

TECH-KNOWLEDGE

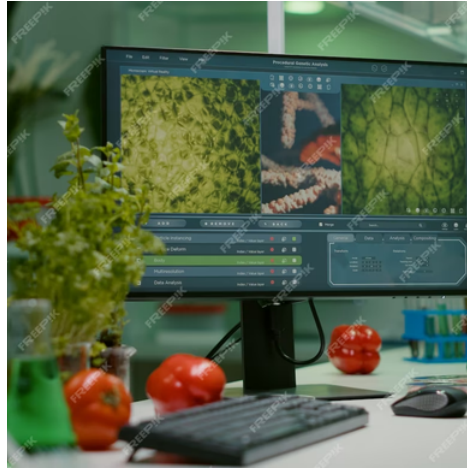
The Official PMG Engineering Newsletter

**FOOD & BEVERAGE
INDUSTRY**

**ENGINEERING
& DESIGN**

**SCIENCE &
TECHNOLOGY**

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FOOD SURVEILLANCE



Introduction

A Food Surveillance Program helps control and prevent food hazards. It is a critical component of the food safety assurance programs and intends to evaluate the safety levels in our food supply. Inspectors of the statutory bodies take samples at import, wholesale, and retail levels for microbiological, chemical, and radiation testing. Microbiological testing covers both bacteria and viruses, while chemical testing includes natural toxins, food additives, and contaminants, while radiation testing detects any harmful radioactive substances.

Surveillance refers to a specific extension of monitoring where obtained information is utilized to take measures if certain threshold values related to disease status have been crossed.

A surveillance system can be meaningful only if it provides information to make decisions concerning the nutrition requirements of the community, state or country. In addition to providing data for research and academic purposes, a food surveillance system helps governments safeguard the population's nutritional requirements. It further provides key insights on the current situation and trends about the occurrence and spread of human pathogens in the food production chain.

Need for Food Surveillance

- The immediate objectives of a food and nutrition surveillance system are:
- To describe the population's nutritional status, with particular reference to defined subgroups that are at risk. This permits the description of the character and magnitude of the nutrition problem and possible changes in these features.
- To provide information that contributes to the analysis of causes and associated factors and therefore permits a selection of preventive measures, which may or may not be nutritional.
- To promote decisions by governments concerning priorities and the disposal of resources to meet the needs of both "normal development" and emergencies.
- To enable predictions to be made based on current trends to indicate the probable evolution of nutritional problems. Considered in conjunction with existing and potential measures and resources, these predictions will assist in the formulation of policy.
- To monitor nutritional programs and to evaluate their effectiveness.

In emergency settings, the objectives specifically focus on:

- A warning system - As a means of highlighting an evolving crisis.
- Identification of appropriate response strategies.

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- Triggering a response - Nutrition surveillance systems provide a trend analysis focusing on the magnitude of change. This may trigger an in-depth assessment, which in turn may lead to a response.
- Targeting - Nutrition information can help target more at-risk areas or in greater need of assistance.
- Identification of malnourished children. Some forms of surveillance can identify acutely malnourished children.

Achieving Food Surveillance

The following are the main methods used for surveillance:

- Large-scale national surveys;
- Repeated small-scale surveys;
- Clinic-based monitoring;
- Sentinel site surveillance;
- School census data.

In an emergency setting, additional data can be obtained from:

- Rapid nutrition assessments;
- Rapid screening based on mid-upper arm circumference

Implementing Food Surveillance

This section highlights the steps to develop and implement a successful food surveillance system:

- Organization
- Setting an activity
- Practical steps to be undertaken.

The decision to establish a surveillance system must be based on clearly defined objectives, considering the availability of resources, staff capacity, sustainability, environmental factors, and capacity to respond to emerging nutritional and nutrition-related health problems.



The key objectives are generally to

- Support food inspection activities
- Ensure compliance with legal limits for microorganisms and chemical contaminants in food
- Ensure foods comply with legal restrictions on the use of certain ingredients and processing technologies
- Ensure the authenticity of certain foods
- Provide data for risk assessment and risk management activities identify the pathogens found in foodstuffs for monitoring trends and establishing public health priorities for control and prevention strategies
- Remove contaminated products from the market
- Detect outbreaks and assist with their investigation.

Conclusion

Therefore, a food and nutrition surveillance system assists in enabling formulation, modification, and application of a country's food and nutrition policies through accurate data. The system is used to create appropriate response strategies. Nutritional status is a recognized outcome of human well-being; therefore, it is possible to understand a vulnerable population's evolving situation better by closely monitoring the indicators that measure nutritional status.

