



FROM THE DESK OF EDITOR

Monday, 31st July 2023

**Dr. S. S. Ghonkrokta**

Decolonizing Food and Agriculture- A Way forward to combat climate change

Our ancient texts, Veda are full of hymns advocating Sustainable food system. Rig Veda contains prayers addressed to Surya (Energy), Indra (Water) and Varuna (Air), invoked as deities. Exploitation of environment and increased population is putting pressure on three pillars of sustainable development i.e. food, energy, and water. We need to change our mindset, decolonize our thoughts and discontinue to study science with the prism of western philosophy. Traditional food systems, with technological innovations, adaptations and diversifications, can ensure food security and combat all forms of malnutrition including undernutrition, hidden hunger or micronutrient deficiency; and diet-related non-communicable diseases (NCDs). Shifting to ancient, environment friendly, sustainable agriculture and food system, with zero or minimum carbon footprint will be best option to address climate change.



Source- Pexels.com

**SPOTLIGHT**



**Dr Prabodh halde**

Head Regulatory at Marico Ltd

The food industry has been significantly impacted by the COVID-19 pandemic, prompting a series of transformations. The pandemic has accelerated the branding of essential food commodities, signifying hygiene, safety standards, and source credibility. Additionally, there is an increased focus on healthy and organic eating due to the pandemic's health implications.

Some of the Major Trends in Food Industry are :

- Return to home cooking: Home cooking has regained popularity as people prioritize safety and healthier food options, leading to increased family togetherness. Enhanced home cooking has created a demand for value-added products that simplify and expedite the cooking process. Demand for intermediary products: Home chefs seek pre-prepared components of dishes to simplify cooking, leading to opportunities for intermediary products.
- Restaurant-style meals at home: The demand for restaurant-quality meals at home has created opportunities for professional cooking stoves and meal kits accompanied by recipe videos. Technological advancements for minimal contact: Restaurants will leverage technology for contactless service, including table reservations, pre-booking, and contactless payments. By embracing these trends, businesses in the food industry can navigate the challenges and emerge stronger, providing consumers with safe, convenient, and appealing culinary experiences.

STATE POLICY AND FARMING

SAFETY IN FOOD BUSINESS

HUNGER AND FOOD SECURITY

NUTRITION AND SUSTAINABLE FOOD SYSTEMS

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## State Policy and Farming

### Scope of hydroponic farming in India



Article by: Malvika Chauhan  
Centre for Quality & Food Safety, New Delhi

Apart from the challenge being faced due to climate change, Agriculture is likely to be under pressure to feed 1.7 billion additional people by 2050. With urban areas expanding rapidly, land is being diverted from agriculture to infrastructure like roads, industries, housing etc., space for conventional farms is getting less available. Today 70% of water is being used in agriculture which has already become a scare commodity. Excessive use of pesticides and fertilizers is making it very expensive. At the same time these have become a major source of environmental pollution as most of it is not used by plants but pollutes soil and water. In hydroponic farming crop production is in a controlled environment and one can control the use of pesticides and fertilizers. Advanced climate control technology is available to optimize the inputs of water, nutrients, and light fed to the plants. Sensors can measure the present status of nutrients, water and other requirements and accordingly measured quantity can be supplemented. This gives farmers insight into the amount of unused water and nutrients by the plants at each stage of the growth process. There is no wastage of resources and more over since farming takes place in poly houses. It helps farmers to maximise productivity with highest quality of crop through optimizing the timing, quality, and amount of inputs to the plants.

With traditional farming facing challenges like land scarcity, water shortages, and unpredictable weather patterns, alternative farming methods like hydroponics have emerged as a promising solution. Hydroponic farming, In India, where agriculture plays a pivotal role in the economy and livelihood of millions, the scope of hydroponic farming holds great promise.

Scope of Hydroponic Farming in India:

1. Overcoming Land Constraints: India, with its burgeoning population, faces significant challenges related to the availability of arable land. Hydroponic farming's space-efficient nature allows for vertical farming and cultivation in urban areas, abandoned buildings, and even on rooftops. This aspect opens up opportunities for farmers to engage in agriculture without the need for large landholdings.

2. Water Conservation: Water scarcity is a pressing issue in many regions of India. Hydroponics employs a closed-loop system, which requires only a fraction of the water used in traditional farming. By adopting hydroponics, India can conserve water resources and alleviate pressure on already strained water supplies.

3. Climate Resilience: India's agriculture heavily depends on monsoon patterns, making it susceptible to climate fluctuations. Hydroponic systems provide a controlled environment, shielding crops from adverse weather conditions, and allowing year-round production. This climate resilience can help ensure a stable and consistent food supply.

