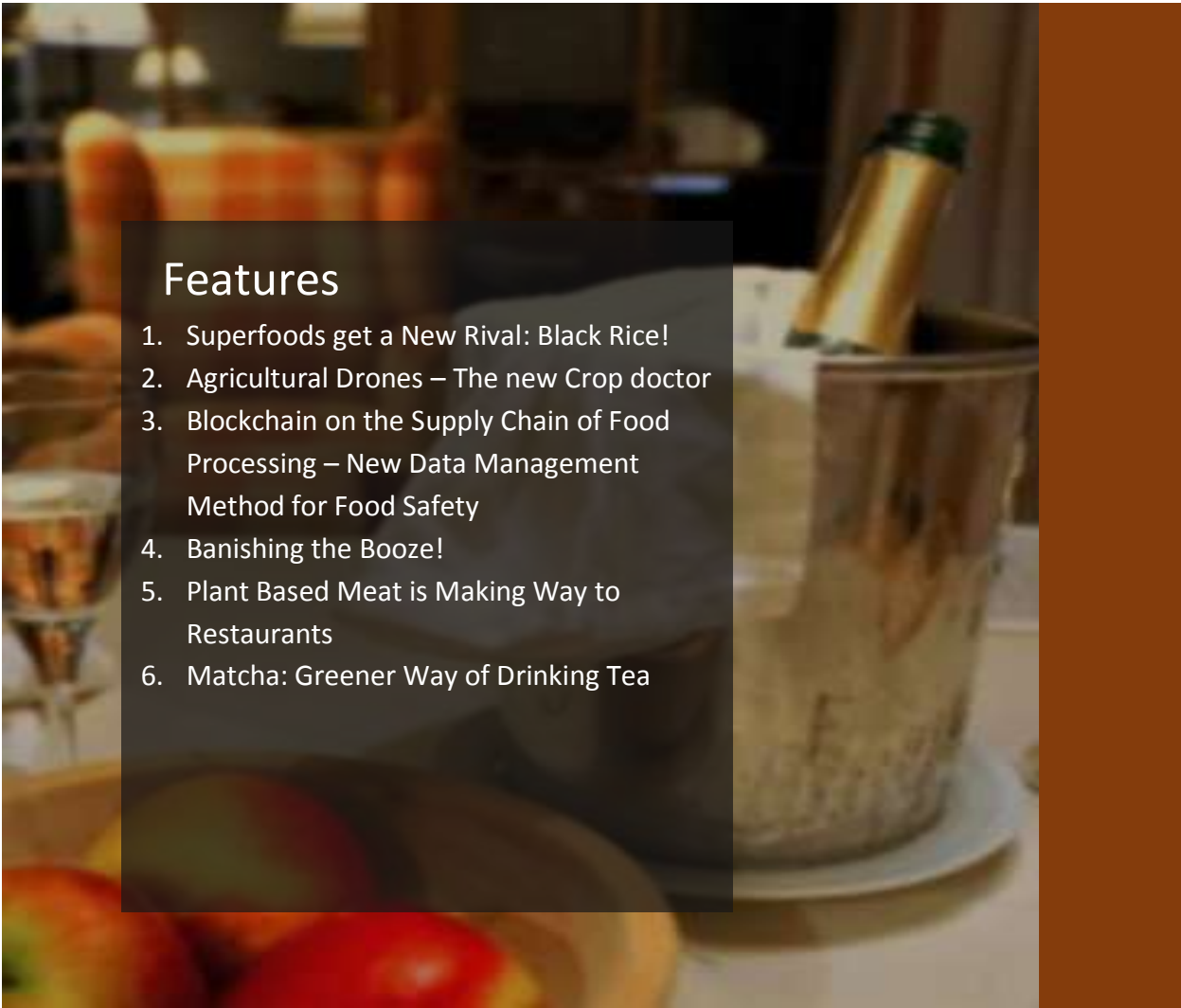




# Wonder Foods into Realm

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# Superfoods Get a New Rival: Black Rice!



From being a naturally gluten free grain to offering other incredible health benefits, black rice is also rich in antioxidants. The anthocyanin content of black rice gives it a black color. Black rice also contains Vitamin E, which is helpful in maintaining eye, and skin health and also, builds immunity. A study carried out by researchers at Ajou University in South Korea revealed that black rice bran could potentially be used “as an anti-inflammatory and antiallergic food ingredient and possibly also as a therapeutic agent for the treatment and prevention of diseases associated with chronic inflammation.”<sup>i</sup> As per studies, black rice is also known to decrease atherosclerotic plaque in the arteries and symptoms of fatty liver disease. Black rice is a rich source of protein and fibers, and is therefore, gradually being embraced by most consumers as a substitute for white rice and even brown rice.