SHELF LIFE OF FOODS



Introduction

The reference to “shelf” clearly implies that the term is related to the commercial life of the product, thus to a packaged product, delivered through the common routes of distribution, not to a generic, “natural life.”

Shelf life is defined as the period of time under defined conditions of storage, after manufacturing or packing, for which a food product will remain safe and be fit for use. During this period, a food product should retain its desired sensory, chemical, physical, functional or microbiological characteristics and, where appropriate, comply with any label declaration of nutritional information when stored according to the recommended conditions. Therefore, it is obvious that shelf life is a very important and multifaceted requirement of all manufacturers and processed food products.

Since shelf life is such an important requirement, it should be of interest to everyone involved in the food chain. There is the growing realization that a high standard of food safety can only be achieved by adopting a comprehensive and integrated approach, covering the whole of the food chain “from farm to table”. At the other end of the food chain, consumers, too, have a significant part to play.

Who is responsible for determining the shelf life?

The responsibility for determining the shelf life of the product lies with the manufacturer or the packer. While ideas for new products and for improvements to existing products can originate from within a food business and from external sources such as a current or prospective customer, shelf-life evaluation and testing as very much integral parts of every product development programme. Today, almost without exceptions, retailers do independently evaluate the shelf life of food products, particularly their own-label ones.

Labelling of shelf life

Food labelling regulations that apply to all food that is ready for delivery to the ultimate consumer or to a catering establishment, subject to certain expectations, is that it should be marked labelled with the appropriate minimum durability indications.

- In the case of food that is highly perishable and in consequence likely after a short period to constitute an immediate danger to health, a “use by” date.
- In the case of food other than one specified above, an indication of minimum durability, a “best before date”.

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Food that requires 'use by' dates are following:

- Dairy products, e.g. dairy-based desserts.
- Cooked products, e.g. ready-to-eat meat dishes, sandwiches
- Smoked or cured ready-to-eat meat or fish, e.g. hams, smoked salmon fillets.
- Prepared ready-to-eat foods, e.g. vegetable salad such as coleslaw.
- Uncooked or partly cooked pastry and dough products, e.g. pizzas, sausages rolls.
- Uncooked products, e.g. uncooked products comprising or containing either meat, poultry or fish.
- Vacuum or modified packs, e.g. raw ready-to-cook packed in modified atmosphere.

For the 'best before' date category, the following forms of durability indication are allowed:

- Food that will not keep for more than 3 months- 'best before' followed by the month and the month.
- Food that will keep more than 3 months but not more than 18 months- 'best before end' followed by the month and the year or the year only.
- Foods that will keep more than 18 months- 'best before end' followed by the month and the year or the year only.

Since food deteriorates continually rather than suddenly, the 'best before date' does not automatically mean the food is not fit for consumption or losses all its acceptability immediately after the date.



Conclusion

Once a date mark either 'use by' or 'best before' is set and declared, it becomes a contract between the food company and its customers to the effect that, provided the food is stored according to the recommended conditions, it should last at least as long as its states shelf life. Shelf life is defined as the length of time a product may be stored without becoming unsuitable for use or consumption. Shelf life depends on the degradation mechanism of the specific product. Most can be influenced by several factors: exposure to light, heat, and moisture; transmission of gases; mechanical stresses; and contamination by things such as microorganisms.



INDUSTRY BUZZ

Savour the authentic flavours of Telangana with the recently introduced special menu at Platform 65.

The new Telangana special menu is available at all of Platform 65's establishments in Telangana. Platform 65 is the largest toy-train-themed restaurant in India. With its unique flavours, this program hopes to conserve and promote the state's culinary heritage while satisfying the appetites of food connoisseurs around the region.

The recently unveiled menu further demonstrates its dedication to offering patrons a fusion of contemporary and classic culinary experiences. To ensure that guests can fully appreciate the rich tapestry of Telangana's culinary history, the menu offers a variety of meals inspired by a blend of culinary traditions and legacy. Some of the menu's standout items are Telangana Kodi Vepudu, Aakku Kura Mutton, Murgh Dhaniya Shorba, and Green Chicken. Customers can purchase this exclusive menu till the end of March 2024.

Meetings held with stakeholders regarding the Ministry's action plan for World Food India 2024.

Anita Praveen, secretary of the Ministry of Food Processing Industries (FPI), facilitated the roundtable discussion with industry at Invest India. The meeting's main goal was to inform the sector about World Food India 2024, which would take place September 19-22, 2024. The conference continued a series of conversations meant to enlighten stakeholders about the Ministry's action plan for World Food India 2024 and explore new areas of collaboration. It also covered the industry's role in the event and expectations from them. Notably, this roundtable event had active participation from senior executives from significant agri-food firms.