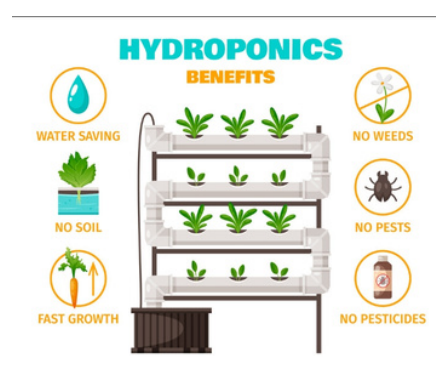
4. Enhanced Crop Diversity: Hydroponic farming facilitates the cultivation of a wide range of crops, regardless of seasonal limitations. India's rich biodiversity can be harnessed to grow various herbs, leafy greens, exotic fruits, and vegetables that may otherwise be unavailable or unaffordable during .

### PANORAMA

#### SCOPE OF HYDROPONIC FARMING IN INDIA

India's hydroponic market is expected to grow at a Compound Annual Growth Rate of 13.53 per cent between 2020 and 2027. In comparison, the growth in the global hydroponic industry is estimated at just 6.8 per cent. There is a huge market for organic crops in metros and tier 1 cities.. This market of products of hydroponic farming in India consists of consumers who are health conscious and will readily pay a premium for organically grown produce that is fresh, safe, and healthy.

With continuous improvements in evolving technologies and a rise in food inflation, the price differentials between hydroponic technology and state and central government's incentives to set hydroponic farms on their fields are also adding to their popularity. With the current growth rate, the cost of setting up such farms has gone down and will reduce further over a period of time



### IN FOCUS



Dr Sheelender M. Bhatt

CEO of Punjab Hydroponics

In a recent interview Dr Sheelender mentioned that the major difficulties in hydroponics are that, people prefer conventional farming and are reluctant to switch to new ways of farming and support from the government side also lacks and a common myth among the people is that hydroponics create water scarcity while the reality is that 70% of water is recycled and it acts as a water saver rather. The expense of setting up the hydroponic form is around 1 lakh so the problem of funding arises .

The ratio of 19:75:0 is followed in hydroponics , water : Fertilizer : pesticides thus hydroponics is the only organic source of food production as no pesticides are used. It also solve the problem of unemployment in the States like Hyderabad, Bangalore and Pune as people are being encouraged. They also conduct webinars among the young generation to make them aware about this smart farming method.

Brands like Pizza Hut and Burger King also promote vertical farming

## Safety in Food Business

### Significance of HACCP System in providing Food Security

Article by: Ravi Bhushan Jha

Executive QMS / QA at Catalysts Biotechnologies Pvt.Ltd



Ensuring food safety is of utmost importance in the food industry, and the Hazard Analysis and Critical Control Points (HACCP) system has emerged as a vital framework in achieving this goal. By implementing a systematic and preventive approach, the HACCP system plays a crucial role in identifying, assessing, and controlling potential hazards throughout the food production process. Moreover, the integration of TACCP, VACCP, Internet of Things (IoT), and Artificial Intelligence (AI) technologies has significantly enhanced the efficiency and effectiveness of the HACCP system.

In HACCP system we take a proactive approach to ensure food safety. It involves identifying (CCPs) within the production process, where potential hazards can be effectively controlled. The HACCP system encompasses key steps, including hazard analysis, establishing critical limits, monitoring procedures, corrective actions, verification, and record-keeping.

To identify emerging threats and challenges in food safety, TACCP and VACCP methodologies have been introduced. TACCP focuses on intentional adulteration, including threats like food fraud, sabotage, and terrorism. By conducting comprehensive assessments and implementing preventive measures, TACCP helps identify vulnerabilities in the supply chain and protects against intentional acts that may compromise food safety. While VACCP targets vulnerabilities related to food fraud and economically motivated adulteration. By assessing vulnerabilities, implementing control measures, and monitoring supply chains, VACCP ensures the authenticity and integrity of food products.

The integration of IoT and AI technologies has revolutionized the HACCP system, enhancing its efficiency, accuracy, and responsiveness. IoT devices, such as sensors and smart monitoring systems, enable real-time data collection and monitoring of critical parameters, such as temperature, humidity, and storage conditions. AI algorithms analyse these data, enabling early detection of deviations or potential hazards. Automated alerts and notifications ensure prompt corrective actions, reducing risks to food safety. Even, AI-powered analytics can identify patterns, trends and areas for process optimization, enhancing overall efficiency and quality control.

