



MAIZENA's

missing micronutrients

1. Executive summary

Food fortification plays an important role in addressing micronutrient deficiencies and tackling malnutrition. Fortification can take place through mandatory programmes or market-driven, voluntary initiatives – both approaches play important and complementary roles. Multibillion-dollar business Unilever, which makes 23% of its turnover from food products, is vocal about its commitment to the Sustainable Development Goals, particularly those focused on zero hunger and good health and wellbeing. Unilever currently ranks second in the Access to Nutrition Index, which praises the company for its global commitments and ‘clear focus on health and nutrition’.¹

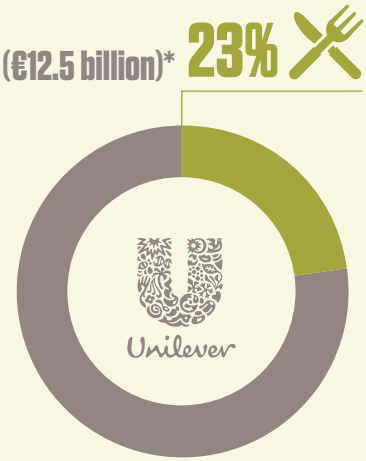
This paper more closely examines Unilever’s voluntary initiative on fortification in Latin America. Unilever states that the cornflour products it sells in the region are fortified with zinc, vitamin A and ‘other key micronutrients’.² The Changing Markets Foundation used the case study of Maizena, the well-known brand of cornflour Unilever sells in Mexico, to investigate these claims. Cornflour is used, among other things, to make *atole* in Mexico, a popular and traditional warm drink. Our study analysed the information available on the Maizena Mexico website and Maizena product labels, and tested 84 samples of Maizena products readily available in Mexico.

The findings show a glaring lack of consistency between Unilever’s commitments and its business practice when it comes to fortification. The company is not fortifying its Maizena Natural product in Mexico, despite claims that all its cornflour products in Latin America are fortified. Micronutrients are only added to its flavoured – more processed and less healthy – *atole* mixes. This raises an important question: Why, in a country in which people suffer from well-evidenced micronutrient deficiencies, is Unilever’s basic Maizena product unfortified? Furthermore, test results revealed that the Maizena flavoured *atole* cornflour products available in Mexico do not appear to contain the levels of micronutrients displayed on their labels, especially iron and zinc. This discrepancy suggests that, in Mexico, Unilever is not fortifying its products according to its own commitments. The company’s public communications on fortification show it is well aware it plays a vital role in the nutritional intake of its customers, but to deliver on its promises of better nutrition, Unilever must ensure its products live up to their claims and are not misleading consumers. These findings also raise important questions about the effectiveness of voluntary industry commitments that are not supported by national, statutory regulations or standards.

ABOUT UNILEVER



ANNUAL TURNOVER FROM FOOD



COMMITTED TO



RANKED 2ND



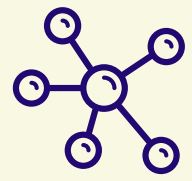
ABOUT THE INVESTIGATION



UNILEVER SAYS: WE FORTIFY OUR CORNFLOUR IN LATIN AMERICA WITH



and other key micronutrients



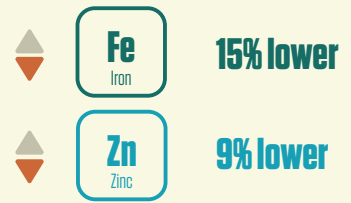
OUR INVESTIGATION FOUND:

NOT FORTIFIED AT ALL

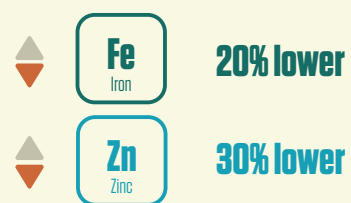
PRODUCTS DID NOT CONTAIN THE NUTRIENTS STATED ON THE LABELS



On average:



In the cookie flavour:



2. Introduction

Mandatory fortification programmes are typically country-specific interventions that involve fortifying staple foods with key nutrients in which a large proportion of the population is deficient. However, food fortification need not take place solely through mandated or legislated programmes; market-driven, voluntary fortification initiatives can play an important and complementary role.

Unilever is a multibillion-dollar company operating in a hundred countries across all regions of the world. A huge part of its business is producing and marketing food products and brands. In 2017, €12.5 billion (23%) of Unilever's turnover was attributable to its food products.³ As a huge global food company, Unilever has a significant influence on people's diets in the markets in which its products are available, and the company often develops brands specific to individual markets' tastes and behaviours.

