



Food Safety and Standards Authority of India

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Building **healthy** INDIA with **safe** food

सुरक्षित आहार, स्वास्थ्य का आधार

Message from the Chief Executive Officer



I am happy to place before you the third edition of FSSAI's bimonthly e-newsletter. Within the twin framework of policy and standards formulation, FSSAI is continuously striving to expand and update the food standards. However, as you are all aware, setting of science-based standards for food articles is a time-consuming and continuous process. The Food Authority approved the

following standards in its last meeting held on 16th January, 2015:

- Standards for Food Additives in Foods;
- Permissible level for chromium in Gelatin;
- Microbial Standards for Fruits and Vegetables Products;
- Microbiological Standards for Fish and Fisheries Products;
- Inclusion of new Atomic Energy (Radiation Processing of Food and Allied Products), Rules, 2012 in Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011
- Standards for Milk and Milk Products;
- Alcoholic Beverages Regulations;
- Draft FSSAI Manual on water analysis.

The above Standards/ Regulations would have to undergo the draft notification process before they are finalized. Apart from the above, the draft Standards for Steviol Glycoside; Gluten free food products have been notified. Standards for Phytosterols, Oligofructose, Trehalose, Fortified Atta & Maida have also been notified in Gazette of India.

We have recently started a Mass Contact Activation Programme (MCAP) in 08 Districts of Uttar Pradesh on 12th January, 2015 at the DDU State Institute of Rural Development (SIRD), Lucknow. This Programme is being conducted by the Deen Dayal Upadhyaya State Institute of Rural Development (DDU SIRD), Govt. of Uttar Pradesh on behalf of the Food Safety and Standards Authority of India (FSSAI).

At the international level, FSSAI submitted India's proposal on Proposed draft Amendment to the Standard for Named Vegetable Oils (CODEX STAN 210-1999) during the 24th Session of CODEX COMMITTEE ON FATS AND OILS (CCFO) which was considered and supported by the Committee. India also co-hosted the Codex Committee on Contaminants in Food at New Delhi with the Government of Netherlands from 16th to 20th March, 2015.

We are receiving positive comments and feedback on our e-newsletter. We would be happy to receive your invaluable feedback and welcome more in the future. We have also added a new 'Legal' section to our newsletter starting with this issue.

Hope you find it informative.

Shri Y. S. Malik

Chief Executive Officer

Food Safety and Standards Authority of India

1. ENFORCEMENT



- The 13th meeting of Central Advisory Committee was held on 08th January, 2015.
- As on 20.02.2015, FSSAI has granted **18,736** central licenses while the States/UTs have granted **5,50,808** licenses and registered **23,73,484** Food Business Operators (FBOs) under the Act.
- As on 28.02.2015, 24 States/UTs have started online licensing/registration through FLRS System.
- Notification issued regarding FSSAI's Designated Officers for Central Licensing under Section 36 of FSS Act, 2006. (**Order 09-01/ Enf-I/2012/FSSAI (Pt-2) dated 16.02.2015**)
- The inspection of premises before issuance of license has been waived off. (**Order 1(5)/ Enf-I/ FSSAI/2012 dated 12.02.2015**)
- Extension has been granted up to 04th August, 2015 to Food Business Operators to obtain licenses/ registration under the Food Safety and Standards (Licensing and Registration of Food Businesses) Regulations, 2011. (**Order 1/1/Enf-I/FSSAI/2012 Pt. dated 04.02.2015**)
- Exemption from registration of individual members of the Registered Cooperatives as FBOs has been extended to the registered members of all the Cooperative Societies registered under the Cooperative Societies Act from Registration as independent FBOs under

the FSS Act, 2006. (**Order 03-01/2012/Enf-I/ FSSAI dated 21.01.2015**)

- Creation of separate distinct category of “**Exporting FBOs**” for grant of Licenses under the applicable regulations, without requiring submission of a certificate of conformity to the prescribed Indian Standards or insisting on Product Approval from such manufacturers qua such products. (**Order-351/FS SAI/ Imports/2013 dated 21.01.2015**)
- Order issued for Licensing and Registration of Food Business Operators in Dairy sectors (**Order 04-05/2012/Enf-I/FSSAI dated 14.01.2015**)
- In case of new geographic entity (States/UT/ District) is created in future necessitating the change in license, or on Court directives, new licenses shall be issued to the FBOs affected by such decision and that in all such cases the FBOs shall be allowed to use their existing packaging material with the previous license number until the 31st December of the year, subject to a minimum of 180 days. (**Order1 (85)/2014/Telangana/FSSAI dated 07.01.2015**)

2.CODEX

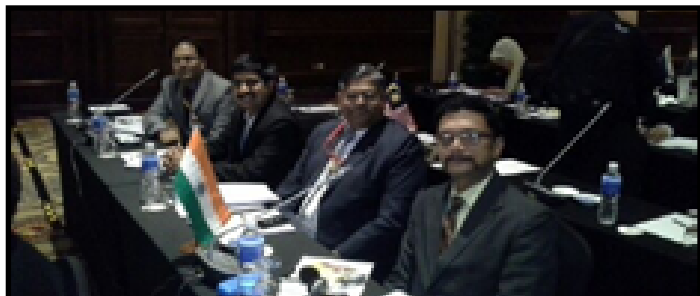
24th Session of CODEX COMMITTEE ON FATS AND OILS (CCFO)

A four-member delegation, led by Shri P. Kartikeyan, AD (Regulations), attended the 24th Session of Codex Committee on Fats and Oils (CCFO) held during 09th to 13th February, 2015 at Melaka, Malaysia. The session was chaired by Ms Noraini Mohd. Othman, Senior Director for Food Safety and Quality, Ministry of Health, Government of Malaysia. India had submitted the data on flax seed oil to be included in the Discussion Paper on Cold Pressed Oils. The Committee agreed to establish an EWG, led by Iran to revise the discussion paper including a project document, taking into account comments made at the present session and based on the Guidelines for Application of the Criteria for the Establishment of Work Priorities Applicable to Commodities and information as required by the CCFO when

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proposing the addition of new oils to the Standard for Named Vegetable Oils agreed by the CCFO16, for consideration at its next Session.

