

NuFFooDS

perspectives on science & business
Spectrum

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52 pages including cover

FOCUS ON ECO FRIENDLY PACKAGING



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Linking Farmers to New Technologies



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Advance health by removing trans-fat

Milind Kokje
Chief Editor

Among the various food ingredients that adversely affect the human health Trans-fatty acids (TFA) probably take the top slot. Food scientists & technologists, nutritionists & dieticians many a times have disagreements over effects of many types of foods and ingredients. But on the ill effects of TFAs they have unanimity. It is major health hazard.

Various studies, research and clinical trials have established the relationship between high consumption of TFA and coronary heart diseases (CHD). People having diet with more saturated fatty acids have shown relatively high levels of serum cholesterol and carry high prevalence of heart diseases. It is estimated that in US TFA from partially hydrogenated oils may be responsible for 30,000 to 100,000 premature coronary deaths each year. Besides the increased risk of heart diseases, TFA consumption also increases the risk of obesity and diabetes.

A large chunk of population, more so from urban areas, is now aware of, may not be in a very technical terminology but surely in a common man's language, the bad effects of TFA on health, particularly related to cardio vascular diseases. These health conscious people try to adopt many steps like regular exercise, strict watch on diet, consumption of 'healthy oils', without any information on how much really healthy is the 'healthy oil'.

Indians generally love oily and spicy food. Oils with TFA are used because they increase the shelf life of the food and enhances its taste. The cost of production is also less. Vanaspati used to contain 40 to 50 per cent TFA according to research articles published in some journals in the past. Bakery products is another area where the TFA is very high. Still, not many severe steps have been taken until recently to reduce the TFA consumption. Food and Agriculture Organisation (FAO) and WHO had recommended that TFA contents in human dietary fats should be less than 4 per cent. Denmark was the first country to ban partially hydrogenated oil, source for TFA. After Danish government's efforts to reduce TFA consumption from 6 to 1 gm per day over two

decades, the deaths due to CHD dropped by 50 per cent, according to a research paper.

About three years back, US FDA declared partially hydrogenated Oils (PHOs), the main source for trans- fats are not generally recognised as safe and asked food manufacturers to remove PHOs from the products in three years. Some other countries like Chile, Singapore and South Africa also limited trans- fats in all foods to 2 per cent. However, experts felt that no steps were being taken in India in this direction.

WHO's six step REPLACE action package recently launched in Geneva provides all countries with proven tools to completely eliminate trans-fats from their national food supply and counter increasingly changing food patterns. If implemented effectively, the WHO REPLACE package will ensure prompt, complete and sustained elimination of trans-fats from the world's food supply, thereby driving down demand.

A positive development from FSSAI now is that it has taken the initiative to reduce trans-fats in vanaspati and bakery products to less than 2 per cent in a phased manner by 2022. Earlier, in 2015, FSSAI had reduced that maximum permitted amount of trans-fats to 5 per cent. Three years after that, it has announced plans to reduce it by further 3 per cent in next four years. FSSAI CEO Pawan Kumar Agarwal insists upon shared responsibility. True to that spirit he recently held a meeting with Vanaspati and edible oil manufacturers, public health experts and consumer organizations where the decision to restrict trans- fats to 2 per cent was taken. Although WHO has appealed the countries to eliminate industrially produced trans-fats from the food supply by 2023, it seems that FSSAI's recent important step will hopefully make India achieve that target a year ahead.

While getting rid of trans-fats is certainly a step in the right direction, it is important to note that the many types of foods that once relied on them, regardless of their new substitutes, remain fundamentally unhealthy. **NS**

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Focus on Eco & Consumer Friendly Packaging

Plastic usage has created a lot of buzz lately. Even this year's theme for World Environment Day was "Beat Plastic Pollution". Several states like Maharashtra and Tamil Nadu have also banned the manufacturing of plastic and its usage. However, in the food and beverage industry, plastic plays a key role in packaging. From airtight containers to shelf stable bottles, it is a material of choice for increased shelf-life. The current uproar about plastic packaging has kept major food firms on their toes. Companies like Nestle India has collaborated with organizations like Indian Pollution Control Association (IPCA), NEPCA and Saahas Waste Management and companies like ITC and Dabur India have started using recyclable plastic. Several companies operating nationally have expressed difficulty in complying with different state policies on plastic and have expressed a need for unified pan-India plan. With this current scenario, we look at what opportunities lie ahead for the Indian Food Packaging Industry and what are the challenges faced by the industry today.



Ingredients

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Gluten-Free: What it means and Reason for its high price



Technology

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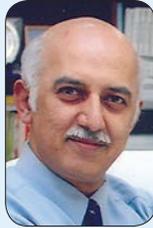
New offering for the Snack Industry

From the Chair

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World food science and technology congress at mumbai in october 2018 - 19th IUFOST GLOBAL MEET

Dr V Prakash, FRSC,
Vice-President of Int. Union of Nutritional Sciences (IUNS), London,
UK Immediate Past Director, CSIR- CFTRI, Mysore, India



Startups

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Food processing has ample opportunities

Pradip Chakraborty,
Former Director,
Food Safety and Standards
Authority of India (FSSAI)



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Food processing opens up trade ties for Poland & India

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Building Wellbeing

Dr R B Smarta,
MD, Interlink Marketing
Consultancy Pvt. Ltd



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Demand needs to grow to increase production of sugar used in medicines



Ming Jiang,
Assistant General Manager and
Xuan Huang,
Sales manager, Nanning Sugar Industries

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Bartlomiej Brodzik, Chairman, Apple Factory, Poland talks about the business plans the company has in store for the Indian market.



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Aayush Rai, Co-Founder, Inito shares information about the company's new diagnostic device that can be used to measure levels of vitamin D and cholesterol in the blood.



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Dr Pankaj Jaiminy, MD, Merieux Nutrisciences India talks about the impact international food safety regulations can have on the Indian Food Industry.



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Food processing segment

The Indian Food Processing Industry is emerging as a very important sector. Please feature articles on the technical and employment opportunities in this sector.

- **Vibha Rao**, New Delhi

The Keto Limit

I enjoyed reading the article on Keto diet in the latest edition. Although it is beneficial it cannot be recommended for all athletes. Do write something on the advantages and disadvantages of different diets.

- **Shivam Verma**, Bengaluru

Burden of Obesity

A good article on the burden of obesity and malnutrition in our country. We need to raise awareness on the problem of childhood obesity and pinpoint the damaging effects of high fat, sugar and salt in our diet.

- **Krishna Kumar**, Agra

Food & Blood

A very absorbing and informative article on the association between food and the different blood groups. Looking forward for more interesting compositions in your future editions.

- **Roshini Luthra**, Mumbai

Thanks for your feedback. We have taken note of your suggestions and will surely try to incorporate the content accordingly in coming issues. Please keep sending us your feedback and updating us on your views about the issue and keep giving your opinions on the content.

- Editor

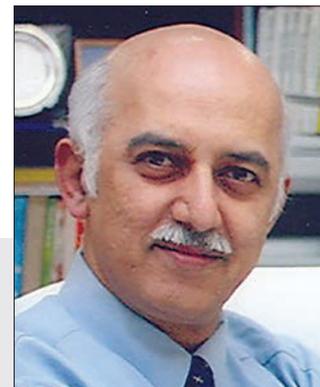


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WORLD FOOD SCIENCE AND TECHNOLOGY CONGRESS AT MUMBAI IN OCTOBER 2018 - 19TH IUFOST GLOBAL MEET

Dr V Prakash, PhD, FRSC

President, International Society of Nutraceuticals, Nutritionals and Naturals (ISNNAN), India •
Vice-President of International Union of Nutritional Sciences (IUNS), London, UK •
Chairman, India Region of European Hygienic Engineering Design Group, Germany •
Former Director of CFTRI & Distinguished Scientist of CSIR – India •
Chairman, Editorial Advisory Board of NuFFooDS Spectrum •



The 19th International Union of Food Science and Technology (IUFOST) World Food Science and Technology Congress is being held in Mumbai during October 23 – 27, 2018 in CIDCO at Vashi in Mumbai is a great opportunity for India to mobilize the huge potential value addition to food chain for a high growth rate industry of Nutraceuticals, Functional Foods and Dietary supplements and Ingredients, playing an integrated role not only for India but also for the rest of the world.

The Congress is expected to have a large contingency of industry and academia leaders in the World of Food Science and Food Technology and Nutrition networking through special addresses linking the chain of five days of deliberation with nearly 350 speakers and in more than 70 sessions with nearly 150 chairs firmly backed up by a large number of posters by students and young faculty as well as oral presentation by youngsters. There will also be pre conference workshops synergized in a couple of contemporary topics. This is decorated with keynote address by Prof M.S. Swaminathan on the 24th October during the inauguration of the Congress and followed by next day in the IAFoST Plenary talk of the distinguished lecture by Prof Winhab. The large number of Fellows of which IUFOST is very proud of will be participating in large numbers during the five days of meeting and discuss the issues for a career forward in this very important area of Food Science and Technology. Through the key issues such as capacity building, food safety, value addition in the food chain with minimal energy, nutrition as basic for healthy foods in the market and more importantly the traditional and ethnic food play a major role in the sessions. There are special sessions of Nutrition, Nutraceuticals and Functional Foods with value addition. Along with poster presentation and exhibition of leading industries is presented in a huge arena. With large number of visitors, participants and the interactive sessions goes to show tomorrows demand of value chain in food.

Large number of countries have confirmed participation with delegations of both business, industries and investors as well as students and scientists' delegation are all to participate to tell what is in stock in this hot area. Also in the agenda is the latest food engineering concepts with packaging technologies

to leverage the focal theme of the Congress which is "25 Billion Meals a Day by 2025 with Healthy, Nutritious, Safe and Diverse Foods". It is time for looking at the big data and take this opportunity and ensure participation in this global event. This is the right opportunity to be in the Global Congress and this is one of the biggest opportunity for the small scale industries and medium scale industries to network B to B and B to C and since this is the first time that IUFOST is coming to India in its long span of more than 70 years perhaps all of us have to be prime up to make this event show case India as number one. Industries must participate in large numbers and at the same time and sponsor events to showcase India and support of the government both at Central and State level the event certainly will Expo will be a good destination for investors and financiers for many companies globally. Therefore IUFOST Congress is not one more Congress that happens but is a happening Congress with the total back up of the adhering body INSA (Indian National Science Academy) for India and this potential must be exploited fully by the public and private entrepreneurs and especially of the faculties and students along with the huge chain of industries. The traditional wisdom and modern science will synergise and dominate this Congress share and care the knowledge through the event knowledge and partner for conducting the same being MM Activ Scientific Communication Ltd. More details one can have in web page <https://www.iufost2018.com>

Looking forward to see you in the Congress! Will you not be there? Please make a point to be there just as a delegate is my request to you as Chair of this Mega Event. Please prepare well, dissipate information and participate in large numbers. The NuFFooDS Editorial Board must also look at this opportunity to meet people and interface with who is who in this world of Food Science and Technology so that they contribute regularly for enhancing the Value of NuFFooDS Spectrum to make it truly Global.

See you at Mumbai during Oct 23 - 27, 2018! NS



MSME, AYUSH to develop traditional medicine enterprises

Ministries of MSME (Micro, Small and Medium Enterprises) and AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) have joined hands for developing enterprises in the traditional medicine sector. The memorandum of understanding (MoU) will create synergies through the



institutions and schemes of both ministries for the development of AYUSH enterprises in the country. The objective of this partnership is to position India as a world leader in Holistic Healthcare. Under the partnership, the two ministries will organise regional workshops for entrepreneurship development. The MSME ministry will frame new schemes for AYUSH industries to avail benefits of lender to small industries - SIDBI. AYUSH industry includes

the Ayurveda, Unani, Siddha and Homoeopathy drug manufacturing units as well as healthcare delivery centres in public and private sectors and are essentially dominated by MSMEs. The domestic market for AYUSH sector has been increasing steadily over the past decade. There is also an acceptance of traditional medicines worldwide. Therefore, export of AYUSH products like food supplements, nutraceuticals and herbal extracts has increased significantly.

FIA, FICCI sign MoU to support food industry

Food Industry Asia (FIA) and the Federation of Indian Chambers of Commerce & Industry (FICCI) have signed a Memorandum of Understanding (MoU) to collaborate on initiatives which will enhance nutrition in India, progress food innovation and address challenges faced by the food & beverage industry in the region.

The MoU was signed by Matt Kovac, Executive Director, FIA and Dilip Chenoy, Secretary General, FICCI, at a business meeting presided over by Narendra Modi, Prime Minister of India and S Iswaran, Minister for Communications and Information and Minister-in-charge of Trade Relations for Singapore, at the Marina Bay Sands Expo and Convention Centre in Singapore. The exchange took place during an official visit to Singapore by Modi.

Areas of collaboration will



include facilitating food trade between India and Singapore, harmonising standards and exploring opportunities for partnership. In addition, the two parties will organise workshops and seminars to build capacities of Indian food businesses operators and share best practice on important issues such as regulatory changes, food safety, food quality and nutrition.



Bihar to roll out mobile food lab

The government's food safety wing in Bihar will roll out a mobile food testing laboratory in Patna by the end of next month, to collect food samples and conduct on-spot tests. According to the officials, the mobile laboratory will go to people's doorsteps to check for adulteration in food, create awareness on the dos and don'ts on handling food, and how to check food adulteration at home. The laboratory will conduct tests for common adulterants in milk, water, edible oil and other food items. The Food Safety and Standards Authority of India (FSSAI) has allocated two mobile laboratories to the food safety wing. Each of the labs cost around Rs 40 lakh. The first laboratory will be handed over to the food safety wing in a month while the second will reach Bihar in three-four months. The mobile food testing laboratory will be equipped with milk analyser, hot air oven, hot plate, mixer grinder, digital weighing scale, digital multi parameter hand-held meter, power generator, air conditioner and refrigerator. Five personnel, including a lab assistant and technician, will be assigned to the units.

FSSAI to finalise labeling standards

Food regulator FSSAI will finalise the labelling standards on packaged food products in the next 2-3 months and is open to make changes in the draft rules to address the industry's concern. Recently, the Food Safety and Standards Authority of India (FSSAI) had issued a draft of Food Safety and Standards (Labelling and Display) Regulations, 2018 and sought comments from stakeholders. The regulator has proposed making it mandatory to display red colour-coding on front of the pack of food products that have high-fat, high-sugar and high-salt content levels. FSSAI is studying the model used in foreign countries like Australia, New Zealand, Mexico and the US, for colour coding display on the packaged food item. Currently, FSSAI is in the process of getting stakeholders' comment on the draft regulations. The final regulations is expected in the next 2 months.



FSSAI amends law to stop reuse of edible oil

A new amendment in the Food Safety and Standards Act (FSSAI) mandates that the total polarized compound (TPC) value in edible oil must be less than 25 per cent. The new amendment to FSSAI comes into effect from July 1. In the run-up to this, Food and Drug Control Authority (FDCA) – Gujarat, had recently undertaken a pilot drive to test the TPC value of oil across establishments in Ahmedabad.

It was found that 40 per cent of the commercial establishments and eateries are reusing the oil they

have already used for frying for cooking, re-frying and other edible purposes. All of these samples had a TPC value that was greater than 25 per cent.

FDCA Gujarat has procured a special device to test the TPC value in oil instantly. Authorities believe that the amendment in the act will further enable them to penalize eateries and establishments that reuse edible oil. The move will bring all these businesses under the civic body and state government's scanner.

FSSAI to bring down TFA to less than 2%

Food Safety and Standards Authority of India (FSSAI) has decided to bring down the trans-fatty acids (TFA) in vanaspati/bakery shortenings/margarine to less than 2 per cent in a phased manner, which would effectively bring the level of trans fats to zero level in food in India.

Since the industry has agreed on the issue, the regulator said it will soon notify a draft regulation and release the final one in the next 3-4 months.

TFA are largely present in



vanaspati used in preparation of sweets and deep fried foods, and margarine and bakery shortenings. Trans-fatty acids are also formed during repeated heating of fats/

oils while deep frying at home and restaurants.