In Latin America, Unilever's Maizena brand is a cornflour,¹ which is available both as straightforward cornflour and, in some markets, as a flavoured cornflour drink called *atole*. *Atole* is a popular and traditional warm drink in Mexico. It is traditionally made with freshly ground corn or corn dough (*masa*), to which water, fresh fruit, cinnamon and a little honey is added. Maizena's *atole* mix is a convenient, processed product that replaces this traditional method.

At the time our investigations began, Unilever claimed in its online communications that the cornflour products it sells across Latin America are fortified with iron, zinc and vitamins A, B1, B3, B6, B11, B12 and C.⁴ While this is no longer stated on Unilever's website, the company's marketing materials continue to state that its cornflour products in Latin America are fortified with zinc, vitamin A and 'other key micronutrients'.⁵ Furthermore, the Maizena website explicitly mentions the problem of iron deficiency in Mexico, and states that iron is added to the Maizena Flavours *atole* mix.⁶

In Mexico, the government has recognised micronutrient deficiencies as a major public health problem that needs addressing. In 2002, a law came into force requiring all wheat and maize flours available for sale in Mexico to be fortified. The current standards say wheat and nixtamalized maize flour should be fortified with iron, zinc, folic acid and vitamins B1, B2 and B3.⁷ Although not obvious, it appears that Maizena cornflour products do not fall within the scope of these standards, as the product is not a nixtamalized maize flour and the regulation makes an exemption for flours used as texturizers and thickeners. Nevertheless, on Maizena's Mexico website, Unilever states that, in the 1990s, its cornflour products were voluntarily 'enriched with vitamins and minerals'.

If food fortification is done effectively and transparently, and in combination with policies to support access to healthy, nutritious foods and curb the consumption of ultra-processed foods, it can go a long way towards helping people improve their diets and micronutrient intake. Sufficient levels of micronutrients are particularly crucial to children's development and the health of pregnant women. When people struggle to get enough nutrients in their diet, this not only impacts on an individual's health and productivity but also has consequences for the country as a whole, impacting on wider economic development.

*Source: Unilever Annual Report and Accounts 2017

¹ Cornflour ('corn starch' in the US) is a finely milled flour made from maize kernels. Often used as a thickener for sauces, it is commonly used in Mexico to make the traditional drink, *atole*.

3. Maizena: a ‘jewel’ in Unilever’s crown

Global brands, such as Knorr and Hellmann’s, generate two-thirds of the turnover within Unilever’s foods category; much of the rest of its turnover comes from smaller brands, with regional appeal but limited international exposure, which Unilever calls ‘*local jewels*’. Unilever considers Maizena to be one such ‘*local jewel*’, and the brand is well-known in both Latin America and parts of Europe.⁸ In 2015, three strong local Unilever brands – Maizena, Marmite and Pot Noodle – together accounted for €1.1 billion in turnover.⁹

Maizena originated in the US, where, in 1856, the Duryea brothers registered the brand as individually packaged cornflour.¹⁰ It did not appear in Mexico until the 1930s,¹¹ but the brand is so strongly rooted in Mexico’s culinary traditions that many people think it originated there. Initially, only plain Maizena cornflour was available, but this was soon followed by a variety of flavoured mixes to prepare *atole*.

In the 1990s, Maizena cornflour products were voluntarily enriched with vitamins and minerals. The Maizena Mexico website states that, by 2006, the flavoured *atole* mixes were fortified with ‘a more robust’ combination of seven minerals and vitamins ‘necessary for the growth and development of children’.¹²

In 2006, Unilever began to use CRECIPLUS, a formula of added vitamins and minerals, in its Maizena products.¹³ Products containing CRECIPLUS stipulate that they include added iron, zinc, folic acid, vitamin A and various B vitamins.¹⁴ Similar terms can be found on packaging for cornflour drinks in other Latin American markets, such as in Colombia, where Maizena uses the term *CreciNutre* to refer to the fortification of its flavoured cornflour *coladas*.¹⁵ The *creci* element of this term, which implies growth (*crecer* being ‘to grow’ in Spanish), appears to be used primarily on the packaging for products aimed at children.



