive groves and wheat fields, typical Sicilian cultivars - little known, but of great interest in terms of taste - have been being sown for some years now. Perciasacchi, Timilia, Russello, Bidì, to name but a few. Ancient grains that have a lower yield, but

guarantee a unique aroma and taste. And precisely because of their lower return on investment, Eocene reimburses the difference to the farmer, also offering guarantees of purchase and of continuity in business relations.

The result for the consumer is a locally-sourced pasta, from untreated grains, made from cold-milled semolina, used within a week of milling. As well as being whole-grain, it is also wholesome pasta. Low in gluten and low in protein, it



We prepare  
stuffing and sauces  
... you do the pasta!



is the result of complex processing using machinery especially designed for craft workshops. The slow drying process does the rest and creates a product that continues to release the scents and colours of the grain for months, both before and after cooking.

Products include low grade semolina pasta - a halfway house between semolina and whole-grain pasta - a product in which the coarse bran is sifted, so as to appeal to the taste of those who enjoy semolina pasta but would like a product richer in

fibre. A speciality that is also suitable for those who are not coeliacs but who are, nonetheless, sensitive to gluten. The process is designed for craft production, so the output is small: 12 tonnes per week, in regional formats: busiate typical of Trapani, anelletti, trecce, taglioline, spaccatelle messinesi, caserecce, scialatielli, occhi di lupo to name a few, available mainly in specialist shops, in 500 gram packages for the family or in larger packages for restaurants.

With organic certification acquired some time ago and BRC and IFS certification in the pipeline, Eocene pasta has crossed regional borders to reach the rest of Italy but that's not all! It is also shipped to the United States, the United Arab Emirates, Canada and Hong Kong.

When the Lo Castro family are asked about their plans for the future, they are quick to reply: "we don't have any particular plans, other than to continue doing what we've been doing up till now, with the same energy and the same goals, without giving in to the temptation to choose other paths which could be more profitable, but which would distance us from our territory".

