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New guideline to push FBOs in drawing up recall plan

ASHWANI MAINDOLA, NEW DELHI

THE Food Safety and Standards Authority of India (FSSAI) has issued a guideline note for food recall, which will allow Food Business Operators (FBOs) to devise a plan for food recall at any stage of the food chain, including that possessed by the consumer. Serious defaulters' licences will be reviewed under these guidelines.

The guideline stated that all FBOs, as prescribed in Regula-

tion 7 of the Food Safety and Standards (Food Recall Procedure) Regulations, 2017, must have an up-to-date recall plan, as provided in the guideline as a model recall plan.

No established recall norms

Prior to the establishment of current food safety system, food recall was governed by Section 28 of the Food Safety and Standards Act, 2006, that did not lay down comprehensive details on the process of food recall. The process of drafting 'food recall' regula-

tions was first initiated in 2011, prior to which there were no established food recall regulations in the country.

The recall incidence of energy drinks in the year 2015, followed by the large-scale recall of Nestle's Maggi noodles and its subsequent prohibition in Indian market thereafter, resulted in FSSAI expediting the establishment and enforcement of Food Safety and Standards Regulations (Food Recall Procedure), 2017.

Recall Management Team

According to the model plan, the process will start with the assembly of the Recall Management Team, notifying the authority and identifying all the products that are to be recalled.

Detailed recall plan

The country's apex food regulator will also publicise the recall for sending an alert about the health hazard. Also at the time the recall is being carried out, the FBOs shall submit their detailed recall plan to FSSAI's chief executive officer.

Thereafter, the detention and segregation of all products that are to be recalled will commence.

The FBOs will then prepare and distribute the information for recall, including press communiqués.

They will then have to verify the effectiveness of the recall, and decide what to do with the recalled product(s).

Then, the FBOs have to fix the cause of the recall if the problem has occurred at their facility.

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MoFPI to set up bank akin to NABARD for food processing

OUR BUREAU, NEW DELHI

WHAT the National Bank for Agriculture and Rural Development (NABARD) is to the agriculture sector in India, the ministry of food processing industries (MoFPI) is considering being to the food processing sector, with its pitch for the establishment of a bank to provide the requisite credit and finance for its projects.

A largely private entity

According to sources in the ministry, this bank would be a largely private entity, while the government would hold a stake in it. A consultation note has been circulated amongst the various ministries for the same. The

proposal is expected to come up for discussion shortly.

Harsimrat Kaur Badal, Union minister for food processing industries, confirmed the development, stating that the ministry had initiated the work on the project. She added, "The contours are to be worked out. The funds that will be lent to the processing sector are to be created. Analysis as to how this bank would function is underway."

It is pertinent to mention that the government, in the past, had brought the food processing sector under the priority sector lending scheme, and a fund amounting to Rs 2,000 crore had been assigned to NABARD.

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Varnacol Food Colorings

Research indicates that 51% of the total population considers colourings of Natural origin "very important" when it comes to "kid-centric" products such as Cereals and certain sweet treats like Cookies & cakes. Consumer demand for natural colour is having a big impact on product formulations particularly replacement of the artificial Reds in Baking & Dry Grocery. This conversion has been challenging for developers in the past due to heat, pH & oil stability of some natural sources of Red Colourings.



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Europe tightens the screw on acrylamide in food

NIGEL G HALFORD

ACRYLAMIDE (C_3H_5NO) is a processing contaminant that was discovered in many popular foods in 2002, with fried, baked and roasted potato, coffee and cereal products all affected. It is classified as a Group 2A carcinogen, and the European Food Standards Agency (EFSA) Expert Panel on Contaminants in the Food Chain (CONTAM) has expressed concern for the potential tumour-inducing effects of exposure to acrylamide in the diet.