4. Unilever: leveraging better nutrition, or just paper promises?

Unilever is vocal about its commitment to the Sustainable Development Goals (SDGs), in particular SDG 2 (zero hunger) and SDG 3 (good health and wellbeing). As part of this commitment, the company states it is focused on ‘*selling appealing products with health, hygiene and nutrition benefits*’,¹⁶ and that it fortifies popular, affordable products in countries where malnutrition is prevalent, with an emphasis on addressing iron-deficiency anaemia.¹⁷ Unilever explicitly states: ‘*we are accelerating our efforts in providing essential micronutrients*’.

In light of its declared commitments to improving customers’ nutrition, Unilever has signed up to a number of voluntary global initiatives. The company is a member of the Scaling Up Nutrition Business Network, which means it has publicly committed to improving actions to address malnutrition in all its forms.¹⁸ Unilever has also signed up to the Global Alliance for Improved Nutrition’s commitment to explore developing a collaborative nutrition-research platform, which will address some of the many unanswered questions on global undernutrition.¹⁹

In the most recent assessment of industry commitments to nutrition, Unilever fares well. Out of 20 global companies, Unilever comes second in the 2018 Access to Nutrition Index.²⁰ The Index observes that Unilever ‘*commits to offer fortified foods at an affordable price in developing and emerging markets*’, but, when considering Unilever’s claims, asserts that ‘*Unilever could increase its transparency by publishing its fortification policy*’. Further, the Index notes Unilever’s commitment ‘*to labelling all products in all markets that have been fortified with micronutrients, as described in its internal fortification guideline*’.²¹

More than 800 million people go to bed hungry¹

In a world struggling with obesity, it’s alarming that micronutrient deficiencies are estimated to impact over 2 billion people, across developed, as well as developing countries.² Fifty-two million children are acutely malnourished, and 155 million (23%) of under-fives are stunted.³ Micronutrient deficiencies in iron, iodine, vitamin A and zinc are the most widespread forms of undernutrition. This can make people more vulnerable to disease, impair their growth and mental development, decrease their ability to earn a living, and even increase the risk of early death for young children.⁴

We use nutritious ingredients in our products. We also fortify popular, affordable and accessible products with micronutrients in countries where malnutrition is prevalent. Evaluating fortification using our Eco Design tool, we follow international and local regulations and guidelines, from organisations such as CODEX, WHO and FAO. About 13% of our total food and beverage sales (by volume) contribute to people’s recommended daily intake of iodine, vitamin A, vitamin D, zinc and iron. This is equivalent to 138 billion servings.⁵

Where possible, we build in fortification to our products. For example, most of our spreads globally are fortified with vitamin A and D, and in some cases vitamin B. We offer iron-fortified cubes in Nigeria, vitamin A-enriched seasoning in Vietnam, and mineral (zinc, iron) and vitamin (A, B1, B3, B6, B11, B12, C) fortified corn starch in Latin America.

Previous Unilever online communications on fortification of cornflour in Latin America

At the time our investigation began, Unilever's global website stated that its cornflour in Latin America is fortified with iron, zinc and vitamins A, B1, B3, B6, B11, B12 and C.²² Currently, their website claims Maizena products in Latin America are fortified with zinc, vitamin A and other key micronutrients.²³ However, the standard Maizena Natural (plain cornflour) available in Mexico does not make any claims, on either the Maizena website or the packaging, regarding its fortification with vitamins and minerals. Micronutrients are seemingly only added to the flavoured (and less healthy) *atole* mixes in Mexico, possibly as a marketing tool to give a 'health halo' to an ultra-processed product. This suggests that Unilever's global and Latin American commitments on fortification are not consistently implemented across all its products. It also poses two important questions: Why, in a country in which people suffer from well-evidenced micronutrient deficiencies, is Unilever's basic Maizena product not fortified? And how is this in line with Unilever's public commitments on the issue?

Right: Current Unilever communications on fortification

VITAMIN A

VITAMIN A IS ESSENTIAL FOR

GOOD EYESIGHT AND HEALTHY IMMUNE SYSTEM



TAKING ACTION

In Vietnam we offer various seasonings products fortified with

VITAMIN A



Maizena corn starch in Latin America is fortified with

VITAMIN A

DIETARY DIVERSIFICATION

Many of our soups and meal makers and our nutritious cooking programmes help to increase intakes of ingredients rich in vitamin A



ZINC

ZINC IS ESSENTIAL FOR

FUNCTIONING IMMUNE SYSTEM



HEALTHY GROWTH AND DEVELOPMENT

TAKING ACTION

Our Maizena products in Latin America are fortified with

ZINC

as well as with other key micronutrients





CREMOGENA is a delicious product used by Brazilian families that is fortified with