India's proposal on Proposed draft Amendment to the Standard for Named Vegetable Oils (CODEX STAN 210-1999): Inclusion of Quality parameters of Crude Rice Bran Oil, the Delegation



of India introduced the discussion paper and explained that it was not clear whether crude rice bran oil was covered under the specification for rice bran oil in the Standard for Named Vegetable Oils (CODEX STAN 210-1999). They pointed out that the values for the fatty acid composition ranges for rice bran oil in the Standard were the same as those for crude rice bran oil and proposed adding a footnote reading: "including crude rice bran oil." **A number of delegations supported new work**, while others were of the view that a detailed description of the problem was necessary to take a decision on new work. It was also suggested to: clarify whether crude rice bran oil was as intended for direct human consumption; and examine the need to cover all crude oils in a general way in the description section of the standard. The Committee agreed that India would prepare a discussion paper, including a project document, which clearly describes the problem together with an analysis of the implication of the suggested amendment with respect to crude bran rice oil to other parts of the standard, for consideration at its next session. The proposal should be based on the Guidelines for Application of the Criteria for the Establishment of Work Priorities Applicable to Commodities and include information as required by CCFO when proposing the addition of new oils to the Standard for Named Vegetable Oils, as agreed by CCFO16.

36th Session of CODEX COMMITTEE ON METHODS OF ANALYSIS AND SAMPLING (CCMAS)

A two-member delegation led by Dr. A.K.Sinha, APPA (CIL), Faridabad and including Dr. Anoop A.Krishnan, Assistant Director (Tech.), Export Inspection Agency, Kolkata attended the 36th Session of Codex Committee on Methods of Analysis and Sampling (CCMAS) held during 23rd to 27th February, 2015 at Budapest, Hungary. The Comments on the various Agenda Items were forwarded to the Codex Committee for consideration and the same has been included in the Addendum of the Agenda Items.

Shadow Committees for finalizing the India's Comments for Codex Committees Sessions scheduled to be held in 2015:

A total of 7 Shadow Committee Meetings (1 for Codex Committee on Fats and Oils (CCFO), 1 for Codex Committee on Methods of Analysis and Sampling (CCMAS), 2 for Codex Committee on General Principles (CCGP), 2 for Codex Committee on Food Additives (CCFA) and 1 for Codex Committee on Contaminants in Foods (CCCF)) were held in the period of December – February, 2015 to finalise the India's stand for the main session of these meetings. 5 technical working group meetings were also held to finalise the Country points on the CCFA Agendas.

3.INTERNATIONAL CO-OPERATION

A meeting was convened under the Chairmanship of the Chief Executive Officer (CEO), Food Safety and Standards Authority of India (FSSAI), representatives from Ministry of Food Processing Industries (MoFPI) and Mr. H.E. Harald Sandberg, Ambassador, Mr. Stig Orustfjord, Director General, National Food Agency and Ms. Anna Liberg, Trade Commissioner, Sweden and representatives from Sweden's companies on 16.02.2015 at FSSAI HQ, FDA Bhawan, Kotla Road, New Delhi to discuss the issues related to food safety.

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The agenda of this meeting were as under:

- I. Understanding India's regulatory scenario with regards to food packaging and processing.
 - Overview of regulations pertaining to food processing, packaging, labelling, transportation, etc.
- II. Potential of usage of environment friendly and sustainable packaging and processing technologies in India.
- III. Introduction to Swedish solutions and technologies in food processing and packaging segments.
- IV. Discussion regarding potential areas of collaboration and Q&A Session.



4. LEGAL

Writ Appeal No.1491 of 2014 in W.P. No.24999 of 2014 – M. Mohammad Vs. Union of India Before Hon'ble Madras High Court –Division Bench

1. A Writ Petition **No. 24999/2014** was filed before the Hon'ble High Court of Madras by the petitioner, who had imported Betel Nuts from Sri Lanka. The product sample was analysed by the notified laboratory at Chennai and the

referral laboratory at Mysore, where-in it was found that the said consignment had damaged/ discoloured units more than the prescribed standards under the regulation 2.3.47(5) of FSS(Food Products Standards and Food Additives) Regulations, 2011

2. The petitioner's prayer to the Hon'ble High Court of Madras was to issue directions to the respondents to release/clear the petitioner's consignment of the raw betel nuts without insisting on the test and sought NOC of the Authorised Officer (AO), FSSAI (2nd respondent), pending final disposal of the Writ Petition.
3. After hearing the submissions of the learned counsels on 10.10.2014, the Hon'ble Madras High Court dismissed the Writ Petition observing that the Areca nut (Betel Nut) was an agricultural product which fell within the definition of primary food as per section 3(2) of the FSS Act, 2006, hence, it shall undergo all the standards prescribed under the FSS Regulations, 2011 and as the sample drawn from the import consignment did not conform to the standards laid down under the FSS Regulations, the petitioner was stopped from seeking the relief as prayed in the Writ Petition.
4. Aggrieved by the impugned order of Hon'ble High Court of Madras, the petitioners filed a **Writ Appeal No. 1491/2014** before the Division Bench, where- in it was prayed to set aside the impugned order of the single bench and to quash the condition for NOC required from FSSAI. The said appeal was also dismissed by the Hon'ble Court, resultantly, confirming the impugned order of the single bench of Hon'ble High Court of Madras.

Following are the links of the two judgments referred above :-

1. http://judis.nic.in/judis_chennai/Judge_Result_Dispatch.asp?MyChk=211703
2. http://judis.nic.in/judis_chennai/Judge_Result_Dispatch.asp?MyChk=204965

5. STANDARDS

Changes in the composition of Scientific Committee and Scientific Panels: The composition of Scientific Committee was issued vide order dated 26th March, 2013 and that of Scientific Panels vide order dated 5th February, 2013 and 18th March, 2013 respectively. The following members have been included in the Scientific Committee and Scientific Panel on the basis of their expertise in respective field for the remaining tenure of these bodies:

Sr. No.	Name and Address of the Members	Scientific Committee/ Scientific Panel
1.	Dr. I. Karunasagar, Senior International Consultant, Products, Trade and Marketing Service, FAO, Mangalore	Scientific Committee
2.	Dr. Vijay Kumar Gupta, Head of Dairy Technology Division, NDRI, Karnal	Scientific Panel for Methods of Sampling & Analysis
3.	Dr. Kaushik Banerjee, Principal Scientist, NRL, National Research Center-Grapes, Pune	
4.	Dr. A.K. Barooah, Chief Scientist & Head Analytical Services, Tea Research Association, Jorhat	Scientific Panel of Contaminants in the Food Chain
5.	Dr. Vasanthi Siruguri, Scientist D, National Institute of Nutrition, Hyderabad	
6.	Dr S. S. Thorat, Head, Department of Food Science & Technology, Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra	
7.	Dr. S. K. Panda, Senior Scientist, CIFT, Cochin	Scientific Panel of Fish and Fisheries Products
8.	Dr J.S. Sandhu, Retired Scientist CFTRI, Chandigarh	Scientific Panel for Biological Hazards
9.	Dr. Aditya Jain, Manager (QA), National Dairy Development Board, Anand	
10.	Dr. V.V. Kulkarni, Director, National Research Centre on Meat, Hyderabad	Scientific Panel of Pesticides and Antibiotic Residues
11.	Dr. Sudip Ghosh, Scientist D, National Institute of Nutrition, ICMR, Hyderabad	Scientific Panel of Genetic Modified Food and Organisms
12.	Dr. N. K. Singh, National Research Center on Plant Biotechnology, IARI, Pusa Campus, New Delhi	
13.	Prof. Sangeeta Bansal, Centre for International Trade and Development, JNU, New Delhi	
14.	Professor Rekha S. Singhal, Head, Food Engineering and Technology Department, Institute of Chemical Technology, Mumbai	Scientific Panel for Food additives, flavourings, processing aids and materials in contact with food

The detailed composition is also available on the website www.fssai.gov.in.

Call for Expressions of Interest for nomination on the Expert/ Working Groups in the Food Safety and Standards Authority of India: The Food Authority is in the process of constituting Expert/Working Groups for development of Standards for new Food Items or re-visiting the existing Standards for different categories of food commodities which are not covered under the scope of existing Scientific Panels. Accordingly, the FSSAI is looking for suitable experts in the following areas for which Working Groups are proposed to be constituted by the Authority:

- (i) Alcoholic Beverages;
- (ii) Caffeinated Drinks;
- (iii) Cereals, pulses and legumes and their products (including bakery products);
- (iv) Food Fortification;
- (v) Fruits and vegetables and their products (including dried fruits and nuts);
- (vi) Meat and Meat products (Meat, poultry and their products);
- (vii) Milk and Milk Products;
- (viii) Non- Alcoholic Beverages;
- (ix) Oils and Fat;
- (x) Salt, Spices and Condiments;
- (xi) Sweets, Sweeteners, Confectionery and Honey; and
- (xii) Water

The proforma for application and other details can be seen on the website www.fssai.gov.in.

The following issues have been approved by the Food Authority:

- ▶ Standards for Milk and Milk Products
- ▶ Inclusion of new Atomic Energy (Radiation Processing of Food and Allied Products) Rules, 2012 in Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011
- ▶ Alcoholic Beverages Regulations
- ▶ Microbial Standards for Fruits and Vegetables Products
- ▶ Microbiological Standards for Fish and Fisheries Products
- ▶ Draft FSSAI Manual on water analysis
- ▶ Permissible level for Chromium in Gelatin

MEETINGS



9th meeting of Task Force Group on Milk & Milk Products

Scientific Panel/ Task Force Group	Sr. No. of Meeting	Date
Scientific Panel on Food Additives, Flavourings, Processing aids and materials in contact with food	21st	29 th December, 2014
Scientific Panel on Pesticides and Antibiotic Residues	34 th	7 th January, 2015
	35 th	11 th February, 2015
Scientific Panel on Labelling and claims/ Advertisements	18 th	9 th February, 2015
Task Force Group on Milk & Milk Products	9 th	27 th February, 2015

6. REGULATIONS

- Standards for Steviol Glycoside; Gluten & non gluten free have been draft notified.
- Standards for phytosterols, oligofructose, trehalose, fortified atta & maida have been finally notified in the Gazette of India.

7. INFORMATION, EDUCATION AND COMMUNICATION (IEC)

- Mass Contact Activation Programme (MCAP) in 08 Districts of Uttar Pradesh was inaugurated on 12th January, 2015 at the DDU State Institute of Rural Development (SIRD), Lucknow by the then Chairperson, Food Safety and Standards Authority of India. This Programme is being conducted by the Deen Dayal Upadhyaya State Institute of Rural Development (DDU SIRD), Govt. of Uttar Pradesh on behalf of the Food Safety and Standards Authority of India (FSSAI). The aim of the Programme is to educate the stakeholders about FSSAI on aspects relating to FSS Act, Rules and Regulations, objectives, roles and functions of FSSAI, food safety and standards, common methods for detection of adulteration in food and how to report a problem in food etc.



- Food Safety and Standards Authority of India displayed 06 (six) Mega Hoardings during the 29th Surajkund International Craft Mela, 2015 organised by the Govt. of Haryana during 1st to 15th February, 2015 in order to make stakeholders aware of the various aspects of food safety.



- A radio jingle on adulteration of food items was aired PAN India during the occasion of Holi for a period of 15 days from 21st February, 2015 to 07th March, 2015.

8. IMPORT

- Food Import Clearance System (FICS) is being implemented at five locations namely at Mumbai, Chennai, Delhi, Kolkata and Cochin. During the period, a total of 9016 consignments weighing 2402360.33 MTS worth 13103.8 Crores were cleared by FSSAI.
- The top categories of food imports in terms of quantity are Pulses, Edible Oil, Fresh Fruit, Confectionary, Additives, Spices, Beverages & Dry Fruits in descending order.
- The top countries in descending order from where India imported food in terms of value are Myanmar, Canada, USA, China PRP, Italy, Argentina, Thailand, Australia, United Kingdom & Spain.
- To facilitate import in the country guidelines dated 22.01.2015 on the imported food articles meant for 100% exports/re-export and guidelines dated 19.02.2015 regarding import of food articles meant for exhibition and tasting purposes were issued by FSSAI. These are available on FSSAI website www.fssai.gov.in.

9. TRAINING

Training for Technical Officers – A two-days training programme on Food Safety and Standards Act & Regulations for Technical Officers was conducted on 17th and 18th January, 2015 at the Regional Office, Food Safety and Standards Authority of India, Kolkata. Technical Officers from Kolkata and Guwahati region participated in this training. Total number of participants were nine.



Participants during Training Session



Interactive Session



Risk Analysis by Food Standards, Australia & New Zealand (FSANZ)



Maintaining the safety of food requires constant vigilance by Government, industry and consumers as the food supply changes as a result of new technologies, expanding trade opportunities, ethnic diversity in the population and changing diets.

Food regulators aim to ensure health and safety risks from food are negligible for the whole population, and that consumers can make informed choices. When this is achieved, public confidence in the effectiveness of food regulation is maintained.

FSANZ develops and reviews food standards covering the composition and labelling of food sold in Australia and New Zealand and Australia-only food standards addressing food safety issues and primary production and processing.