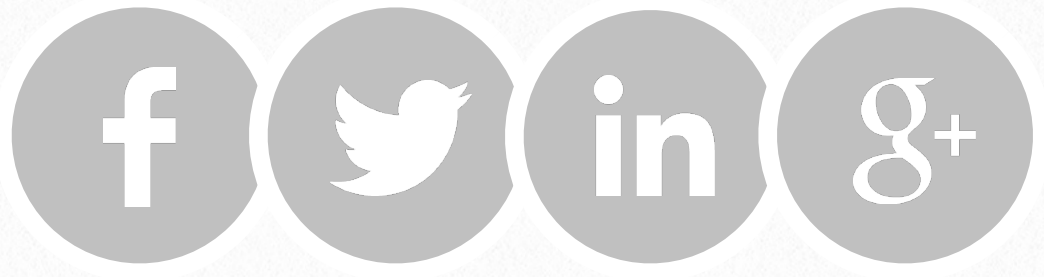


# MACCHINE ED IMPIANTI PER PASTA

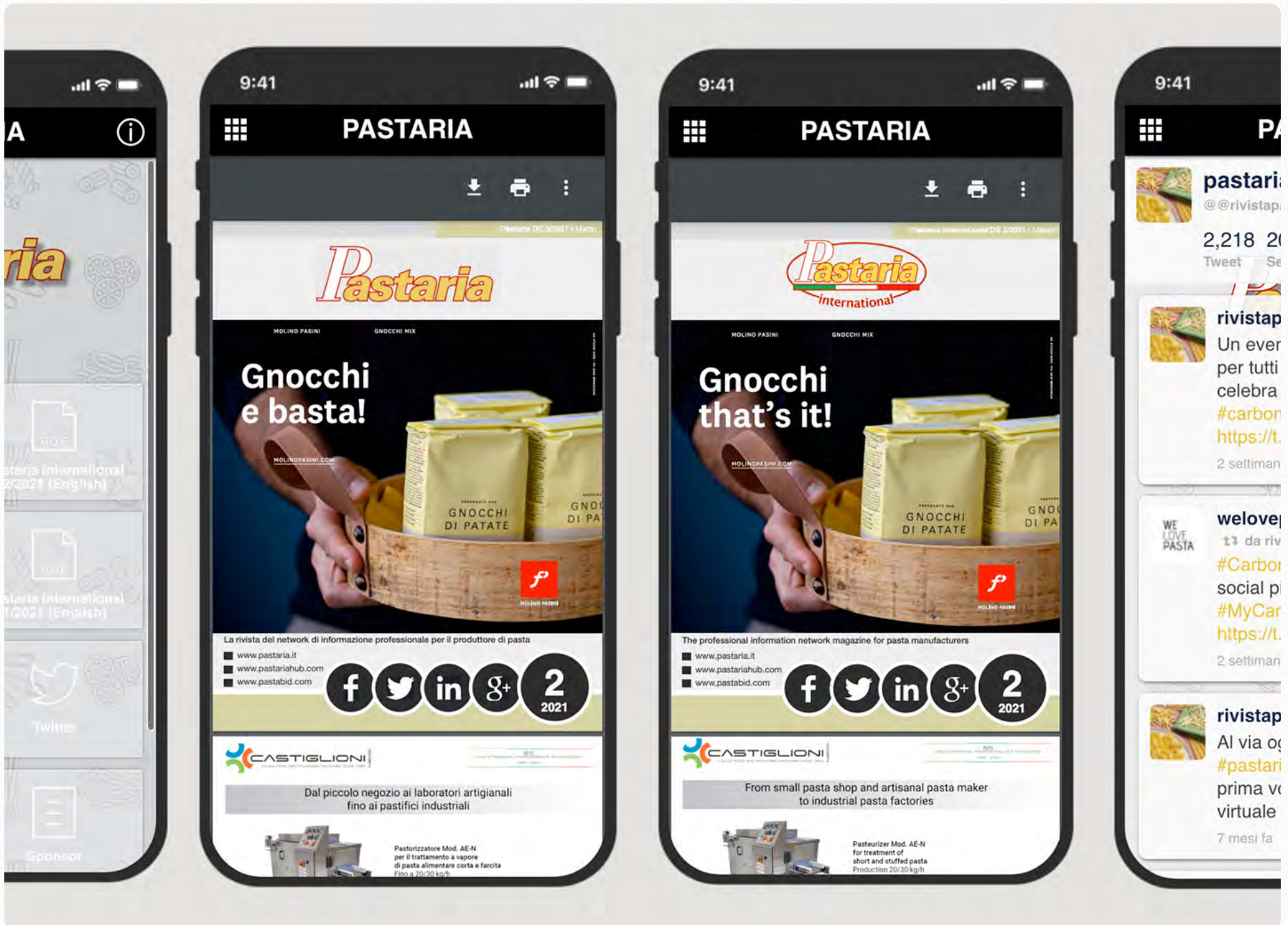


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# 7



## Pastaria app revamped



A new, totally revamped version of the Pastaria app has recently been released. It can be downloaded and installed free of charge from the main digital stores.



Totally revamped, the Pastaria app is now available from digital stores. While maintaining the main features of the earlier version, the new version guarantees readers, also within the application, full access to and interactivity with the digital magazines which, in this latest release, can not only be read but also clicked while on the move, on any device, smartphone or tablet alike, and with any operating system. The Pastaria app is definitely the easiest and most convenient way to access the specialised information provided in Pastaria's digital magazines.