The HACCP system, supported by TACCP, VACCP, IoT, and AI technologies plays a pivotal role in safeguarding food safety. By implementing preventive measures, conducting assessments, and leveraging real-time data monitoring, the HACCP system effectively mitigates risks and protects consumers from potential hazards. As the food industry continues to prioritize consumer well-being, the HACCP system, empowered by these advancements, remains an indispensable tool in ensuring safe and high-quality food production.

## PANORAMA

### NEED OF HACCP SYSTEM

Despite increasing awareness about food safety, the incidences of food-borne disease have increased to an epidemic level across the globe resulting in 600 million cases of illness and 420,000 deaths in 2010 (Havelaar et al., 2015; World Health Organisation, 2015).

Data analysis showed that in India ,states like West Bengal (31.22), Karnataka (29.11) and Gujarat (22.67) reported maximum average outbreaks and contributed to 31.5% illnesses and 8.7% deaths. Amongst 19.6% of outbreaks, grains and beans were found to be food-vehicle causing maximum outbreaks (32.7%), while chemically contaminated food caused maximal deaths (70%). During the ten-year period ranging from 2009 to 2018, a total of 2688 food-borne disease outbreaks, resulting in 153,745 illnesses, and 572 deaths were reported to IDSP.

HACCP prevents and controls these and other major food safety concerns on the process; minimizing food safety risks on the product. HACCP allows food producers to offer a safer product to the consumers, protecting their health and life.



## IN FOCUS

### Amit Khanna

Food Safety Trainer, Lead Auditor FSSC 22000  
Six sigma White belt and Yellow Belt  
Asst Operations Manager -Taj Sats.



In a recent interview Amit Khanna stated that HACCP significantly reduces the risk of foodborne illnesses, protecting consumers from potentially harmful contaminants. As it provides :

**Prevention over Inspection:** Unlike traditional inspection-based methods, HACCP emphasizes prevention rather than detection. It focuses on proactively identifying and eliminating hazards, rather than relying solely on end-product testing. **Industry Compliance:** HACCP has become a global standard, and many countries require food businesses to implement HACCP-based systems. **Compliance ensures that companies meet legal and regulatory requirements, enabling them to operate in domestic and international markets.** **Quality and Consistency:** Implementing HACCP improves process control, leading to consistent production and higher-quality products. **Cost Reduction:** HACCP helps identify and rectify inefficiencies in the production process, reducing the risk of product recalls, litigation, and reputational damage. It also leads to reduced waste, optimized resource utilization, and improved overall efficiency. HACCP is designed for use in all segments of the food industry from growing, harvesting, processing, manufacturing, distributing, and merchandising to preparing food for consumption.

## Hunger and Food Security

### How Food Wastage management can Eradicate Hunger ?



Article by: Dr Prabha kumthe  
Food Technologist with project planning and implementation in India and Uganda

Hunger remains a persistent global issue, affecting millions of people around the world. Paradoxically, while many go without food, a significant amount of edible food is wasted every day. According to the Food and Agriculture Organization (FAO) of the United Nations, approximately one-third of all food produced for human consumption is lost or wasted each year.

Food wastage at 40% impacts the GDP and weighs on the resources. Food availability and distribution have improved over the years in India. Yet, the wastage is significant. Looking at how serious this issue is, even a 1% reduction in food waste would help feed a million individuals.

Grain and Pulse production has improved from dismal to enough. The post-harvest loss is 8 % for Grain and Pulse. The government has resolved to modernize farm-level storage and grain handling. Food grain storage is now declared as infrastructure. Hidden Hunger hurts the general health of the population. I have seen during my tenure, how the lack of nutrients and a healthy diet caused diseases amongst the vulnerable population. These diseases were almost impossible to cure and led to the people suffering the hardest.

In recent years, technology has played a significant role in addressing food waste. Innovations such as smart inventory management systems, food-sharing apps, and data analytics have improved efficiency in the supply chain, minimizing overproduction and waste. Additionally, advanced food processing techniques, such as freeze-drying and vacuum packing, have extended the shelf life of perishable items, reducing spoilage and enabling surplus food to reach those in need before it goes to waste.

There is a need for new technologies for extending shelf life. Lyophilization is one which shows great potential. Bharatiya Poshan Krishi Kosh (2019) intends to harness the traditional knowledge of the communities. In my opinion, Poshan Abhiyan, PMMVY, Eat Right India movement are initiatives to address malnutrition.

App-based Public Distribution systems will enable better distribution. Nutritional audit at the local government level is the need of the day. These schemes should be implemented on the ground level such as to ensure a healthy lifestyle for everyone and eradicate hunger and diseases.