FSANZ uses risk analysis, an internationally accepted process, for standards development and many other situations where food-related health risks need to be assessed, managed and communicated.

FSANZ uses a risk analysis framework in developing new food standards, evaluating proposed changes to existing food standards, for monitoring and surveillance activities, assessing food technology practices and considering emerging food safety issues. Using the risk analysis framework is intended to ensure effective regulatory decisions. Its use encourages communication between all interested parties including consumers.

The Risk Analysis in Food Regulation publication provides a broad overview of how FSANZ uses the risk analysis framework to manage a diverse range of food-related health risks.

Link: <http://www.foodstandards.gov.au/science/riskanalysis/Pages/default.aspx>

Systematic Review of the Evidence for a relationship between Trans-Fatty Acids and Blood Cholesterol

Trans-fatty acids (TFA) are unsaturated fatty acids which contain at least one double bond in the trans configuration. Trans fats in the Australian and New Zealand food supply are from two main sources: ruminant sources, such as dairy and meat, and industrial sources such as edible spreads, commercially produced baked goods and take away foods. The intake of TFA in Australia and New Zealand has been estimated to be approximately 0.6 per cent of energy intake (Food Standards Australia New Zealand, 2009). Previous research has consistently identified detrimental effects of consumption of TFA on biomarkers of health such as blood lipid values.

This review sought to identify recently published literature relating to the consumption of TFA in the diet and associated changes in blood lipids, compare the outcomes of recent literature to the existing body of research, and evaluate the implications of these findings in an Australian and New Zealand context.

This report aimed to update the work of Brouwer and colleagues (2010) who completed a review of the literature in 2009. This review examined the relationship between intake of industrial, ruminant and CLA forms of TFA and blood lipid outcomes.

In order to identify relevant literature published subsequent to the work of Brouwer et al, Pubmed, Embase and Cochrane Central were searched for original research papers published between January 2010 and March 2014. Search terms related to TFA and blood lipids. For inclusion in the review studies were required to be randomised controlled trials of humans with a minimum intervention period of 3 weeks. Studies were required to include a measure of total, low density lipoprotein (LDL) and / or high density lipoprotein (HDL) cholesterol as a study outcome, and include manipulation of TFA in the diet of participants. Eleven studies met these criteria.

A meta-analysis of included studies was completed with the aim of investigating and quantifying potential dose response and non-linear relationships between dietary TFA intake and change in blood lipid values. In addition, the change in total, LDL and HDL cholesterol associated with a one per cent increase in TFA, as an isoenergetic replacement of cis-MUFA, in the diet was determined.

The identified research published between 2010 and 2014 was concordant with previous literature. When considering the existing body of evidence, a one per cent increase in TFA, as a percentage of total energy intake, was associated with a small but significant increase in LDL cholesterol values. In addition, there was a significant, but again small, decrease in HDL cholesterol with a one per cent change in TFA intake as a percentage of energy intakes. However, no significant relationship was identified between total cholesterol values and intake of TFA.

Possible dose response relationships were determined, which is in agreement with previous studies; however there was substantial variability in the reported blood lipid changes at TFA intakes at and below one per cent of energy intake. A GRADE assessment indicated that the quality of evidence relating to the relationship between intake of TFA and LDL and HDL cholesterol was high. The quality of the evidence relating to intake of TFA and total cholesterol was classified as moderate.

The results of the current review suggest that existing dietary guidelines and recommendations relating to intake of TFA in the Australian and New Zealand diet are appropriate. Continued monitoring of both industry action and population intakes of TFA, to ensure levels of consumption remain low, is recommended.

Link: <http://www.foodstandards.gov.au/publications/Pages/Systematic-Review-of-the-evidence-for-a-relationship-between-trans-fatty-acids-and-blood-cholesterol-.aspx>

Nutritional Impact of Phytosanitary Irradiation of Fruits and Vegetables

Low level ionising irradiation can be used as a phytosanitary treatment for insect pest control on fruit and vegetables. FSANZ has previously assessed the safety and nutritional impact of using ionising irradiation for phytosanitary purposes on various tropical fruits as well as tomatoes and capsicums, and found that doses of ≤ 1 kGy do not present a safety or nutritional risk to Australian and New Zealand consumers. It is expected that in the near future FSANZ will receive a number of applications to irradiate a variety of other fresh fruits and vegetables for quarantine purposes.

The objectives of this review were to:

- Assess the impact of phytosanitary doses of irradiation on the nutritional quality of fruit and vegetables by:
 - ▶ Investigating the natural variability in vitamin levels in a range of fruits and vegetables
 - ▶ Documenting changes in vitamin composition of fruits and vegetables following irradiation with up to 1 kGy
 - ▶ Considering the dietary implications of any reduction in vitamin levels following phytosanitary doses of irradiation (up to 1 kGy).
- Make recommendations to amend data requirements for irradiation of fruits and vegetables.

Extensive natural variation occurs in the nutrient composition of individual fruit and vegetable types. The main sources of variation are cultivar, season, growing location and degree of ripeness. Post-harvest storage and processing also affect nutrient composition. Fruits and vegetables are rich sources of vitamin C and carotenes. Substantial data documents the natural variation in levels of these nutrients, with differences of more than ten-fold being common between cultivars.

Phytosanitary doses of irradiation typically range from 0.15 to 1 kGy. At these doses, there is no effect of irradiation on macronutrients or minerals. However, the effect on vitamins is less clear, with Vitamins A, C, E and Thiamine being most sensitive to irradiation. Fruits and vegetables generally have high levels of carotenes and Vitamin C but are not major contributors to intakes of Vitamin E or Thiamine, therefore this review focused on Vitamin C and carotenes. Review of the published literature demonstrated that phytosanitary doses of irradiation:

- had no effect on carotene levels in fruits and vegetables
- did not decrease Vitamin C levels in the majority of fruits and vegetables
- had little effect on other non-vitamin bioactive compounds.

In some cultivars of some fruits Vitamin C levels decreased following irradiation. However, in the majority of these cases the Vitamin C content of irradiated fruit remained within the range of natural variation. In addition, when the effects of these changes were compared to dietary consumption patterns it was evident that these changes were unlikely to impact on dietary Vitamin C intakes in Australia and New Zealand. As carotene levels were unaffected by phytosanitary doses of irradiation it can also be concluded that carotene intakes would not be compromised.