During her keynote speech, Secretary MoFPI discussed the industry's expansion and many potentials in food processing. She said the government is planning the much-awaited third edition of World Food India, with even bigger plans than the 2023 event.





According to the All India Spices Exporters Forum, the 7th International Spice Conference will take place in 2024.

The 7th International Spice Conference (ISC) has been announced by the All India Spices Exporters Forum (AISEF). It will be held in the Hyatt Regency in Gurgaon, Delhi-NCR, from March 3-6, 2024. The conference, co-hosted by the Cochin Chamber of Commerce and Industry, is anticipated to attract many attendees from the Indian and international spice communities.

ISC 2024's topic is "Shaping the Future: Trends & Insights," which focuses on the new opportunities, challenges, and trends that will influence the spice business going forward. This subject emphasizes how crucial innovation and environmentally friendly practices are to the industry's long-term survival.



Midleton Very Rare launches Ruby Edition to commemorate its 40th anniversary.

Irish Distillers has introduced the Midleton Very Rare 40th anniversary Ruby Edition in honour of 40 years of Midleton Very Rare, the finest Irish whiskey. A magnificent combination of single pot still and single grain Irish whiskeys, aged between four and five decades and matured in a ruby port cask, this celebration results from the selection and expert marriage of only the finest and rarest liquids from the storehouse.

The liquids first developed by Barry Crockett, Brian Nation, and Kevin O'Gorman, three renowned distillers, have been expertly combined in this new release. Finally united, these exceptional whiskeys were allowed to mature in a ruby port barrel in honour of the 40th anniversary—a date frequently connected to rubies.



Coca-Cola Appoints Santiago Iturralde as Global President of Sparkling Flavors Category

The Coca-Cola Company announced that former Unilever executive Santiago Iturralde would take over as Sparkling Flavours' global category president. With an emphasis on expanding the Sparkling Flavours category, Iturralde will lead by example with the Sprite and Fanta portfolios. He will report to Manolo Arroyo, the global chief marketing officer, and have his headquarters in Dublin.

Jasmin Vinculado, who has headed the Sparkling Flavours category since 2021, is replaced by Iturralde. Vinculado has worked for Coca-Cola for 17 years but is quitting the company on April 30 to explore other interests.

From 1995 to 2023, Iturralde was employed by Unilever. She has a proven track record of growing a range of consumer product categories and brands in developed and emerging regions.

WEEKS HIGHLIGHT

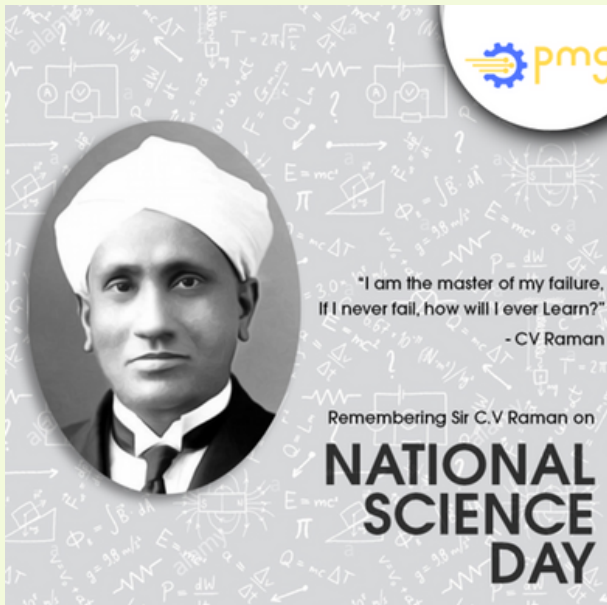
NON-TECHNICAL CONTENT



27 FEBRUARY

WORLD PROTEIN DAY

February 27th is celebrated as the National Protein Day, to create awareness about protein deficiency and encourage people to include this macronutrient in their diet.



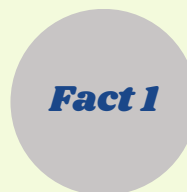
28 FEBRUARY

NATIONAL SCIENCE DAY

National Science Day commemorates the discovery of the Raman Effect by Sir C.V. Raman, showcasing India's scientific achievements and promoting scientific temper and innovation among its citizens.

MARCH

DID YOU KNOW?



