

# THE AWARE CONSUMER

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EXCLUSIVE STUDY

## FOOD SAFETY

OUT OF THE BOX

Food Safety:  
Getting serious

THE LAST MILE

Refining  
Food Safety  
steps

IN FOCUS

From Farm to Plate  
– Make Food Safe

OUR  
BUSINESS  
is PATIENT  
SAFETY.

*Partnership for*  
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# Food Safety – an essential priority

**THE AWARE CONSUMER** is trying to propose a system to promote food safety. Food safety is an essential social and health priority for any country so it is in India. In recent times, we witnessed various controversies to food safety standards by several world's food products companies, such as '2 Minute Maggi noodles' and has brought food safety concerns into much focus. With growing population, the demand for quality of safe and nutritious food has increased. The active participation between the regulatory bodies and stakeholders in the field of food safety is required side by side, including a focus on production, nutrition, consumer awareness, animal-human interface and the problem of food borne diseases in India.

The sufficient and safe food is an elementary human requirement and essential for creating a world without hunger. While everyone is exposed to food borne health risks, it is the poor who are most. The adulteration and chemical contamination of food are the leading cause of food borne diseases and can cause serious health

concern, such as kidney and liver failure, neural disorders and death. Sometimes the food items supposed to be 'safe' are not such as street foods. The fundamental of food safety and proper hygiene must be maintained. The initiative 'Swachh Bharat' of the Government of India that promotes cleanliness and hygiene poses a vital factor in promoting food safety, thus minimizing the socio-economic effect of foodborne diseases.

Today, food safety is one of the major issues of increasing public health concern. To attain food safety, efficient links between the public health and other sectors must be built to ensure effective cross-sectoral collaboration. General awareness and consumer education on food safety will help to reinforce food standards, improve practices and prevent foodborne diseases to ensure that their food is safe to eat.

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**“Consumer  
Rights Are Our  
Fundamental  
Rights, IT is our  
Duty to ensure  
we are not  
shortchanged”**



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The risk of contamination can be minimized with proper precautions during the production, processing and distribution of the food to consumers.

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FSSAI is a statutory body which consolidates various acts and orders that were introduced to complement and supplement each other in achieving total food safety and quality in various Ministries and Departments.

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#### AFTERWORD

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Large multinational companies have disruption in the food supply for loss of brand value among the consumers.



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Foods that are frequently adulterated are milk, edible oil, cereals, pulses, tea, coffee, non-alcoholic drinks, curry powder etc.

#### THE LAST MILE

## 25 | Refining Food Safety steps



A study shows around 25-30% of the edible food items that are sold in the

Indian market are intentionally adulterated. A survey conducted by FSSAI found that milk is the most adulterated food item in India, followed by edible oil.



#### THE PRESCRIPTION

## 26 | Safe Food Handling

Children produce less of the stomach acid that kills harmful microbes and makes it easier for them to get food poisoning.



#### OUT OF THE BOX

## 28 | Food Safety: Getting serious

Food contamination is not just limited to the foods we consider risky like meat, chicken or fish. Cooked foods can also be potentially dangerous.

The lack of independent review in GRAS determinations raises concerns about the integrity of the process and whether it ensures the safety of the food supply.

THEY  
SAID  
IT



# ROUNDUP

## Additives for Food A Purpose



**THE SEARCH OF** delight over the pleasure of food is an ancient human effort. The modern lifestyle encourages to add such chemicals for eye appealing texture, freshness and taste as key contributors to such delight. Food additives are the certain chemicals added to food in order to preserve or enhance its color and flavor, and become its part during the processing or making of that food. Most of the additives are listed on the product label, along with their ingredients.

The arrival of processed food was in the second half of the twentieth century, both natural and artificial origin additives have been introduced. For the regulations of these additives, each one is assigned with the unique number to inform the consumers. Some natural additives like: spices or salt are often used to add flavor to foods while vinegar for pickling foods. Some additives are added during the food processing to keep them

fresh and more appealing. Some different types of additives and their uses include:

- **Anti-caking agents** – stops ingredients from becoming lumpy-bumpy.
- **Antioxidants** – prevents foods from oxidizing.
- **Artificial sweeteners** – increasing sweetness.
- **Colors** – enhancing color.
- **Flavors** – adding flavor.
- **Emulsifiers** – stop fats from clotting together.
- **Humectants** – keep foods moist.
- **Foodacids** – maintain the acid level.
- **Foamingagents** – maintain uniform aeration of gases in foods.
- **Preservatives** – stop microbes from multiplying and spoiling the food.
- **Mineralsalts** – enhance texture and flavor.
- **Raisingagents** – increase the volume of food through the use of gases.

### DATA BRIEFING

Today, more than  
**95%**  
of all chronic  
disease is caused  
by food choice,  
toxic food  
ingredients,  
nutritional  
deficiencies  
and lack of  
physical exercise.



- ▶ **Gellingagents** – alter the texture of foods through gel formation.
- ▶ **Bulkingagents** – increase the volume of food without major changes to its available energy.
- ▶ **Stabilizers and firming agents** – give food firmer texture.
- ▶ **Flour treatment** – improves baking quality.

One can find the product contains an additive by checking the label. Mostly, food additives are not a problem in the short term while some food additives can cause reactions in sensitive people. Some hypersensitiverreaction include:

- ▶ **Digestive disorders** – diarrhea and pains.
- ▶ **Nervous disorders** – insomniaandirritability.
- ▶ **Respiratory problems** – sinusitis.
- ▶ **Skin problems** – itching, rashesandswelling.

It is important to realize the symptoms caused by the food additives and get a medical diagnosis. You may regulate your diet while diagnoses yourself. ▶

## A threat to Food Safety-Pesticides

**FOOD IS ESSENTIAL** for life. Pesticides play an important role in making sure that there is enough food for everyone. Over the Decades, for enhancing the crop yields and at protecting crops from pests, agrochemicals were introduced. Due to adaptation and resistance developed by pests to chemicals, every year higher amounts and new chemical compounds are used to protect crops, causing undesirable health impacts and raising the costs of food. A pest can be defined as any plant or animal which is harmful to man or the environment and a pesticide is any product that kills or controls various types of pests.

The presence of minute residues of pesticides in food has caused some people to ask, “Is our food safe?” Today, pesticides are used to control the various pests in our food supply systems. Pesticides are widely used on cropland to control weeds, insects, and diseases - thus increasing production levels. These pesticide residues occurring in foods pose a very important role when public health is concerned. Recently, increased attention has been focused on the chemical residues in food.

The Government must regulate certain rules effortlessly that help to evaluate the risk of health effects from its use. Before anew pesticide can be sold, it has to be registered for agricultural use. The registration policy by concern agency involves a careful consideration of possible health effects from pesticides. The food testing laboratories use methods that test for residues ill-effects on human health. The agency must set tolerances for pesticides. Residue levels found in the food are usually below the tolerance levels. Tolerances may vary for different crops for givingpesticides.

We need to avoid environmentally persistent pesticides. Coordinated efforts are needed to increase the food production, but with a view to enrich our food quality and enhance food safety. Switching to organic diet is the best way to reduce your exposure to persistent pesticides. ▶



## Hidden Death - School Midday Meals

**WITH A VIEW** to improving nutritional levels among the children, the Supreme Court has passed an order in 2001 stating that “A basic entitlement of every child in every Government and Government assisted Primary schools with a prepared Mid-day Meal with minimum content of 300 calories and 8-12 grams of protein each day for a minimum of 200 days”. The Government of India has introduced Mid-day Meal programme to improve the nutritional status of school-age children across India.

The key objective of the Mid-day Meal programme are:

- ▶ Providing better efficiency to the primary education system, reducing malnourishment of children.
- ▶ Draw the attention of Dalit and tribal children to schools, promoting empowerment through literacy.
- ▶ Support a feeling of oneness amongst various different religions and cultures.

We often hear that children fall ill after eating contaminated mid-day meal in schools across India. On 16 July 2013, children at the Dharmashati Gandaman primary school complained that the mid-day meal tasted odd. Several children complained of



stomach cramps and vomiting soon after taking the mid-day meals. According to the government official about 23 children died as a result of food contamination.

The Government must follow certain steps to prevent the recurrence of such incidents and ensure proper food safety in Mid-day Meals. ▶



# What's on my Food: Adulteration

**EVERYONE IS CONCERNED** about food safety and it is very rare to find someone who has not encountered a nasty moment of foodborne illness at least once. Consumption of any contaminated food like microbial pathogens, toxic chemicals and etc. may result in foodborne diseases. These foodborne diseases may be self-limiting, while some can be very severe and even result in death. Another problem developing today is food allergy. In the context of changing food habits and the globalization of our food supply, one must ensure food safety. The informal marketing system and food production are the challenges in the food safety regulations, causing instances of food adulteration and contamination.