## PANORAMA

### NEED OF REDUCING FOOD WASTE

Reducing food waste is vital for India's food security, It is a challenge for the Indian agricultural sector today to feed its ever-growing population, even though India's foodgrain production has kept steady pace with its population. Total foodgrain production during 2015-16 was estimated at 252.23 million tonnes, five times higher compared to 50 million tonnes in 1950-51. However, adequate food production is not sufficient to ensure food security. Not all food produced is consumed, as an enormous amount of food is lost or wasted. A 2011 Food and Agriculture Organization (FAO) report puts this figure at one third of the food produced in the world for human consumption every year, which is approximately 1.3 billion tonnes. It is estimated that saving one-fourth of the food currently lost or wasted globally would be enough to feed 870 million hungry people in the world, of which the highest number (about 194.6 million) are in India



## IN FOCUS

Mr Hitesh M.

Waste Management Specialist at Jainum Food & Waste Projects Pvt.Ltd.



In a recent interview Jainum foods and waste projects pvt.ltd ,said the company is actively engaged in manufacturing of projects and equipments for Waste Management and Food Processing and Roasting.

Jainum Food and Waste Products Pvt.Ltd. was formed in year 2010 with a vision to cater the ever changing requirements in the field of Waste Management and Food Processing.

The company deals with several projects related to organic waste , such as Organic Waste Converter named as 'ORGANO' is an equipment having Vertical In-vessel composting Unit for Sanitisation,Size Reduction,De-watering/Moisture Reduction of Raw Organic Waste collected from different sources.

Thus they believe that collective action from individuals, businesses and government can make substantial strides towards eradicating hunger and ensuring food security for all.

## Nutrition and Sustainable Food System

### Diet Diversification in ensuring nutritional security



Article by- **Dr Luxita sharma**  
Associate Professor & Head  
Amity Medical School and  
Dept. of Dietetics and Applied Nutrition  
Amity University Haryana

Diet diversification plays a crucial role in enhancing nutritional security by ensuring a balanced and adequate intake of essential nutrients. In today's world, where malnutrition and food insecurity are persistent challenges, promoting a diverse diet is essential for improving public health and well-being.

Diet diversification is the practice of consuming a variety of food products arising from different food groups. By the balanced incorporation of nutrients, we can prevent nutrient deficiencies and promote overall well-being. Diet diversification also contributes to food security by reducing the dependency on limited crops and promoting sustainable agricultural practices. One of the key benefits of diet diversification is its ability to combat malnutrition. In many parts of the world, especially in developing countries, malnutrition is a significant concern, with both undernutrition and overnutrition coexisting.

Food security is defined as having access to sufficient, safe, and nutritious food to meet dietary needs and preferences for an active and healthy life. Here's how diet diversification enhances food security:

**Nutritional Adequacy:** A diversified diet ensures a wide range of essential nutrients, including vitamins, minerals, proteins, and healthy fats. By consuming a variety of foods, individuals can meet their nutritional requirements, reducing the risk of malnutrition and associated health issues.

**Resilience to Shocks:** Relying heavily on a single crop or a few staple foods increases vulnerability to environmental shocks, such as droughts, floods, or crop diseases.

**Local Adaptation:** Emphasizing diet diversification encourages the cultivation and consumption of locally adapted and indigenous crops. These crops often have greater resilience to local environmental conditions and are better suited to local tastes and preferences, thereby enhancing food security at the community level.

**Cultural Preservation:** Diet diversification also plays a role in preserving cultural heritage and traditional knowledge. It encourages the inclusion of traditional and indigenous foods, which are not only nutritious but also hold cultural significance, contributing to the overall well-being and identity of communities.

In conclusion, diet diversification plays a vital role in providing nutritional security by ensuring a balanced and adequate intake of essential nutrients. It addresses malnutrition, supports sustainable food systems, and promotes public health. By encouraging individuals to embrace diverse diets and implementing supportive policies, we can work towards a healthier and more food-secure future for all.