Black Rice, also known as ‘forbidden rice’, is gradually popping up in supermarkets and grocery stores across category due to its many benefits and has grabbed the attention of health-conscious consumers. As the story for it being named ‘forbidden rice’ in China goes, the Chinese aristocrats took hold of a variant and forbade the general public from cultivating or eating it. Owing to the advantages it has over other conventional varieties of rice, it has carved out a new niche for itself in the rice market

## Interesting Facts

- Black rice is sometimes referred to as **Purple Rice**. This is because it changes to a deep purple hue of anthocyanin antioxidants, when cooked or soaked.
- It has a mild nutty flavor to it unlike other rice varieties.
- Originally grown in Asia, black rice is now found in all the continents of the world except Antarctica.
- Owing to its antioxidant properties, black rice researchers believe that it could treat diabetes, Alzheimer’s disease and even cancer.

## Presence of Black rice across the globe

The major factor limiting the widespread cultivation of black rice is that, this variety of rice is not that easy to grow. It yields only 10% of the harvest unlike other varieties of rice. The grain is majorly cultivated in the South Asian countries of India, China, Thailand, and Indonesia and exported to other parts of the world including Europe. Owing to its growing popularity, some states of the southern U.S. have also started cultivating it.



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### Target Customers of Black Rice

There are major nutritional differences between black rice, white rice, and brown rice. Black rice is a healthier and more nutritious choice than its brown relative, and provides you with 6% of your daily iron requirement, while brown rice provides you with 5% of iron. Also, the anthocyanin pigments, which are powerful antioxidants, help fight diseases such as cancer. All these benefits of black rice as compared to brown rice and white rice, have paved the way for its popularity among the fitness freaks and people looking for weight management.



The health benefits it offers is leading many researches and scientists to exploit it as a treatment for diabetes and even cancer. Companies are highlighting these benefits to market the less-known black rice.

### Trends in the Black Rice Market

Healthie, one of the startups in India, is delighting foodies in Delhi, Bangalore, Hyderabad and Mumbai. Healthie is the first company to market a complete Black range that includes Black Beast (Sandwiches), Black Rice Bowl, Black Hole (Healthy Desserts), and Black Beauty (Juices and Smoothies). Through this offerings, the company is trying to differentiate itself from competitors who still have not moved beyond brown rice.

Naturally Yours, India's no.1 super food brand, is selling different super food categories online, with black rice being one of the popular rice varieties.



It has been working with the farmers all over India since the last six years and delivering high quality products to consumers.

### Investments in the Black Rice market

In India, particularly in the states of Manipur and Assam, the agriculture department is making huge investments in black rice cultivation. The premium price for organic black rice looks promising in overseas markets as well. A recent successful venture by the Union government, which witnessed 12 tons of black rice produced in merely 13.2 hectares in Amuguripara, Goalpara district of Assam, is an inspiration for farmers as well as consumers. With improved infrastructure, and financial incentives, black rice cultivation can, undoubtedly, go a long way.

### Final Thoughts

Whether you consume the forbidden rice in your morning cereal bowl, or a lunch rice bowl, or on top of a salad, it is sure to benefit your health in umpteen ways.

The market for black rice looks extremely promising given the strong consumer demand for health-promoting superfoods. Companies still need to educate the consumers about black rice. They need to get their marketing strategies right to increase the sales of black rice.

### Case Study

The fact that black rice sales has been growing is proven by two young food entrepreneurs, Marcus Brown and Jarrod Milani, owners of Forbidden Foods, a rice foods company based in Melbourne, Australia. The company has been supplying black rice sourced from South Asian countries to retail stores and food service outlets in Australia, New Zealand, Singapore, and Belfast in Ireland. The company has an annual turnover of \$1m a year, and targets to generate \$5m in revenue in 2019.

*Milani and Marcus say "An idea can be exciting but also daunting and some people struggle to get past the idea stage. We found that, in any given moment, focusing on completing the next immediate step has helped us stay focused and thus builds momentum".*

The two entrepreneurs started with only one product of 500 grams of black rice, which had not been westernized and its goodness not exploited. All their products are manufactured and packed overseas. Forbidden Foods, was awarded the 2018 QSR Media Supplier of the Year.

# Agricultural Drones –

## The New Crop Doctor



Evolution of drones, commonly known as Unmanned Aerial Vehicles (UAVs), has marked a game-changing scenario in agriculture. Sugarcane farms of Central America, corn fields of South Asia, and several other food and commercial farms across the globe are witnessing the use of drones for crop spraying. The highly maneuverable drones act as top-dresser of crops by spraying them with fertilizers, fungicides, and pesticides. The attractive features of these devices – compact in size and light in weight allows effective spraying in uneven parts of the farm, which is otherwise impossible to reach using tractors. Moreover, drones are capable of spraying pesticides and fertilizers with

greater precision, and significantly reduce the economic burden and environmental pollution. Besides crop spraying, drones are rapidly entering into a wide array of agricultural applications, ranging from soil analysis, sowing crops, and irrigation management to crop health assessment. These devices also help to detect issues across the fields during the mid and later seasons of the crops.