Food adulteration is defined as any intentional or deliberate addition, substitution, tampering or misrepresentation of food or its ingredients which affects its natural composition. Food Adulteration is



generally done to increase the quantity and make more gain. Inappropriate packing and handling methods can also result in adulteration. Adulterated food is impure, unsafe and not wholesome. Adulteration can cause serious health consequences while people with poor immunity are more susceptible to

this. For example: Milk is mixed with water. Ergot for cereals. Papaya seeds for pepper. Chicory for coffee as an adulterant.

When it comes to the food adulteration, no other country can beat India. Food adulteration appears to be universal as describing corruption in India. The fraudsters are always one step ahead of the safety agencies when it comes to detecting adulterations. Prevention is the best way one can adopt to avoid these health problems. Proper inspection of the food material is the beginning while creating awareness in the local community can help with the ill effects of food adulteration. Today food adulteration in India seems to be getting deadlier. We need to recall that adulteration could happen in very small amounts over a period of time and it might be difficult to detect or too late to intervene. So it is prudent that everyone must take special interest in this and educate our families and friends about this menace. ■

## Methods for Detection of common adulterants in food

- ▶ **Milk:** Put a drop of milk on the surface, if it leaves a white trail, it is pure if not it is adulterated. If on heating the milk turns to yellow, it is sure that it has synthetic substances added to it.
- ▶ **Coffee Powder:** Sprinkle small amount of coffee powder on the surface of water contained in a glass. The adulterant like chicory will sink to bottom, whereas coffee will remain afloat.
- ▶ **Chilli powder:** Mix chilli powder in a glass of water, the adulterants will sink to the bottom or the color of water changes because chilli powder is adulterated.
- ▶ **Turmeric powder:** Put a few drops of concentrated HCL in a test tube containing turmeric powder, it will leave a residue as pink, purple or violet to confirm adulteration.
- ▶ **Vegetables and fruits:** A small cotton piece soaked in paraffin rubbed against the outer surface of vegetables or fruits, if the cotton piece turned to color, it suggests that they are artificially colored.
- ▶ **Sugar:** Add a spoon of sugar to a glass water, sugar will directly sink to bottom while the adulterant like chalk power remain at the water surface.

**Food adulteration apart from deceiving the consumer often results in disorders or diseases.**



# Food and Poverty policies

India is the home of larger number of undernourished persons in the world



**THE CONCERN OVER** food security is on the priority outline for India. The increasing price of the food items has exposed the vulnerability of the population in India, especially the poor. India is the home of larger number of undernourished persons in the world due to its deterioration in managing the food security situation inside the country. The Government has taken several measures to stabilize the price of food products. The government has introduced various schemes for the nutritional improvements of the poor such as Targeted Public Distribution System (TPDS) to provide cheap food grains, other schemes like Integrated Child Development Scheme (ICDS), as a supplementary nutrition for children under six and for pregnant and lactating mothers. The Mid-day Meal scheme providing free meals to school children for their proper nourishment.

Food security and poverty reduction are indistinguishable. Though food security alone does not eliminate poverty, any approach to fight poverty must be included with policies to ensure food security and to offer the best chance of minimizing mass poverty and hunger. ▶

## India sues Nestle over Maggi



**NESTLE MAGGI**, a well presumed brand, is known to all. Even a kid can easily pronounce its name at a shop to buy it. It has become one of the favorite snacks of most people in India. Maggi is the great contributor to the revenue of Nestle India Ltd., a subsidiary of a Swiss company. Maggi generally has remained in publicity for its taste, but now there is a difference in its publicity due to the presence of monosodium glutamate (MSG) and dangerous excessive level of lead in its products as tested by FSSAI. This has shaken the trust of a million consumers across India. The Maggi issue has become so much sensitive due to the immersion of health aspect and children. As a result of this, several sections of the society have been impacted like workers, suppliers, consumers, government, and company itself.

The Nestle Maggi noodles row has windedas the India's worst food scare in a decade after the presence of pesticides in the soft drinks. The scare of Maggi noodles, most popular

snacks, has gripped gradually the health conscious consumers. Maggi's woes began in the last year when the food inspectors were on lookout for adulterated foods at the retailers in Barabanki, Uttar Pradesh. The picked samples were sent to a state laboratory reported that, the labelling- "No added MSG" had violated Indian regulations as MSG was found in test and further confirmed by the Central Food Laboratory in Kolkata along with excessive levels of lead content. Further FSSAI ordered the withdrawal of Maggi noodles from the shop shelves. It has impacted various parts of Indian economy and food industry.

The Indian government has filed a \$100 million litigation against Nestle India Ltd., after these samples were found for violating the labelling regulations. The Nestle India said that, "The trust of our consumers and safety of our products are our utmost priorities and respects the decision passed by FSSAI." While many people are waiting for Maggi noodles to come soon in the market so that we can enjoy it as always. ▶



# RESEARCH FEATURE

## Exclusive study: Food Safety



The risk of contamination can be minimized with proper precautions during the production, processing and distribution of the food to consumers.

**FOOD SAFETY CONCERNS** are as ancient as mankind and since time immemorial, humans have recognized certain procedures to make sure that the food they eat doesn't harm them. New technologies have been introduced to enrich the crop productions and must follow proper protections to mankind today. It is sensible to assume that in ancient days, the safety of food was determined by trial and error. Today the food generally viewed as safe is because of their extensive history of safe use. This ancient recognition of food safety does not certainly mean that some traditional foods may not cause any adverse health impacts under any circumstances. There must be appropriate safeguards to human health while the introduction of new food technology.

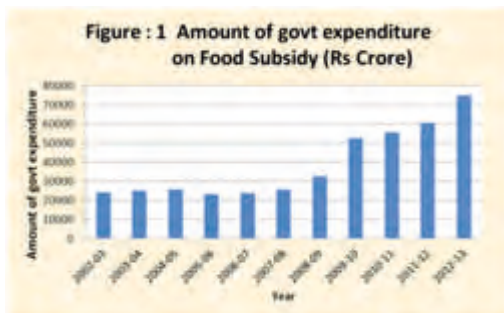
The adulterants, toxic chemicals and bacterial contaminations are considered to be the sources of high risks when the food is consumed. A top priority has been to make sure the public is protected from all such contaminations further leading to foodborne illnesses. The safety of the additives present in food is also an essential consideration because the average diet consists of numerous chemical substances. The absolute safety of a food or an ingredient can never be guaranteed. Although, the risk of contamination can be minimized with proper precautions during the production, processing and distribution of the food to consumers.

## National Food Security Bill

The Indian Parliament has passed the National Food Security Act, 2013 on 10th September, 2013. The Act seeks to provide the right of food and nutritional security in human life by providing specific entitlements to certain groups. The main objective is to provide adequate quantities of quality food at reasonable prices to people to live a life with dignity. The Act offers for coverage of upto 75% of the rural population and 50% of the urban population for receiving subsidized food grains under Targeted Public Distribution System (TPDS). The priority household will be entitled to receive 5 Kgs of food grains per person per month at subsidized prices of Rs. 3/2/1 per Kg for rice/wheat/coarse grains. However, Antyodaya Anna Yojana eligible person will continue to receive 35 Kgs of food grains per month.

The National Food Security Act has also a distinct focus on the nutritional support to children in the age group of 6 months to 6 years, guarantees an age-appropriate meal, free of cost through the local anganwadi, while children aged 6-14 years, nutritional mid-day meals shall be provided in their schools everyday (except Sunday and holidays). The local anganwadi will identify children suffering from malnutrition, to them meals will be provided free of cost. The Act has a special focus on nutritional support to pregnant women and lactating mothers during pregnancy and six months after the child birth. The Act also entitled to provide Rs.6000 in installments as maternity benefits.

Graph below shows the amount of government expenditure on subsidized food in India:



## Food Security in India

'Food security' states to a condition when all people have physical, social and economic access to sufficient, safe and nutritious food that meets all their dietary needs at all times for an active and healthy life. Ensuring food security is a matter of major significance in India, where more than one-third of its population is estimated to be absolutely poor and one-half of all children have suffered from malnourishment. The three basic and closely related components of 'Food Security' are availability of food, access to food and absorption of food. Various necessary steps have been introduced in the context of food security in India. These include (a) economic liberalization in the 1990s and its impact on agriculture and food security; (b) establishment of the WTO and Agreement on Agriculture (AoA); (c) impact of climate change on food production and prices; (d) the incidence of hunger and poverty parallel with high levels of food stocks; (e) introduction of the Public Distribution System (PDS); (f) 'Right to Food' campaign; and (g) Introduction of The National Food Security Bill. These major expansions have delivered both the challenges and chances for food and nutrition security in our country in last two decades.