TFA reduction in partially hydrogenated vegetable oils (PHVOs) from 5 per cent to 2 per cent will be carried out in a phased manner by the industry. Many countries around the world, such as Denmark, Chile, Norway, Singapore, South Africa and Ecuador already limit trans-fat in all foods to 2 per cent, while a few other countries such as Austria, Hungary and Latvia limit it to 2 per cent level with some exceptions.



Parle Agro targets Rs 10,000 Cr by 2022

Leading beverages-maker Parle Agro is planning to enter new categories and ramp up the sales and distribution network for its existing products to achieve its target of clocking Rs 10,000 crore topline by 2022. The Mumbai based company expects to double the turnover of its flagship brands Frooti and Appy Fizz to achieve this target. While the former grosses Rs 2,200 crore now, the latter fetches around Rs 700 crore in topline.

Its flagship brand Frooti has been growing at 25 per cent and the company aims to double this in the next two-three years from Rs 2,200 crore now. The mango-based beverages category is estimated to be over Rs 8,450 crore now, and Frooti enjoys 26 per cent of this segment

Parle Agro dominates the sparkling fruit juices category with its Rs 700 crore brand Appy Fizz, which it targets to be a Rs 1,000-crore brand by 2020. The company has earmarked Rs 200 crore for marketing activities in 2018, of which Rs 100 crore will be invested in Appy Fizz alone and the rest primarily in Frooti.

Amul eyes Rs 50K Cr group turnover in FY19

Dairy co-operative Amul is aiming to grow at 20 per cent this financial year, to touch a group turnover of close to Rs 50,000 crore, on the back of growing consumer portfolio, premiumisation and rising demand. The Amul brand includes the 18 member dairies of the Gujarat Co-operative Milk Marketing Federation (GCMMF).

GCMMF, however, registered only 8 per cent increase in turnover to Rs 29,220 crore in financial year 2017-2018, owing to a decline in commodity prices. The consumer product portfolio has been growing at nearly 15 per cent on a volume basis, which has helped the performance of the Amul's branded products, despite lower commodity prices. The 18 member unions of GCMMF has a farmer strength of more than 36 lakh across 18,700 villages of Gujarat, and is procuring on an average 211 lakhs litres of milk per day which is 20 per cent higher than the previous year. The co-operative has also recently tied up with the government and lenders, under the Pradhan Mantri Mudra Yojana, to procure easy loans for its farmer partners.



Manpasand to set up Rs 150 Cr plant in Odisha



Manpasand Beverages is setting up a fruit juice manufacturing facility at Chhatabar Industrial Area, Khurda in Odisha, at an investment of Rs 150 crore. The new plant is a part of the company's expansion plans which are on at full swing. This would be their ninth facility in the country, and will have a capacity of 50,000 cases per day.

Of the four new plants being set up at an investment of Rs

600 crore, the first at Vadodara has already been commissioned, while the second one at Varanasi is expected to be functional soon. The construction work at the third plant is on at Sri City in Andhra Pradesh.

According to the company, a robust network of dealers has been built and it is well equipped to cater to the rising demand in the eastern market.



Nestlé to merge research units for strengthening innovation

Nestlé has announced that it will combine its two research units in order to strengthen its R&D capabilities and accelerate product innovation. The Nestlé Research Center and the Nestlé Institute of Health Sciences will be merged into a new organisation called Nestlé Research, which will be based in Lausanne, Switzerland.

According to Nestlé, the merged unit will allow the company to further its efforts in the reduction of sugar, saturated fat and salt from its product portfolio, and allow it to further enhance the nutritional profiles of its products.

The reorganisation will begin in July 2018, and will not result in the closure of any facilities or job losses, according to the company. Creating more nutritious products in the face of changing consumer attitudes has been one of Nestlé's core aims over the year, as key figures in the company called for greater focus on health and nutrition at the start of the year.

Britannia to set up food manufacturing unit in Ranjangaon

Britannia Industries has assigned a capex of Rs 500 crore this year for the setting up of a manufacturing base at Ranjangaon in Maharashtra. With the intention of transforming itself from a biscuits to a foods company, it has set up a food park in Ranjangaon, in the milk producing belt, to make its cakes, rusks, croissants and engage in dairy processing, apart from its mainstay, biscuits.

According to the company, biscuit is still 85 per cent of their turnover of Rs 10,200 crore, but they intend adding other products in the macro-snacking category. This year their largest capex will be for the Ranjangaon plant at Rs 500 crore, which will get raised to Rs 1,000 crore.

Segments like dairy, where Britannia has been trying to make a mark, will also get a fresh impetus through its new manufacturing facility. The facility at Ranjangaon would be able to manufacture dairy products in the next two years. Today, dairy contributes 5 per cent of the turnover, but the company plans to take it to 10 per cent in the next three years with a turnover of Rs 800 crore.



Prabhat Dairy steps into beverage domain

Prabhat Dairy Ltd. has stepped into the dairy beverages segment in a bid to grow its consumer business from the current Rs 400 crore to Rs 1,000 crore in two years. Beverages such as milkshakes, lassi and Chaas would be made available in retail stores in Tetra Pak. The firm plans to expand its beverage market in two phases. In phase I, it will cover Maharashtra followed by pan-India expansion in phase II next year. It will focus on metropolitan and smart cities.

Prabhat Dairy has also forayed into retail segment wherein it would set up 'Prabhat Goodness Zones,' a franchise-based chain of retail outlets, across Maharashtra.

According to the company, all milk based products of Prabhat such as packaged and toned milk, ghee, cheese, chaas, lassi, dahi, shrikhand, paneer, milkshakes will be sold at the 'Goodness Zones' and this would enhance brand awareness and customer loyalty.



Cargill to expand food biz in India with healthy products

In a bid to expand its consumer business, Cargill plans to launch new products in the edible oils and wheat derivatives segments. This product expansion is in line with the company's strategy to focus on offering nutritious and healthy products to Indian consumers.

According to the company, there are about seven-eight products in the pipeline in the consumer food space. These products will serve the nourishment needs of Indian consumers and offer value-added products that meet the everyday needs of Indian kitchens.

The company, which is already present in the packaged atta segment, is now looking at adding wheat derivative products to its portfolio such as sooji and daliya. For its wheat flour products, the company intends to focus on choosing the right grains and processing them in a manner that high fibre content is maintained.

PepsiCo to launch plant-based packaging

Rising concerns around plastic pollution have compelled FMCG companies to rethink their packaging solutions. Food and beverage major PepsiCo, for instance, announced it will launch the first-ever 100 per cent compostable, plant-based packaging for Lay's and Kurkure snacks products, this year.



At PepsiCo, the Performance with Purpose 2025 goal is to design all packaging to be recoverable or recyclable, and supports increased recycling of plastic waste. According to the company, India will be among the first countries to pilot this new, sustainable packaging solution developed by PepsiCo.

While the PlantBottle — a fully recyclable PET plastic beverage bottle made partially from plants and which looks and functions just like traditional PET plastic bottle — accounts for 30 per cent of the company's packaging volume in North America and 7 per cent globally, it may be a while before it finds its way to Indian shores due to its high manufacturing costs.

Coca-Cola branches into new nutritious categories



Coca-Cola India, one of the country's leading beverage companies, recently announced its entry into new categories of Enhanced hydration and Nutritious Dilutables with the launch of Aquarius GLUCOCHARGE and Minute Maid Vitingo. The new products are in-line with the company's endeavour to provide a spectrum of beverage choices to the consumer along with functional benefits across various segments of consumers.

Aquarius GLUCOCHARGE, packed with Glucose, essential Minerals (Potassium, Sodium, Calcium) and fruit

juice has been developed exclusively for Indian consumers who toil in the heat and need instant rehydration to overcome exhaustion.

Minute Maid Vitingo is a specially formulated product to address micronutrient deficiency and malnutrition in India. The formulation is fortified with Iron, Vitamin A, Vitamin C, Zinc, Folic Acid, Vitamin B2 and Vitamin B12. Regular consumption of Vitingo has been clinically tested to significantly reduce Iron deficiency, Anaemia and Vitamin C deficiency among children.



Packaged food startup Y-Cook receives \$5M

Bengaluru based Y-Cook India Pvt. Ltd, which makes ready-to-eat and ready-to-cook packaged food products, has raised \$5 million in a Series B round of funding from new and existing investors. Dutch impact fund Oikocredit and venture capital firm 021 Capital, which is backed by Flipkart founder Binny Bansal, led the round. The company's existing investor Omnivore Partners also contributed. Y-Cook, which offers food products under the brand name Ta-daa!, plans to use the money for innovation

and expanding its footprint. The company mainly focuses on southern India at present. Launched in 2013, the firm provides boiled vegetables, lentils and fruits in both the ready-to-eat and ready-to-cook formats. It claims the products are preservative-free and can be stored at room temperature in a sealed container. The produce is grown by partner farmers. The company primarily sells its products through retail chains such as Reliance Retail, Big Bazaar and Nature's Basket, and e-commerce sites including Amazon and Flipkart.

Dairy Tech startup Stellapps raises \$14M

Bengaluru based dairy technology startup Stellapps Technologies has raised \$14 million in one of the largest equity funding rounds led by Bill and Melinda Gates Foundation and IndusAge Partners, among others. IIT-Madras incubated Stellapps Technologies, which is also backed by Flipkart executive chairman Binny Bansal, is touted to be one of the largest dairy IoT platforms in India. The startup had raised seed funding of undisclosed amount from Omnivore Partners, in January 2013. Stellapps is an India's first of its kind end-to-end dairy technology solutions company. Their concept includes a Wi-Fi sensor module, a wiimote and IoT router that can be used for smart automatic milk collection unit and cold-chain monitoring, as part of Stellapps IoT platform. The freshly raised capital will be used by the startup for monitoring the quantity and quality of milk, storage facilities, creating wearable devices for tracking cattle health and infrastructure for housing the cattle. The startup is aiming to focus is on reducing costs for the farmer by ensuring there are higher milk yields and consistent health of their cattle.

Milkbasket secures \$7M in Series A funding

Gurugram-based micro delivery startup Milkbasket has raised \$7 million in Series A funding led by Kalaari Capital with participation from the Singapore-based BeeNext. It plans to utilise the funds to bring efficiencies in its supply chain, last-mile logistics, and to expand into other geographies. In January this year, Milkbasket had raised \$3 million funding in a Pre-Series A round led by Unilever Ventures. Previously, it raised a total of \$1 million in seed and angel

investment from a group of Chinese VCs and domestic angel investors. The startup maintains to have utilised the fund in expanding the company's operations in Gurugram and to acquire new talent. Milkbasket started its service in a micro-delivery model akin to the prevalent newspaper and milk supply chain models in India. The startup today has a reach of over 40K households in more than 180 communities in Gurugram.





Swiggy, BigBasket to acquire milk-delivery start-ups

Swiggy and BigBasket which recently received funding are now eyeing milk delivery startups for acquisitions. Both companies are in talks with some of the milk delivery startups in different cities to either work together or to simply take over their existing business. RainCan operating in Pune, Milkbasket of Gurugram and Bengaluru-based Daily Ninja are some of the names being suggested. These companies have a subscription-based model where they deliver milk to the doorsteps of their customers, a more sophisticated job of the good-old milkman. It might be a win-win situation for both sides since these milk suppliers can add groceries to their offerings and companies like BigBasket can quickly add a big chunk of households to be recruited directly for their grocery supplies. Experts do feel this model can work well in quickly expanding the base for them. For Swiggy, this would be a diversification from its core business, but may ultimately converge with the customer base it has already created.

EarthFood raises seed funding of Rs 6.4Cr

Pune based agritech startup EarthFood has raised its seed funding round of Rs 6.4 crore from Rairah Corporation. The startup plans to utilise the funds to strengthen its position in the market and invest in building differentiated offerings to consumers.

With the fund, EarthFood also plans to expand their product line by adding milk and milk products along with the launch of residue free spices in the dehydrated

segment.

Founded in 2016, EarthFood offers a wide range of organic fruits and vegetable and are sold without adding preservatives and synthetic food enhancers. It was earlier part of a wholesaler VTP Foods.

The startup claims to have its presence in 25 retail outlets with customers both in the offline and online segment. Currently, it supplies an average order of 50 metric tons per month.



Raw Pressery secures \$9.55M funding

Mumbai-based organic juice startup Raw Pressery has secured \$9.55 million in funding from its existing investors such as Sequoia Capital, Saama Capital and DSG Consumer Partners.

With this funding, the startup plans to expand its footprint to Southeast Asia and also strengthen its distribution and supply chain as it looks to scale up new offerings.

The startup is currently looking to start a pilot operations in Southeast Asia starting with Singapore and then Kuala Lumpur. It intends to go live in these markets next year.

The startup is also in talks with family offices and institutional investors to raise an additional \$5 million as part of this funding round, and this is likely to be closed in the next few months.





Sri Lankan dairy industry urges collaborations

The All Island Dairy Association (AIDA) recently organized a seminar on Challenges in Meeting Emerging Trends in the Dairy Industry recently at the Ceylon Chamber of Commerce, Sri Lanka. AIDA representing a wide range of dairy industry stakeholders such as milk producers, processors, importers, and service and input providers organized this seminar with the main objective of discussing emerging trends in dairy industry, educating businesses in the dairy industry on new regulations pertaining to dairy products and agreeing on a way forward to face these challenges.

The discussion covered key topics such as the main issues facing the sector, current barriers to meeting the local industry's potential, and how the government and industry needs to collaborate to overcome these barriers. In addition to the challenges of the local dairy industry, the seminar also focused on the importance of dairy nutrition as part of a balanced diet.

The discourse on the nutrition in dairy also addressed the need for dairy products with little or no added sugar, another key focus for the industry currently. The industry's commitment to continuously reducing sugar levels in products was reiterated, albeit through a gradual process considering consumers' needs and taste palettes.

Pakistan to address nutrition issue

The Ministry of Planning Development and Reform with support from the World Food Programme (WFP) has recently launched the Pakistan Multi-Sectoral Nutrition Strategy 2018-25 (PMNS) to address the nutrition issue being faced by the country.

The document has been developed through a consultative process, involving national and sub-national level stakeholders, and has been linked with the provincial inter-sectoral nutrition strategies, aligned with the Pakistan Vision 2025 and the Sustainable Development Goals (SDGs).

The document has been prepared taking inputs of all the sectors. The strategy guides and provides an overarching framework for developing a strategy plan for increased coverage or scaled up equitable and high-quality nutrition services including both sensitive and specific interventions.



Kingfisher to enter Nepal's beer industry

Tying up with Yeti Brewery, Indian beverage company United Breweries Ltd recently announced the official launch of Kingfisher Beer in Nepal. United Breweries Ltd aims to be a part of the burgeoning beer industry of Nepal. As per the company, Nepal is



an important market since the beer industry here has been growing rapidly since the past few years. Kingfisher is a popular beer brand among youths and is intended to target the same group in Nepal. At present, two variants of Kingfisher Beer — Kingfisher Premium and Kingfisher Strong — are available in Nepal. United Breweries Ltd plans to build a strong market network in the country soon and accordingly Kingfisher will capture almost 10 per cent of the country's beer market within the next two years. Though per capita beer consumption is low in Nepal, the annual industry growth rate of almost 25 per cent witnessed in recent years has developed Nepal into a strategic and potential beer market.



Tate & Lyle buys stake in Sweet Green Fields

Ingredients company, Tate & Lyle has agreed on a deal to acquire a 15 per cent stake in US-based stevia producer Sweet Green Fields.

This purchase builds upon the agreement signed by Tate & Lyle and Sweet Green Fields in April 2017, which saw Tate & Lyle become the exclusive global distributor of Sweet Green Field's stevia products.

Tate & Lyle claims that the investment will significantly strengthen its stevia-based product portfolio and strengthen the partnership between the two companies.

According to Tate & Lyle, their growing partnership with Sweet Green Fields will, through collaborative innovation and the diversification of the supply chain, help them meet consumers' needs and make stevia sweeteners an integral part of their sweetener portfolio.



Vermont Coffee to utilise 100% renewable energy

US-based Vermont Coffee Company has announced that its coffee roasting facility in Middlebury, Vermont is now powered by 100 per cent renewable energy, and the company claims it is the first US coffee roaster to achieve this milestone.

The facility will now be 100 per cent powered by electricity and thermal energy sourced from methane, reducing carbon emissions in the production process. Electricity will be sourced from anaerobic digesters operated by Addison County dairy farms, which extract methane gas from cow manure.