### An Eye in the Sky for Agriculture

Drones are referred to as “an eye in the sky” based on its ability to combine the data collection hardware with the analytic tools and interpret the data and images to provide actionable information. Typical information captured in a single fly of drone can include vegetation index (NDVI), plant counts, soil and H<sub>2</sub>O levels, soil temperature, topography, and many other information.

Dennis Bowman, a University of Illinois Extension educator and expert in agricultural technologies in a recent press release opined that the opportunity to see a bigger picture of their field is driving the interest of growers towards the drone technology. Explaining the importance of drones in agriculture, he also added “When the corn is up over your head, it’s hard to see what’s going on throughout the entire field. The opportunity to get this picture from the air, to be able to see what’s going on at the far end of a 120-acre field that’s not easily visible from the road, you can do a better job of seeing all the things that might be going on.”

Utilization of these flying robots provide several advantages including integrated GIS mapping, reduced time and cost of farming, and early detection of defective plants.



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Several studies have proved the increase in quantity and quality of production with the use of drones in agriculture.

### Industry Outlook

Advancements in the fields of automation, electronics and semiconductors, and Information and Communication Technology (ICT) has revolutionized the agricultural sector across the globe. The need for effective management of farm and crop data resulted in a lucrative dive of communication technologies and mobile applications in agriculture. Knowledge on the use of sensors and cameras in effective management of agricultural inputs and pest control laid the foundation for the use of drones in agriculture. The intelligence of agricultural drones in land use monitoring and precision farming is also a factor that motivates the utilization of these devices. Furthermore, the use of drones in tree farms to provide real-time health and growth information of individual trees can help the farmers in early detection of non-growing trees. According to a recent statement by the U.S. Federal Aviation Administration (FAA), the number of non-model unmanned aircraft systems in the U.S. surpassed 110 thousand units in 2017 and nearly 17% of these systems are used for agricultural applications.

### Current Industry Challenges

Besides the boosters, there exists several challenges associated with the adoption of drones in agriculture. The use of agricultural drones is subjected to several regulations posed by the regulatory bodies, such as Federal Aviation Administration (FAA) and others.



According to FAO (Food and Agriculture Organization of the United States), as of April 2016, 73 countries of African, Caribbean, and Pacific (ACP) Group regulated the use of agricultural drones in their airspace.(iii) In the U.S., small unmanned aircraft system (sUAS) regulations mandates a drone pilot license(iv). The FAA has a considerable number of regulations regarding the use of drones for the U.S. citizens. Users who want to employ the drones for commercial applications, such as crop spraying, are required to file for an exemption. These regulations are hindering the adoption of drones in many countries.



The Association for Unmanned Vehicle Systems International (AUVSI), the world's largest nonprofit organization dedicated to the advancement of unmanned systems and robotics, represents corporations and professionals from more than 60 countries involved in the industry and government.

The growing interest of research and venture capital partners towards space-related startups resulted in considerable growth of small satellite-based Earth Observation (EO), which is considered as a threat to drones. A large number of EO satellites will be launched in the coming years, thus lowering the use of drones in agriculture.

### Opportunities

The growth of drones is largely tied to the technological developments in terms of flight strength and reliability. The manufacturers of agricultural drones are focused towards innovation of high speed drones with greater payload capacity. AgEagle, senseFly, and some other players have recently launched drones with superior flight period, suitable for continuous surveys. Advancements in vision technologies are likely to improve the data resolution of the drones, thus boosting their performance.

Drones are also finding applications in several agriculture-related industries such as dairy, fisheries, and others, which significantly adds to its growth potential.

Drones are considered as the key technological achievement in agriculture in the past era and are successfully being used in multiple applications within the sector.

## Key Manufacturers of Agricultural Drones

Agribotix LLC



Eagle Brother UAV Innovation Co.,



AgEagle Aerial Systems



SZ DJI Technology Co.,



PrecisionHawk



3D Robotics



Sentera LLC



AGCO



AeroVironment,







# Blockchain in the Supply Chain of Food Processing– New Data Management Method for Food Safety

The American retail giant, Walmart, is enhancing efficiency and transparency in its supply chain by harnessing the power of blockchain technology, thus eradicating food frauds, food recalls, and Spread of Foodborne Diseases.



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### Food Safety – Growing Concern across the Industry

Counterfeiting of branded food products, growing prevalence of food borne illnesses, and various other factors have necessitated a new era of food safety across the food and beverages, dairy, agriculture, and other related industries. Furthermore, massive losses associated with food recalls and the need for superior traceability are motivating food processors and retailers to implement innovative technologies in the food industry.