Vegetable fats offer a healthy alternative to animal fats, providing essential nutrients and promoting heart health. Rich in unsaturated fats, they contribute to a balanced diet and support overall well-being. Incorporating vegetable fats such as olive oil, avocado, and nuts into meals can enhance flavor and offer numerous health benefits, making them a smart choice for cooking and consumption.



VEGETABLE OILS



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Vegetable oils are oils that are derived from plant sources. They are used in a wide range of food products, including cooking oils, margarine, salad dressings, and baked goods. Some common sources of vegetable oils include soybeans, canola, sunflower, palm, and coconut.

- Vegetable oils are extracted from the plant source using various methods, such as pressing, solvent extraction, or steam distillation. The extracted oil may then be refined or processed further to remove impurities, improve flavor, or enhance stability.
- Vegetable oils are a popular ingredient in many food products due to their versatility, functional properties, and nutritional benefits. They are often used to add flavor, texture, and mouthfeel to food products, as well as to improve shelf life and stability.
- Vegetable oils are also a source of healthy fats and essential fatty acids, such as omega-3 and omega-6, which are important for maintaining good health. They are often used as a substitute for animal-based fats, such as butter or lard, due to their lower saturated fat content and higher unsaturated fat content.

Market scope

- The global market for vegetable oils is expected to grow steadily in the coming years due to several factors, including the rising demand for healthier food products, changing dietary habits, and the increasing use of vegetable oils in the food processing industry.
- Vegetable oils are a popular alternative to animal-based fats, as they are often lower in saturated fat and have a higher unsaturated fat content, which is considered healthier.
- Moreover, changing dietary habits and an increasing focus on healthy eating are expected to drive demand for vegetable oils. Consumers are increasingly seeking out food products that are healthier, more natural, and free from artificial ingredients.
- Vegetable oils can be used to enhance flavor, texture, and mouthfeel in baked goods, snacks, and confectionery products, as well as to improve shelf life and stability.

2/3

Major players in the Market

1. Archer Daniels Midland Company
2. Cargill, Incorporated
3. Wilmar International Limited
4. Bunge Limited
5. Louis Dreyfus Company
6. IOI Group
7. Marico Limited
8. Sime Darby Plantation Berhad
9. Golden Agri-Resources Ltd.
10. COFCO International

Commercial production

1. **Extraction:** The vegetable oil is extracted from the plant source using various methods, such as pressing, solvent extraction, or steam distillation.
2. **Refining:** The extracted oil may be refined further to remove impurities, improve color, and enhance stability. The refining process involves processes such as degumming, neutralization, bleaching, and deodorization.
3. **Packaging:** The vegetable oil is then packaged in suitable containers, such as drums, tanks, or bottles, to ensure they stay fresh and safe for consumption.
4. **Distribution:** The final product is distributed to wholesalers, retailers, and other customers, either directly or through intermediaries. Distribution may involve transportation and storage of the product to maintain its quality and safety.

In commercial production, large-scale machinery and equipment are often used to handle vegetable oils and carry out the various stages of production. Quality control measures are also put in place to ensure that the final product meets safety and quality standards.

3/3

Fact 2

Vegetable oils are versatile culinary staples, extracted from various plant sources like soybeans, sunflowers, and olives. They offer a heart-healthy alternative to animal fats, rich in unsaturated fats and essential nutrients like vitamin E. Used in cooking, baking, and salad dressings, vegetable oils lend a delicate flavor and aid in achieving desirable textures. Their diverse applications make them indispensable components of modern gastronomy.



Olive oil is a type of vegetable oil that is derived from the fruit of the olive tree (*Olea europaea*). It is a key ingredient in Mediterranean cuisine and is popular worldwide for its health benefits and culinary uses.

- Rich in monounsaturated fatty acids, which are considered healthy fats that can help lower cholesterol and reduce the risk of heart disease. It also contains antioxidants, such as vitamin E, that help protect cells from damage caused by free radicals.
- Commonly used in cooking, salad dressings, and dips. It has a distinctive fruity flavor and aroma that can vary depending on the type of olive and the region it comes from. Olive oil is also a popular ingredient in skincare products due to its moisturizing and antioxidant properties.
- There are several different types of olive oil, including extra-virgin, virgin, refined, and pure. Extra-virgin olive oil is considered the highest quality and is made from pure, cold-pressed olives without the use of chemicals or heat.