Meanwhile, thermal energy is sourced from methane recovered from a Quebec-based engineered landfill operated by EBI Énergie, and this methane replaces propane in the production process. To ensure the success of the new energy supply agreement, the company claims that it invested in new coffee roasting equipment over the last few years, in order to make the company's roasting operations more efficient.

Arca to build \$250 M Coca-Cola bottling facility

Mexican soft drinks bottler Arca Continental plans to invest \$250 million to build a new distribution and production facility in Houston through its subsidiary Coca-Cola Southwest Beverages (CCSWB). According to Arca Continental, the 1 million-square-foot facility will be the first dedicated Coca-Cola production facility built in the US in over a decade.

The new plant will feature

five production lines, in-line blow moulding, distribution facilities, a warehouse and a sales department, and is scheduled to begin operations in 2020. The facility will allow CCSWB to effectively serve its client base in Southeast Texas, and will provide \$30 million in cost savings due to the facility's efficient new equipment.

Arca Continental is engaged in the production, distribution

and marketing of Coca-Cola's non-alcoholic beverages under the brands of Bokados in Mexico, Inalecsa in Ecuador, and Wise in the US. Arca Continental is said to be the second largest Coca-Cola bottling in Latin America, which serves over 19 million in the northern and western parts of Mexico, as well as Ecuador, Peru, the northern region of Argentina and the Southwestern US.

Focus on **ECO & CONSUMER FRIENDLY PACKAGING**



Plastic usage has created a lot of buzz lately. Even this year's theme for World Environment Day was "Beat Plastic Pollution". Several states like Maharashtra and Tamil Nadu have also banned the manufacturing of plastic and its usage. However, in the food and beverage industry, plastic plays a key role in packaging. From airtight containers to shelf stable bottles, it is a material of choice for increased shelf-life. The current uproar about plastic packaging has kept major food firms on their toes. Companies like Nestle India has collaborated with organizations like Indian Pollution Control Association (IPCA), NEPA and Saahas Waste Management and companies like ITC and Dabur India have started using recyclable plastic. Several companies operating nationally have expressed difficulty in complying with different state policies on plastic and have expressed a need for unified pan-India plan. With this current scenario, we look at what opportunities lie ahead for the Indian Food Packaging Industry and what are the challenges faced by the industry today.

India is the fifth largest market for packaged food in the world and the second largest in Asia after China. Although investments in food processing and packaging machinery have been rising steadily, India has been slow to adopt some of the technological developments in food packaging. "The Indian Food Packaging Industry is in its nascent stage if it was to be compared to rest of the world, but has evolved at a very fast pace over the last decade and it is very predicted to grow exponentially over the next 5 to 10 years. Besides the growth in retail, the driving force is essentially the upwardly mobile young strata of the Indian Society. The biggest opportunity lies in the Ready to Eat

(RTE) segment in general. In particular tremendous upside is seen in the frozen food segment which, at this point, is very limited. This is mainly due to the lack of cold chain. But as the cold chain infrastructure grows, the frozen food segment will grow as well. The frozen food can either be microwaved or it could be deep or shallow fried. In either case using the right packaging that would preserve not only the taste but also the nutrient value becomes of paramount importance. Flexible packaging as in pouches etc., thermoformed trays with lidding for solid food and bottles for semi liquid food would be areas of opportunity to look at," says Anand Khare who has a vast 22 years

of techno-commercial experience in packaging development for food, beverages, pharma and healthcare sectors and is also currently a Principal Consultant in Packaging, while sharing his thoughts on what opportunities lie ahead.

"During the period 2016-2021, the Soft Drinks and Food industries will be the highest packaging market share gainers with share growth of 3.4 per cent and 1.3 per cent respectively. The growing organized retail sector has been a significant driver of the growth of the Food and Beverage industries, which in turn drives the growth of Indian packaging industry. In addition, innovations in the packaging industry, such as the development of lighter packaging

with better barrier properties, add to the growth of packaging industry. In terms of packaging material, glass and rigid plastics will be among the major share gainers, with share growth of 0.7 per cent and 0.6 per cent respectively during 2016-2021," predicts Research and Markets.

Shailesh Nema, Country Manager & Director, Michelman India speaking at the InnoPack F&B Confex 2018 held in Mumbai recently says "Improving barrier technology, downgauging or light weighting and advanced bio-derived and bio-degradable technologies are the key innovations and trends in flexible packaging. He also said that coatings are preferred over films as it is cost effective and further added that food packaging demands excellent barrier properties that improve shelf life and retain flavor."

Innovations in the packaging industry

Increasing population and urbanization has been instrumental in influencing innovation in the food



Trends & Opportunities in Indian Packaging Industry

Packaging is among the high growth industries in India and developing at 15-20 per cent per annum and becoming a preferred hub for packaging industry. Currently the 5th largest sector of India's economy, the industry has reported steady growth over past several years and shows high potential of much expansion, particularly in the export market. Costs of processing and packaging food can be lower than parts of Europe which, combined with India's resources of skilled labour, make it an attractive venue for investment. A high degree of potential exists for almost all user segments which are expanding appreciably-processed foods, hard and soft drinks, fruit and marine products.

The Indian packaging industry has made a mark with its exports that comprise flattened cans, printed sheets and components, crown cork, lug caps, plastic film laminates, craft paper, paper board and packaging machinery, while the imports include tinplate, coating and lining compounds and others. In India, the fastest growing packaging segments are laminates and flexible packaging, especially PET and woven sacks. Over the last few years, Packaging Industry is an important sector for driving technology and innovation growth in the country and adding value to the various manufacturing sectors including agriculture and FMCG segments.

The global packaging industry is developing and expanding day by day and Indian packaging industry is also growing rapidly. This growth is primarily driven by factors like growing industry sectors such as pharmaceutical, food processing, FMCG, healthcare sector and ancillary in the emerging economies like China, India, Brazil, Russia and few other East European countries.

The growth of the Indian packaging industry will be heavily influenced by changing demographics such as growing urbanization and the rising proportion of middle class consumers. These changes drive the need for new packaging formats, such as different sizes,



materials, and strength. The growing organized retail sector has been a significant driver of the growth of the Food & Beverage industries, which in turn drives the growth of Indian packaging industry. In addition, innovations in the packaging industry, such as the development of lighter packaging with better barrier properties, add to the growth of packaging industry in terms of packaging material, Glass and Rigid Plastics will be among the major share gainers.

India's packaging industry has been developing due to the growth of food retail and pharmaceutical industries focusing on domestic demand and export. After strong GDP growth over the past two decades, growth in lifestyle and consumption pattern, the demand for packaged products have been increased. This has resulted in new packaging formats and increase in competition on domestic as well as international level.

Packaging Industry Association of India (PIAI), the leading organization working for the growth of Packaging Sector and allied industries points out that the food packaging industry is one growth area that has seen the maximum number of innovations in terms of packaging and branding. Consumers want their food products to be hygienic, safe and at the same time to look attractive. When it comes to food packaging, MNCs have a very good ecosystem. They have a dedicated R&D house, which conducts various research-based experiments using the latest technologies, and are always innovating to ensure that the consumer is benefited. This development has led to healthy competition between the local manufacturers to deliver innovative products, and as a result, the entire ecosystem is gearing up for the change. Likewise, local manufacturers are now importing state-of-the-art machinery to ensure that the packaging is of the highest standards.

Packaging machines for labelling, bar coding and scanning, to metal and plastic packaging – every contraption is now available to local manufacturers. However, at this stage, the industry is eagerly looking forward to the government machinery, which they hope will support them by implementing effective policies that will help them to compete on the international arena. **NS**

(Source: <http://www.iip-in.com>)

packaging industry. Companies have also realized that packaging adds value to the product and helps it in standing out among competition.

Digital technologies have entered the food packaging industry too. With consumers seeking increasingly innovative products that are not only sustainable but also affordable; a need for digital transformation has arisen. Recently SIG, a leading systems and solutions provider for aseptic packaging partnered with GE Digital to enable digital innovation in food and beverage packaging industry and fuel intelligent packaging solutions to meet customers' evolving needs. "Digital is reshaping every sector, and industrials know they need to own the productivity of their assets to succeed," said Bill Ruh, GE Digital, CEO. "By adopting Predix applications, SIG is establishing itself as a leader in the transformation of food and beverage packaging. This partnership brings our teams together to write a new chapter for SIG and for the industry," during this announcement. It had also announced that time that its initial deployment was expected to go live in July 2018 and the global rollout was anticipated to begin in January 2019.

With a rise in consumer awareness about using the products that are environment-friendly, demand for sustainable packaging has increased. Back in 2011, ITC tied up with Northern Technologies International Corporation's Indian joint venture Harita NTI to provide biodegradable, compostable products including food service ware, food packaging and other FMCG packaging. Recently, Finnish company Fazer partnered with Sulapac to develop plastic-free biodegradable packaging solutions.

Recently, ten companies - Tetra Pak, CavinKare, Dabur India, Diageo India, Halewood Laboratories, John Distilleries, Karnataka Milk Federation, Parag Milk, Radico Khaitan and Schreiber Dynamix Dairies co-founded the Action Alliance for Recycling Beverage Cartons (AARC). This was a first-of-its-kind initiative to further strengthen the end-to-end waste management ecosystem by engaging with all stakeholders (including waste pickers, scrap dealers, waste management companies, recyclers and non-governmental organizations) across the value chain. Demand has also increased for edible food packaging with the increase in consumption of the packaged food. The global edible food packaging



Mintel's Global Packaging Trends in 2018

Packaging will play a pivotal role in reducing global food and product waste. Encompassing the broader themes of preservation, automation, aesthetics, sustainability, and trust, Mintel, the world's leading market intelligence agency, reveals the five key trends set to impact global packaging markets in 2018. Behind every trend is comprehensive consumer, market, and competitive research that supports the emergence and future impact of the trends, as well as examples that highlight the best that brands are delivering to consumers around the world.

1. Packaged Planet - The throwaway culture of today will evolve into one that understands and embraces the role of packaging as a primary means to reduce global food and product waste. Consumers have long considered packaging as often unnecessary, and ultimately as just waste to be disposed of. But that misconception is now changing. A focus on package innovations that extend food freshness, preserve ingredient fortification, and ensure safe delivery is increasingly benefiting consumers. Brands will need to act fast by exploiting on-pack communication tools to educate consumers to the

benefits packaging can bring, from extending shelf life of food to providing efficient and safe access to essential products in developed and underserved regions of the world.

2. rEpackage - As more and more consumers embrace online shopping, packaging will play a pivotal role in brands' and consumers' e-commerce experiences. Online shopping is becoming increasingly widespread around the globe and is near ubiquitous in some markets. However, while online shopping's key advantage is convenience, consumers expect more from their favoured brands. When designing packaging to be viewed online, and transit packaging to be opened upon delivery in the home, the experience of e-commerce packaging must reflect consumer expectations from shopping with that brand in-store.

3. Clean Label 2.0 - Aiming for packaging designs that enlighten consumers' purchase decisions, brands will reject approaches that offer too much or too little as they can leave shoppers more confused than informed. Today's consumers are more informed than ever; however, brands are in real danger of being rejected if consumers feel overloaded with information,

market is forecasted to grow at a CAGR of 6.26 per cent during the period 2018-2022. This type of packaging can be consumed along with food. "Developing countries like India are experiencing increasing consumption of packaged food owing to changing lifestyles. Factors such as convenience of consumption, ready-to-eat option, and instant cooking possibility, are prompting demand in the packaged food market," says a report by Research and Markets.

Challenges

However, with increase in demand for innovations and sustainability in packaging, various food packaging companies face various challenges at many different levels.

"One of the biggest challenges for the food packaging industry in India is making the right choice for its packaging material whether it is paper, plastics or metal. At the end of the day, packaging needs to serve the basic functional need that is to preserve, protect and deliver food to the end consumer without compromising on taste, nutrition and overall value. The packaging needs to be fit for use and easy to use. While being tamper evident, packaging also needs to be senior friendly and in some cases child resistant. To achieve these parameters

is tricky. Furthermore, the packaging industry needs to be conscious of changing government regulations and addressing environmental concerns. It is extremely important that the industry focuses on reduce, reuse and recycle when it comes to packaging material which in turn would deliver a more sustainable approach. Availability of packaging materials which are thinner but still provide the necessary barrier properties to protect the food would be another challenge. Developing compostable or environmentally friendly packaging materials would certainly be the industry focus in days to come," says Anand who also has a master's degree in Plastics Engineering from University of Massachusetts Lowell, holds a certificate in Design Thinking from Massachusetts Institute of Technology (MIT) and who is also a certified Project Management Professional.

Developing a packaging which can survive harsh environment, increasing cost of raw materials, sustainability and to keeping up pace with the existing innovations are some of the challenges that many



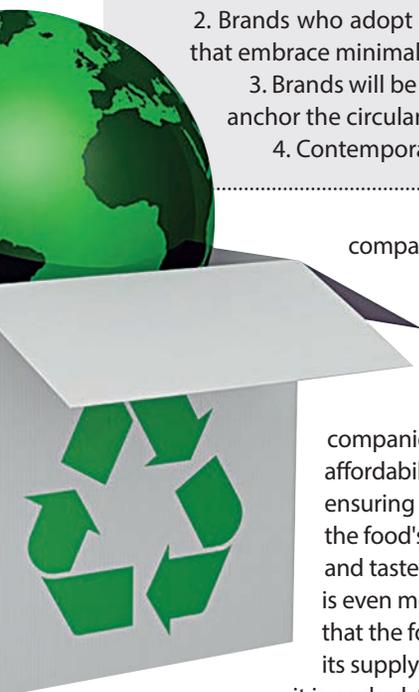
leading to the questioning of provenance, authenticity, and transparency. The “essentialist” design principle bridges the divide between not enough and just enough of what’s essential for consumers to make an enlightened and confident purchasing decision. Brands must bring the next generation of clean label to packaging design to provide a moment of calm and clarity for shoppers in an increasingly hectic retail environment.

4. Sea Change - Plastic packaging adrift in the world’s oceans will become the catalyst driving brands to rethink packaging in a context consumers can understand and act upon. Concerns over safe packaging disposal will increasingly colour consumers’ perceptions of different packaging types, and impact shopper purchase decisions. Only by communicating that a brand is working towards a solution will this growing barrier to purchase be overcome. While collecting waste plastic from the sea

to recycle into new packaging can raise consumer awareness, it won’t solve the problem. In order to keep plastic out of the sea, a renewed effort towards the circular economy is needed to keep packaging material in use.

5. rEnavigate - Brands will look to contemporary packaging formats to help reinvigorate the centre-of-store aisles less visited by younger consumers. Young shoppers are increasingly ‘shopping the periphery’, visiting the fresh and chilled aisles around the store perimeter and turning their backs on processed, ambient, and frozen offerings in the centre of the store. The use of transparent materials, contemporary design, recyclability, or unique shapes can help draw in younger consumers to the store centre, making it as appealing as the burgeoning perimeter to younger consumers. ^{NS}

1. Online brands will reinvigorate their packaging in order to enhance the e-commerce experience.
2. Brands who adopt clear and succinct package messaging will be rewarded as consumers prefer brands that embrace minimalism.
3. Brands will be called to keep marine conservation at the forefront of packaging development and to anchor the circular economy for future generations.
4. Contemporary packaging formats will see the centre-of-store take centre stage.



companies are facing. In the temptation of providing alternative solutions to the already existent packaging materials, various

companies have faced issues of affordability and have difficulty in ensuring food safety. “Protecting the food’s inherent nutrient value and taste is extremely important. It is even more important is to ensure that the food stays safe throughout its supply chain, right from the time

it is packed, transported, stored, sold, stored by the consumer and finally consumed. The packaging needs to be robust so that it can guarantee some sort of tamper evidence,” points out Khare when asked about measures that need to be taken to ensure food safety.

Khare further says, “Additionally, two of the biggest factors that can spoil the food and make it unsafe to consume are oxygen and moisture. Oxygen is known to react with vitamins and minerals in the food and reduce the nutrient or functional value and exposure to moisture

would make it susceptible to undesirable fungi, yeast etc. Thus the packaging should have enough and more oxygen and moisture barrier.”