From these data it can be concluded that phytosanitary doses of irradiation do not pose a nutritional risk to the Australian and New Zealand populations. It is therefore recommended that the data requirements for applications to irradiate fruits and vegetables can be streamlined to focus on data for Vitamin C, with requirements for other nutrients to be determined on a case-by-case basis.

Link: <http://www.foodstandards.gov.au/publications/Pages/Nutritional-impact-of-phytosanitary-irradiation-of-fruits-and-vegetables.aspx>

FDA, Federal Partners Develop Improved Method for Attributing Foodborne Illness

The U.S. Food and Drug Administration (FDA), the Centers for Disease Control and Prevention (CDC) and the USDA's Food Safety and Inspection Service (FSIS) have developed an improved method for analyzing outbreak data to determine which foods are responsible for illness related to four major foodborne bacteria. Today, the three agencies released a report on the new method.

The report, titled "Foodborne Illness Source Attribution Estimates for Salmonella, Escherichia coli O157 (E. coli O157), Listeria monocytogenes (Lm), and Campylobacter using Outbreak Surveillance Data," was produced by the Interagency Food Safety Analytics Collaboration (IFSAC). A partnership of the three agencies, IFSAC focuses on foodborne illness source attribution, which is the process of estimating the most common food sources responsible for specific foodborne illnesses.

The report briefly summarizes IFSAC's methods and results, including estimated attribution percentages for the four pathogens named in its title. CDC estimates that, together, these four pathogens cause 1.9 million cases of foodborne illness in the United States each year.

The agencies anticipate that IFSAC's work will enhance their efforts to prevent foodborne illness. The new estimates, combined with other data, may shape agency priorities and support the development of regulations and performance standards and measures, among other activities. The recently developed method employs new food categories that align with those used to regulate food products and emphasizes more recent outbreak data.

As outlined in the report, IFSAC analyzed data from nearly 1,000 outbreaks that occurred from 1998 to 2012 to assess which categories of foods were most responsible for making people sick with Salmonella, E. coli O157, Listeria, and Campylobacter. IFSAC experts divided food into 17 categories for the analysis. The pathogens were chosen because of the frequency or severity of the illnesses they cause, and because targeted interventions can have a significant impact in reducing them.

The report presents the methods behind the results and provides the amount of uncertainty around the estimates. Some of the findings include:

- More than 80 percent of E. coli O157 illnesses were attributed to beef and vegetable row crops, such as leafy vegetables.
- Salmonella illnesses were broadly attributed across food commodities, with 77 percent of illnesses related to seeded vegetables (such as tomatoes), eggs, fruits, chicken, beef, sprouts and pork.
- Nearly 75 percent of Campylobacter illnesses were attributed to dairy (66 percent) and chicken (8 percent). Most of the dairy outbreaks used in the analysis were related to raw milk or cheese produced from raw milk, such as unpasteurized queso fresco.
- More than 80 percent of Listeria illnesses were attributed to fruit (50 percent) and dairy (31 percent). Data were sparse for Listeria, and the estimate for fruit reflects the impact of a single large outbreak linked to cantaloupes in 2011.

Due to limitations in outbreak data and uncertainty in the estimates, IFSAC recommends caution in interpreting certain findings, such as the estimates for *Campylobacter* in dairy and *Listeria* in fruits. IFSAC suggests that the results be used with other scientific data for risk-based decision making.

Link: <http://www.fda.gov/Food/NewsEvents/ConstituentUpdates/ucm435256.htm>

Chemicals in Food Packaging

Food packaging prevents contamination, allows food to be transported easily and extends shelf life. Packaging also provides a surface for labeling and identification of products. Packaging materials also need to ensure that food is not contaminated from substances that could migrate from the packaging into food.

FSANZ is aware of reports that chemicals from food packaging might migrate into the food or liquid inside the food container or package. To assess whether chemicals that migrate from packaging into foods and beverages present any health and safety risks, in 2010 FSANZ surveyed a range of chemicals associated with packaging materials.

We analysed 65 foods and beverages packaged in glass, paper, plastic or cans for chemicals including phthalates, perfluorinated compounds, epoxidised soyabean oil (ESBO), semicarbazide, acrylonitrile and vinyl chloride.

The survey builds on the FSANZ survey of Bisphenol A (BPA) in foods published in 2010.

• **What did the survey find?**

The survey results were very reassuring with no detections of phthalates, perfluorinated compounds, semicarbazide, acrylonitrile or vinyl chloride in food samples.

ESBO, which is produced from soyabean oil and is used in a range of plastics to give the plastic safe and airtight mechanical properties to form a good seal between a food container and its lid, was detected at very low levels in a small proportion of samples analysed. These levels were well below international migration limits set by the European Union and don't pose a risk to human health and safety.

Read the 2010 survey by FSANZ: Survey of chemical migration from food contact packaging materials in Australian food

• **What is FSANZ doing now about chemicals in food packaging?**

FSANZ is undertaking work on Proposal P1034 to assess whether there are any unmanaged public health and safety risks relating to chemical migration from packaging into food. As part of this project FSANZ is assessing data from phase 2 of the 24th Australian Total Diet Study.

We have released a consultation paper for public comment. The paper provides an overview of potential public health risks, the packaging supply chain and current control measures. FSANZ is seeking further information, particularly from smaller to medium sized businesses, about the kinds of packaging being used and measures in place to ensure safety.

In New Zealand, businesses operating a Risk Management Programme under the Animal Products Act 1999 or a Food Safety Programme under the Food Act 1981 must take responsibility for identifying hazards and mitigating them in their operations. This includes hazards associated with materials that come into contact with food.

Link: <http://www.foodstandards.gov.au/consumer/chemicals/foodpackaging/Pages/default.aspx>