Market scope

- The market scope for olive oil is significant, as it is a widely used ingredient in cooking and is consumed worldwide. The global market for olive oil is expected to grow steadily in the coming years due to several factors, including the increasing awareness of the health benefits of olive oil, changing dietary habits, and the growing demand for premium quality olive oil.
- One of the major drivers of the olive oil market is the increasing awareness of the health benefits of olive oil. Olive oil is rich in monounsaturated fatty acids and antioxidants, which are considered beneficial for heart health and overall health. Consumers are increasingly seeking out healthy food products, and olive oil is considered a healthy alternative to other types of cooking oils.
- Moreover, changing dietary habits and the growing interest in Mediterranean cuisine are expected to drive demand for olive oil. Olive oil is a key ingredient in Mediterranean cuisine and is used in a wide variety of dishes, from salads and dressings to main courses and desserts.

2/3

Major players

- Deoleo S.A.
- Sovena Group
- Salvo Group
- Cargill, Incorporated
- Colavita S.p.A.
- Borges Mediterranean Group
- Jindal Worldwide Ltd.
- Ybarra Group
- Oitalia S.p.A.
- Pompeian, Inc.

Commercial Production

1. **Harvesting:** Olives are harvested from the trees when they are fully ripe. Harvesting may be done by hand or by using mechanical harvesters.
2. **Crushing:** The olives are crushed to release the oil from the fruit. This may be done using traditional stone mills or modern mechanical crushers.
3. **Pressing:** The crushed olives are pressed to extract the oil. This may be done using hydraulic presses, which exert pressure on the crushed olives to release the oil.
4. **Separation:** The oil is separated from the water and other solids using a centrifuge or other mechanical separator.
5. **Refining:** The extracted oil may be refined further to remove impurities, improve color, and enhance stability. The refining process involves processes such as degumming, neutralization, bleaching, and deodorization.
6. **Packaging:** The olive oil is then packaged in suitable containers, such as glass bottles or metal cans, to ensure they stay fresh and safe for consumption.
7. **Distribution:** The final product is distributed to wholesalers, retailers, and other customers, either directly or through intermediaries. Distribution may involve transportation and storage of the product to maintain its quality and safety.

3/3

Fact 3

Olive oil, extracted from olives, is renowned for its health benefits and culinary versatility. With its rich flavor and high monounsaturated fat content, it is a staple in Mediterranean cuisine and beyond. From drizzling over salads to sautéing vegetables, olive oil adds depth and richness to dishes while promoting heart health and overall well-being.



Rapeseed oil is a type of vegetable oil that is extracted from the seeds of the rapeseed plant (*Brassica napus*). It is a popular cooking oil and is also used in a wide range of industrial applications, including biofuels and lubricants.

- Low in saturated fat and high in monounsaturated and polyunsaturated fats, which are considered healthy fats that can help reduce the risk of heart disease. It also contains omega-3 fatty acids, which are beneficial for brain health and can help reduce inflammation in the body.
- Commonly used in cooking, baking, and frying due to its high smoke point and neutral flavor. It is also used in salad dressings, marinades, and dips. In addition, rapeseed oil is used in the production of biodiesel, which is a renewable fuel source that can be used in diesel engines.
- There are several different types of rapeseed oil, including refined and unrefined varieties. Refined rapeseed oil is processed to remove impurities, while unrefined rapeseed oil retains more of its natural flavor and nutrients.

Market scope

- The market scope for rapeseed oil is significant, and it is expected to continue to grow due to the increasing awareness of the health benefits of rapeseed oil, changing dietary habits, and the growing demand for biofuels.
- The global market for rapeseed oil is expected to grow steadily in the coming years due to several factors, including increasing awareness of the health benefits of rapeseed oil, changing dietary habits, and the growing demand for biofuels.
- One of the major drivers of the rapeseed oil market is the increasing awareness of the health benefits of rapeseed oil. Rapeseed oil is low in saturated fat and high in healthy unsaturated fats, which can help reduce the risk of heart disease and improve overall health.
- Rapeseed oil is a versatile cooking oil that can be used for a wide range of applications, including frying, baking, and salad dressings. As consumers seek out more plant-based food products, the demand for rapeseed oil is expected to increase.
- In addition, the growing demand for biofuels is expected to drive market growth. Rapeseed oil is a key ingredient in the production of biodiesel, which is a renewable fuel source that can be used in diesel engines.

2/3



Fact 4

Rapeseed oil, derived from the seeds of the *Brassica napus* plant, offers a versatile and nutritious option for culinary and industrial use. With its high smoke point and neutral flavor profile, it's ideal for frying, baking, and salad dressings. Rich in monounsaturated fats and omega-3 fatty acids, rapeseed oil promotes heart health and provides essential nutrients, making it a valuable addition to any kitchen.



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