ZINC,

iron, vitamins A, B1, B3, B6, B12, C and folic acid

We are currently exploring more ways of fortifying our products with

ZINC

5. Testing Maizena products: the proof is in the pudding

Unilever claims that Maizena flavoured *atole* drinks are fortified with a number of vitamins and minerals, stating on the Maizena website that the nutritional profile of the product means it is *'ideal to complement your daily diet'*.²⁴ All of Maizena's flavoured *atole* drink mixes carry fortification claims and report nutrient content as a percentage of Reference Nutrient Intake (RNI) for two tablespoons of the mixture, with no additional preparation. Table 1 below outlines the vitamins and minerals listed on the packaging of Maizena's *atole* products.

MAIZENA FLAVOURS ATOLE MIX	% VNR PER PORTION OF ATOLE MIX								
	A	B1 (thiamine)	B3 (niacin)	B6	B9 (folic acid)	B12	C	Iron	Zinc
Walnut	15%	15%	15%	15%	15%	15%	15%	15%	15%
Vanilla	15%	15%	15%	15%	15%	15%	15%	15%	15%
Strawberry	15%	15%	15%	15%	15%	15%	15%	15%	15%
Caramel	15%	15%	15%	15%	15%	15%	15%	15%	15%
Chocolate	15%	15%	15%	15%	15%	15%	15%	15%	15%
Coconut	15%	15%	15%	15%	15%	15%	15%	15%	15%
Guava	15%	15%	15%	15%	15%	15%	15%	15%	15%
Cookie	15%	15%	15%	15%	15%	15%	15%	15%	15%
Rice pudding	15%	15%	15%	15%	15%	15%	15%	15%	15%

Table 1: What nutritional information does Unilever's Maizena provide on its packaging labels?

Source: Product labels

In an attempt to establish whether these micronutrients are present (and at the stated levels) in Maizena's products - and therefore to see whether the nutritional claims made on the labels and online are justified - we tested the brand's cornflour products.

We tested 84 samples of Maizena products readily available in Mexico: 14 samples of Maizena Natural and 70 samples of Maizena Flavours *atole* products. These samples were collected and tested in two stages. Our project partner, Proyecto AliMente, collected the Maizena Natural samples between October and December 2018 from different locations in Mexico City and the state of Chiapas. An independent researcher collected the Maizena Flavours *atole* samples between June and July 2019 from different locations in Mexico City. All samples were sent for analytical testing by accredited laboratory Laboratorios Fermi in Mexico City.^{III}

II Maizena flavoured *atole* drinks report nutrient content as a percentage of valores nutrimentales de referencia para la población mexicana (VNR)
III Accredited by the Mexican Accreditation Agency (accreditation number A-0352-029/12) and authorised by the Federal Commission for the Protection against Sanitary Risks (authorisation number TA-24-18). Tests were conducted in accordance with the methodology in Mexican regulation NOM-247-SSA1-2008.

The laboratory tested products in several stages. First, each individual sample underwent an ‘iron spot test’.^{IV} This test turns any iron compounds added in the fortification process into visible red spots when treated with a chemical solution.²⁵ Such testing for added iron is commonly considered a proxy to determine whether the full vitamin and mineral premix has been added to a product. Samples that clearly failed this test were not subjected to further testing.

Second, individual samples from each product confirmed as fortified were combined, so as to obtain a better estimate of the average for the product. Combined samples were then tested to determine the levels of iron, zinc and vitamins B1, B3 and B9 present in the mixture.²⁶

As mentioned above, Maizena Natural – the basic cornflour product – does not make any claims on its packaging that it is fortified with micronutrients, and our testing confirmed that this was the case.

MAIZENA FLAVOURS ATOLE MIX	SAMPLES TESTED	% OF VNR CLAIMED ON LABEL VS LEVELS PRESENT IN TEST SAMPLES				
		Iron	Zinc	Folic acid (B9)	Thiamine (B1)	Niacin (B3)
Walnut	10					
Vanilla	10					
Strawberry	10					
Caramel	7					
Chocolate	10					
Coconut	3					
Guava	7					
Cookie	6					
Rice pudding	7					

Table 2: How do micronutrient levels stack up against Maizena’s claims when tested?

Sources: Laboratory tests; product labels

Colour key:
Red: nutrient clearly below the level stated on the package
Amber: questionable whether nutrient clearly meets the level on the package*
Green: nutrient clearly meets the level stated on the package*
*taking into account the range of uncertainty with the analytical test

Table 2 presents the results for micronutrients in different-flavoured Maizena *atole* products. We compared the results against the level of nutrients stated on the labels of the unmade *atole* mix – just the mix itself, with no additional ingredients (milk or otherwise).