Food security can be expressed in four stages:

- Creating sufficient quantity of cereals for all to ensure survival.
- Proper availability of cereals and pulses.
- Food security to include cereals, pulses, milk and milk products, vegetables, fruits (meat, fish and egg in case of non-vegetarians).

Food Security is critically dependent on the adequate availability of sufficient food stock to overcome domestic demand at all times. This necessity can be guaranteed either through national food production or through imports. The Green Revolution, post-independence has been an important success in developing self-sufficiency in food grain. India

remained a severely food deficit country for two decades after independence. However, the green revolution steered food production in a dramatic manner to achieve self-sufficiency at national level and limiting the need for food imports to fewer extents during droughts, floods or serious crop failure.

### Sources of food grains across India:

Rice is mainly produced in West Bengal, Assam, Bihar, Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Orissa, Tamil Nadu, Kerala, and Karnataka. Rice is now also being grown in the irrigated areas of Punjab and Haryana.

Wheat growing areas include Uttar Pradesh, Punjab, Haryana, Parts of Rajasthan, and Bihar.

Pulses are grown both as Rabi and Kharif crops. The Rabi (winter season) crops. The Kharif crops (sown around April and harvested in September-October).

The graph on the facing page showing the production of major food grains in India.

### The role of government in ensuring food security:

- Encouraging domestic production to meet the increasing population demands.
- Ensuring better storage facilities of food grains.
- Proper support for Public Distribution system.
- Keeping proper buffer stocks of food grains during times of shortages.

## Organic agriculture and Food welfare

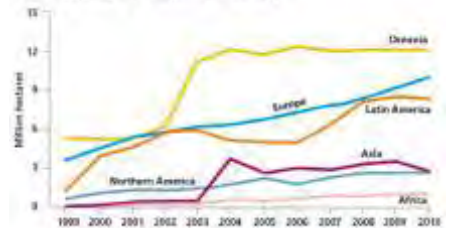
Organic farming states that the system that depend on eco-system management rather than other agricultural sources. The system focus on environmental potential and social impacts by reducing the use of synthetic inputs like synthetic fertilizers, pesticides, preservatives and additives. Organic farming can be performed with site-specific management practices that help in maintaining and increasing long-term soil fertility and prevent pests. In other word, organic



agriculture basically promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological action.

The graph below shows the global growth of organic farming.

Global growth of organic farming

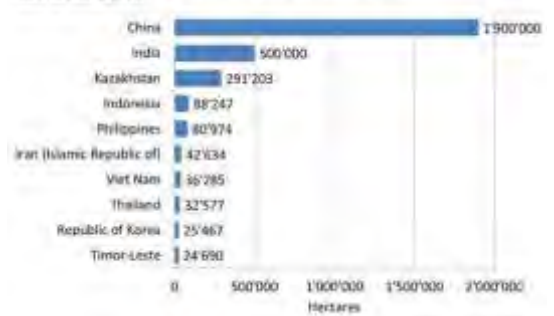


The total organic agricultural area in Asia was 3.2 million hectares in 2012 and constitutes nine percent of the world's total organic agricultural land. There were nearly 0.7 million producers; mostly in India. The leading countries by area were China (1.9 million hectares) and India (0.5 million hectares).

The graph below is illustrating ten Asian countries with the largest organic area.

Asia: The ten countries with the largest organic area 2012

Source: FAO, IFPRI Survey 2014

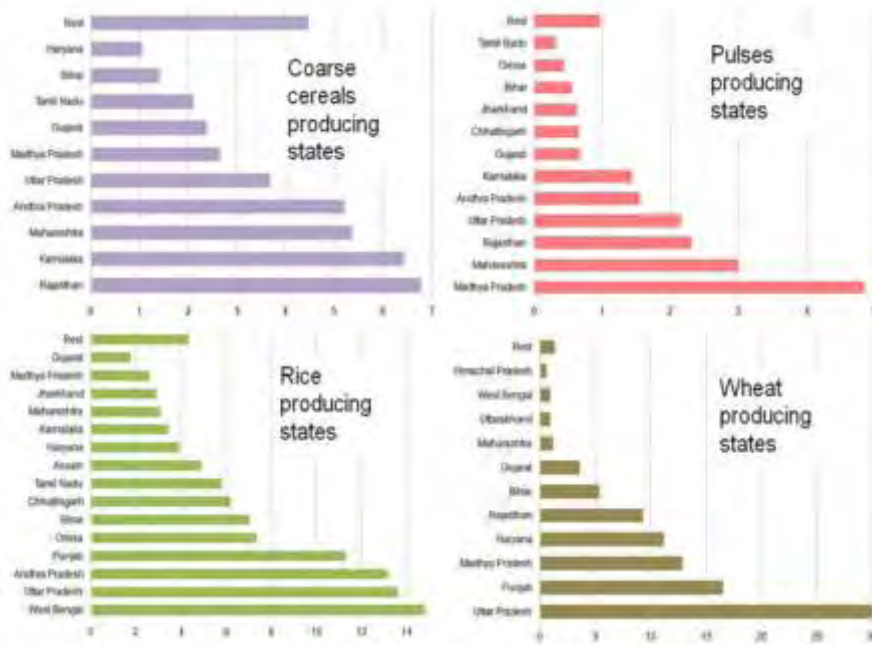
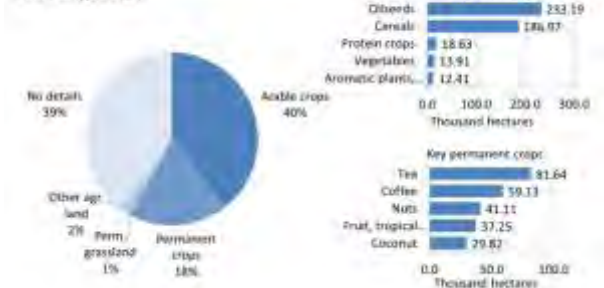


The below graph represents the land use types under organic farming.

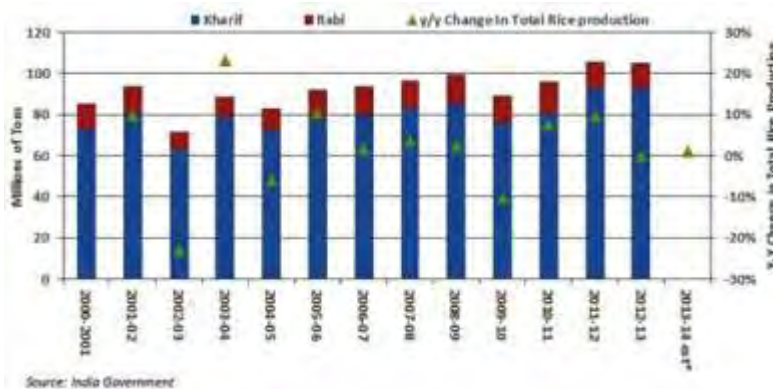
Asia: Use of agricultural organic land 2012

Source: FAO, IFPRI Survey 2014 based on information from the group sector, certified, and governments.

Land use types 2012

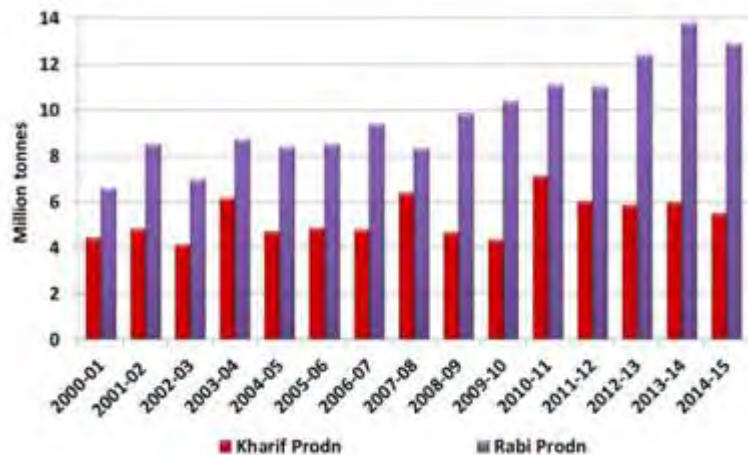


Annually Rice Production in India

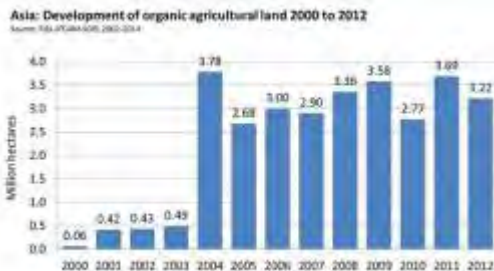


Source: India Government

Annually Pulse Production in India



Below is a graph showing the development of organic agricultural land during 2000 to 2012.