### Food Safety – Growing Concern across the Industry

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### Why Blockchain?

Besides Industrial Internet of Things (IIoT) and Next Generation Sequencing (NGS), blockchain technology is evolving as the future of food safety.

The unmatched potential of solving the key issues of the food industry – food traceability and food safety, waste reduction, and price discovery – is helping blockchain to emerge as an integral and crucial part of the modern day food value chain. The global food supply chain is complex with a large number of stakeholders including farmers and growers, manufacturers, warehouses, distributors, retailers, and others, thus involving complicated record-keeping. The ability of blockchain technology to record and manage arbitrary data across the supply chain helps enhance the food safety programs.

For instance, Dairy Farmers of America (DFA), a U.S. national cooperative owned by dairy farmers piloted the capabilities of blockchain to enhance its supply chain transparency and customer relations. In September 2018, DFA joined hands with the U.S.-based food tech startup, Ripe Technology, Inc. which provides blockchain solutions from farm to fork operations of DFA's supply chain.

Besides enhancing efficiency, blockchain also reduces the payment issues associated with food supply chain by providing automatic transfer of payments, particularly to farmers and food processors.



David Darr, Vice President, Sustainability and Member Services at DFA in a recent press release opined that blockchain technology helps consumers know where the food comes from by giving real-time data about food production from start to finish.

### What's the Current Scenario?

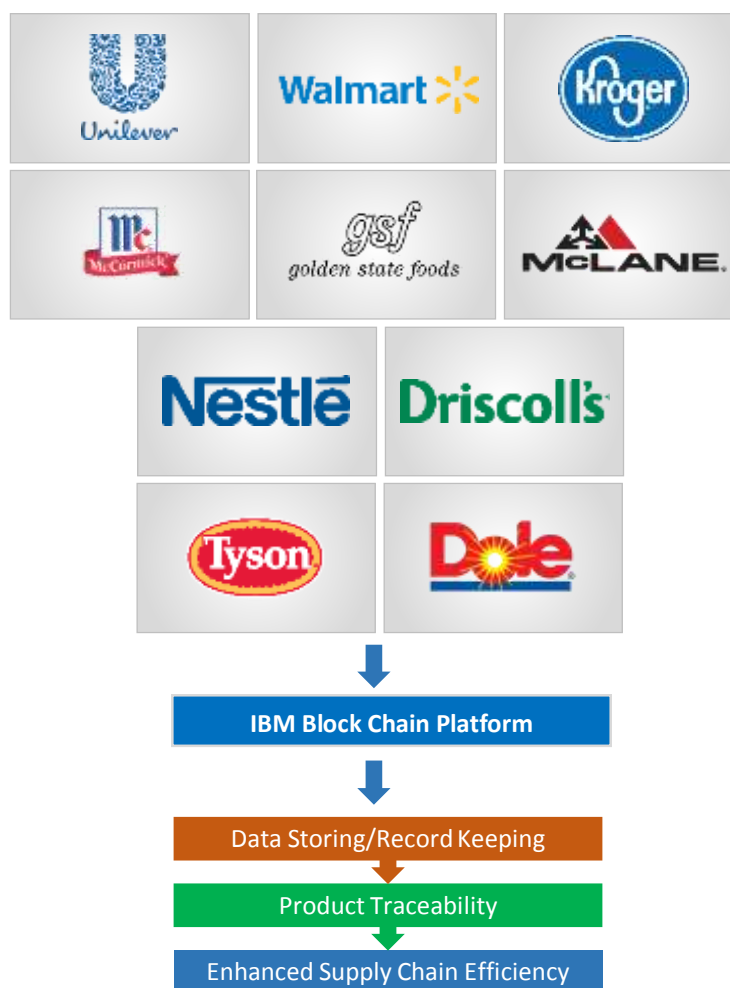
Several global technology leaders, such as IBM, and startups such as VeChain, Ripe Technology, Inc, and arc-net provide blockchain solutions to multiple sectors of the food industry, including ingredient business, food processing, and retail sales. These blockchain startups are witnessing a large number of investment activities from private venture partners, crowdfunding groups, and angel partners owing to the high growth prospects of blockchain technology in the food industry.

Startup	Funding Company	Funding Type
<b>Arc-Net<sup>(iii)</sup></b>	Dr Richard Steeves	Angel Investor
<b>Ripe Technology</b>	Maersk Growth	Venture Funding
	Relish Works	Incubator
	Terra Accelerator	Incubator
<b>Bart Digital</b>	SP Ventures	Venture Funding
<b>Bext360</b>	SKS Capital	Seed Funding
	Plug and Play Ventures	Seed Funding
<b>VeChain<sup>(iii)</sup></b>	Tim Draper	Angel Investor
	DNV GL	Venture Funding

Besides Walmart, IBM also holds blockchain collaboration with a consortium of pioneer companies such as Unilever, Nestle, Tyson Foods, McLane Company, and some others across the global food supply chain, evidencing its leading position in the market<sup>(iv)</sup>. The collaboration announced in August 2017 marked the entry of GS1 Standards into the food industry. GS1 standards are a set of global business communication standards dedicated for use in supply chains. The entry of GS1 standards into food services ranging from production, testing, and logistics, to storing and distribution has highlighted the significance of blockchain in the agriculture and food industries.