## PANORAMA

### THE NEED OF DIET DIVERSIFICATION

The mean level of consumption of various micronutrients among the adult women ( $\geq 18$  years of age and involved in sedentary work) show a decline in intake of almost all the micronutrients except for thiamine and niacin, between 1996–97 and 2011–12 in the rural areas. The intake of calcium, vitamin A and vitamin C is much below the RDA. The gap from RDA in iron intake may be the primary cause of anaemia in women of reproductive age. According to CNNS, in 2016–18, about 28 and 22% of adolescents had anaemia and iron deficiency, respectively. Iron deficiency was much higher in adolescent women (31%) than men adolescents (12%). The CNNS also reported that children and adolescents in urban areas had a higher prevalence of iron deficiency than their rural counterparts. Prevalence of deficiency of vitamin A (16%) and vitamin zinc (32%) was also considerably high among adolescents (MoHFW 2019). There is a need to give more focus on the nutritional status of adolescent women. A dietary shift towards high-value food commodities such as vegetables and animal-sourced foods would significantly impact the agricultural system and environment.



## IN FOCUS

**Mehak Mongia**  
Nutritionist



In a recent interview Nutritionist Mehak said that the main reason for nutritional insecurity is that people are forgetting their roots as Indian culture is enriched with all the nutritional spices still people want to adapt the western cultural trends. As Indian vegetables are not only low in prices but also have high nutritional value.

She states that Diet plays 70% of the major role in one's health and 30% is exercise. Diet diversification encourages one to eat all different source of food commodities from different food groups and it should become once lifestyle and the fancy diet should be avoided.

She also believes that in ancient time the diseases were very few comparatively as cooking in steel vessels and maintaining its traditional value were encouraged.

She also emphasized on the fact that, Among the lower section of the society the encouragement of Better uses of resources must be there in order to make them aware regarding the benefits of Diet diversification.

## Glimpse of 2022

### EVENTS

1. Global Traditional Food Summit 2023 - 27th April to 29th April 2023.
2. India F&B Pack Summit and Awards, 6th and 7th July 2023, India.
3. Brain storming Session on need for comprehensive food standards with reference to traditional foods of India on 29th July 2023.
4. Amma Ki Rasoi - Traditional Nutritional Recipe Competition .  
Stage 1 - Registration date 15 Aug to 10 Sep 2023  
Announcement of 20 Selected entries (20 Sep 2023)  
Virtual Presentation from 21 Sep to 10 Oct 2023  
Winner announcement on 16 th Oct 2023.
5. CPRTTF is also planning to organize virtual training workshops in order to create awareness regarding Traditional Foods.

### INTERNATIONAL AND NATIONAL NEWS

#### NATIONAL NEWS

Civil society groups urge FSSAI to withdraw mandatory testing and reporting of food products.

FSSAI to conduct nationwide surveillance of milk, milk products.

IIM Kozhikode bags FSSAI 'Eat Right Campus' five-star certification which aims to promote safe, healthy and sustainable food in campuses

FSSAI examining thousands of responses on the proposed health star rating norms for food products.

#### INTERNATIONAL NEWS

New Codex Guideline on Measurement Uncertainty unveiled in Budapest

Academia, government, producers and consumers discuss food standards in World Food Safety Day event in Panama

ACT project in Nepal / Training on implementation of Codex antimicrobial resistance standards

Expert panel takes audience questions in World Food Safety Day event hosted by FAO and the World Food Programme

### SPECIAL MENTION



Palak Arora  
Founder - SatGuru Superfoods

Palak Arora, founder of SatGuru Superfoods, a millet-based startup, advocates for preserving India's traditional food to showcase its cultural richness globally. The challenges faced with millet products include limited shelf life and nutrient absorption in the body. To address these issues, SatGuru Superfoods produces sprouted millet-based ready mixes with high bioavailability, easy digestion, and a quick cooking time of 10 minutes. However, sprouting increases moisture content, making the grains vulnerable to microbial contamination. To extend shelf life without preservatives, SatGuru Superfoods uses various treatments to control moisture content, successfully achieving a 6-month shelf life.

Palak stresses the importance of consumer education regarding millet products. Many companies claim to offer millet-based items but use minimal millet content, misleading health-conscious consumers. SatGuru Superfoods emphasizes the authenticity and nutritional value of their products, aiming to educate consumers and promote genuinely nutritious millet options, contributing to preserving India's culinary heritage.

### REGULATIONS

#### NATIONAL

FSSAI Standards for Millets 2023

Food Safety and Standards for Basmati Rice 2023

Food Safety and Standards related to Labelling requirements for Fermented Milk Products 2023

Food Safety and Standards for Vegan Foods Regulations, 2022

#### INTERNATIONAL

CODEX Standards for Dried Seeds – Nutmeg

CODEX General Standards for the labelling of non-retail containers of foods.

CODEX Standards for Live Abalone and for Raw Fresh Chilled or Frozen Abalone for Direct Consumption or for further Processing

CODEX releases Standards for Special Dietary Foods with Low-Sodium Content (Including Salt Substitutes).