The contribution of organic Agriculture to food welfare:

- Better yields from low input.
- Protection of natural resources in and around the farm.
- High income and less expenditure.
- Production of safe and varied food.
- Preserving biodiversity and being sustainable.

The Government of India has implemented the National Programme for Organic Production (NPOP). This programme includes the accreditation

programme for certification bodies, norms for organic production, promotion of organic farming etc.

## Future Technologies To Food Well-being

Food safety aim is to make the food supply safer. It is the responsibility of the regulators to prevent the food from any contaminations. Prevention is the key to protecting the safety and integrity of the food supply chain. The prevention lies in developing traceability- following each item in the supply chain at every stage, from farm to fork, to confirm the best storage and transportation, temperature and other safe handling practices. Consumers always demand convenient and fresh food products. The food industry must follow novel technologies to deliver the new quality food items to consumers with complete assurance of food safety. In the recent past, food borne diseases have elevated the fear of food safety. Substantial steps must be taken by the government, suppliers, and producers

to minimize the risk of health issues. Hazard Analysis and Critical Control Point (HACCP) is a precautionary body of ensuring food safety. HACCP focuses on all stages of food production, processing, distribution and to consumer handling and use.

Here are some steps that will grow in the coming decade:

- Ultra-high pressure hydrostatic processing.
- High electric field pulses.
- Ohmic processing.
- High-intensity light pulses.
- Radio-frequency heating.

Technical innovations and science will lead to the production of safer foods that have new flavors, textures and tastes, are more nutritious, are more suitable to cook and have a longer shelf-life. Furthermore, new processes, packaging materials, equipment, testing procedures and safety systems will lead the improvements in overall systems for safe food handling. •

Technology can play a huge role in the future of food, helping to create more sustainable methods of cooking and eating. It may take a while for attitudes toward eating bugs to change, and 3D printers will need to be considerably cheaper before there's one next to every microwave, but we could see a total food revolution in the years to come!





Enlightening people about misleading / misbranding Information



## Food Safety and Standards Authority of India

**THE FOOD SAFETY** and Standards Authority of India (FSSAI) has been established under the Food Safety and Standards Act, 2006. FSSAI is a statutory body which consolidates various acts and orders that were introduced to complement and supplement each other in achieving total food safety and quality in various Ministries and Departments. FSSAI has been introduced for laying down science based standards for articles of food and to regulate their manufacturing, processing, storage, distribution, sale and import of food products as to ensure availability of safe and wholesome food for human consumption. FSSAI has primary

concern on growers, suppliers and consumers for safe food through over all food safety management.

**Under this Food Safety and Standards Act, 2006. The various consolidated acts are:**

- The Prevention of Food Adulteration Act, 1954
- The Fruit Products Order, 1955
- The Meat Food Products Order, 1973
- The Vegetable Oil Products (Control) Order, 1947
- The Edible Oils Packaging (Regulation) Order, 1998
- The Solvent Extracted Oil, De oiled Meal, and Edible Flour (Control) Order, 1967

- The Milk and Milk Products Order, 1992
- Essential Commodities Act, 1955

FSSAI has its headquarter in New Delhi under the Ministry of Health and Family Welfare, Government of India for the administrative implementation. The Chairperson and Chief Executive Officer have been appointed by the Central Government. The chairperson is in the rank of Secretary to Government of India. FSSAI has laid the licensing system as a two tier system comprising State Licensing and Central Licensing depending upon food business operator's production capacity.



## Food Business Operator under State License

- Diary units – More than 500 liters milk up to 50,000 liters.
- Slaughtering units – Large animals: more than 2 up to 50
- Small animals: more than 10 up to 150
- Poultry birds : more than 50 up to 1000
- Meat units – up to 500 kg of meat per day ( up to 150 MT per annum)
- Vegetables oil processing units other than mentioned above – up to 2 MT
- All food processing units other than mentioned above – up to 2 MT/day except grains, cereals and pulses milling units.
- Retail chains – operating in not more than 2 states.
- Hotels 3 stars and above

## Food Business operator under Central License

- Diary units including milk chilling units equipped to handle or process more than 50,000 liters of liquid milk/day or 250 MT of milk solid per annum.
- Vegetables oil processing units and units producing vegetables oil by the process of solvent extraction and refineries including oil expeller unit having installed capacity more than 2 MT/day.
- All slaughter houses equipped to slaughter more than 50 large animals or 150 or more small animals including sheep and goats or 1000 or more poultry birds/day.
- All food processing units other than mentioned under (i) to (iv) including relabellers and repackers having installed capacity more than 2 MT/day except grains, cereals and pulses milling units.
- 100% Export Oriented Units.
- All importers importing food items for commercial use.
- All Food Business operators Manufacturing any article of Food which does not fall under any of the

food categories prescribed under these regulations or deviates in any way from the prescribed specification for additives therein.

- Retail chains operating in three or more states.
- Food catering services in establishments and units under Central government Agencies like Railways, Air and Airport, Seaport, Defense etc.

### Kind of Business:

Dairy Unit	Solvent Extracting Unit
Slaughter House	Chilling Centre
Oil Refining Plant	Packaging Plant
Relabeling Plant	Storage/ Warehouse/ Cold Storage
Catering/ Club	Distributor/Supplier
Hotel	Restaurant
Retail Trade	Wholesale Traders
Meat Unit	Canteen
De-oiled Mill	Dhabha
Export/Import	Meat Shops

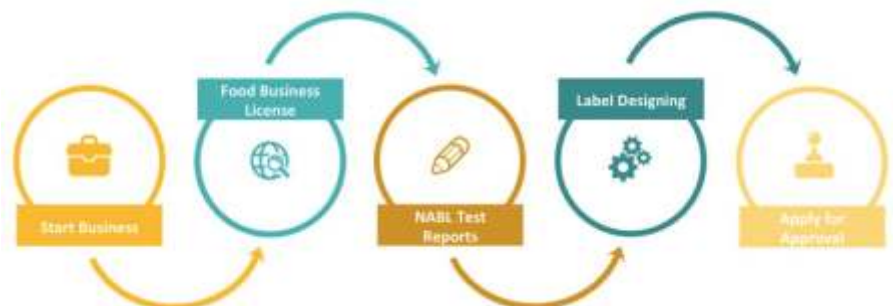
### FSSAI has been mandated by the Food Safety and Standard Act, 2006 for performing the following functions:

- Framing of Regulations to lay down the Standards and guidelines in relation to articles of food and specifying appropriate system of enforcing various standards thus notified.

- Laying down mechanisms and guidelines for accreditation of certification bodies engaged in certification of food safety management system for food businesses.
- Laying down procedure and guidelines for accreditation of laboratories and notification of the accredited laboratories.
- To provide scientific advice and technical support to Central Government and State Governments in the matters of framing the policy and rules in areas which have a direct or indirect bearing of food safety and nutrition.
- Collect and collate data regarding food consumption, incidence and prevalence of biological risk, contaminants in food, and residues of various contaminants in food products, identification of emerging risks and introduction of rapid alert system.
- Creating an information network across the country so that the public, consumers, Panchayats etc. receives rapid, reliable and objective information about food safety and issues of concern.
- Provide training programmes for persons who are involved or intend to get involved in food businesses.
- Contribute to the development of international technical standards for food, sanitary and Phyto-sanitary standards.
- Promote general awareness about food safety and food standards.