### Case Study

In March 2018, two food testing laboratories, Source Certain International (Australia) and Hoan Vu (Vietnam) partnered with Origin Trail to use the latter's state-of-the-art blockchain infrastructure for traceability and verification of food supply chains, using GS1 Barcode standards.



The adoption of GS1 identification keys specially designed to work with GS1 data carriers such as barcodes and RFID tags created an effective solution for marking individual pieces of food products or ingredients of loose produce, thereby augmenting the traceability.

### What is the Future?

The food safety regulations associated with dairy products, meat and meat products, and fortified foods are motivating the manufacturers to avail better traceability solutions, thus surging the adoption of blockchain technology. The food processing giants across North America, and developing economies across Asia are leading the fast-paced adoption of this technology. Furthermore, the growing need for organic and genetically modified (GM) claims of fruits and vegetables coupled with the rising consumer interests towards healthy food is all set to provide immense growth potential for the penetration of blockchain technology into the industry.





### Being sober has never been so rewarding!

Adult soft drinks manufacturers have played it safe. They have identified a new niche market for teetotalers while also aiming at attracting health-savvy customers. Alcohol-free health beverages are taking a new turn and for the better. New, elegant and sophisticated alternatives to soft drinks with high sugar content are witnessing a huge demand due to the increase in number of non-drinkers. More and more varieties, from alcohol-free drinks to virgin cocktails with different flavors, are being made available at bars and restaurant and even online to cater to the adult population.

### The Pioneer

What most soft drinks lack is the acidity of wine and refreshing bitterness of beer and cider apples. The company that first identified the niche market is Seedlip. Its trademarked Seedlip is the world's first distilled non-alcoholic spirit. The uniquely distilled, zero-calorie drink is bottled and blended in England. It is a go-to option for those not drinking alcohol. This pioneer drink is now on offer in over 6,000 bars, restaurants and hotels around the world.

### The Race

Britain's Fever-Tree smashed profit forecasts in December 2018 by recording £4.5bn in revenue.

The brand, which was launched in 2005, now sells a range of 14 differentiated flavors to hotels, restaurants, bars, and cafes. Fever-Tree, which produces tonic water and other carbonated mixers, has grown rapidly, thanks in large part to the number of people preferring such drinks over soft drinks and cocktails.



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Britvic, a leading soft drinks company, is the largest supplier of branded still soft drinks and the number two supplier of branded carbonated soft drinks in Great Britain. The company, with its still soft drinks product catalog, caters to people looking for a more elevated experience — to make them feel part of the social occasion when they go out and are not drinking alcohol.

According to the Office for National Statistics, 1 in 5 consumers are teetotalers in the U.K. which is rising to 3 in London. A whopping 1.8 million people participated in the Sober October 2017 event, while 3.2 million people took part in the Dry January 2018 event. These numbers are more than encouraging for new players to enter the market.

### The Success Mantra

The key to the success of these adult soft drinks is the way they are marketed to consumers. The companies are not marketing these to consumers as soft drinks but as non-alcoholic beverages which just happen to be healthier with low or no sugar content.

One of the companies, Real Kombucha, is marketing them as a substitute to alcohol. Their concern is that, they want the people to drink Real Kombucha in situations where they were normally supposed to drink alcohol.

### The Statistics

In the United Kingdom, alcohol expenditure as a proportion of total household expenditure has fallen to 1.5% from 1985 to 2017.

Although, the drinks come in the premium segment and are a little pricey over regular soft drinks, there are a lot many number of ways these adult drinks can be served and become part of the celebration. The classic cocktails were earlier part of every household Christmas celebration. But in the last holiday season, they were largely replaced by these non-alcoholic drinks. They are becoming part of all celebrations and are everywhere now.

### The Trend

A significant downward trend in alcohol consumption has been reported in Western countries such as the U.K., the U.S. and Canada. According to OECD, In the U.K., alcohol consumption had fallen by 26% during the period 2002–2012. In France, a drop of 14% was observed and in Germany, a drop of 9% was reported. However, in the U.S., an increase of 6% in alcohol consumption per capita was noted during the same period.