Best Practices

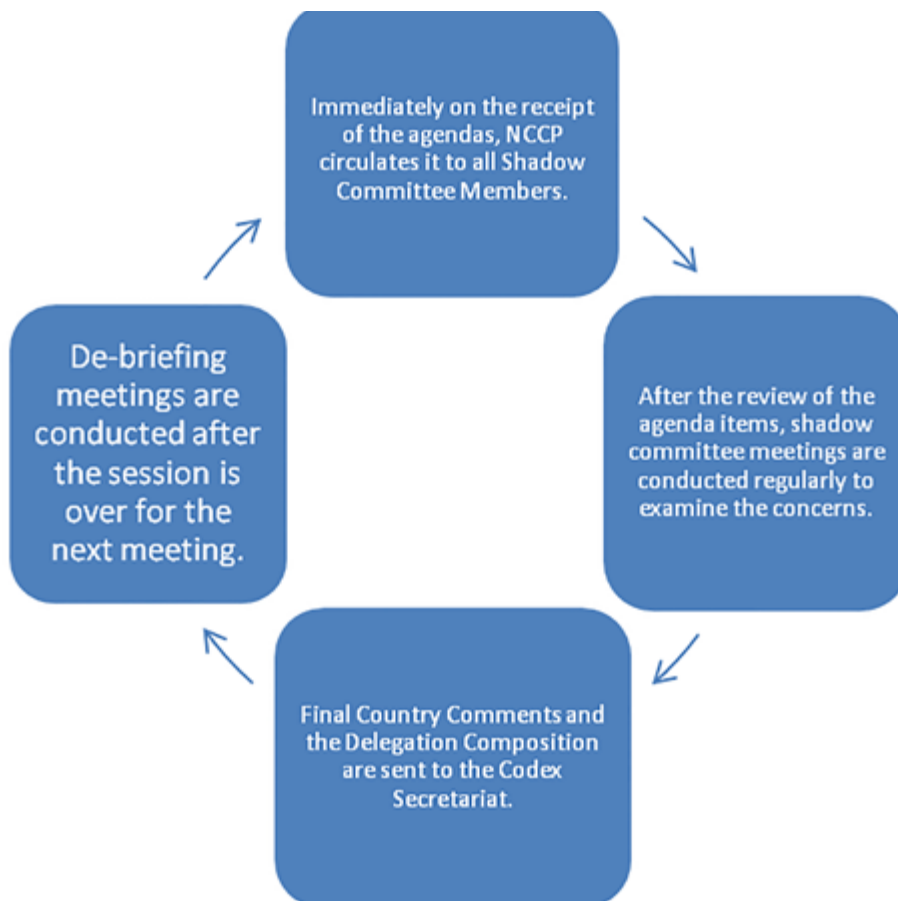
Best Practices: Ensuring Wider Stakeholder Participation in Codex Alimentarius Work

The Codex Alimentarius Commission is an intergovernmental body of the United Nations, established by FAO and WHO in 1963. It develops harmonised international food standards, guidelines and codes of practice to protect the health of the consumers and ensure fair practices in the food trade. The Commission also promotes coordination of all food standards work undertaken by international governmental and non-governmental organizations.

India is a member of Codex Alimentarius since 1964.

The Codex Contact Point of India, i.e., National Codex Contact Point (NCCP) is set up at **Food Safety and Standards Authority of India (FSSAI)**.

1. For each Codex Committee, a parallel Shadow Committee has been formulated that works for that particular Codex Committee. “**Shadow Committee**” means the Committees of the National Codex Committee constituted by the Food Authority for reviewing the agenda of the Codex Alimentarius Commission and its subsidiary Committees and finalizing India’s comments on various agenda items.



2. The various stakeholders for each committee are representatives from different ministries like Ministry of Health and Family Welfare, Ministry of Commerce, Women and Child Development, Ministry of Agriculture, Ministry of Food Processing and Department of Animal Husbandry and Dairy Fisheries, representatives from educational institutions, representatives from Industry Associations like Confederation of Indian Industry and FICCI and experts/scientists from concerned areas.

3. NCCP India receives the provisional agenda and the detailed agenda items from the Codex Secretariat electronically, which is then further circulated to all the Shadow Committee members.
4. After reviewing the agenda items, Shadow Committee Meetings are conducted to formulate India's viewpoints on the various agenda items and decide the Delegation for the meeting.
5. For highly technical Meetings like those on additives or contaminants, small technical group meetings are conducted in between the Shadow Committees to analyse and examine each agenda item carefully.
6. The view points are thereafter sent to the Codex Secretariat.
7. India also actively participates in the various Electronic Working Groups that are constituted by the Codex Alimentarius Commission to undertake work between the sessions. In this way, the members are actively involved. India participated in 62 number of EWGs during the year 2013 – 2014.
8. After the Codex Session is over, the Delegation submits the report of the meeting to NCCP highlighting all the major concerns of India, the interventions, the decisions and the future course of action.
9. De-Briefing Meetings are conducted after the Codex Sessions are over and the future course of action for the next meeting is deliberated upon.
10. To disseminate information about the Codex India work, an electronic newsletter Connect@CodexIndia is also published electronically and 6 issues have been published till now.

Upcoming Events

SI No.	Event	Venue	Organizer	Date	Link
1	Codex Committee on Pesticide Residues	TBA China	CODEX	13 th April to 18 th April 2015	http://www.codexalimentarius.org/meetings
2	Codex Committee on Residues of Veterinary Drugs in Foods	San Jose: Costa Rica	CODEX	27 th April to 01 st May 2015	http://www.codexalimentarius.org/meetings
3	FAO/WHO Coordinating Committee for Near East	Beirut Lebanon	CODEX	18 th May to 22 nd May 2015	http://www.codexalimentarius.org/meetings

Dietary Fats And Their Relevance To Heart Disease

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Fat is an important macro nutrient. It is essential because

1. It forms almost one third of our body
2. Every cell needs fat for its structure and function
3. Fat is a concentrated source of energy providing 9 kcals/gm compared with carbohydrates or protein which yields only 4 kcals/gm.
4. Fat is also required for the absorption of fat soluble vitamins like vitamins A, D E and K. Above all it is needed for the texture and taste of food.

Fats are made up of two components, (a) Fatty Acids and (b) Glycerol. The fatty acids have a chain of Carbon atoms which may range in number from 4 to 24. Fatty acids and the fats which have carbon chain of lengths less than 6 are called as short chain fatty acids, those with 6 to 12 Carbon atoms are medium chain fatty acids and the one with 14 to 24 are called long chain fatty acids.

These carbon atoms are connected with each other with single bonds and are called Saturated Fatty Acids (SFA). If there is any double bonds in between then they are categorized as unsaturated fatty acids. If there is a single double bond then it is a Mono Unsaturated Fatty Acid (MUFA) and if there are more than one double bond then they are called Poly Unsaturated Fatty Acids (PUFA).

In PUFA if the double bond is present on the 6th Carbon atom from one end (methyl end) of the carbon chain it would be a n6 or omega 6 fatty acid and if it is located in the 3rd Carbon atom it is called n3 or Omega 3 fatty acid.

These double bonds are mostly in a cis-configuration i.e. the Hydrogen atoms are on the same side. However when unsaturated liquid oils are partially hydrogenated this changes to Trans i.e. the Hydrogen atoms would be on opposite sides. Such fats are known as Trans-fat which causes the maximum harm to the body by increasing heart disease risk as well as an adverse affect on many metabolic functions and causes inflammation. (Ghafoorunissa 2008).