Several different technologies and materials exist today such as Ethylene vinyl alcohol (EVOH), Polyvinylidene chloride (PVDC), Polychlorotrifluoroethylene (PCTFE or PTFCE) etc. that are routinely used to provide appropriate barrier against oxygen and moisture. The packed food can also be flushed with nitrogen to drive away oxygen and this technique is used in modified atmospheric packaging.

The industry also needs to ensure that the packaging material that is used meets with various regulatory compliances such as Food and Drug Administration (FDA), European Union (EU), European Commission (EC), Coalition of Northeastern Governors (CONEG), Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) etc. These regulations ensure that the packaging material is fit to be used for direct and indirect food contact. Whether the type of packaging is rigid, flexible or semi flexible, care should be taken to protect the health of the end consumer and above parameters need to be paid attention to. ^{NS}

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Vijay Surya,
CEO, NutriParadise Foods

Adopt prescription oriented approach

Nutraceuticals are products isolated from foods that are generally sold in therapeutic structure. They are characterizing as any food or part of it which gives medicinal advantages including avoidance and treatment of illness. As Indian buyer is prescription oriented thus companies attempt to advance their products through doctors. This approach needs development and companies need to search for a more straightforward route to the purchaser.

The nutraceutical business speaks to a dynamic, developing substance that offers normal chances to combine scientific revelation with developing consumer enthusiasm for health upgrading foods. It tracks and screens consumer slants along these lines the results of this industry can speak to an immediate reaction to their request. The nutraceutical business envelops three primary fragments which include functional foods, dietary supplements and herbal or natural products.

In a perfect world, intake of nutrients through food ought to be adequate to anticipate remedial measures, for example, pharmaceuticals and traditional medications being utilized as a part of expansive amounts. However, without essential nutrition through food, an outside mediation as health supplements and nutraceuticals has turned out to be basic in India. There are four key demand drivers which have brought about requirement for health supplements and nutraceuticals:

1. Lack of healthy nutrition status in India and micronutrient insufficiency
2. Affordability: Increasing expenses of hospitalization are driving consumers towards health supplements and nutraceuticals
3. Riches of working populace with changing ways of life and dietary patterns and increment in discretionary cash flow
4. Awareness: Increasing worry about nutrition, awareness and access to data have prompted an expansion being used of health supplements and nutraceuticals. Consumer focus is shifting from medical treatment for sickness to a positive approach for anticipation of ailments.

Presently the primary market fragment for nutraceuticals in India depends on vitamins and minerals took after by probiotics and omega – 3 fatty acids. Notwithstanding, the potential for market entrance is seen, essentially, in preventive health products. Obesity rates in India have expanded by 20% thus has cardiovascular demise rates. A great part of the populace

is tormented by diabetes. Nutraceutical makers, in this manner, need to center around planning their products for the Indian market, in light of statistics for the aversion of different maladies.

With the developing populace, India, a developing nation, faces difficulties to guarantee that there isn't just adequate food supply however it additionally meets the required nutritional levels. While undernourishment in India has been diminishing (from 17 per cent of every 2008 to 15 per cent out of 2016), ailing health and dietary risks related with maladies stay predominant all around, incorporating into India. Further, fast urbanization, changing ways of life and absence of awareness as for the required nutrition intake have prompted a more prominent requirement for nutraceuticals and health supplements in the Indian market.

The health and food supplements segment till 4-5 years back was overwhelmed by a modest bunch of outside players like Amway, Abbott, Optimum nutrition, Herbalife, Nestle, Unilever, Kellogg's' GSK, Heinz etc., and a couple of nearby Indian brands like Dabur, Himalaya, Emami and Patanjali. While the worldwide nutraceuticals market is relied upon to develop at a CAGR of 6.5 per cent, the Drug Marketing and Manufacturing Association gauges that the Indian nutraceuticals showcase is probably going to develop by 16 per cent CAGR throughout the following five years. Each of the three sections of the Indian health supplements and nutraceuticals market i.e. fortified/functional packaged food, dietary supplements and functional beverages are enlisting a double digit growth. Having said that lone those brands that will put resources into developing the category by spreading awareness with respect to the advantages of food supplements and an attention on quality products altered to Indian needs will remain important and pick up the lion's share in this developing segment.

India and China rule the nutraceutical business in Asia – Pacific area as a result of the accessibility of raw materials. However, the nature of raw materials differs

definitely in light of the fact that there are no regulatory definitions.

Unrealistic Claims-

The greatest challenge in the nutraceutical business is the product assert about health and nutrition. Companies offer products with tall claims which never deal with the end customer. The issue with deceptive promoting isn't simply moral; however it additionally harms the nutraceutical business. I have gone over advertisements from presumed brands that make tall claims about products that really have little premise in logical actuality. This makes an atmosphere of doubt among consumers, expanding suspicion about nutraceutical products, regardless of whether diet supplements or functional foods. Building consumer trust is fundamental and this will require activity from all associated with the showcasing of supplements and nutraceutical foods. As a piece of this industry, we have a duty to guarantee the authentic legitimacy and logical help for any claim.

Poor Regulation- The absence of clearness in regulations has been a noteworthy obstruction to our industry, exacerbated by loopholes that outcome in exorbitant delays of product endorsements. In addition, policy implementers themselves frequently have poor consciousness of products. Settling this framework is a genuine test for us, as the nutraceutical market is commanded by an amalgamation of all shapes and sizes companies. To bring these organizations into one overlay, under a regulated and standardized framework is a significant errand, particularly in light of the fast development of this portion.

Food Safety and Standards Authority of India (FSSAI) has a more noteworthy part to play in characterizing benchmarks that will streamline the whole activities required for nutraceuticals. They have to address worries about quality of crude materials, safe production of product, health claims, labeling, distribution and storage.

Encourage since there is no regularized framework for setting up manufacturing plants for nutraceutical products it ends up troublesome for new players to enter the obscure region. New business visionaries might want to enter the nutraceutical field since India is all around situated to supply ingredients for the global nutraceutical industry, particularly on account of plant extracts and phytochemicals. However, there isn't sufficient information about suggested intakes and viability, despite the fact that today nutraceuticals have turned into the hotly debated issue in nutrition. Nutraceuticals



FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA (FSSAI) HAS A MORE NOTEWORTHY PART TO PLAY IN CHARACTERIZING BENCHMARKS THAT WILL STREAMLINE THE WHOLE ACTIVITIES REQUIRED FOR NUTRACEUTICALS. THEY HAVE TO ADDRESS WORRIES ABOUT QUALITY OF CRUDE MATERIALS, SAFE PRODUCTION OF PRODUCT, HEALTH CLAIMS, LABELING, DISTRIBUTION AND STORAGE. ENCOURAGE SINCE THERE IS NO REGULARIZED FRAMEWORK FOR SETTING UP MANUFACTURING PLANTS FOR NUTRACEUTICAL PRODUCTS IT ENDS UP TROUBLESOME FOR NEW PLAYERS TO ENTER THE OBSCURE REGION.

can't claim to be substitutes for genuine nourishment however just a dietary supplement.

Rising Awareness- In spite of the way that nutrition is a generally new section inside healthcare, development has started to quicken as of late essentially because of more elevated amounts of awareness among consumers about the effect of way of life and eating routine on health. Accordingly, buyers have turned out to be more energetic about the significance of nutrition in both the counteractive action and treatment of diseases. Aside from creating awareness, the companies should confront three-overlay challenge as product development (related with particular disease), product innovation and production advancement. As the awareness develops, the ability of purchasers to embrace such products additionally increments.

Another issue is that the Indian buyer is prescription oriented thus companies attempt to advance their products through doctors. This approach needs development and companies need to search for a more straightforward route to the purchaser. **NS**



GLUTEN-FREE:

WHAT IT MEANS AND REASON FOR ITS HIGH PRICE

While the term 'gluten-free' is being used, there seems to be no technology involved to remove gluten from the raw materials.

The Codex Alimentarius Commission, established by the Food Agricultural Organization (FAO), and the World Health Organization (WHO), defines 'gluten-free' products as products that have 'gluten quantity not exceeding 20 milligrams per kilogram, or 20 parts per million (ppm)'. This is the accepted safe limit across all countries including India, even though India does not yet have any specific law defining gluten-free labelling. Therefore, an assumption can be made that when a product is labelled 'gluten-free', technological steps have been taken to separate gluten from the raw materials, or from the finished product, to bring down gluten levels to 20ppm.

However, this assumption doesn't seem to hold true in practice. On being asked if there are any technologies currently available in the market that separates gluten from wheat, Harinder P. S. Lamba, CEO of Cheers Food & Beverages, says, "No, we have to use naturally gluten-

free alternate grains to replace wheat and barley." Cheers Food and Beverages promotes Wheafree, a brand that uses only 'gluten-free' alternate grains for its products and claims to be a 100 per cent gluten-free.

Sharing similar opinion Aanchal Gupta, from Jiwa, a Mumbai based company that produces 'gluten-free' atta, says, "'Gluten-Free' stands for any product that is not made up of wheat. As far as I am aware, if you are using wheat, it is very difficult to separate gluten from it."

The need for gluten-free products in India is on the rise, as larger groups of people are being diagnosed with gluten sensitivity. According to the 2017 estimates of the All India Institute of Medical Sciences, (AIIMS), more than 6-8 million people in India, and more than 1 in every 100 people in North India, suffer from Celiac disease.

Celiac disease is an autoimmune genetic disorder, in which, if a person is gluten sensitive, their body senses gluten as a toxin, and results inflammation

GLUTEN-FREE PRODUCTS AND COMPANIES			
Company	Products	Company	Products
Godrej Nature's Basket	Pastas	Jiwa	Atta
	Beetroot Glutenfree Pasta - Healthy Alternatives		Gluten Free Atta
	Buckwheat Glutenfree Fusilli Pasta - Healthy Alternatives	WheaFree	Brownie mix/Cake Mix/Biscuits/Sweets
	Spinach Glutenfree Fusilli Pasta - Healthy Alternatives		Eggless Milk Rusk/ Eggless Cake Rusk
	Green Pea Gluten Free Pasta - Healthy Alternatives		Toast Bread (Rusk)/ Cake Rusk
	Quinoa Glutenfree Fusilli Pasta - Healthy Alternatives		High Fiber Digestive Cookies/Cake Mix
	Muesli		Shakarpara/ Panjeeri/Halwa Mix
	Gluten Free Muesli - Bobs Red Mill		Noodles
	Pizza Crust		Cup Noodles
	Gluten Free Pizza Crust Mix - Bobs Red Mill		Rice Noodles
	Brownie mix/Cake Mix/Biscuits		Vermicelli
	Gluten Free Brownie Mix - Bobs Red Mill		Atta and Flour Mixes
	Gluten Free Chocolate Cake Mix-Bobs Red Mill		Gluten Free Atta
	Bread		Puri Mix/Bhatura Mix/ Bread Mix
	Gluten Free Bread - L'Exclusif		Dalia
	Atta		Dalia
	Gluten Free Chappati Mix		Pasta
	Atta	Rice Pappad Rolls (Pasta)	
	Lite Madia/ Brown Rice Flour/ Lite Atta Flour	Savories	
	Dalia	Dal Pappad/ Besan Pakoda/ Boondi	
Lite Dalia	Fried Twister/Bhujia		
	Namakpara/ Khasta Mathi		
	Others		
	Baking Powder		

on intake. This causes damage to the small intestine, along with fatigue, bloating, alternating constipation and diarrhoea, or unintentional weight loss (in severe cases). Approximately one-third of Indians have genetic susceptibility to develop celiac disease and the only treatment is to avoid food items made from wheat (that contain large quantities of gluten), according to the Department of Gastroenterology and Human Nutrition at AIIMS.

The initial 1979 draft of the Codex gave two interpretations to the meaning of 'gluten-free'. The first was, 'any product made of naturally gluten-free grains like corn and rice', and the other being 'any product made of gluten containing ingredients that are rendered gluten-free by processing.' However, the 2007 revised draft changed the definition to, 'any product made up of grains that have less than 20ppm of gluten.' This was after finding out that even naturally 'gluten-free' grains can contain gluten, due to cross contamination.

At present only a handful of companies are actively involved in selling gluten-free products in the country. Some of the leading names include Godrej Nature's Basket, Jiwa and Cheers Food & Beverages Company's WheaFree. Godrej Nature's Basket launched a range

of gluten-free products in 2016 under brand Healthy Alternatives (5), Bob's Red Mill (4), L'exclusif (1), Whole Foods (1) and Zero – G (4). Jiwa has only one product to its offerings and launched in 2014. Launched in 2008, WheaFree - a brand from Cheers Food & Beverages Company has been actively involved in selling 25 range of gluten-free products in the country. These companies are offering the range of gluten-free products – Pastas, Muesli, Pizza Crust, Bread, Atta, Dalia and Brownie mix/ Cake Mix/Biscuits/Sweets, Savories, Noodles.

Most of the companies that label their products as 'gluten-free', seem to prefer making use of naturally gluten-free ingredients, than attempt to remove gluten from wheat. They use other ingredients like jowar/ sorghum, white rice, brown rice, soyabean, maize, and corn. Wheafree produces a wide variety of gluten-free noodles, pastas, biscuits, and atta using these ingredients. They also makes use of Bengal Gram and Quinoa. Similarly, Zero-G's Lite Dalia, makes use of jowar/ sorghum.

The question here is why the companies make use of the term 'gluten-free' when they don't use any gluten-containing ingredients in the first place. The term 'organic' seems more appropriate. Dr G Sreeramulu, a



WHILE INDIA HAS A POTENTIAL OF 2,347 KILO TONNES OF GLUTEN-FREE PRODUCTS, ACCORDING TO A REPORT FROM THE INSTITUTE OF AGRI-BUSINESS MANAGEMENT, ONLY 7.55 KILO TONNES WERE PRODUCED IN 2016. IN COMPARISON, IN THE UNITED STATES, THE GLUTEN-FREE PRODUCT MARKET WAS ALREADY PEGGED AT \$10.5B IN 2013, AND WAS PREDICTED TO RISE 48% TO \$15.6B, BY 2016, ACCORDING TO EUROMONITOR INTERNATIONAL.

Senior Research Scientist in Unilever, who has more 20 years of experience in the field of wheat research, says, "Fundamentally, most cereals have a class of proteins called 'prolamins', which have 2 subclasses, 'glutenin' and 'gliadin'. They form a network when you hydrate the flours. This network has viscoelastic properties, as seen in gluten. The ratio of these proteins vary quite a bit in different cereals; the greatest viscoelasticity being in wheat. Thus, companies use other cereals like jowar and rice, with a very miniscule quantity of gluten to give it elasticity." Therefore, when companies use the term 'gluten-free', they are actually referring to this miniscule quantity of gluten and asserting that it is less than 20ppm.

Now, the question rises as to why these products are priced higher than their gluten containing alternatives when there is no additional cost of technology to separate gluten. While a regular Whole

Wheat Atta, 1kg, costs Rs 50, Wheatfree's Gluten Free Atta, 1kg, costs Rs 120. Zero-G's Dalia Lite, 500gm pouch, costs Rs 95, which is higher as compared to the price of other Dalia available in the market, which is around Rs 50/ 500gm.

Lamba gave a very simple reason for this, "[It is expensive] for a simple reason that base materials are lentils, millets and grains, which are 3-4 times expensive than wheat. And then we have to use additives like xanthan gum which is Rs 200 per kg, making the overall product costlier. Also retailers become greedy when they hear [the] word 'gluten free', and want more retailer margins than other FMCG products."

Thus, higher price of raw materials is one reason for higher price of gluten-free products. On the online portal Indiamart that gives raw materials on wholesale prices, jowar costs Rs 68 per kg, brown rice costs Rs 40 per kg, and soyabean costs Rs 35 per kg; all of these are higher than wheat flour, which costs Rs 25 per kg. The only ingredients that cost less than wheat are corn and maize, priced at Rs 15 and Rs 20 per kilogram.

Lamba also talked about other limitations that may cause rise in prices, "Cross contamination of naturally gluten-free grains and millets with wheat and barley at agricultural markets/mandis [is a limitation]; there should be provision to buy directly from farmer by a manufacturer." To separate wheat from the other grains, Wheatfree has installed a wheat-segregation machine.