In spite of legal structure in place, India still fights with governing food safety

## FSSAI Product Approval Flow Chart





Infrastructure and human resources for enforcement of Food Safety Standards in India:

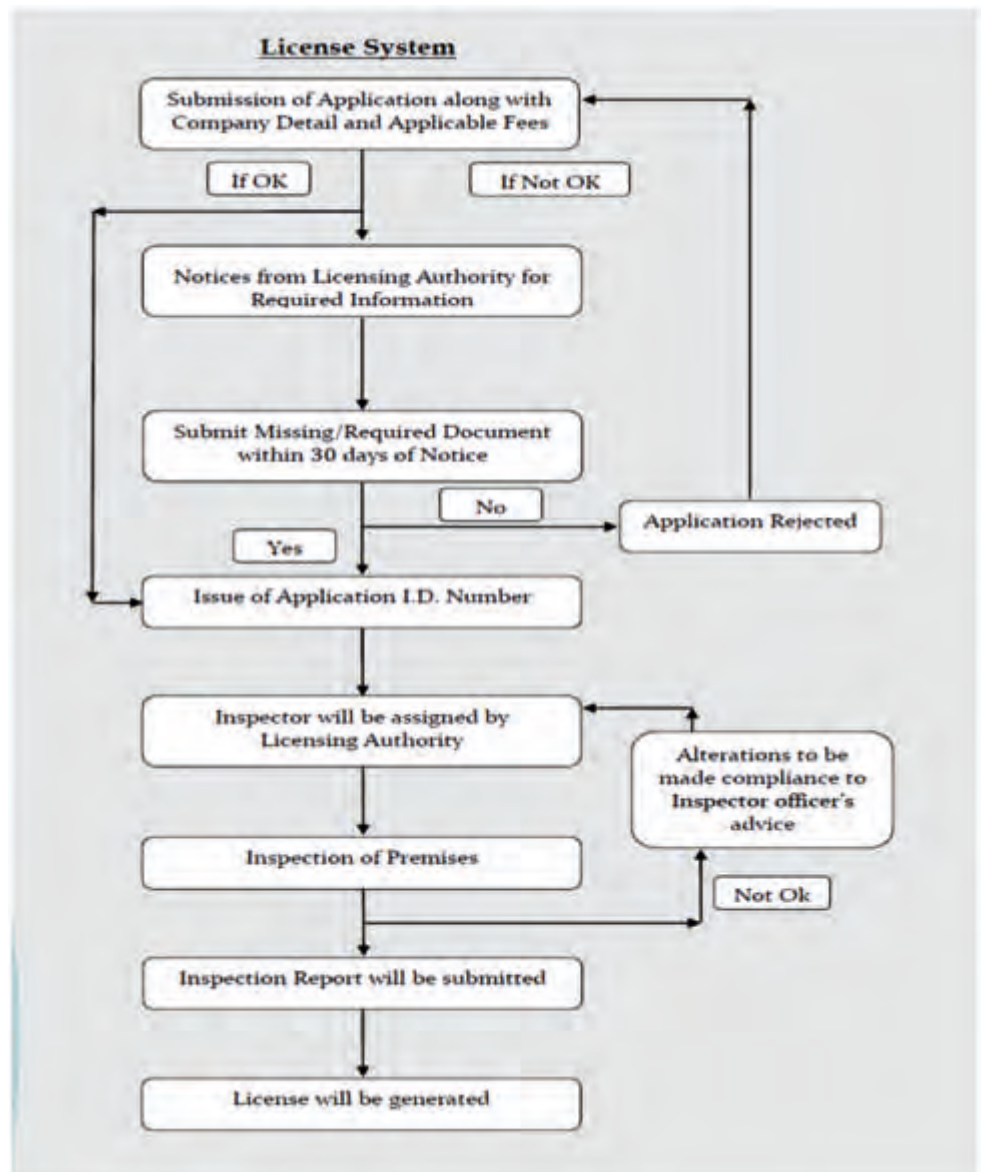


Source: FSSAI



norms and standards efficiently. The insufficient number of laboratories in the country is the major reason, even today number of laboratories per million people are far below than other countries like China and USA. Laboratories had to be shut down due to the absence of food analysts. There is an urgent need to upgrade the infrastructure of our food testing laboratories with efficient food analysts. It might be significant to inspire private sector contribution in the setting and maintenance for ensuring food safety. The Ministry of Food Processing runs a scheme as “Setting up/ Up-gradation of Quality Control/ Food Testing Laboratories”. Recently, Central Government announced that they would offer direct support to strengthen states ‘drug and food regulatory systems’ by building new laboratories and strengthening present laboratories as well. A collective effort from the government and private sector can address the challenge of food safety in India. ▶

## FSSAI Licensing System





*Government of India along with World Health Organization actively promoting the various awareness programs of food safety as a priority interest of public health concern.*

**EVERY YEAR, THE** World Health Organization picks a theme for global public health concern as World Health Day to mark the anniversary of WHO. Last year, World Health Day theme was "Food Safety - From Farm to Plate, Make Food Safe", which emphasizes on the necessity of safe food that is free from microbes and chemicals. Food contamination is a growing public health concern, and can have overwhelming socio-economic impacts. Therefore, the objective of WHO is to initiate joint government and public action by taking attention to all sectors and departments like agriculture, health, education and trade. This joint initiative must ensure safe food to protect consumers from the risk of food poisoning. Unsafe food can often cause numerous health issues like diarrhea, etc. that affect children and elderly people. It



government is taking lots of steps to curb this situation and further promoting organic farming.

The use of additives or chemicals has become very common ingredients of food adulteration. Strict inspection

and certification is extremely important. While preferring processed food, evaluating the product label is utmost significant. "Food safety is the forefront of policy making. Every penny spent on making food safe is equivalent to a reduction in every penny spent on health care. We need to strengthen our laboratory infrastructure at state level to maintain standards and detect discrepancies earlier," said Mr. YS Malik, CEO, FSSAI.

Today, Government of India along with World Health Organization actively promoting the various awareness programs of food safety as a priority interest of public health concern.

is the time to alert governments, suppliers and consumers the meaning of food safety and the role of each individual in ensuring that the food on peoples' plates is safe to eat.

The modification in food production (intensive agriculture), distribution (globalization of food trade), and consumption (mass catering and street food) are the fresh emerging threats to food safety and further increase the risk of food contamination. At farm, pesticides and fertilizers are the key contributors to food hazards. In the past years, nearly 170 times use of pesticides and fertilizers have increased. The

Today, Government of India along with World Health Organization actively promoting the various awareness programs of food safety as a priority interest of public health concern.



## Quality Preservation of food

Food is perishable by nature and is the victim to the forces of nature, like bacteria, fungus and begin to degrade. The effects of food decomposition is not only nasty, but these agents can also cause foodborne diseases and even death. Food preservation is the process that can help preserving food from being spoiled. For years, human have been practicing several methods to prolong the quality and freshness of their food in order to stabilize their food supply.

While some of these methods are comparatively new, many of them date back to ancient times. We may have refined the processes and come to better understand the mechanisms, but these concepts remain the same today. Some of the most common ways to preserve food:

### Chilling and Freezing:

At room temperature, Bacteria and fungi grow best. By lowering the temperature, their metabolic and reproductive action is considerably slowed. This may not actually kill the bacteria, but it does slow the spoilage process. The expansion of electricity and home appliances today, greatly expanded the use of freezing as a food preservation method.



- Canning:** Canning preserves food by removing oxygen to food that sealed in a jar in order to keep microbes away that can cause food damage. Canning is the process in which air is driven out of the jar and vacuum is formed, and is popular with packed food.



- Dehydrating:** Microbes require moisture to grow easily, so by eliminating the moisture from food is a very effective technique of food preservation. Natural sunlight is the best way for removing



moisture from the food. Dehydration can be used for meat, vegetables, fruits and herbs.

### Fermenting:

Fermenting is one of the ancient method of food preservation that has continued popular today. Fermentation is a form of controlled desirable action on food to make biochemical changes, which can add flavor and protections against harmful organisms. The microbes used in the fermentation process produce acid as a byproduct, which prevents other potentially harmful microbes. Many of the microbes used to ferment foods are healthy to the human gastrointestinal tract.



- Salting:** Salting is another technique of food preservation. Very few microbes can grow in the high salt solutions, so



simply adding salt can be an effective method of food preservation, which have been used for thousands of years.

## Food Hygiene and Sanitation

Food hygiene constitutes a basic necessity of good production and consumption. Food can become contaminated at any point. Producers, suppliers and consumers all play a role in food hygiene practices and safe sanitation. Numerous studies have suggested that poor food hygiene including poor sanitation and contamination accredited to several



foodborne diseases. Cross-contamination is a main reason of food poisoning as it transfer microbes from one food item to another. Food hygiene and sanitation are important for keeping food safe.

There are basically three major types of contaminations that can cause unsafe food:

- Biological** includes microbes.
- Chemicals** includes cleaning solvent and pesticides.
- Physical** includes dirt, hair and so on.

Personal hygiene begins at home, with essential elements for good hygiene being a clean body, clean hair and clean clothing. The most vital is to keep the kitchen clean by installing proper kitchen extractor and ventilation systems. Refrigerators must be checked regularly that they are running at proper temperatures and should also be cleaned. Some tips to food hygiene and sanitation:

### Personal Hygiene:

It includes washing of hands while switching between the food items. Proper clothing and aprons should be worn while cooking and serving of the food.