The n6 fats available from vegetarian sources like sunflower, safflower, rice bran etc. contain the shorter chain Linoleic acid which gets converted in the body into the longer chain Arachidonic Acid. Similarly the veg version of n3 which is alpha Linolenic Acid gets converted to long chain n3 PUFA, DHA and EPA in the body. DHA and EPA are also readily available from fish and fish oils. These are required for many cell membrane functions, known to reduce the risk of clot formation (Ghafoorunissa 2002) in the blood and helps in brain development in the growing brain of foetus and young children as well as brain function. The fatty acid composition of some of the commonly used oils are given in the table

Approximate fatty acid composition of dietary fats and oils consumed in India (% of total fatty acids)

Fats/ oils	SFAs*	MUFAs**	LA /n6	ALA /n3
High (medium chain) SFAs				
Coconut	92	6	2	-
Palm kernel	83	15	2	-
Butter/Ghee	68	29	2	1
High SFAs & MUFAs				
Palmolein	39	46	11	<0.5
High MUFAs & Moderate LA				
Groundnut	19	41	32	<0.5
Rice bran	17	43	38	1
Sesame	16	41	42	<0.5
High LA				
Cottonseed	24	29	48	1
Corn	12	35	50	1
Safflower	9	13	75	-
Sunflower	12	22	62	-
LA & ALA				
Soyabean	14	24	53	7
Canola	6	60	22	10
Mustard/rapeseed	4	65	15	14
Flaxseed	10	21	16	53
High TFAs				
Vanasapti	46	49	4	-

* Saturated Fat; ** Mono Unsaturated Fat ;
(from Recommended Dietary Allowances for Indians ICMR publication 2011)

The recommended relative intakes of various types of fats are 1/3 saturated fats, 1/3 MUFA and 1/3 PUFA. The PUFA should be comprised of at-least 20% as n3 while the rest could be n6. It can be seen from the table that no single oil can provide all the different types of fatty acids in the desired proportion.

It is recommended that one should take a variety of oils of which at least 25% should come from a n3 containing oil like soyabean oil, Canola, Mustard or flaxseed oils. It is preferable to consume the different varieties of oil by rotation rather than mixing. While olive oil is a MUFA rich oil (>70%) , tropical oils like ground nut, rice bran, sesame, mustard and palm oils also contain almost 40 to 60% of MUFA and will be able to meet our RDA.

Genetically and due to the high carbohydrate content of our diets, our lipid profiles are unlike from western countries. Our total cholesterol levels are generally not very high but our LDL cholesterol is made up of small sized particles (small dense LDL) and the triglyceride levels are also high. These are known to be associated with a higher risk of heart diseases. (Kulkarni et al 1999)

We also have lower levels of the HDL or good cholesterol which can be increased only through good physical activity or regular exercise. The above lipid profile renders us vulnerable to atherosclerosis and the consequences thereof. Our lipid profiles cannot be regulated only with modification of our fat intake but primarily by lowering the intake of highly refined and easily digestible carbohydrates and increasing physical activity.

The recommended intake of fats for a sedentary adult male is about 25 gm of visible fat / day and about 20 gm for a sedentary adult female. This should be taken into consideration that all sources of food which we eat particularly processed foods and snack foods contain a large amount of fat.

Recommendations for dietary fat intake in Indians

Age/Sex/ physiological groups	Physical activity	Minimum level of Total fat (%E)	Fat from foods other than visible fats %E	Visible fat	
				%E	g/p/d
Adult Man	Sedentary	20	10	10	25
	Moderate				30
	Heavy				40
Adult Woman	Sedentary	20	10	10	20
	Moderate	20			25
	Heavy	20			30
	Pregnant women	10	10	30	
	Lactating women			30	
Infants	0 – 6 months	40-60	Human Milk		
	7- 24 months	35	10	25	
Children	3-6 years	25	10	15	25
	7-9 years				30
Boys	10 – 12 years				35
	13 – 15 years				45
	16 – 18 years				50
Girls	10 – 12 years				35
	13 – 15 years	40			
	16 – 18 years	35			

(from Recommended Dietary Allowances for Indians ICMR publication 2011)

RECOMMENDATIONS FOR TYPE OF VISIBLE FAT

1.	<p>Use correct combination / blend of 2 or more vegetable oils (1:1)</p> <p><i>Oil containing LA + oil containing both LA and ALA</i></p> <p>Groundnut / Sesame/ Rice bran / Cottonseed + Mustard/ Rapeseed Groundnut /Sesame / Rice bran / Cottonseed + Canola Groundnut / Sesame/ Rice bran/ Cottonseed + Soyabean Palmolein + Soyabean Safflower / Sunflower + Palm oil/Palmolein+ Mustard/ Rapeseed</p> <p><i>Oil containing high LA + oil containing moderate or low LA</i></p> <p>Sunflower / Safflower + Palmolein/ Palm oil / Olive Safflower / Sunflower + Groundnut / Sesame / Rice bran / cottonseed</p>
2.	Limit use of butter/ghee
3.	Avoid use of PHVO (partially hydrogenated vegetable oils) as medium for cooking / frying
4.	<p>Replacements for PHVO</p> <p>Frying : oils which have higher thermal stability -- palm oil / palmolein sesame, rice bran, cottonseed -- single / blends (home /commercial)</p> <p>Bakery fat, shortening, Mithai / Indian sweets etc -- Food applications which require solid fats : coconut oil/ palm kernel oil/ palm oil / palmolein/ palm stearin and / their solid fractions and / their blends.</p>

(From Recommended Dietary Allowances for Indians ICMR publication 2011)

Data from surveys conducted by the National Nutrition Monitoring Bureau (NNMB- www.nnmbindia.org) have shown a wide variation in the intakes of fat across the country. We have rural low socioeconomic groups where the intakes are well below the RDA, i.e. 6 gm to 22 gm/ adult/day. They are suffering from chronic energy deficiency and need to increase their fat intakes.

In the middle and upper income groups in urban areas, the intakes are more than the recommended value i.e. 22 to 45 gm. This is contributing to overweight, obesity, and the chronic degenerative diseases, so their intakes should be curtailed. In combination with decreased physical activity, a high carbohydrate intake and reduced energy expenditure diseases like diabetes, hypertension, heart attacks and cerebral strokes have gone up. Some forms of cancer like prostate cancer in the male, breast and endometrial cancers in the female and colon cancers are associated with higher body fat.