Talking about the retailer margins, Gupta says that Jiwa's higher prices are a company strategy, based on retailer margins and expensive technology used to achieve the right kind of product for the consumer.

Another reason could be the absence of a large supply that would allow for lowering of prices. While India has a large potential of 2,347 kilo tonnes of gluten-free products, according to a report from the Institute of Agri-Business Management (IABM), only 7.55 kilo tonnes were produced in 2016. In comparison, in the United States, the gluten-free product market was already pegged at \$10.5 billion in 2013, and was predicted to rise 48 per cent to \$15.6 billion, by 2016, according to Euromonitor International.

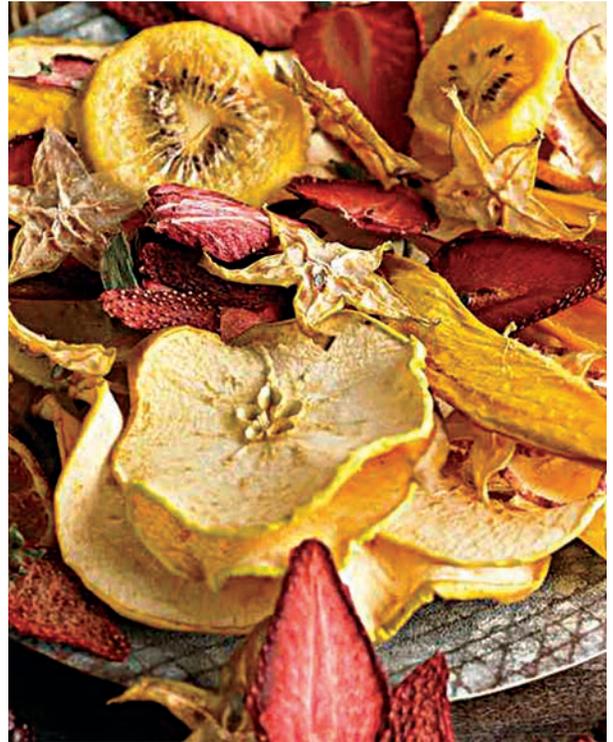
Dr Sreeramulu agrees with this, "Anything that has a higher price, volume determines [its price]. Corporates will get profits through volumes. They may have to charge higher premium to get profits, if there are limited number of customers. The consumers here [for gluten-free products] are less. Our population is not aware of this [celiac] disorder, and so, they just live with it."

Thus, among rising need for gluten-free products, there is also a need for clearer understanding and better defining of its labelling methods in India. **MS**

Sneha Narayan

NEW OFFERING FOR THE SNACK INDUSTRY

In recent years, fast food snacks industry has emerged as one of the important sectors for the modern consumers with a special desire for fried snack foods. Fried products are liked by all age groups and play an important role in consumer's diet because of their unique flavour and texture. Frying is a quick process which leads to a sterile and dry product with relatively longer shelf life. During the frying process, food is immersed in an oil bath at a temperature above the boiling point of water which results in counter flow of water vapor and oil at the surface of the product. Oil uptake is one of the most important quality parameters of fried food. But oil consumption poses significant health problems such as coronary heart diseases, cancer, diabetes, and hypertension and is irreconcilable with consumers' awareness towards the consumption of healthier and low fat food products. Degradation of important nutritional compounds and the generation of toxic molecules in the foodstuff due to high frying temperatures and exposure to oxygen have led to the development of healthy and low fat snack products.



Researchers nowadays are exploring various alternative cooking methods in food processing to retain bioactive molecules for development of many food products related to health and wellness. Vacuum frying has come across as a reasonably new technology which uses lower pressure and temperature rather than atmospheric deep-fat frying to improve the quality attributes of food products.

The health aspect of vacuum frying was initially met with skepticism but an article published in 2011 in Journal of Food Science by V Dueik and P Bouchon, Department of Chemical and Bioprocess Engineering, Pontificia Universidad Católica de Chile, broke the ice. The article highlighted that vacuum-fried carrot and potato chips absorbed about 50 per cent less oil than atmospheric-fried chips.

Recently, a Bengaluru-based dairy technologist came out with an innovative frying device with the help of vacuum frying technology that allows the oil to be re-used 50 times without an adverse health impact. "The oxidation process that takes place when the frying temperatures exceed the limit leads to creation of trans fats which may affect the health of the heart. In fact, disposal of re-used oil has become a cause for concern as several roadside eateries buy such re-used oil from big industries at throwaway prices for their food preparations. Another benefit is that the device reduces the oil uptake by about 40 per cent when compared with the conventional frying method", points out the inventor Dr Mahesh Kumar G.,

TOP SNACK COMPANIES IN INDIA

- PepsiCo India
- Balaji Wafers
- Bikanervala
- Pratap Snacks
- DFM Foods
- Haldirams

STEPS OF VACUUM FRYING TECHNOLOGY

- Blanching
- Vacuum Frying
- Packaging
- Freezing
- Defatting

RISKS ASSOCIATED WITH DEEP-FRIED FOODS

- Obesity
- Cancer
- Coronary Heart Disease
- Chronic diseases
- Type-2 Diabetes

(Source- Research and Markets, 2018)

HOD, Dairy Engineering, Dairy Science College, Karnataka Veterinary and Animal and Fisheries Sciences University.

On the other hand, scientists at CSIR- Central Food Technological Research Institute (CFTRI) have developed and installed a vacuum frying system of 10 kilogram capacity to manufacture healthy chips and savoury snacks.

"Fruits and vegetables contain high amount of sugar, that is caramelized at high temperature during frying under atmospheric conditions and lose their natural color and flavor. Besides these, several undesirable chemical changes such as hydrolysis, oxidation, thermal polymerization etc. occur in oils during frying. On the contrary, vacuum frying is an excellent alternative method to conventional frying. It is carried out under pressure well below atmospheric levels which lowers the boiling point of moisture of food and making it possible to reduce frying temperature and oxygen content during the process which facilitates in reduction in oil absorption, preserve natural color and flavor of final products. The vacuum frying has less adverse effect on oil quality, as well as minimal loss of vitamins and minerals", shares Dr Sukumar Debnath, Scientist, CSIR-Central Food Technological Research Institute (CFTRI).

But before vacuum frying, there is need for some pre-treatments, i.e. blanching, osmotic pre-treatment, freezing, pre-drying etc. These pre-treatments play a very important role in moisture removal kinetics, product yield, final product moisture content, fat content of the product and fat distribution in the final product. Defence Food Research Laboratory (DFRL), Mysuru has come up with vacuum frying technology of fruits and vegetables and has optimized the required processing parameters.

"Unlike conventional deep-fat frying, vacuum frying is applicable for those fruits and vegetables that are susceptible to high temperatures. Vacuum frying can also

be employed for the development of high quality cereals, meat and dairy based products to improve their physical and sensory characteristics. This technology has been found comparatively more suitable for frying of fruits, vegetables and other snack items, and can be utilized for making products at a relatively low cost as compared to traditional frying", explains Dr OP Chauhan, Scientist, Defence Food Research Laboratory (DFRL).

Studies have also revealed that vacuum frying process leads to a reduction in acrylamide that is primarily formed in carbohydrate rich food cooked at high temperature. Compared with traditional frying, vacuum frying reduces acrylamide formation in potato chips dramatically by about 94 per cent.

"Potatoes and other foods that have a high content of the amino acid asparagine and a high accumulation of reducing sugars are subject to the formation of acrylamide upon frying. As the frying temperature decreases from 180 °C to 165 °C, acrylamide content in potato chips reduced by 51 per cent during traditional frying and by 63 per cent as the temperature decreased from 140 °C to 125 °C in vacuum frying. Increased frying time increases acrylamide formation during traditional frying for all temperatures. However, the effect on acrylamide concentration is greater for the traditional frying than the vacuum frying", mentions Govind P Tagalpallewar, Assistant Professor, Anand Agricultural University.

On the market front, Pune based Future Tech Foods has emerged as one the leading manufacturers of vacuum fried fruit & vegetable chips. "Generally people say, we are, what we eat, but they fail to understand that our health & fitness depends, to a great extent, on how that food is cooked. Today, our generation has become a deep fried generation, who cares more about crunchiness, crispiness and taste of their food. But they don't understand that this deep fry culture is making their body hollow and much prone to vulnerable diseases. Vacuum frying maintains the crunchiness and crispiness of the food, keeping good health in mind. Carrot is considered as one of the major sources of carotenoids that acts as a precursor of vitamin A. Vacuum fried carrot chips have shown good retention of nutrients, crisp texture, colour, flavor of the natural commodity as compared to the conventional frying methods which result in a loss of the carotene content", points out Ajit Soman, Director, Future Tech Foods.

Although a number of studies have been published highlighting the health benefits of vacuum fried foods, there is very little information on the packaging and storage of these foods.

"Vacuum fried foods need to be packaged properly in order to maintain their qualities, especially texture. These products were also prone to rancidity because of their oil contents. Vacuum fried products can be packaged in Low-



Vacuum Frying System developed and Installed with Cooling Tower at CSIR-CFTRI, Mysore.

DEEP FRYING VS. VACUUM FRYING

Snack	Deep Frying Temperature (oC)	Time required for Deep Drying (minutes)	Vacuum Frying Temperature (oC)	Time required for Vacuum Frying (minutes)
Potato	191	4-5	144	6
Bananas	177	2-4	110	20
Carrot	177	4-5	98-118	3-5
Jackfruit	177	3-5	90	25
Apple	177	4-5	100-110	20
Mushroom	177	2-4	90	12
Pumpkin	177	3-5	85	18

(Source- Defence Food Research Laboratory; National Edible Oil Distributors Association)

density Polyethylene (LDPE), Polyethylene terephthalate (PET) or aluminium foil laminate (AFL) bags with nitrogen flushing for an acceptable shelf life at ambient conditions. However, the two important qualities that dictate the shelf life of vacuum fried products are crispness and rancidity. Since AFL has lower oxygen and water vapor transmission rates, it is therefore recommended for use with nitrogen flushing in packaging of vacuum fried products”, shares Rohith Kodgi, Director, Gokul Fruits.

In midst of all the advantages, a major limitation of the vacuum frying technology comes in the form of the initial investment. In financial terms, investment cost of vacuum frying process is much higher than that of deep frying. This is because vacuum frying technique is basically designed for large scale industry. There is a lack of design of vacuum fryer for small scale production.

“Small-scale vacuum processing plant is not available, which is a big hurdle faced by entrepreneurs, small organization etc. Higher costs of machineries for vacuum processing are difficult to afford. Moreover, studies need to be done about application of vacuum frying on traditional food products. Changes of sensorial impact during vacuum frying needs to be established in comparison with conventional frying. Beside this there is

scope of improvement in fundamental process modelling of vacuum frying including the steps and changes taking place during the process”, highlights Dr Soumitra Banerjee, Assistant Professor, Centre for Incubation, Innovation, Research and Consultancy, Jyothy Institute of Technology, Bengaluru.

With time, consumers are becoming more and more health and diet conscious and this trend promises a bright future for the vacuum frying technology. In a matter of time, vacuum fried products would be the more preferred ones over the fried products due to low oil and acrylamide content. There lies a tremendous scope for vacuum frying technology in the Indian snack Industry.

India being the leader of fruits and vegetable production, fails in adequate food processing and preservation due to inadequate storage infrastructure, incurring huge post-harvest losses every year. A probable solution comes in the form of a technology called Vacuum Frying. The process may be adopted as a method of food preservation or new product development by overcoming the research gaps and proper commercialization of the technology in small as well as in large industrial scales. **INS**

Dr Manbeena Chawla

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Pradip Chakraborty,
Former Director, Food
Safety and Standards
Authority of India (FSSAI)

Food processing has ample opportunities

Nowadays, a very common word is uttered by the educated youngsters "Startup". What's the actual meaning of Startup? It is actually a young developing company, less than seven years old, usually small and initially financed and operated by individual or a handful of founders. It's a newly emerged, fast growing entrepreneurial venture involving innovative products, services. Its annual turnover should be less than Rs 25 crore. Startup companies shall be working towards innovation, improvement or development of the existing products or processes or services. It will create wealth and has high potential of employment generation. So startup is different from traditional small businesses.

Agribusiness sector in India appears to be a prospective sector for the Startup companies as India has a major agribusiness sector which is highly untapped. Segments like processed fruits and vegetables, cereal based products, meat, poultry and fishery products, dairy products, beverages and confectionery, snack foods offer a huge potential. At present, Indian food processing industry is growing at 14 per cent per annum. Ministry of Food Processing Industries, Government of India has formulated a vision 2015 to triple the size of the food processing industry from the current size of \$70 billion to around \$ 210 billion. Value addition to be increased from 20 to 35 per cent.

Government of India has taken up various measures to doubling the farmers income for their survivability. There is an urgent need to set up more and more agro-based industries so that farmers can get remunerative price for their produce. In the last ten years, a number of innovative

food products have been introduced in Indian market. Fruits and vegetables, milk and milk products, meat, poultry and fisheries products, packaged or convenience foods, alcoholic beverages and soft drinks, cereal grains are important sub-sectors. Health or Food Supplements, snack foods, organic foods are other rapidly growing segments. Hence, the entrepreneurs who are willing to startup in the field of food processing has ample opportunities, both for domestic and overseas markets.

Regulatory Compliance

As per section 31 of the Food Safety and Standards Act, 2006, no person shall commence or carry on any food business except under a license. As per section 63 of the FSS Act, 2006, if any food business operator himself or by any person on his behalf, manufactures, sells, stores or distributes or imports any article of food without license, shall be punishable with imprisonment for a term which



may extend to six months and also with a fine which may extend to five lakh rupees. Hence, the entrepreneurs will have to obtain license before starting a food business.

Since the Startup company is typically a newly emerged business and deals with innovative food products or processes, these products are considered either as proprietary food or novel food. As per section 2.12.1 of the Food Safety and Standards Regulations (Food Products Standards and Food Additives), 2011, proprietary food means a food that has not been standardised under these regulations. Hence, all non-standardised food products comes under the category of propriety food.

Regulations for Proprietary Food

Operationalisation of standards for proprietary food has been notified by the Food Safety and Standards Authority of India (FSSAI) on January 13, 2016. As per notification, Proprietary food means an article of food that has not been standardised under these regulations, but does not include any novel food, food for Special Dietary Use, Functional food, Nutraceutical, Health Supplements and such other articles of food which the Central government may notify in this behalf.

Proprietary food shall contain only those ingredients other than additives which are either standardised in these regulations or permitted for use in the preparation of other standardised food under these regulations.

Proprietary food shall use only such additives as specified for the category to which the food belongs. Such category shall be clearly mentioned on the label along with its name, nature and composition.

Proprietary food product shall comply with the food additives provisions as prescribed in Appendix A and the microbiological specifications as prescribed in Appendix B of these regulations and all other regulations made under this act.

The Food Business Operator shall be fully responsible for the safety of the proprietary food.