While the iron spot test indicated that all Maizena Flavours samples were fortified, our testing of the micronutrient levels in nine different flavours found that none of the samples appeared to contain the stated levels of iron. Furthermore, the vast majority of samples contained lower than the stated levels of zinc. In

particular, the recently released cookie flavour came in at well below the stated levels of both iron and zinc, and the also-new rice pudding fell well below the stated levels of zinc. Worryingly, these results demonstrate that labels on Maizena products cannot be confidently said to represent the true vitamin and mineral content of the products themselves.

The results presented a mixed picture regarding the presence of vitamins in the *atole* products. It is questionable whether the vanilla-, caramel- and guava-flavoured *atole* contained the levels of folic acid (vitamin B9) stated on the packet. The chocolate-flavoured product appeared to contain levels of thiamine (vitamin B1) clearly below the level stated on the packet, while the levels of thiamine in the rice pudding flavour also raised questions. On the other hand, levels of niacin (vitamin B3) in the majority of flavours were more than double the level stated on the packet.

Overall, levels of vitamins (B1, B3 and B9) seemed to be more in line than the minerals (iron and zinc) with the levels stated on the packet. This is interesting, given that minerals are generally more stable in normal food-processing and storage conditions than vitamins such as folic acid and thiamine (vitamin B1).²⁷ This could suggest that the low levels of iron and zinc are a result of poor fortification practices, or possibly even systematic under-fortification of these micronutrients, as opposed to degradation due to processing, distribution or storage.

Furthermore, when claiming its Maizena products are fortified with iron, Unilever does not provide information on the iron source used. Different iron sources have different levels of bioavailability, which means they are more or less easily absorbed by the human body, and therefore able to provide more or less nutritional value. The World Health Organization guidelines on fortification state that the aim is to use iron compounds with the greatest absorbability that, at the same time, do not cause unacceptable changes to the food.²⁸ If Unilever uses one of the less-absorbable sources of iron (for example, electrolytic iron), it is potentially not fortifying its *atole* mixes as effectively as it could.



IV Method 40-40.01: Iron Qualitative Method, as approved by the American Association of Cereal Chemists.

6. Conclusion

Unilever claims to be committed to addressing micronutrient malnutrition around the world. It also states that it fortifies its cornflour across Latin America. But the Maizena case study presented in this report shows that Unilever is failing to translate these commitments into practice. Unilever is not adding any micronutrients to its plain cornflour (Maizena Natural), and its flavoured cornflours do not contain all the nutrients stated on their packaging. Both of these findings highlight a gap between the company’s global communications on its commitment to fortification and its existing business practices. Furthermore, not putting the stated levels of micronutrients in flavoured *atole* mixes also misleads consumers, because the label misrepresents what is in the product.

The results show that Maizena flavoured cornflour products available in Mexico do not contain the levels of micronutrients stated on the packaging. While levels of some micronutrients were as high as the brand claims, many micronutrients came in under the levels claimed - some dramatically so. Unilever must explain why its natural cornflour product is unfortified, seemingly in direct contrast to its global communications on fortification, and why the levels of iron and zinc in its *atole* products do not appear to match the levels stated on the packaging. Further, the company should provide information regarding its iron source, the bioavailability of which can make a big difference to nutritional benefit.

Unilever is currently ranked second in the 2018 Access to Nutrition Index, and consumers and investors would be right to expect more from the company than paper promises. The company appears to have achieved its high score on the Index via its focus and policies on health, nutrition and labelling – but when its actual products are under the spotlight, these commitments do not stand up to scrutiny. If Unilever is serious about addressing micronutrient deficiencies and increasing its customers’ consumption of essential vitamins and minerals, it must take action to resolve the glaring inconsistencies in implementing its commitments. The company’s public communications on fortification show it is well aware it plays a vital role in its customers’ nutritional intake, but to deliver on its promises of better nutrition, Unilever must act now to ensure its products live up to the fortification claims made both in its global communications and on its labels.

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This report has been written and researched by the Changing Markets Foundation in collaboration with independent researchers.

The purpose of this report is to shed light on industry-specific issues related to the fortification of products in Mexico. The information in this document has been obtained from sources believed reliable and in good faith. The authors accept no liability whatsoever for any direct or consequential loss arising from the use of this document or its contents.

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