*In the coming years, alcoholic drinks would not be replacing non-alcoholic ones. IndustryARC predicts that the non-alcoholic adult soft drinks market would potentially carve a niche for itself.*

### Key Business Takeaways

- Make Healthy Drinks with Low Sugar Content
- Plant-Based Ingredients, Botanicals Gaining Traction
- Adapt to Market Changes
- Innovative Flavors to Tap into Consumer Demands

### Case Study

Kolibri is the first adult bottled drink that is alcohol free and can be tailored to the preferences of individual customers. The founders of Kolibri, Kamilla Sitwell and Vincent Sitwell, launched this first of its kind be-spoke, non-alcoholic drink in the market and made a sensation. The company is now successful with its drinks which can be customized to your sweetness level. Kamilla Sitwell is of the opinion that “An entrepreneur should have the 4Ps: Passion. Perseverance. Positivity. Patience.

There are so many hurdles and challenges to overcome that without all 4Ps, any entrepreneur will struggle. One more thing worth mentioning is self-education.”iii Commenting on the future trends, she mentions, “Water is currently the winning category but in the war on unnecessary packaging and consumers becoming more ethical, bottled waters – healthy but delivering zero experience – are being increasingly replaced with jugs of garnished tap water.” Kamilla knows the competition in the adult soft drinks market and knows where it is headed.

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*Kamilla says “The likes of Seedlip – alcohol-free spirits, will continue to excite trade and consumers with new alcohol-free possibilities.”*

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Protein-rich meat products are gaining wide acceptance among adults as well as teenagers across the globe. Apart from sportspersons, mainstream consumers are also well versed about the benefits of protein in their diets. Consumers' knowledge about the benefits of protein is not just limited to muscle building and weight loss, but to the complete functioning of protein. Protein-rich food products and supplements have garnered huge attention in the recent years.

#### **Tough to Replace Animal-Based Meat with Plant-Based Meat**

Animal-based meat has dominated the protein market in the past ten years. Earlier,

seafood and white poultry meat were served as the major sources of protein. Processed protein-rich powders and supplements were not very popular among consumers due to their exorbitant prices; however, these have gained momentum in certain emerging countries such as Germany, India, Italy, and France in the recent years as these helps manage weight and increase the body's metabolic rate apart from its regular functioning.

According to the Food and Agriculture Organization (FAO) of the United Nations, two trends have been observed in the evolution of proteins in Europe.

The first trend was the increase in consumption of animal-based meat from 1960 to 1990. Post 1990, with the advancements in plant-based substitutes and awareness about harmful effects of animal-based meat, the overall growth became almost constant. This decrease in the consumption of animal-based meat, especially red meat, was majorly observed among the aging population.

Animal-based meat has played a crucial role in the global nutrition sector. Animal food products offer higher nutritional value when compared with their plant substitutes.



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Animal-based meat has played a crucial role in the global nutrition sector. Animal food products offer higher nutritional value when compared with their plant substitutes. The total consumption of animal-based food products is still growing at a steady pace due to the increasing population, but has been marginally impacted by the decline in intake of beef in certain countries. The poultry-based meat market is still witnessing an upward trend. In Muslim-dominated countries, the popularity of pork is limited due to people's religious values.

#### Will Health and Environment Win over Taste?

CO2 emissions, health issues, and stringent regulations related to animal welfare have put pressure on consumers and governments to look for better plant-based alternatives. Plant-based meat comes with various added benefits for people as well as the planet. It has been observed that plant-based meat can lower the chances of various critical diseases such as cancer and cardiovascular disease. The process of shifting from animal-based diet to plant-based diet is going to be slow, and it may take consumers several years to alter their choices. However, there is an increased willingness among teenagers to turn into vegans and embrace plant-based meat. "Health over taste" is a motto for people who are willing to reduce their meat consumption.

There is a marked preference among the aging people to cut down their meat intake, and various organizations and celebrities are also promoting animal welfare campaigns. In the U.S. and Germany in particular, the young population is coming forward to join the animal welfare movement and reduce or stop their meat intake.

It is not an easy process to replace animal-based meat with plant-based meat as the former has very high nutritional value. Moreover, it is difficult for people to accept the flavors and textures of plant-based substitutes. Manufacturers need to outperform on a combination of quality, price, health, convenience and good conscience to be able to appeal to the majority of consumers. There are ample opportunities for innovation in the plant-based meat industry. The industry can target the consumer with healthy sustainable options and generate buzz.

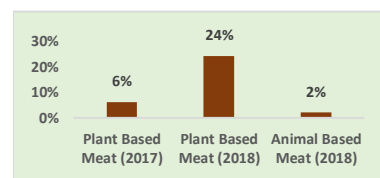


#### Plant Based Alternatives are Making Their Way

In order to address issues related to animal-based protein products, various companies are making huge investments in the plant-based meat segment.

Through innovations and by strategizing new products, the companies are drawing a larger audience towards many good alternatives that are already available. Plant-based meat alternatives are trending among new vegans, who can satisfy their craving for meat in this way.