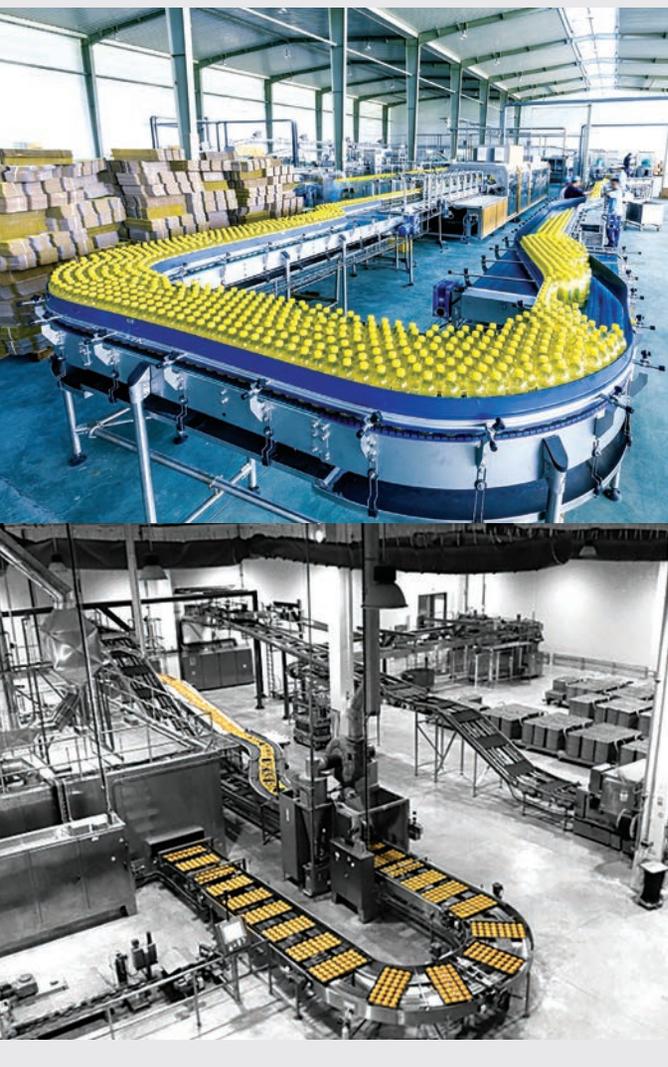
Regulations for Novel Food

If any of the ingredients or additives is not approved in any of these regulations, then the ingredient or the product will be considered as Novel food or Novel ingredient. A Novel food is a food that may not have a history of human consumption or may have any ingredient used in it which or the source of which from which it is derived, may not have a history of human consumption or a food or ingredient obtained by new technology with innovative engineering process .

No Novel food shall be manufactured or imported for commercial purpose without the prior approval of the FSSAI by filing an application along with all relevant documents and detail as specified by the FSSAI.



SINCE THE STARTUP COMPANY IS TYPICALLY A NEWLY EMERGED BUSINESS AND DEALS WITH INNOVATIVE FOOD PRODUCTS OR PROCESSES, THESE PRODUCTS ARE CONSIDERED EITHER AS PROPRIETARY FOOD OR NOVEL FOOD. AS PER SECTION 2.12.1 OF THE FOOD SAFETY AND STANDARDS REGULATIONS (FOOD PRODUCTS STANDARDS AND FOOD ADDITIVES), 2011, PROPRIETARY FOOD MEANS A FOOD THAT HAS NOT BEEN STANDARDISED UNDER THESE REGULATIONS.



Hence, the Startup entrepreneurs willing to manufacture or import Proprietary food will have to comply with the regulations of the proprietary food and obtain a license from the FSSAI before starting business. For manufacturing or import of Novel food or Novel ingredient, they have to submit application to the FSSAI in the prescribed format along with requisite fees. Once the Novel food or Novel ingredient is approved by the FSSAI, entrepreneurs will have to obtain license from the FSSAI and then only they can start business.

One Nation One Food Law

Regulatory issues are a key area of concern for both investors and trade in food business. To ensure transparency, consistency and predictability of business environment, the food regulatory ecosystem has to be based on the principle of one nation, one food law. Though the Food Safety and Standards Act, 2006 is applicable throughout the country,

including Jammu and Kashmir, implementation across States and Union Territories remains fragmented.

The reason behind fragmented implementation is largely due to legacy issues. Before 5th August, 2011, we had eight different acts spread over various ministries and departments. Each state having its own individual structure were cobbled together under the new system, resulting in several legacy issues. There is a paradigm shift in policy in the FSS Act, moving from prevention of adulteration to ensuring safe and wholesome food. The result has been fragmented and weak system and structure in many states and UTs.

The objective of the FSSAI has been on ensuring consistency in enforcement of the act across the States and UTs. For this purpose, a single nationwide manual for food safety officers has been created. A nationwide systematic training programmes for regulatory staff has also been initiated.

For transparency, a digital inspection platform has been created for use by all states and UTs. This system is called Food Safety Compliance through Regular Inspections and Sampling (FoSCoRIS). It can be used on handhold devices like mobile phones and tablets by food safety regulatory staff. Standard inspection checklist has been prepared. Food Safety Commissioner of the state can monitor inspection LIVE.

Other major steps taken towards bringing One Nation One Food Law includes a nationwide integrated network, connecting all food testing labs notified by the FSSAI on a single technology platform through InFoLNet. This would ensure standardisation and transparency in Food Testing.

FSSAI notified standards for number of food products. There is a need that a user can access all information relating to product standards at a glance. For this purpose, Indian Food Standards Quick Access (IFSQA) system has been created which collates and catalogues vertical and horizontal standards of food products.

While FSSAI is the principal regulatory authority for food, other organisations like Legal Metrology, Customs, Plant and Animal Quarantine, Bureau of Indian Standards and AGMARK are also involved for specific purposes. Food Regulatory Portal hosts important information and links to all the agencies.

India has a major agribusiness sector. Food processing industry is growing at 14 per cent. Government of India has taken various steps to increase agricultural production so that farmers income is doubled in the next five years. Entrepreneurs who are willing to Startup in the field of food processing sector has enough opportunities both for domestic and export market. FSSAI role is also transparent and consistent and acts as a facilitator. With this business friendly environment, number of Agro based Startup companies will grow. **NS**

Food processing opens up trade ties for Poland & India

Poland is the largest Central European country; it is also eighth in the ranking of European Union economies. Approximately 48 per cent of Poland consists of farmland and over 36 per cent of this is arable land. This makes Poland one of the best locations for the food processing industry in Europe. Given Polish competence in food storage and processing facilities, Indian companies can benefit from technology transfer from Polish companies which are established in the food processing industry.

In the past ten years, food production in Poland has increased by more than 40 per cent, growing in a stable manner throughout the period. This shows that food production in Poland is growing faster than in other European Union (EU) countries.

Poland is an important temperate climate fruit producer on a global scale. Among the EU countries, it ranks lower than Italy, Spain and France, but higher than Greece and Germany. Poland is the largest grower of apples, sour cherries, raspberries, currants and high bush blueberries in the EU. Poland is also a significant producer of strawberries, gooseberries and chokeberries. Fruit growing is a major direction of agricultural production in Poland.

Poland is a country with potential which remains untapped by Indian food manufacturers. For Poland, India ranks 21st in terms of total imports and 28th in terms of imports of food industry products. However, economic exchange between India and Poland is growing rapidly.

India has enabled a special dispensation to facilitate the import of Polish apples. A recent Government of India notification has revised phytosanitary conditions for Polish apples allowing 'cold treatment' as an alternative to fumigation. The notification is a game changer in strengthening Indo-Polish commercial relations and is expected to widely open the doors for export of Polish apples to India in large quantities, as also the import of high-quality fruits and vegetables from India.

Given Polish competence in food storage and processing facilities, Indian companies can benefit from technology transfer from Polish companies which are established in the food processing industry.

"Our apple products comprise of a dozen varieties such as champion, paula red, gala royal, golden delicious, to name a few. We also have other fruit products such as sweet cherry, plum, peaches, lemons, apricots, oranges, strawberries, grapes and vegetables. IG International and GT Fruitech Ltd are our strong importers in India, who have been importing our apples since last two seasons. We are also in the middle of starting business partnership with VeePee Global, based in Mumbai. We will be introducing various premium Poland brands into Indian market, ranging from Pastas, Porcelain, Home ware, Horeca products etc.," highlights Manoj Lookhar,



Trade Specialist for Indian Market, Apple Factory, Poland.

Since Polish consumers are becoming increasingly conscious of environmentally friendly agriculture methods and are tilting towards vegetarianism, export of 'bio', vegetarian products from India is another area of opportunity for Indian exporters. Also ayurvedic and other natural food supplements could be manufactured in Poland and exported to all of Europe.

Given that the Polish imports of food products is around \$ 13 billion and Indian food exports to Poland presently stand at only about \$ 56 million, the various Indian Export Promotion Councils such as Tea Board, Coffee Board, Spices Board, etc. could seek to raise India's share in this almost untapped market, by engaging more actively with their counterparts in Poland.

Besides fruit production, Polish companies are among the European leaders in production of meat, and poultry in particular. The share of Polish meat exporters' trade within EU is close to 10 per cent. Given India's strong meat and meat export industry; and growing urban middle class, which is increasingly consuming poultry products, Indian companies can explore joint ventures with Polish companies for establishing poultry products manufacturing plants in India's Mega Food Parks.

Poland is also the European Union's largest and the world's fourth largest producer of Vodka. However, beer is the major alcoholic drink produced locally. Earlier investments in Poland in the Vodka or beer sector by multinational companies resulted in high know-how inflow from abroad and huge investments in production and R&D facilities which are now considered to be one of the most advanced in Europe. Given the exotic varieties of Vodka produced in Poland (including 'Potato' vodka), Indian companies could consider cooperation with Polish companies that could help produce local variants of Vodka in India, to explore its huge alcoholic drinks market.

Another sector governed by Poland includes the dairy products. The local market is dominated by Polish dairy companies catering mainly to local tastes and demands. Some of the specialized technologies used in the Polish dairy industry could be availed of by Indian companies through technology transfer agreements. The increasingly discerning shopper in India is likely to appreciate the distinct taste of Polish dairy products, mainly cheese, yogurt and butter.

During recent years, there has been a spurt in the exchange of business delegations between both countries, the most recent being the high level government and business delegation led by Poland to the Vibrant Gujarat Summit 2017 in India, where Poland was a partner country. The business delegation included major food processing companies of Poland, such as Bakoma, which signed



an agreement with Amul. Bakoma has been building a strong position of dairy products manufacturer abroad since Poland entered the European Union in 2004. Indian companies could consider more active participation in such delegations and business events, to explore opportunities for joint ventures with Polish companies.

The Deputy Agriculture Minister of Poland, Ewa Lech also visited India with a business delegation for the participation of Polish brands in AAHAR 2016 to meet senior Indian government officials and to expand Indo-Polish trade and collaboration in the farm and processed food sectors.

In addition, the 12th edition of Annapoorna World of Food India – International Exhibition for food and beverage trade in 2017 witnessed participation from Poland among other foreign delegates. Poland pavilion was organized by the National Support Centre for Agriculture (KOWR), which presented the country's regional food & beverages. KOWR primarily looks after the activities aimed at promoting the agricultural food products, production methods, as well as quality systems for the food products in Poland. "The establishment of the KOWR as an agriculture and rural development institution resulted from the need to optimize the existing organizational solutions and to launch new instruments", mentions Michał Wiśniewski, KOWR Deputy Director.

On the other hand, Indian participation at top Food & Agriculture Trade Fairs in Poland, such as POLAGRA could be a fertile avenue for Indian exporters and investors to meet and interact with Polish companies interested in Indian products and investment.



POLAGRA Food 2018

One major platform provided to all food producers and distributors in Poland comes in the form of POLAGRA Food Trade Fair once every year. This food expo allows its participants to have a look at what food producers and distributors have to offer. The visitors can get to know the Polish food and the taste from all over the world. Every year the event is visited by several thousand professionals of food business who come to Poznań from around the world in search of the latest products, inspiration, and, most of all, looking to start long-lasting contracts.

This year POLAGRA Food, one of the largest trade fairs for food in central and eastern Europe, took place from 8-10th May 2018.

"This year's Polagra Food exhibition covered 3 halls full of novelties and innovations. The exhibition has attracted 170 exhibitors from 16 countries, including Belgium, Bulgaria, China, France, Spain, South Korea, Lithuania, Macedonia, Germany, Sri Lanka, Switzerland, Ukraine and Hungary. Our aspirations are bigger. I am convinced that the first edition of Polagra Food on a new spring date showed that our priority is to organize a strictly business event visited by food distributors from Poland and abroad. I hope that with this more companies will join the group of exhibitors next year", stated Edyta Bonin-Kanikowska, Project Director.

The event provided an opportunity to promote Polish meat. With the producers of this sector one could enjoy the offerings at the stand of the Association of Polish Meat co-created by 21 companies. The latest trends and developments occurring in the industry were discussed during the Butchery – Cured Meat Processing – Cookery

Forum. The meeting was complemented by culinary demonstrations with pork as the guiding theme.

Sharing views on the meat consumption pattern in Poland, Witold Choinski, President, Polish Meat Association said "In 2018, pork and beef consumption is likely to remain at the same level, while poultry consumption is expected to grow by 0.5kg per capita. The total meat consumption may also therefore increase. There have also been several mergers of meat industry companies which involved medium and large sized companies". Many visited the stall of China Alcoholic Association, which was presented with great imagination, where manufacturers of Baijiu, a strong alcoholic beverage produced in China, showcased their products as well as Jorge Group – the distributor of Spanish long ripening hams. At the exhibition there were also manufacturers of sweets, honey, fruit and vegetables, and distributors of fish and seafood.

"The distribution of milk in Poland is increasingly conducted through market channels, as purchase of milk by the dairy industry increases, consumption in agricultural holdings and direct sales decrease. 2018 will probably see an economic slump in the global and domestic milk market as the business cycle lasts, on average 2 years. Thereafter, the milk production in Poland will return to the long-term upward trend", pointed out Dariusz Sapiński, Chairman, Mlekovita.

POLAGRA Food was accompanied by a lot of training sessions and lectures addressed to both food manufacturers and its distributors. The meeting on food labeling rules was very popular. The experts who appeared on stage also addressed the issues related to the behavior of modern consumers, the optimization of production and sales, and consumer expectations in terms of the standards of service. A more solid dose of knowledge could also be drawn in the Inspiration Zone of the National Centre for Promotion of Agriculture, where invited guests shared their insights on how small and medium-sized businesses can build brand recognition, product positioning and take advantage of new distribution channels, and why they should have quality certificates. During the event special attention was paid to the products awarded the MTP Gold medal. The MTP Gold Medal is one of the most recognizable awards in the Polish market, which is given - after a thorough assessment of the experts - to innovative products of the highest quality.

POLAGRA Food 2018 became a perfect place of dialogue between the producers and distributors of food. Undoubtedly, a huge advantage of the event was the presence of foreign merchants. ^{NS}

Dr Manbeena Chawla

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(She attended POLAGRA Food 2018, held in Poznań at an invitation of National Support Centre for Agriculture (KOWR), Warsaw).



Dr R B Smarta,
MD, Interlink Marketing
Consultancy Pvt. Ltd

Building Wellbeing

Very often the success or failure of a business is a direct result of an effective or not so effective marketing strategy. Hence to choose a marketing strategy which fits the company and the consumer is of vital importance.

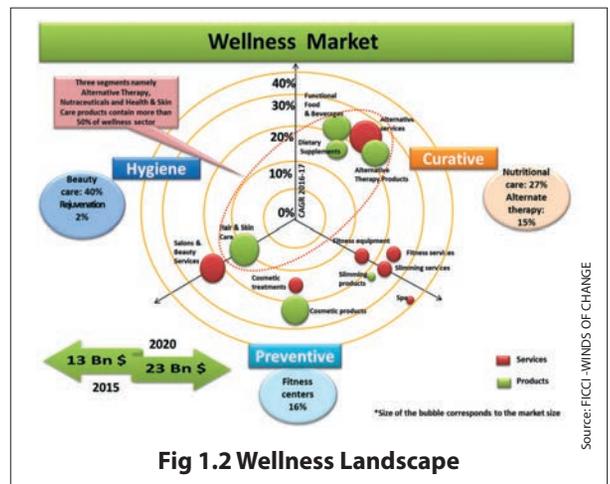
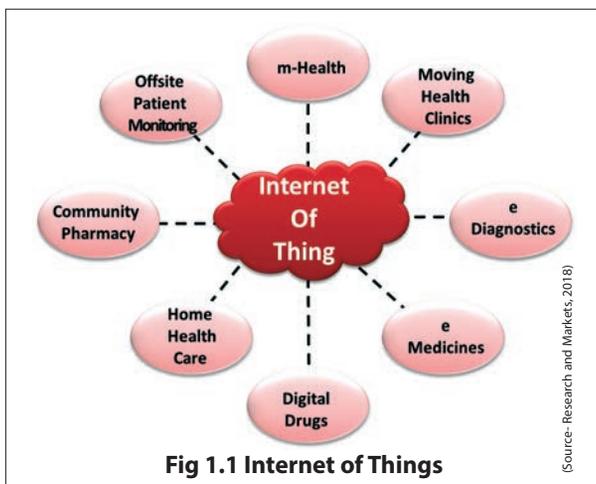
Surroundings affect our wellbeing on three different levels; physical, functional and psychological. On physical level environmental scientists have shown that temperature, terrorism, hygiene, and other associated discordant factors as well as VCAU (volatile, chaotic, ambiguous, and unpredictable) world platform informs us that in this volatile, chaotic, ambiguous, and unpredictable world we can get affected on all the three different levels. Let us look at those factors which we can control and work on them. You will observe that there are few principles which are more at work on our life to be healthy. We have no control over the lives and matter around us but we can exercise the control over lives and matter which we take in our body. That's food and thereby nutrition! Nutraceuticals a platform to create business from established science. But it needs delicate articulation of the consumers and customers insights.