Acrylamide forms in food as a result of the Maillard reaction, an umbrella term for a series of reactions between free (soluble, non-protein) amino acids and reducing sugars, such as glucose, fructose and maltose, that occurs dur-



Indeed, acrylamide formation correlates closely with colour formation and colour can be used as a quality control measure. Colour was also the focus of the United Kingdom's Food Standards Agency (FSA) 'Go for Gold' campaign of early 2017, which urged consumers to roast potatoes and toast bread to a light rather than dark brown colour (<https://www.food.gov.uk/news-updates/news/2017/15890/reduce-acrylamide-consumption>).

The European Commission issued 'Indicative Values' for the presence of acrylamide in food in 2011, and revised them downwards for many product types in 2013. Indicative Values are not regulatory limits or safety thresholds, but if a product is found to exceed the Indicative Value the relevant food safety authority in that country should take action to

The new regulations are likely to apply from April 11, 2018, and require all food businesses to monitor the levels of acrylamide in their products, to keep a record of the mitigation measures they apply and to review these measures if the levels of acrylamide in a product are not below the Benchmark Level. It also requires businesses to adopt compulsory Codes of Practice to ensure that acrylamide levels are as low as reasonably achievable.

The food industry has devised a range of strategies for reducing acrylamide formation in its products, compiled in a 'Toolbox' produced by FoodDrinkEurope. Many of these strategies are included in the new compulsory Codes

of Practice. For example, the Code of Practice for crisps made from potato slices includes the selection of appropriate varieties for product type, with low concentrations of reducing sugars (fructose and glucose) and free asparagine. Potatoes must be transported and stored in conditions appropriate for the variety, at a temperature above 6°C with low humidity to avoid cold and senescent sweetening.

The level of reducing sugars in the potatoes must be monitored during storage, sprouting must be suppressed using appropriate agents, and the potatoes used within their optimal storage window. Frying temperature must be kept as low as possible and if it

exceeds 168°C at the end of frying, data must be provided to show that the level of acrylamide in the finished product is as low as reasonably achievable and below the Benchmark Level. The moisture content of the finished product must not be lower than 1%, and colour sorting must be used as a quality control measure post-frying.

For bread, free asparagine concentration is the determinant of acrylamide formation, and the Code of Practice states that where grain is sourced directly from producers, food businesses must ensure that Good Agricultural Practice is followed to prevent the accumulation of high concentrations of free asparagine in the grain.

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Table 1. Indicative Values and Benchmark Levels for Acrylamide in Food, set by the European Commission

Food	Indicative Value 2013 (parts per billion)	Benchmark Level 2017 (parts per billion)
French fries	600	500
Potato chips (UK crisps)	1000	750
Soft bread (wheat)	80	50
Soft bread (other)	150	100
Breakfast cereals	400	300
Biscuits	500	350
Crackers	500	400
Crispbread	450	350
Gingerbread	1000	800
Cereal-based baby foods	50	40
Roast coffee	450	400
Instant coffee	900	850

ing high-temperature (> 120°C) cooking and processing. It is produced when the free amino acid that participates in the later stages of the reaction is asparagine. This makes the problem more difficult because acrylamide forms from naturally-occurring precursors (free asparagine and reducing sugars), and the Maillard reaction also gives rise to the colours, flavours and aromas that consumers expect of fried, baked and roasted foods, and that define food types and brands.

ensure that the manufacturer addresses the problem.

However, the European Commission has just approved strengthened risk management measures including compulsory Codes of Practice and the renaming of Indicative Values as Benchmark Levels, with reduced Benchmark Levels for many products (Table 1) (Commission Regulation (EU) 2017/2158 of November 20, 2017, establishing mitigation measures and benchmark levels for the reduction of the presence of acrylamide in food).



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"There is increasing trend towards modern retail trade in markets"

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We have also appointed superstar Salman Khan in year 2016 as our brand ambassador for a period of two years. We have tie-up with Nickelodeon channel for cartoon characters "Motu Patlu" for our product "Ring" which we advertise on various kids channel on a regular basis.

Further, there is an increasing trend towards modern

retail trade in the urban markets due to the availability of multiple brands and varieties under one roof. To maximise the visibility and build the Yellow Diamond brand in our existing markets, we intend to focus on sale of our products on premium multi-brand retail outlets. Hypermarkets and supermarkets usually stock larger size SKUs. Our focus on this category of retail outlets would allow us

to increase the sale of larger size SKUs.