### Clean contact Surfaces:

It includes proper cleaning and sanitizing of all contact surfaces and utensils. Uncleaned utensils may spread harmful microbes to food or people.



- Good Housekeeping:** It includes proper maintenance of food preparation areas.

Cleaning chemicals and pesticides should be used carefully so that they could not contaminate the food.



- Safe Storage:** To keep microbes away from growing, it is essential to keep the food at the correct temperature for the proper time duration and prevent cross-contamination.

- **Sewage:** All sewage should be properly disposed of by a sewage disposal system.



- **Transportation:** If the food needs to be relocated from one place to another, keep it well covered and provide adequate temperature controls.



Food products like fruits could never be washed with washing-up liquids, as they might contain the element which might not be safe for human consumption.

### What's cooking?

Cooking food at the right temperature will help make sure that any harmful bacteria are killed in the food. Uncooked food could cause food poisoning. To ensure that food has been cooked properly, check that it's steaming hot throughout. Some food changes their color and texture when they are cooked



like cooking meat. It is very important to ensure that poultry, pork and meat products should be cooked properly. Eggs can carry harmful bacteria inside and on their shells, due to this egg needed an extra attention. Pasteurized eggs will be eaten raw or lightly cooked. Some easy steps for healthy cooking:

- Avoid cooking very large quantities of food at a time as it is harder to ensure that all food is cooked properly.
- All food should be cooked properly at the right temperature, particularly

atemperature of red meat at 70°C and poultry meat at 80°C for a minimum of two minutes.

- Liquid food should be stirred often for thoroughly cooking.
- Frozen Food should be defrosted thoroughly before cooking.
- Serve food immediately after cooking and cook food only as required.
- Place the leftover under refrigeration immediately.
- Never reheat the food more than once.

**Below is a chart showing the food items and their minimum cooking temperature**

Food Item	Minimum Temperature
Fruits and vegetables cooked for hot holding	135°F
Beef and pork roasts, beef steaks, veal, lamb, and commercially-raised game animals	145°F
Eggs cooked for immediate service	145°F
Fish and foods containing fish	145°F
Pork, including ham and bacon	145°F
Ratites and injected meats	155°F
Eggs cooked for later service	155°F
Ground or flaked meats, including hamburger, ground pork, flaked fish, ground game animals, or sausage	155°F
Poultry and poultry products, including stuffing, stuffed meats, casseroles, and dishes combining raw and cooked foods	165°F
Stuffed fish	165°F



# Food Safety is must for sustainable Development

**GROWERS AND SUPPLIERS** of food have long realized that reliably safe products and responsible use of resources inspire brand value and consumer trust. To maintain the food supply chain, balancing the food safety and sustainability goals has become a vital element. Growers on their farms, are active wardens on the lands, protecting soil and water quality, and preserving their habitat. At the same time, growers must ensure that their crops are free from adulteration, which can cause foodborne illnesses. The effective programs such as advanced wash and packaging practices to decrease food safety risk, sustainable harvest practices and water management can help sustain natural resources while protecting public health. These programs will effectively help in ensuring fresh products from the farm to the consumer leading a successful way to balance food safety, sustainability and a perfect bottom line.

Many definitions of sustainable development have been introduced over the times. Sustainable development can easily be defined as meeting the present

needs without compromising the ability to the future generations to meet their own needs. The fundamental of this tactic is to avoid irremediable damages to the natural sources in the long-term in turn for short-term benefits. Pivoting on social, environmental and economic facets of food chain sustainability, this idea of sustainable food safety based on the preclusion of the risks and burden of poor health for generations to come.

Food safety is having high significance and relevance among governments, society and intergovernmental agencies across the globe. The change in production and distribution methods, evolving trade and travel, growing anti-microbial resistance, and environmental conditions are some of the factors that surge the incident possibility of food hazards and food safety. Unsafe food is a vital health issue, and reinstating food faith with the consumer is today becoming a significant area of concern among the enforcement bodies, companies and consumers.

In India, increasing agricultural exports have long been an integral part of the

government's sector- development strategy. The exporters have been facing serious problems in order to maintain modernize exports with ever-changing food quality and safety standards of the importing countries. Sudden changes in the import rules, strict the food exporters in gaining access to the importer countries. As a result, large multinational companies have disruption in the food supply for loss of brand value among the consumers. Further, food quality and safety, product certification and standardization are still in infancy and need instant attention. The government should develop an integrated legal framework to robust the potential of agriculture and food industry to promote the food quality and safety management systems. Distraction of emergent impurities and toxicological risks valuation are the some acute issues in the development of a sustainable food safety framework. Ample knowledge and adequate management efforts are the key elements of sustainable food safety and all its sustainable policies.







## Food Protection – Our priority

**FOOD PROTECTION IS** not just someone else's problem. Everyone needs food and every day. Ensuring safe food is an important public health priority. Food protection stress on, safe and nutritious food in sufficient quantities is required for the sustenance of life and the promotion of good health. Food can be the vector for various microbes and parasites leading to food poisoning and are commonly contaminated with chemicals and adulterants accidentally or intentionally which may potentially harmful. Our priority is to create awareness against unsafe food responsible for causing a vicious cycle of illness and malnutrition, affecting children and elderly. Unsafe food poses a huge health risk to everyone, especially poor people today. The consumption of contaminated food can cause more than 200 diseases like various gastrointestinal, diarrhea, etc. Annually, around 2 million deaths is linked with food and water borne illnesses worldwide. Food safety has appeared to be a substantial public health concern in recent times from its production to consumption. Food protection, also impacts upon the economic consequences for individuals, families, communities and

countries. Some factors that play important roles in emerging foodborne diseases:

- ▶ Positive and favorable microbial conditions over natural selection.
- ▶ Rapid increase of technology in agriculture, increasing chances for contamination.
- ▶ Poverty and pollution – lack of food preparation facilities.
- ▶ Inadequate dietary practices.
- ▶ Migration can contribute to spread foodborne diseases to new areas.
- ▶ Emissions from transport vehicle on fruits and vegetables.

The most prominent causes of foodborne diseases are microbial origin, while some other biological and chemical agents are also a cause of concern. They are:

- ▶ *Escherichia coli* O157: Commonly known as enter hemorrhagic *E. coli*, produces Vero toxins. The consumption of contaminated food like raw and uncooked meat and milk products, are the main source of transmitting *E. coli* to human body.



# Balance nutrition and food security

A balanced diet is needed to maintain good health across your life span. A balanced diet can be defined as a healthy diet that offers sufficient of each essential nutrient, contains a variety of foods from all of its basic group and provides ample amount of energy to maintain a healthy weight, and does not contain excess fat, sugar, salt or alcohol. Safe food and good nutrition are the two pillars of any healthy nation. Maintaining, promoting and implementing food safety supply is a collective concern of everyone i.e. government, stakeholders and consumers. Eating a nutritious and balanced diet is an easy and best way to promote and protect good health. There is normally no need to take any food supplement, if one will take a varied and balanced diet in their food. Folic acid is one exception to this. Pregnant women should take a supplement of 400 microgram of folic acid as food supplement each day and should continue throughout her pregnancy. For a balanced diet, there are six basic nutrients. They are:

- Proteins as building muscles and strong immune system.
- Carbohydrates provide essential energy.
- Fats provide extra energy.
- Vitamins control body processes.
- Minerals regulate body processes and help making body tissues.
- Water contributes to shaping the cell and acts as a medium in which body processes can occur.

Below is different variety of food one can choose:

- Fruits and vegetables.
- Starchy foods like rice and potatoes.
- Meat, fish, and eggs.
- Milk and dairy foods.
- Foods containing little of fats and sugar.

Controlling chemicals, proper nutrition label and contaminants in foods can help in safeguarding healthy food consumption and nutrient intake.



- *Listeria monocytogenes*: Mostly found in several raw and processed foods, such as milk and cheese, meat, sea foods, and fish and cause several diseases especially to infants and pregnant women.
- *Salmonella serotype enteritidis*: Generally found in poultry and eggs and have the ability to contaminate the nearby eggs. It can cause human salmonellosis i.e. reactive arthritis.
- *Salmonella serotype typhimurium*: This has been isolated from cattle, poultry, sheep and pigs. Consequently, consumption of contaminated animal meat may infect humans.
- *Hepatitis E*: Potential sources are water and food, mainly raw shellfish.
- *Cyclospora cayentanensis*: Generally found in the water, but is also found in raspberries and fresh basil. It causes diarrhea in humans.
- *Norovirus*: Mostly found in raw fruits and vegetables, ice, shellfish and processed food. It is one of the leading causes of food poisoning and is communicable.
- *Mycotoxins*: Certain fungi produce mycotoxins in or on foodstuffs of plant and animal origin.