Technological Reform

Last two decades we have experienced an unbelievable amount of technological innovations which is monitoring the way we live, play and work. Around two decades ago when Google has introduced search engine that brought greater

reach than ever before. Since then, LinkedIn (2002), Facebook (2004) and Twitter (2007) changed the ecosystem with social media and in 2009, real-time bidding (RTB) upended how companies buy and sell online display ads. Those who are not even in health and health domains but having a deeper understanding of internet and technology in Internet of Things (IOT) have become important stakeholders in healthcare.

Nowadays, access to information technology has become much easier than it was before. Technology has transformed many industries permanently, but perhaps none as much as marketing. IT enables consumers to have smarter buying decisions and marketers get immense quantities of data about consumers. How Nutraceutical industry can be an exception to that! In Indian scenario, when the market is not yet fully ready and only few segments make choices and decisions on the Nutraceuticals products, can we not capture those segments that are ready for us to satisfy and work for those who are possible to join us as quick as possible? According to a recent report by ASSOCHAM, the nutraceuticals industry in India is worth about \$ 4 billion and is projected to grow at 20 per cent to \$ 10 billion by 2022.



If we look at the market segments, then we will understand that the functional foods and beverages is growing at much faster rate of around at 22 per cent followed by Dietary Supplements growing at a CAGR of 19 per cent. Whereas the dietary supplements is the largest segment accounting for 62.5 per cent of the Nutraceuticals market. It primarily covers vitamins and mineral supplements. You will observe that sports, infant, fitness, malnutrition, obesity, gut and performance optimization etc. on one hand and anything related to bones, women health and wellbeing, cognition, eyes, and many other areas like ligaments, muscles building etc. on other hand gives every business leader wide spread of canvass of new opportunities. Believe me, although it is not the time of mapping and quantifying the market size and growth but looking at demographics we can perhaps acquaint these population strata in every city and as a result we can cover all these potential markets. Yet there are a few gaps which need to be filled in the entire gamut of further propagating the concept of the value proposition and making the customers aware for their decisions and transactions with company.

Gaps

As on today there is big gap between the product and the creation of value proposition on the basis of science and the right labeling, similarly next gaps becomes a bottleneck when it comes to product and performance promise! As the company goes through these specific challenges, next gap comes at the level of making the product available and as there are very few Nutraceuticals special outlets, it catches the existing route of pharmaceuticals retail chain and thus the capacity to increase the reach becomes a challenge! Many times a better organized sports nutrition outlets may carry Nutraceuticals products but still it is an issue of accessibility which bothers most for those who want make their business models which suit their needs and got the response from the customers. There are few examples like Amway and Herbalife which we can quote in success of bridging the business and marketing gaps simultaneously.

Ways of doing business in India.

Very often the success or failure of a business is a direct result of an effective or not so effective marketing strategy. Hence to choose a marketing strategy which fits the company and the consumer is of vital importance. Based on the understanding of the target consumer and the process industry stakeholders want to take them through, they have to choose a type of marketing strategy which will create a positive impact.

Indian Nutraceutical marketing is divided into two subcategories:

1. Business to Consumer (B2C)
2. Business to Business (B2B)

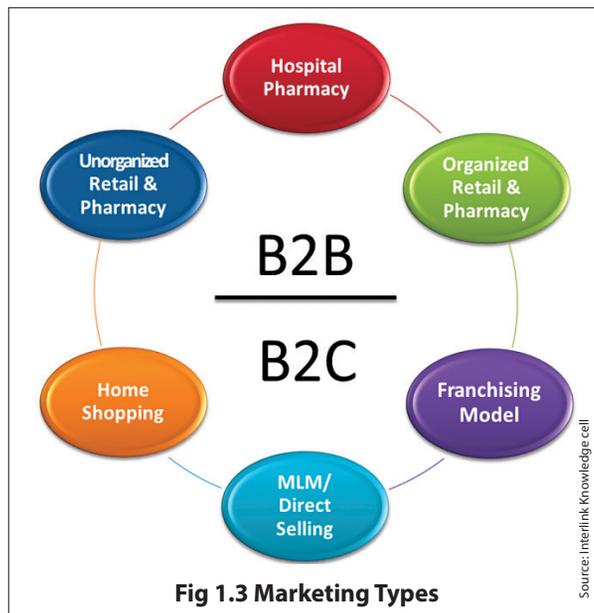


Fig 1.3 Marketing Types

Source: Interlink Knowledge cell

In B2C marketing there is a direct interaction between manufacturer and consumer where the manufacturers market and sell their products/services to individuals for individual use. The aspirations here are basically brand awareness, brand consideration, brand preference and brand promise. Direct selling is one of the best routes for B2C marketing. Direct selling creates a long-lasting relationship with the consumer. This reduces the expenses on overheads and value chain addition which allows business to grow flexibly. This also benefits consumer as they enjoy the convenience and personal attention directly from sales pole. Companies like Amway, Herbalife, Hindustan Unilever, Modicare, Avon, Oriflame have direct selling as their marketing strength.

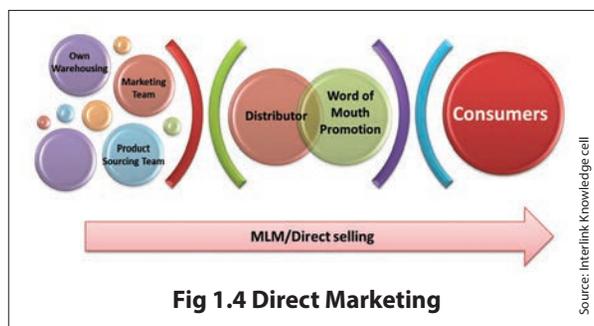


Fig 1.4 Direct Marketing

Source: Interlink Knowledge cell

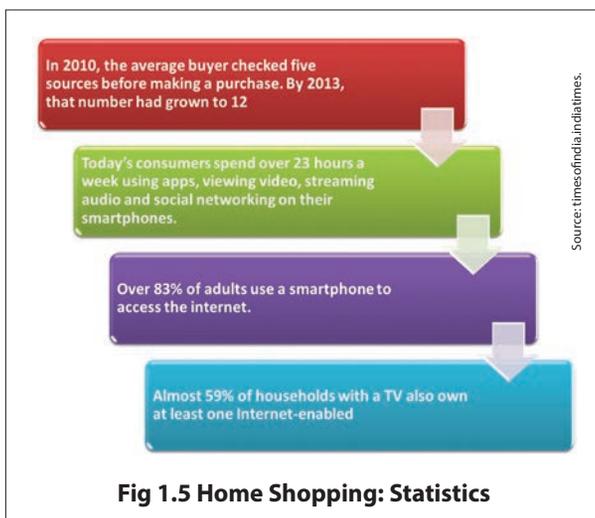
Following are some of the routes for direct selling:

- **Person-to-Person Sales:** This include arranging individual appointments with consumers to make presentations, demonstartion of new products.
- **Door-to-Door Sales** – This covers approaching homes and businesses by appointment or unannounced to leave catalogues and offer products or product demonstrations.
- **In-Home Presentations** – In this manufactures arrange

parties and at-home gatherings to present products, which is generally called as "party plan".

- **Online Shopping** – This covers websites and email lists to build customer networks and offer online ordering facilities.
- **Venue Sales** – Promotion at public gathering places where setting up booths are set up to generate new leads and promote and sell products.
- **Network Marketing** – This has emerged as a new way where other sellers are recruited into a network to 'duplicate' the product sales role, earning a percentage of their sales revenue and expanding the product reach. The next model which comes under B2C is a **Home shopping**.

Before understanding home shopping model let us have a look at the following statistics:



Here we understand that instead of one-way communication from brand to consumer, brands need to embrace the concept of two-way conversation. An increasing array of channels, devices and platforms have splintered mass communication into thousands of niche outlets, each catering to a specific audience. Few examples are Healthkart.com, Homeshop18.com, Healthgenie.com, Medplusbeauty.com, Jabong.com, Snapdeal.com, Amazon.com, Dietkart.com, Homeshop18.com, StarCj Channel, Careworld Channel, Indiatimes.com, Naaptol.com, etc. The next route to reach the consumer is business to business marketing or B2B marketing. B2B is the type of marketing practice where an individual or an organisation sells their products or services to other companies or organisation which either use them to support their work or resell them. The B2B marketing is further divided into organised and unorganised market.

In India Nutraceutical products is sold via two major routes; the retail shops and the pharmacy. The total number of Retail outlets in India are 1.3 crores (2017). Out

of that only 5.2 lakhs are Organized. So only 4 per cent of the retail sector is organised though this sector is growing at 30-40 per cent annually. There are some retail chains like Reliance Retail, More, Big Bazaar, Spencers, Easyday, Shoppers Stop, Godrej Nature's Basket, Le Marche, etc which are well known among consumers. The same is the situation with organised pharmacy. The total number of organised pharmacies in India is 6 lakhs (2017). Out of which only 7000 outlets are organized which majorly present in metros & tier1 cities. The major players are Apollo Pharmacy, Medplus, Hetero, Guardian Pharmacy, Religare Wellness Trust, Frank Ross, Health & Glow which are growing annually with the rate of 25 per cent. Though the organised sector is growing where we need to focus on outlets specially meant for nutraceuticals.

The following model will brief how the organised pharmacy and retails work in India.



Now we will discuss about the major market i.e. unorganised market. Out of 1.3 crores retails in India (2017) almost around 1.25 crores retails are unorganised. As this sector dominates the market the pharmacies also cannot be an exception. If we look at the statistics out of total 6 lakhs pharmacies almost 5.93 lakhs are unorganised and are growing annually at the rate of 18 per cent.

The model below will explain how an unorganised retail as well as pharmacies work in India.



All these routes must address specific needs of the company and the segment of customers in a win win situation. Considering the entire approach towards ensuring that the segment of consumers who we would like to reach gets prominence and also we make an accessible proposition for those needed customers. In order to do that it is important to focus our attention on Creation of product to value proposition, Backing of science to make a claim, Imaginative approach to build our product or concept or remedy promise and Reach our segment by looking at our strengths along with risks which we can take to derive rewards from this navigating business of Nutraceuticals. **NS**

Demand needs to grow to increase production of sugar used in medicines



Ming Jiang,
Assistant General Manager and
Xuan Huang,
Sales manager, Nanning Sugar Industries

Established in 1996, Nanning Sugar Industry Co., Ltd. is a large enterprise. Its portfolio of diversified products includes sugar products, including mechanism sugars and sugar for medicines, health drink and beverages. It is listed on the Shenzhen Stock Exchange since 1999 and its 47.71% shares are state owned, making it currently the largest state-owned listed company in the domestic sugar industry and the top 10 enterprises in China's sugar industry. It was selected as a "Shanghai and Shenzhen 300 Index Stocks". It is a first-in-class FSSC22000 food safety system approved by the Global Food Safety Initiative in Guangxi. The company's four brands of white sugar have "green food" certification and two brands of white sugar have won the "China Top Brand" title. The company was present at the The Health Industry Summit (tHIS) in Shanghai in April, where Ming Jiang, Assistant General Manager, and Xuan Huang, Sales Manager, talked to BioSpectrum/NuFFoDS Spectrum about their operations and plans.

Can you tell us about your organisation?

We produce sugar, sugar of different varieties. Some types of sugars we produce are used in medicines and health drinks. The sugar is also supplied to food industry as well as American soft drinks like Pepsi & Coke and even Chinese soft drinks. We have totally 11 factories in Guangxi province. Our daily processing capacity is 32,000 tons of sugar cane. We produce annually 900,000 tons of mechanism sugar. We have seven directly-owned factories and we employ 7,000 people. We have a total of seven famous brand products in Guangxi, and six brands have been identified as famous trademarks in Guangxi. As of 2014, the company's Yafa white granulated sugar has been ranked first in the national sugar industry for 12 consecutive years. The carbon white granulated sugar has been ranked first for 9 consecutive years. The products are highly favored by high-end food and well-known beverage companies at home and

abroad. The company has won various awards and titles including, "National Leading Enterprises in Agricultural Industrialization", "Top Ten Enterprises in China's Light Industry Sugar Industry", "Top 100 Enterprises in Guangxi", "Outstanding Enterprises in Guangxi", and "Guangxi "Integrity enterprise". We produce very high quality products as we use highly advanced technology to produce the sugar that can be used in medicines. We are the only company in China that produces sugar for medicines.

How big is the Chinese market for sugar?

The total requirement of sugar in China is 10,500,000 tonnes. Of this 900,000 tonnes is supplied by our company.

Is there a difference between the regular sugar and sugar required for medicines?

Yes. We use most advanced technology to get more qualified sugar which is used in medicines. Sugar used for medicines is more clean than the ordinary sugar. Technology is used to make this sugar more clean.

Does the company export sugar?

No. At present we are not exporting. But we have plans to go to overseas market.

What are the other plans in near future?

We want to expand our production capacity from the current 900,000 tonnes to 1000,000 tonnes. This we want to do by the next year. Our current production of sugar used for medicines is only 20,000 tonnes. That we want to increase five times to 100,000. But, this will take little more time as the market for this sugar has not yet expanded. We can produce that amount of sugar, but the demand from the pharmaceutical companies has not yet increased. Hence, we cannot decide the production level of this product. But the demand will increase and may be in five years we hope to achieve this number of 100,000 tonnes. We also have plans to set up a sugar factory in Indonesia. The strategic development goal of "Quanta Nannan Sugar" is to focus on the main sugar industry and strive to build Nanning Sugar into a leading company with leading industry, superior advantages and diversified operations.

From where the sugar cane is brought for the sugar factory?

It all comes from China only. From different parts of China. **NS**

Milind Kokje

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Kerala scientists prepare mango database for plant breeders

Scientists at the Kerala Agricultural University (KAU), Thrissur, have prepared a new database which will be of great help to mango breeders. The mango database lists 40 mango varieties based on a standard set of features. None of the available databases present the mango germplasm in detail, following the standard International Board for Plant Genetic Resources (IBPGR) descriptors. The general horticultural database of FAO mentions only Alphonso. The National Mango database, developed with support from the Department of Biotechnology, also has limited data. Researchers have taken care to select diverse varieties for their database bringing a sophistication lacking in other databases. Each of the 40 varieties listed online were carefully selected from a collection of 160 varieties that are grown and maintained by KAU since 1992 as a part of gene sanctuary. From these, 40 most distinct plants were selected using easily identifiable traits like fruit colour, fruit size, type of flower, tree size, type of leaf etc.



US scientists develop portable device to identify nutrient deficiency

A research team from Cornell University in the US has developed a small, portable system for the diagnosis of debilitating nutrient deficiency. Funded by the National Institute of Biomedical Imaging and Bioengineering (NIBIB), the new diagnostic system is designed to facilitate on-field blood testing for vitamin A and iron deficiencies.

The new low-cost, rapid blood test delivers three diagnostic results through a colour-sensitive, disposable test strip. It can identify iron deficiency if a patient's ferritin protein levels are lower than the normal threshold and can also indicate below normal cases of retinol-binding protein, which is a form of vitamin A.

In addition, the test strip detects a protein associated with inflammation that can change results, in turn affecting a clinician's interpretation of the results. The research team tested 43 human samples and found that the new diagnostic system delivered accurate results compared to conventional test kit approaches.

Scientists suggest use of nano-fertilisers for nutritional enhancement

Scientists at the Agharkar Research Institute, Pune have shown that using nanofertilizers in right doses can enhance nutritional quality of wheat by increasing its zinc content.

The team has developed a zinc-nanofertiliser (Zn-CNP - Zinc Chitosan Nanoparticles) spray. The nano formulation contains zinc complexed with a biopolymer - chitosan and is applied to leaves at the grain filling stages.