Is the company into exports? Which countries?

Our distribution network enables us to effectively respond to market demand, evolving consumer preferences in our territories, and competitive pressures. Our supply chain management systems enable us to efficiently manage our distribu-

tion network. As of March 31, 2017, our distribution network included 205 super stockists and over 3,400 distributors. Our distribution network covers urban, semi-urban and rural markets, targeting a wide range of consumers. We have divided our sales and distribution network into zones: north, east, west and south. We also have a small portion of revenue earned from

exports which is not very significant right now.

How much is the target revenue of the company for the year 2017-18? What rate is the company growing?

We have grown at more than 27% CAGR in last five years. Even after having comparatively bigger base now, we intend to grow faster than industry to increase our market share.

Manufacturers have to deal with seasonal variability in acrylamide levels

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This includes maintaining an adequate sulphur supply, avoiding excessive and late nitrogen application, and using effective measures to prevent disease. The bread must be

baked to a lighter colour, yeast fermentation time should be extended if feasible, and the baking temperature and time should be reduced as far as possible. If nuts and seeds are used in the product they must

be roasted at lower temperatures, and fructose must be replaced with glucose where the product design allows, particularly in recipes containing ammonium bicarbonate. In products with low moisture

content, the enzyme asparaginase should be used to reduce asparagine concentrations before baking.

There are also separate Codes of Practice for French fries, products made from potato dough (including crisps, snacks and crackers), breakfast cereals, fine bakery wares (including biscuits, rusks, cereal bars, scones, cornets, wafers, crumpets, gingerbread, crackers, crisp breads and bread substitutes), coffee, coffee substitutes, biscuits and cereals for babies and infants, and other baby foods.

The effectiveness of the measures in the FoodDrinkEurope Acrylamide 'Toolbox' has been demonstrated in analyses of manufacturers' data on acrylamide levels in potato crisps in Europe, showing a downward trend from 763 ppb in 2002 to 358 ppb in 2011, a decrease of 53%.


However, since 2011 there has been a levelling off, with the mean level for 2016 (412 ppb) actually being higher than the 2011 figure. This suggests that the most effective acrylamide reduction measures have already been implemented, and further substantial reductions may be difficult to achieve. This is important because Commission Regulation (EU) 2017/2158 includes a specific reference to the possible setting of Maximum Levels (MLs) for acrylamide, with regulatory enforcement, in certain foods. This was discussed at a meeting of the European Parliament's Environment, Public Health and Food Safety Committee on January 31, 2017, when it was made clear that the intention was to impose MLs on sectors of the food industry that do not show sufficient progress in

reducing acrylamide levels.

European potato crisp manufacturers have to deal with marked seasonal variability in acrylamide levels, with acrylamide being highest in the first half of the year when potatoes are being used from storage, and lowest from July to September when potatoes are being harvested. There is also a significant geographical effect, with particularly high levels of acrylamide in crisps produced in the north of Europe (Denmark, Finland, Lithuania, Latvia, Norway and Sweden). This means that more than 30% of crisps sampled in this region during the first half of the year are likely to exceed the Benchmark Level of 750 ppb for acrylamide in potato crisps.

Even in the rest of Europe, the 'failure' rate during the first half of the year is likely to exceed 10%. Clearly, this is already a difficult situation for crisp manufacturers and the consequences of imposing an ML of 750 ppb for potato crisps would be very severe, with the potential loss of some brands. Similar data are not available for cereal or coffee products, but there are anecdotal reports that some sectors will struggle either to meet the new Benchmark Levels or to demonstrate improvement. All this means that the need for plant breeders to develop new varieties with low acrylamide-forming potential in order to help food manufacturers to comply with an increasingly difficult regulatory scenario is urgent.

(The author is professor, plant sciences department, Rothamsted Research, United Kingdom. He can be contacted at nigel.balford@rothamsted.ac.uk)



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