#### Growth of Plant Based Meat vs. Animal Meat



Source: plantbasedfoods.org

Not just the food industry leaders, but also several tech giants are taking interest in this revolution. Bill Gates, Twitter co-founder Biz Stone, and the venture capital firm behind Google and Amazon, Kleiner Perkins Caufield & Byers have backed Beyond Meat, whose plant-based meat alternatives are already available in the market and has received huge attention.

Another Chilean player, The Not Company, entered the market in 2016. This company has trained a computer that can take X-ray of food products and see which vegetable can be combined to make the same molecular structure which can taste like animal meat. Another highly famous plant-based meat alternative company, Impossible Food, also launched its first product in selected restaurants of New York in 2016.

### Case Study

Meridian Farm Market, the popular butcher shop chain in Canada, has also plunged into the plant-based meat market. It sells Beyond Meat's plant-based burger patties at several locations throughout the Lower Mainland. The company's CEO Josh Penner said during one of its "We are just about selling great food and it's not just that we sell products that are appealing to taste, but also appealing to people's values and we have customers telling us the things that they want and we're always listening." The Meridian chain is planning to expand its plant-based meat alternatives by introducing various other brands as well.

Availability of various plant-based meat may give rise to high competition and improve the affordability of plant-based meat. In order to gain widespread popularity, it is crucial that plant-based meat should be made available at cheaper price.

Globally, governments have also taken certain initiatives to reduce intake of animal-based food products. For instance, Germany's Environment Ministry does not serve meat and fish at its functions. It is too early to gauge whether plant-based meat can impact the animal meat industry or not.

According to current scenario, there has not been much difference in overall revenue. However, plant-based meat has opened various alternatives for vegans or vegetarians. It will be interesting to see how these plant-based food products shift the food choice of people and make an impact globally.

### Case Study

Ecovative, a company which builds things out of mycelium, the root of mushroom, is trying to make bacon out of mycelium. The CEO of Ecovative, Eben Bayer said "The Holy Grail in meat is structure and we made the bacon prototype to convince ourselves. Is this crazy? Is this a bad idea? It was an unbelievable idea." The company has developed bacon entirely from mycelium, and modified its structure and added natural flavors to make it more appealing.







# Matcha: A Greener Way of Drinking Tea

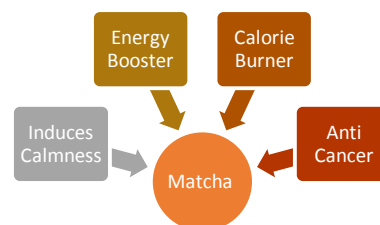
Matcha tea is becoming the new catchy flavor among the fitness freak consumers due to its incredible health benefits. Matcha is a powerhouse drink that originated in Japan, where it is considered as a premium drink due to its numerous health benefits.

## 10 Cups In A Bowl

Matcha tea existed in Japan over a thousand years ago, during

which time monks used to drink it to stay alert and calm.

According to a research, one bowl of matcha is equivalent to 10 cups of green tea. The process of growing and preparing matcha tea is very different in comparison to green tea. Before harvesting the matcha leaf, the plants are covered for 20-30 days to protect it from direct sunlight. This process increases the chlorophyll, caffeine, flavonoids, antioxidants, and amino acids content of the plant.



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### Quality Matters

Matcha powder is prepared by grinding the whole leaf after removing the veins and stems

Various grades of matcha are available in the market depending on the taste and color. For example, ceremony grade is the highest quality matcha, majorly used in tea ceremonies and is sweet in taste. It is bright green in color. The most popular grade of matcha is the classic grade, which is majorly used for daily drinking purposes.

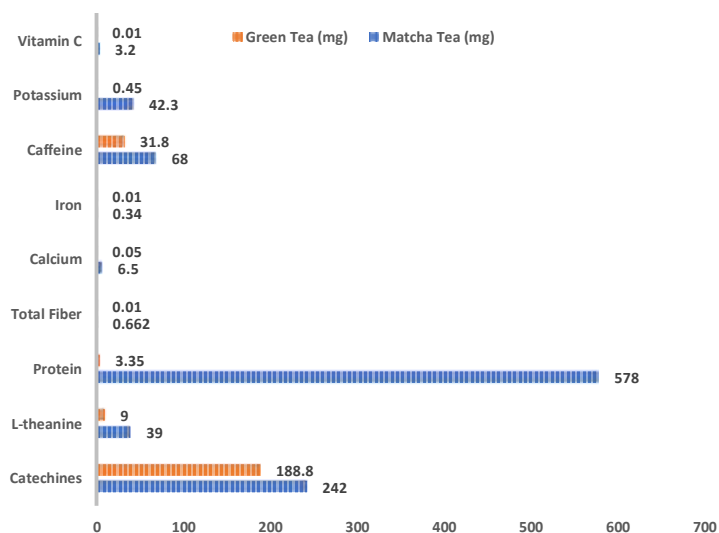
It has a creamy texture with a bitter taste. Café and kitchen grade matcha is an astringent and majorly used in desserts or shakes. Good matcha is bright green, smooth, and slightly sweet in taste, whereas average matcha is yellowish green, grainy, and slightly bitter in taste. The taste of matcha tea also depends on how it is prepared. Traditionally, matcha powder and hot water are whisked together and strained into another bowl. Then, warm water is added to it and further whisked using a bamboo whisk to create a froth.