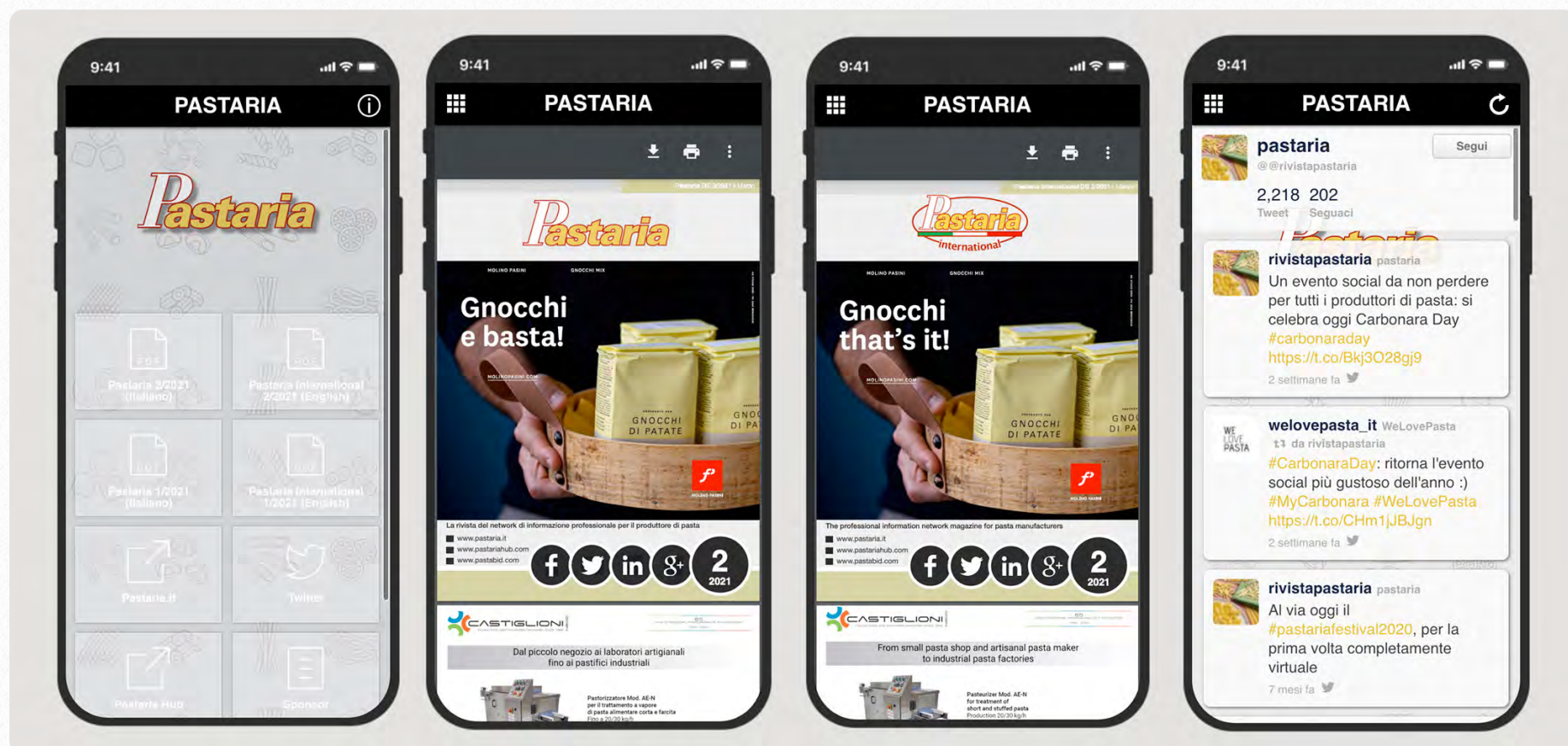
Thanks to the app, readers can consult all the issues of the Pastaria digital magazine published during the calendar year, both in the Italian version and in the English version (Pastaria International).

By authorising the sending of push notifications, you can use the app to keep up to speed on the new issues of the magazine and find out about the special initiatives organised by Pastaria (e.g. Pastaria Festival editions).

Last but not least, you can browse effortlessly on [pastaria.it](http://pastaria.it), [pastariahub.com](http://pastariahub.com) and contact the most important companies in the supply chain that support Pastaria in its drive to provide free professional information for the international community of pasta producers.

To install the app, search for "Pastaria" on Google Play or App Store.

The app is completely free of charge.





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