The pathogenic organisms can be detected in the laboratories. However, many of them can be detected with simple procedure and even with the use of simple test kits. The adulterants are added in the food items deliberately by the traders for making quick profits. Foods that are frequently adulterated are milk, edible oil, cereals, pulses, tea, coffee, non-alcoholic drinks, curry powder etc.

The most important concern in food protection is to provide safe food to all, to accomplish food safety, a bridge needs to be built between public health, producers, and suppliers that ensure effective cross-sectional collaboration. Various national and international food regulatory agencies are looking after the food safety aspects regularly.

The World Health Organization has developed the “Ten Golden Rules for Safe Food Preparation” that was widely distributed. In 2003, WHO and FAO has published the *Codex Alimentarius*, which serves as a guideline to food safety. Further for simple and practicable way for ensuring safe food to all, WHO has introduced the “Five Keys to Safer Food Poster”. In 2010, WHO has initiated a plan on priority issues of food safety and food borne zoonoses for the period of 2013-2022, in order to drop the incidences of food borne diseases. While last year, WHO has declared “Food Safety” as a theme for World Health Day 2015, with the slogan “From Farm to Plate, Make Food Safe”.

In India, Food Safety and Standards Authority of India (FSSAI) is assigned for the execution of Food Safety and Standards Act, 2006. The Ministry of Health and Family Welfare, Government of India, FSSAI has been taking proper steps to ensure safe food to all consumers. ■

“

**CLAIM YOUR**  
**Consumer Rights Now**  
**An Aware**  
**CONSUMER**  
**is a Protected Consumer**”



## Refining Food Safety steps

**DID YOU KNOW**, around 1.8 million Indians died because of food poisoning annually? Recently, India has witnessed the most controversial food scare as immensely popular “Maggi” noodles had to be declared as unsafe for the human consumption. India has a long history of violation of basic food regulations that include contaminated soft drinks and infected chocolates. A study shows around 25-30% of the edible food items that are sold in the Indian market are intentionally adulterated. A survey conducted by FSSAI found that milk is the most adulterated food item in India, followed by edible oil. Major adulterants that are used in milk are water, chalk, urea and so on while several other food items are adulterated with an inapt quantity of additives which can cause damage to the brain and heart, allergies and can damage human organs. Artificial colors and dyes are used to make vegetables, fruits and juices more colorful and attractive which are often harmful. It is quite obvious that Indian consumers are getting a raw deal when it comes to the food quality and safety from both indigenous and multinational food suppliers that demands for urgent regulatory attention.

Food poisoning not only sends people to the hospital – it can also have long-term health consequences. Food toxicity must be reduced at all stages of the food supply and consumption. And that urge for tough action by food regulatory agencies. These agencies must ensure proper testing of food items along with strict enforcement of food regulations with the provision of heavy penalties and criminal prosecution for violating norms. Increasing consumer awareness about food safety is another needed action so does the development of healthy food habits and change in lifestyle choice to towards more physical activities. Government and media can play a



substantial act in promoting healthy food habits.

Is your kitchen clean? Some of the steps here help you out in refining your kitchen stuff which further refines your food. They include: EVERYDAY, WEEKLY and MONTHLY work.

### EVERYDAY WORK

Always clean your kitchen from top to bottom, i.e. do the floor last. Every day cleaning your kitchen should not take much of your time than cleaning it on a particular day. After cooking and transferring food to the food bowls, move them to the dining table or side of the counter. Remove soiled vessels from countertop to sink. Clean the stove and its surrounding area. If you have used oven, wipe them out and put attention to areas around and kitchen gadgets. Put washing liquid on heavily greasy vessels (kadai etc.) and allow them to soak meanwhile wash out your lighter vessels and crockery. A rough scrubber may leave scratches on the non-stick vessels. Rinse them well in water so that there is no soap residue. Wipe them dry and put them away. Clean out the bins. Then sweep and wipe the floor. Keep your kitchen cloths clean and dump the smelly ones.

### WEEKLY

Here, you need more thorough cleaning, means inside-out cleaning of heavy

equipment. Defrost refrigerator and empty all of its contents. Remove the trays, including ice-trays. Wipe inside-out the fridge with an equal combination of vinegar and water. Pay attention to corners and crannies, rubber piping, handles, wipe them out with a clean cloth. Take care while organizing your food stuff to fridge so they prevent cross-contamination. Check the foodstuff, toss out expired and spoilt one.

Blender, run the machine with the combination of dishwashing liquid and warm water, this will take care of any stuck food particles beneath the blade. Change the water and follow it once or twice so that it takes out any residual soap.

Drainage is the most important one. Clear the sink, pour right combination of baking soda and vinegar into the sinkhole. Allow to stand for some time, then pour boiling water into the sink. This will clean the drainage system and kill bacteria.

### MONTHLY

You need to clean the whole kitchen, like: wall and window, exhaust and electric fixtures. All can be cleaned with the combination of baking soda, vinegar and warm water. Be careful with electrical fixtures. Garbage bins must be cleaned thoroughly. ▀

## Safe Food Handling



POOJA  
KHAITAN

**Children produce less of the stomach acid that kills harmful microbes and makes it easier for them to get food poisoning.**

**FOODBORNE DISEASE CAN** attack anyone. However, some people are at a higher risk for developing foodborne disease. These include pregnant women, infants, young children, elderly, older adults and people with weakened immune systems. You can't see, smell or taste harmful bacteria that can cause foodborne disease. It is necessary to pay extra care to safe food handling. Cooking and storage are the two important steps to prevent foodborne illness. Following are the four steps to keep food safe:

- Clean – Wash hands and surfaces often.
- Separate – Avoid cross-contamination.
- Cook – Cook to the perfect temperature.
- Chill – Refrigerate promptly.



### 1. CLEAN

Clean and wash hands, countertops, and other surfaces often. Microbes can be spread all over the kitchen, hands, chopping boards, sponges, utensils and countertops.

#### To be sure:

- Wash your hands with warm soapy water before and after handling food and after using the bathroom, handling pets etc.
- Wash your chopping board, utensils and countertops with hot water and soap before and after the cooking of each food.
- Consider using paper towels to clean up the kitchen and countertops. If you use cloth towels, often wash them properly.
- Rinse fresh fruits and vegetables carefully.
- With canned food items, remember to clean its surface before opening lids.

### 2. SEPARATE

Cross-contamination can occur when microbes are spread from one food to another. This is particularly true when handling raw meat and seafood. It can be avoided by keeping cooked and uncooked food separately.

#### To avoid cross-contamination:

- Separate raw meat, poultry, and seafood from other foods in your storage such as in refrigerator.

- If possible, use separate chopping boards for raw meat and fresh vegetables.
- Never place cooked food on a plate that earlier held raw meat or other.

### 3. COOK

Food must be cooked to the right temperatures to kill the harmful bacteria.

**To ensure that your foods are cooked safely:**

- If possible, use a food thermometer to measure the internal temperature of cooked foods, to make sure that the foods are cooked thoroughly.
- Cook eggs until the yolk and white are firm.
- When cooking in Microwave oven, stir, turn and rotate the food and make sure that food reaches the safe minimum internal temperature.
- Heat the leftovers properly.

### 4. CHILL

Cold temperature keeps harmful microbes away from growing and multiplying. Do not over stuff the refrigerator, cold air must circulate properly to help keeping food safe.

- Refrigerate or freeze perishables and prepared food items.
- Never defrost food at the room temperature.
- Divide large amounts of leftovers into light containers for quicker cooling.
- Use or discard refrigerated food on a regular basis.

**Some steps that can also help safe food handling outdoor and indoor are:**

- Choose frozen items only after selecting your non-perishables.
- Avoid all items in packaging that is torn or leaked.
- Do not choose any food past “sell-by”, “use-by” dates.
- Do not cook with if you have any type of illness that may contaminate food.
- Do maintain your personal hygiene and sanitize all your utensils.