### Green Tea Vs Matcha Tea

Green tea has become a part of healthy diet long back and now another brighter shade, Matcha, has gained huge attention in developed countries among the youth. Matcha tea is quite healthier in comparison to normal green tea as it has 137 times higher antioxidants than green tea. One cup of matcha keeps a person energized and focused for 4-6 hours, whereas regular green tea serves the purpose for 1-2 hours. Matcha contains more caffeine in comparison to regular green tea.



**Comparison of Sencha 3g of Green Tea in 240 ml Hot Water and 2 g of Matcha in 100 ml**



Source: Brunswick Lab

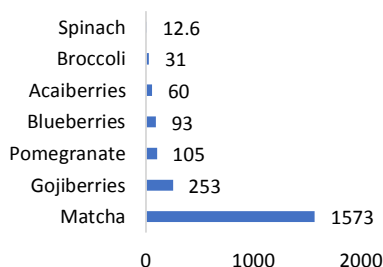
### Powerhouse of Antioxidant

According to Brunswick Labs, it has been found that matcha contains the highest content of immunity-boosting antioxidants. It also contains L-theanine, epigallocatechin gallate, and others. Matcha could become the new superfood.

Matcha tea not only helps in weight reduction but also reduces the risk of heart disease and lowers the cholesterol, triglycerides, and blood sugar.

Furthermore, it is rich in epigallocatechin gallate, which is considered to have cancer-fighting effects on the body. Matcha tea accelerates the metabolism of the body and as a consequence fat starts burning four times faster. It also helps in detoxification of the body. As matcha is rich in L-theanine, it relaxes the functioning of the brain. It also influences the learning and memorizing ability.

#### Antioxidant Comparison Analysis of Matcha



Source: Brunswick Labs

#### Beyond Just Tea

Matcha powder has gained popularity as flavor and nutrients enhancer among beverages and desserts such as lattes, smoothies, shakes, ice cream, cakes, and dressings. Matcha is available in a powder form, and can thus be incorporated in plenty of foodstuffs such as cereals, smoothies, ice cream, and baked goods.

Despite so many benefits, there is a high concern regarding the presence of lead in matcha drink. However, it is believed that lead is not absorbed by water, so no side effects have been witnessed. It is always beneficial for pregnant women and kids to consult the doctor before consuming it.

#### Current Trends

Drinking matcha is a premium experience. Matcha drinks and recipes are trending on social media.

With an increase in demand of matcha-based foodstuff, manufacturers too are coming up with new products. One of London's popular restaurant, Shack-Fuyu serves soft serve matcha ice cream along with French toast. This combination has become one of the cult dishes in London.

Following the popularity of Matcha, Encha's matcha tea powder has gained attention worldwide. The founder of Encha left his job in 2014 to start a matcha powder business in Japan

*According to Li Gong, Ph.D., Founder of Encha, "With Encha, I want us to show to the world that organic-only is possible, affordable and enjoyable. I want to grow the Encha community 'organically' through education and personalized support. My social science training at Stanford taught me a belief: Intrinsic value doesn't require extrinsic fanfare."*

In 2015, two brothers started the new generation of bottled matcha drink in Germany by the name, Seicha. These two brothers decided to sell bottled cold matcha tea with citrus fruits, such as lime or grapefruit. They kept it free from any kind of artificial aroma or flavor and maintained its purity. Seicha offers lemonade matcha, which is sparkling and refreshing. The company gets matcha from a family farm established in Nishio, Japan.



#### Future of Matcha Ritual

The matcha tea market is driven by the increase in awareness about health benefits of matcha drink. According to the Tea Association of the U.S., about 80% of Americans drink tea regularly, but mostly black tea. In the last four years, matcha tea has gained a foothold in the U.S. beverage market with year-on-year growth. In July 2018, two brothers Max and Graham established a café called Matcha Bar in Brooklyn. They have launched a matcha energy drink called "Hustle" and raised a funding of \$8m to expand their business. Owing to green and organic food trend, matcha tea is going to stay in the market for a longer period. Matcha is definitely going to strengthen its position among the premium customer. Being an expensive or premium product, matcha has not gained momentum in various emerging countries, such as India and Brazil. In order to increase its customer base, matcha manufacturers have to make the product cost-effective.

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## Appendix

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