During the study, the use of Zn - CNP reduced the fertiliser requirement up to eightfold than the conventional zinc sulphate containing fertiliser. The increased

zinc content in the grain improved its protein content and other micronutrients like iron and manganese.

According to the researchers, this work defines a new paradigm in micronutrient application - use nano-fertilizers at the right place, right time and in right doses. Grain zinc enrichment not only improves nutritional quality benefitting the consumers but also the farmer, who gets an improved crop-stand in the next cropping cycle. Deployment of such systems for delivery of other nutrients and across other crops is indeed possible.

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About INDIAN FOOD BAZAAR

"Indian Food Bazaar - EXPO" is a co-located sub-event which is B2B in nature. It gives a platform to showcase the diverse foods and cuisines of India. These cuisines vary substantially from each other and use locally available spices, herbs, vegetables & fruits, grains and pulses, dairy and much more. Indian Food Bazaar is that unique exhibition which showcases such Indian products and brands which are growing from local and regional products to national and international brands. If you dream to take your brand from "LOCAL to GLOBAL", participate in the Indian Food Bazaar NOW!!!!

FOODS OF INDIA



About Business Conclave

"Business Conclave" is another co-located event that has a series of industry based sessions showcasing the science behind products. It is a confluence of knowledge sessions, networking, B2B meetings, accommodating industry with the objective of expanding your business horizon.

Business Conclave has been designed specifically to provide you with a powerful platform with topics focusing on specific industry segments, covering a wide spectrum.

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CFTRI conducts entrepreneurship training programmes

Central Food Technological Research Institute (CFTRI), Mysuru, in association with Kautilya Entrepreneurship and Management Institute (KEMI) and Jain University, Bengaluru, had organised the third edition of its joint programme for nurturing entrepreneurship agenda in the food and allied sectors between June 5 and 16, 2018. It was titled Entrepreneurial opportunities in food and allied sectors. The course had been designed as one of India's premier idea-stage/pre-idea stage start-up launch programme, with expert insights from Ramesh Krishnamurthy, founder, Delight Foods.

While the first week of the programme was held in the Jain University Campus, Bengaluru, the latter component was held in the CFTRI campus, Mysuru. The programme concluded at the KEMI campus with a pitch presentation for interested participants on incubation and funding. The programme focused on imparting the basic technical and business knowledge required for venturing in the food sector, enhancing the capability of entrepreneurs to accelerate themselves in their journeys of translating ideas into reality and creating a community of entrepreneurs, mentors and investors who can help each other in their respective entrepreneurial journeys.



ICRISAT teams up with Dutch Biotech firm

Hyderabad-based International Crops Research Institute for Semi-Arid Tropics (ICRISAT) and a Netherlands-based agricultural biotech company KeyGene signed a Letter of Intent (LoI) for research and co-development on legumes and cereals. The two institutions will work together using novel crop innovation solutions based on KeyGene's proprietary technologies and know-how. Both are expected to collaborate on innovative approaches for trait development and gene discovery.

KeyGene will share its knowledge and expertise on crops and the use of its crop innovation platforms, including its Sequence Based Genotyping (SBG) and mutation breeding technologies.

The genetically diverse grain legume resources of ICRISAT will serve as a reservoir for the identification and exploitation of useful traits. These will be used as a starting point for crop breeding and mutagenesis programmes. Capacity building and skill development of start-up entrepreneurs are also envisaged in this collaboration.

Badal inaugurates food testing lab at NIFTEM

Harsimrat Kaur Badal, the Union Food Processing Minister recently inaugurated four pilot plants and a food testing lab at the National Institute of Food Technology Entrepreneurship and Management (NIFTEM) campus so as to provide business incubation for entrepreneurs.

The laboratory would not only serve as a Centre for certification of food products but would also serve as a centre for undertaking research and innovation for solving the problems of the food industry and the other stakeholders of the food sector. The Centre would work in unison with the regulators and the policymakers for providing them all support for developing standard test protocols for various parameters of quality essential for domestic and international market and would serve as the National Reference facility in the years to come.

The four pilot plants include Plant for Ready-to-Eat and Traditional Food, Plant for Milk and Dairy Product, Plant for Fruits and Vegetable processing and Plant for Meat and Poultry Processing.





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Arjuna Natural's BCM-95 Curcumin receives new patent

BCM-95, a high-potency turmeric extract developed and manufactured by Arjuna Naturals Ltd., has been granted a patent for "composition for use in treatment" by the European Patent Office (EPO). This patent is in addition to 16 patents (13 in the US, two in Japan and one in Europe) that Arjuna already has on its BCM-95 turmeric extracts.

The new patent covers Arjuna's composition of the active curcuminoids, demethoxycurcumin, bisdemethoxycurcumin, and Ar-turmerone. The essential oil of turmeric has

proven effective in helping the treatment of depression, rheumatoid arthritis, osteoarthritis, and Alzheimer's disease. The patent is strictly enforced in most countries in EU and in the US.

Last year, BCM-95 was affirmed GRAS (Generally Recognised as Safe) status by the US Food and Drug Administration (FDA). This confirms the safety profile of BCM-95 and cements it as a trusted, clean brand. BCM95 has been involved in 42 published studies and more than a dozen studies are ongoing, including pre-clinical and clinical studies on its multiple health benefits.



Ananda Dairy undergoes extensive expansion

With the commitment to provide its customers with quality dairy products at an affordable price and closer proximity, Ananda Dairy recently announced an investment worth Rs 10 crore, which reiterates its vision to give its valuable consumers, a direct access to the wide variety of nutritious and pure milk and milk products. With this extensive

expansion, Ananda aims to focus on an overall growth of 30 per cent along with descent job creation. Ananda envisions meeting

its target of launching over 500 company outlets whilst achieving a projected turnover of Rs 1,500 crore by the end of FY18. With a massive single-day launch of 200 new outlets, Ananda is aiming to give its consumers a holistic experience, by opening up the company's entire fresh and wide dairy produce range, including confectionary and bakery items for them to purchase. Moreover, well-trained professionals, who are able to guide consumers to the right products, based on their unique dietary requirements, will staff the stores.



CDPL to invest Rs 400 Cr in three plants

Creamline Dairy Products Ltd, a subsidiary of Godrej Agrovet, has firmed up plans to invest Rs 400 crore to set up three new plants over the next three years. The Hyderabad-headquartered company, a Rs 1,200-crore dairy player, will set up the plants in Karnataka, Tamil Nadu and Maharashtra, together adding around 2 lakh litres per day capacity. At present it has nine operating plants in the five southern states.

Recently, CDPL acquired a milk processing plant in Tirunelveli, Tamil Nadu. A greenfield plant in Visakhapatnam with an investment of Rs 35 crore and capacity of one lakh litres per day will be fully operational by end of 2018. With this, the company will reach about 12 lakh litres per day processing capacity. The over 30-year-old company twice divested 26 per cent stake each time in 2006 and 2015 to Godrej Agrovet which now holds a majority 52 per cent stake and is also willing to help in the expansion. CDPL with over 100 collection centres also operates its own dairy parlours across major cities.



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Pawankumar Agarwal promoted to Secretary rank

Pawan Kumar Agarwal has been given three months extension as Chief Executive Officer (CEO) of the Food Safety and Standards Authority of India (FSSAI) but promoted to the rank of Secretary. The tenure of Agarwal, a 1985-batch IAS officer of West Bengal cadre, has been given threemonth extension beyond May 15, 2018, according to an order issued by personnel ministry. He was appointed as the CEO of the FSSAI in December 2015. Previously, Agarwal was Joint



Secretary, Ministry of Skill Development, Entrepreneurship, Youth Affairs & Sports, Government of India. He is an Electrical Engineer from Punjab Engineering College, Chandigarh. He succeeded Yudhvir Singh Malik, who was shifted as Additional Secretary in Niti

Aayog in September 2015. Agarwal has been working efficiently within the eco-system of the country with food businesses, small ones and big multinational companies, and other stakeholders, other ministries of the Central Government and the States governments, consumer organisations and scientific communities.

Parag Foods strengthens management team

Amarendra Sathe has been appointed chief commercial officer (CCO), Parag Milk Foods Ltd, and Harshad Joshi is the private dairy player's new chief operations officer (COO). These are the new positions that have been created by the company in a bid to strengthen its management team.

The hirings, that have taken place over the past few months, are strategic. While Sathe formerly held a senior position at Kimberly-Clark India, Joshi, whose role is to strengthen the overall business operations of the company, is a dairy consultant, who has had long stints with companies such as Mother Dairy, Amul and Walmart.



Vimal Agarwal has been roped in as the chief financial officer (CFO), who brings in 17 years of experience from PepsiCo. He will be driving the analytics and finance disciplines at the company, which has also roped in Niharendu Sarkar for the newly-created position of senior vice-president, logistics and supply chain. He will be responsible for establishing a robust logistics and supply chain network throughout Parag's current and new markets.

Mondelez India gets new Director

Mondelez International has appointed Anil Viswanathan as Director, Marketing (Chocolates), Mondelez India. Viswanathan will succeed Prashant Peres who has moved to a new regional role of Senior Director, Chocolate Equity & Innovations, AMEA, Mondelez International.

Anil Viswanathan has been with Mondelez India for about 18 years. His journey in the company has taken him into Regional and Global roles and into different categories including Chocolate and Biscuits. He has progressed through various products, brand management, and category marketing roles. Viswanathan has been with Global Chocolate team driving chocolate innovation based out of Zurich, Switzerland. One of his achievements, during his stay with the Global Category Team as Senior Innovation Platform Manager, has been



the launch of Cadbury 5Star globally, which is now present in 3 continents including markets like Brazil, South Africa and South East Asia.

Serving as the Director, Marketing (Chocolates), Mondelez India since 2015, Peres has been instrumental in leading the chocolate category turnaround in India, achieving double digit growth despite external economic challenges, such as the sudden currency demonetization and GST implementation. He is credited for launching various successful innovations under Mondelez India's chocolate portfolio, including a made-in-India innovations like Cadbury Dairy Milk in Lickables in 2017, which is now a global best practice. Mondelez India is the undisputed chocolate category leader in the country and is currently in its all-time high, with respect to market share.



Dignitaries releasing the Yellow Books launched by FSSAI at the programme. Seen in the picture from Left to Right include Tarun Vij, Country Director, GAIN; Dr Pallavi Darade, Commissioner, FDA - Maharashtra; Sanjay Deshmukh Secretary, Medical Education & Drugs Department, Government of Maharashtra; Pawankumar Agarwal, CEO, FSSAI; Girishji Bapat, Minister, Government of Maharashtra; Sanjeev Kapoor, Indian Celebrity Chef; C D Salunke, joint commissioner, FDA- Maharashtra, and Dr Prabodh Halde, President AFST(I).

Food Safety and Fortification Summit

“One-third of Indians are suffering from micronutrient deficiency”

The Association of Food Scientists and Technologists (India) AFSTI with the support of GAIN and CEOEDECON organized Food Safety and Fortification Summit on the occasion of World Food Safety Day which is celebrated on June 7 in Mumbai.

On this occasion, Dr T. Longvah, Former Director, National Institute of Nutrition, Government of India gave a technical presentation on the need and importance of food safety and fortification. He pointed that almost one-third population suffering from micronutrient deficiency worldwide are in India.

The event witnessed the presence of Pawan Kumar Agarwal, CEO, FSSAI. He said “FSSAI has taken a decision that we can take fortification of edible oil. The transition is not going to be difficult.” “Both edible oil and milk can be fortified with Vitamin A & D. As we gain more experience, we might go for mandatory fortification as well.”

The time has come for the mandatory fortification of refined packaged edible oil. And FSSAI is working towards the same in the next two or three months. Along with edible oils, even the fortification of milk can

be made mandatory soon.”

An interactive session on food fortification was moderated by Tarun Vij, Country Director, GAIN and P. Muthumaran, Director, FSSAI who were also present there. The session saw participation of from various companies such as General Mills for wheat flour, Marico for edible oil, Prabhat Dairy for milk fortification and Hexagon Nutrition for micronutrient premix. Several industry leaders such as Dr Vivek Arora from Tata Trust and Dr Shailesh Ghodekar from Marico gave informative speeches. They stressed on how fortification is beneficial to the consumers. Some also mentioned about the scope of introduction of fortified rice in Maharashtra and how the implementation of fortification was advantageous to them. They also stressed on how the process is cost-effective and how these ingredients can act as vehicles for combating nutrition deficiency in India.

On this day, Maharashtra Food Safety Network (FoSNet) Online Application was also launched in the presence of Girishji Bapat Cabinet Minister, government of Maharashtra and Dr Pallavi Darade, Commissioner, FDA Maharashtra by

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- India Expo Centre Greater Noida Delhi-NCR
- www.figlobal.com/india/

Vitafoods Asia 2018

September
11–12,
2018

Vitafoods Asia offers the visitors a platform to discover the latest innovations, source high quality ingredients, products and services as well as provide a knowledge hub to learn from leading industry experts on market successes.

- Sands Expo & Convention Centre at Marina Bay Sands, Singapore
- www.vitafoodsasia.com

19th World Food Science and Technology Congress, IUFoST-2018

October
23-27,
2018

The IUFoST 2018 will be 5 days action packed super bowl of programmes that will bring together researchers, academicians, professionals, policy makers and the food scientists and industries fraternity to cover the latest advances in our understanding of food in all its manifestations like food safety, food security, regulations, innovations in food processing, hygienic design and engineering, frontier areas in food science & technology, novel food products, markets and consumer preferences and much more of the latest of cutting edge technologies in each sector. The Event highlights Workshops, Inauguration, Plenary talks and Distinguished Lectures, Scientific & Poster Sessions, Presentations by Young Scientists, Valedictory & Award Presentations, Exhibition - Food Expo, Gala Dinner and Socio-Cultural events and B to B interactions and even Students and Faculty Meeting with Industries events to give a glimpse of the programme overarching.

- CIDCO Exhibition Centre, Vashi, Mumbai
- www.iufost2018.com

Pawan Kumar Agarwal, CEO, FSSAI.

Speaking on the occasion, Dr Pallavi Darade said "As FDA it is our responsibility to encourage the stakeholders specially to use fortified food and convey the message of fortification as per Government of India's policy. Emphasis is on fortification of mid-day meals and other programs and hence we request the officers from the Women and Child Development and Health Department to take this message forward."

Pawan Kumar Agarwal said "The public health consequences of not eating right are immense. Consequences of food borne diseases are equivalent to diseases like malaria, tuberculosis etc. and yet governments around the world do not give importance to food safety. Recognition of food safety is at the heart of preventive healthcare is now sinking in slowly in our citizens across the country. All of us are aware about the kind of importance Honorable PM is giving to healthcare. It is in this context that we should not lose the opportunity. Issues of food safety and nutrition need to get attention that they deserve and this is also increasingly becoming a central part of the global health agenda. It is heartening to see that things are slowly but steadily come into place and we can create a very robust system for food safety." He mentioned about the five pillars on which food safety stands and emphasized on the success of mobile food testing labs.

Agarwal also introduced Yellow, Pink and Orange Books launched by FSSAI and congratulated the State of Maharashtra for organizing the event on a special day and launching hygiene rating i.e. score on door in short and Street Clean Food Hub initiatives on the day.

Various certificates of hygiene rating to various eateries and restaurants were also given in the august presence of Indian Celebrity Padma Shri Sanjeev Kapoor. He appreciated the changing scenario in the way food bodies operate and committed free promotion of FDA initiatives on his channel Food Food which is worth Rs 25 lakh for a period of six months.

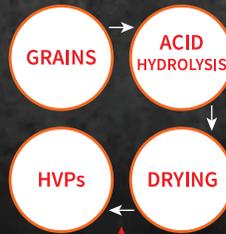
The event ended successfully with the closing remarks by Dr Prabhodh Halde, AFSTI. The event took place at the MMRDA auditorium, BKC, Mumbai. **NS**

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MCP / DCP LIMITS
13-Dichlor-2-propanol < 10 µg/kg,
23-Dichloro-1-propanole < 10 µg/kg 10,
33-MonoChloro-PropaneDiol < 170 µg/kg

Hydrolysed Vegetable Proteins (HVPs)

PROCESS

MCP / DCP

FOOD INTAKE LIMITS
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