Always handle cooked food items with tongs, instead your bare hand. ▀

## Mom & Baby on food Safety



**KIDS ARE AT** an increased risk for foodborne illness and related health difficulties cause of their immune system is still developing and they cannot fight off infections. Children also produce less of the stomach acid that kills harmful microbes and makes it easier for them to get food poisoning. Some signs of food poisoning are:

- ▀ Nausea
- ▀ Vomiting
- ▀ Diarrhea
- ▀ Stomach pains and cramps
- ▀ Fever and chills

Symptoms of food poisoning can start within hours after eating the contaminated food. Food poisoning sometimes causes serious complications, including death. Some of the health complications to kids are:

- ▀ **Dehydration:** Children can quickly lose enough body fluid as their body are small.
- ▀ **Infant botulism:** A condition that causes temporary paralysis in new born. To avoid this, do not give honey to a baby under 1 year old.

For making, baby milk, always place bottles under hot, running tap water for one- to- two minutes while on the stove, heat the required amount of water in pan, remove it from the stove and set the bottle in it until it is warm. When making or heating baby's milk, keep stirring the milk so that it should maintain the temperature evenly and do test it on your hand top or on the wrist before feeding. Heating milk of infant formula in the microwave is not recommended. ▀





## Food Safety: Getting serious

**THE HEALTH OF** the consumers has been always a priority. We have faced food safety problems so horrifying and otherworldly that they sound more like plotlines to horrible movies than anything. Food poisoning is serious and can be life threatening for unborn babies, young children, older people and anyone with illness. Every time when we cook, we must follow four simple steps of safe food. It includes:

- ▶ Clean your hands, utensils and kitchen properly.
- ▶ Always use separate chopping boards for raw food and cooked food.
- ▶ Avoid cross-contamination of food.
- ▶ Cook food at right temperature.
- ▶ Choose spoons or tongs over bare hand while serving food.
- ▶ Separate raw and cooked foods properly.
- ▶ Chill food promptly.

Food poisoning is caused by eating uncooked and contaminated food. The risk of food poisoning can be reduced by

taking simple safeguard. Food poisoning occurs when sufficient numbers of pathogens or other toxins are present in the food we eat. Food contamination is not just limited to the foods we consider risky like meat, chicken or fish. Cooked foods can also be potentially dangerous. Contaminated food will usually look, smell and taste normal.

Food poisoning microbes can multiply very quickly, mostly in certain conditions. Some factors that affect microbial growth include:

- ▶ **Time:** In perfect situations, one microbe can multiply to more than two million in seven hours.
- ▶ **Temperature:** These microbes can grow best in the temperature range 5C to 60C and referred as the temperature danger zone.
- ▶ **Nutrients:** Most foods contain enough nutrients for pathogens to grow. Some foods such as meat, fish, eggs and dairy products.

- ▶ **Water:** Water is essential for their growth that is why dried foods do not spoil so early.
- ▶ **pH level:** pH is the measure of acidity or alkalinity and helps in controlling bacterial growth. Low pH (acidic) generally stops bacterial growth while on a neutral pH level they can grow well.

The symptoms of food poisoning may vary depending on the type of pathogens causing disease from mild to very severe. They can happen instantly after eating or hours later and they can last from a day to five days normally. Some food poisoning symptoms include:

- ▶ Nausea
- ▶ Stomach pains
- ▶ Diarrhea
- ▶ Vomiting
- ▶ Fever and headaches.

Some other symptoms include miscarriage or meningitis in susceptible people due to food poisoning caused by *Listeria* bacteria. Food poisoning can also lead to other

long-term diseases and symptoms. Food poisoning symptoms can be diagnosed properly and seeks doctor's attention immediately. It is also good idea to report to local health department, if illness is related to eating out at a restaurant or from a take-away outlet. Some simple steps to minimize the risk of food poisoning:

- ▶ Avoid food being contaminated.
- ▶ Avoid pathogens from growing.

The Indian Government has established several safety standards and act applicable to foodstuffs such as Food Adulteration and Prevention Act, 1954, FSSAI under food safety standards and so on. The directive about food safety and the labelling of foods plays an important role about food information to the consumers. The proper management of food resources on the planet contributes to improving the welfare of everyone.

### Outdoor Food safety

Everyone wants to celebrate a beautiful day with a picnic outside. Everyone enjoys eating outdoors at the beach, park or at their own backyard for entertaining on special occasions. People may overlook safety precautions during cooking outside because they are busy in entertainment. We must remember to

handle food safety, as it is a great time for bacteria to grow on our foodstuffs, often resulting in foodborne illness like vomiting, diarrhea and dehydration.

We all knew that food poisoning is often caused by our own mistakes, preventing foodborne diseases while enjoying meals outdoors is often in our hands. Here we come up with little tips on outdoor food safety:

- ▶ **Plan ahead:** Plan your picnic ahead so that you do not forget the essential items like cooler chest with ice, clean utensils, storage containers, paper towels, trash bags etc.
- ▶ **Preparation for picnic:** Always prepare the food with clean hands and utensils. Maintain the proper hygiene while cooking foods. Foods should be cooked at right the temperature and stored carefully. For a fear-free picnic, keep dry and canned food items or may add portable freezers for perishable products as they need to be kept cold.
- ▶ **At picnic spot:** While handling the food items, sanitize your hands with hand sanitizer so it is safe to touch the food.
- ▶ **Do not leave food out:** Avoid keeping the food outside. Serve food quickly on clean plates. Do not use the same plates again.
- ▶ **Leftovers:** Refrigerate the leftovers, otherwise discard them properly.



Outside food safety includes restaurants, cafes and take-away outlets. They have a responsibility to serve safe food. Some basic measures to minimize the risk of food poisoning at these places include:

- ▶ Staff members are maintaining proper personal hygiene.
- ▶ Staff members are using clean clothes to wipe the surfaces.
- ▶ Raw and cooked foods are well separated.
- ▶ The washrooms are cleaned properly.

Dirty condition in the public premises of a shop or restaurant can be a clue that things may be poorer in the kitchen or behind the scenes where customers do not go.

Leftovers taken from restaurants can have a number of issues. They may contaminate while handling and cause food poisoning. So while taking leftovers from restaurants, be sure that food should be handled carefully.

At buffets or self-service points:

- ▶ Food should be served hot and stored in hot cabinets.
- ▶ Cold food must be displayed in refrigerators or on ice.
- ▶ Each food item has their own spoons or tongs.
- ▶ Fresh food should be replenished regularly.
- ▶ Food must be kept covered.
- ▶ Plates and cutlery should be kept cleaned.

While taking food from the take-away points, eat the food within a few hours or keep it in the refrigerator immediately and should be eaten in a couple of days. ▶



## Consumer Right and food safety

Every consumer has the fundamental right to get safe food for their consumption. Numerous of food scandals, including adulterated products, contaminated food items and several other reasons have gripped global attention and highlighted the critical necessity to protect the consumer against food contamination issues that do pose a major health concern. That is why consumer right and food safety are utmost. Food safety relates to the production, processing, handling, storage and preservation of food in ways that prevent foodborne diseases. This includes following the food chain from its source to when the product reaching the consumer.

Detecting unsafe food, adulterated food, contaminated food, and mislabeled food products are the major issues that need to be addressed by food regulatory agencies.

The concern agencies must look after the various food items to track down alteration and contamination in food products. Contaminated food can cause food safety threat and endanger human health. The agencies must ensure the safety and quality of food products to the consumer. These agencies must ensure the policies for a better pricing system and quality of food items can protect consumers from the effects of food supplier's competitiveness. The government need to strengthen law and do increase inspections and monitoring of food products. A timely, effective response can help in ensuring food safety and consumer protection.

### Gear up for fair food

All foods, if handled carefully, can be safe. Foodborne illness can be easily avoided, by handling food properly and safely. Gear up for fair food, includes some the activities which ensures how to handle food safely, stopping it from spoiling and make it safe to eat. It further includes how to prepare, cook, serve and clean up food in a right way.

Gear up for fair food includes:

- Handling the food properly.
- Cooking the food carefully.
- Serving the food carefully.
- Avoiding cross-contamination.
- Follow up proper routines.

The handling of food is the most significant process, since from the time food is delivered to get cooked, it needs to be safe to eat. The handling of food includes:

- Preparation
- Cooking
- Cooling
- Serving
- Storage
- Reheating

Some tips for safe handling:

- Clean your hands properly.
- Use clean cloth and aprons.
- Use clean utensils.
- Prepare and cook only desired amount of food.
- Be careful while lifting lids from hot food.
- Use spoon or tongs while serving the food.



Cook the food thoroughly, especially meat and poultry. Don't eat raw eggs. Cooking food to an internal minimum temperature can protect against most foodborne diseases.

Microbes thrive at room temperature, so the safest way is refrigerate food immediately and avoid cross-contamination.

Follow a regular routine to clean all your kitchenware including doors and windows, exhausts, corners and crannies and electric fixtures to avoid contamination of food.



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