Several clinical and epidemiological studies have demonstrated that how change in fat intake could alter the risk of coronary heart disease. (Eckel RH et al 2013) If one need to reduce the saturated fat intake and instead replace with carbohydrates, the LDL or bad cholesterol may come down but along with it the good or HDL cholesterol also comes down and the triglyceride levels go up which makes the matter worse.

Continued

Considering MUFA as a beneficial fat if we replace the saturated fat with MUFA containing oils, LDL decrease but HDL also comes down thus minimizing the advantage since the ratio of bad to good cholesterol still remains the same.

If we replace Saturated fat with PUFA rich oil, LDL comes down significantly, HDL does not come down much, additionally triglycerides also come down. As mentioned earlier it should be ensured that there should be adequate n3 and the PUFA should not be an exclusively n6 type.

Research has also shown that saturated fat from dairy are relatively better than that coming from red meat. Comparing saturated fat intakes from dairy like Butter with saturated fat from veg oil sources, there are no significant differences for cardio vascular disease risks. (Marcia C- de Oliveira Otto et al 2012)

A lower ratio of total cholesterol to HDL cholesterol is even possible with saturated fatty acids like Stearic acid and Lauric acid (Michal and Mozzafarian 2010).

Recent review of evidences shows that lowering dietary cholesterol intakes may not translate into lower blood cholesterol levels but cholesterol intake of about 200- 300mg / day may not worsen the blood cholesterol levels. (Dietary Guidelines Advisory Committee USA 2015)

In summary

1. Reducing carbohydrate intakes has much greater benefits of lowering heart disease risks than saturated fats alone
2. PUFA rich oils have significant benefits (Willett WC 2012)
3. There should be a balance of saturated, MUFA , n6 PUFA and n3 PUFA to get the best advantage
4. Quantity of fat consumed should be within the RDA and should be balanced with physical activity
5. Rotation of the oils in our household use with at least 25% of n3 containing oil
6. Eliminate trans fat intake or minimize it to less than 1% of the total dietary intake (read food labels)
7. Cholesterol intakes within the RDA limit is not a harm. Those with higher blood cholesterol levels may get better benefits through medical treatment.
8. Reducing red meat and increasing fish, tree nuts, soya may provide significant benefits in lowering heart disease risks.
9. Increasing vegetable and fruit intake also indirectly reduce heart disease risks

References:

- 1.Ghafoorunissa : Asia Pacific J Clin Nutr, 2008
- 2.Recommended Dietary Allowances for Indians , ICMR publication 2011
- 3.Ghafoorunissa : Lipids 2002
- 4.Kulkarni et al; Arterioscler Thromb Vasc Biol 1999
- 5.Uauy R, Aro A, Clarke R, Ghafoorunissa et al; WHO scientific update on transfatty acids.Summary and Conclusions Eur J Clin Nutri, 2009
- 6.Eckel RH et al Circulation 2013. AHA/ACC lifestyle management Guidelines
- 7.Marcia C-de Oliveira Otto et al; AJCN, 2012
- 8.Michal and Mozzafarian. Lipids 2010
- 9.Willett WC Dietary Fats and Coronary heart Disease (Review) J Intern Med 2012

#FoodRegistrationLicensing

A campaign was initiated on FSSAI's Facebook page in the months of January, 2015 and February, 2015 to make aware Food Business Operators about registration and license of food businesses. Key details related to Registration & License of the Food Business Operators as prescribed in the Food Safety and Standards Act, 2006 and Regulations made thereunder were shared during the campaign.

#FoodRegistrationLicensing 

Section-64

(1) If any person, after having been previously convicted of an offence punishable under this Act subsequently commits and is convicted of the same offence, he shall be liable to :

(i) twice the punishment, which might have been imposed on a first conviction, subject to the punishment being maximum provided for the same offence;

(ii) a further fine on daily basis which may extend up to one lakh rupees, where the offence is a continuing one; and

(iii) his licence shall be cancelled.

धारा - 64

(1) यदि कोई व्यक्ति इस अधिनियम के अधीन दंडनीय किसी अपराध के लिए पूर्व में सिद्ध ठहराए जाने के पश्चात पश्चातपर्वी अपराध करता है और उसी अपराध के लिए दोबारा दंडित किया जाता है, तो वह :

(i) दुगुने दंड के लिए दायी होगा जो पहली दोषीति पर अधिसूचित किया जाता और वह उसी अपराध के लिए उपस्थित अधिकतम दंड के अधीन रहने हुए होगा;

(ii) दैनिक आधार पर कोई और जुर्माना जो एक लाख रुपये तक का हो सकेगा, जहां अपराध जारी रहने वाला अपराध है; और

(iii) उसकी अनुज्ञप्ति रद्द कर दी जाएगी;

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#FoodRegistrationLicensing 

As per the Section - 31 of the Food Safety and Standards Act , 2006, no person shall commence or carry on any food business except under a license

खाद्य संरक्षा एवं मानक अधिनियम 2006 की धारा - 31 के अनुसार, कोई भी व्यक्ति कोई खाद्य कारोबार अनुज्ञप्ति के अधीन ही प्रारंभ करेगा या उसे चलाएगा अन्यथा नहीं

सुरक्षित आहार, स्वास्थ्य का आधार

#FoodRegistrationLicensing 

The Food Business Operator carrying out business without license comes under the purview of the Section 63 & 64 under the Food Safety and Standards Act, 2006, under which there is a provision for imprisonment as well as fine

बिना अनुज्ञप्ति के व्यापार करने वाले खाद्य कारोबारकर्ता खाद्य संरक्षा एवं मानक अधिनियम, 2006 की धारा - 63 और 64 के दायरे में आता है जिसके अंतर्गत कारावास के साथ जुर्माने का प्रावधान है।



**And
और**




Imprisonment for a term which may extend to six months

कारावास जिसकी अवधि छह महीने तक की हो सकती है

Fine which may extend to five lakh rupees

जुर्माना जो की पांच लाख रुपये तक का हो सकता है

सुरक्षित आहार, स्वास्थ्य का आधार

#FoodRegistrationLicensing 

Section-63

If any person or food business operator (except the persons exempted from licensing under sub-section (2) of section 31 of this Act), himself or by any person on his behalf who is required to obtain licence, manufacturers, sells, stores or distributes or imports any article of food without licence, shall be punishable with imprisonment for a term which may extend to six months and also with a fine which may extend to five lakh rupees.

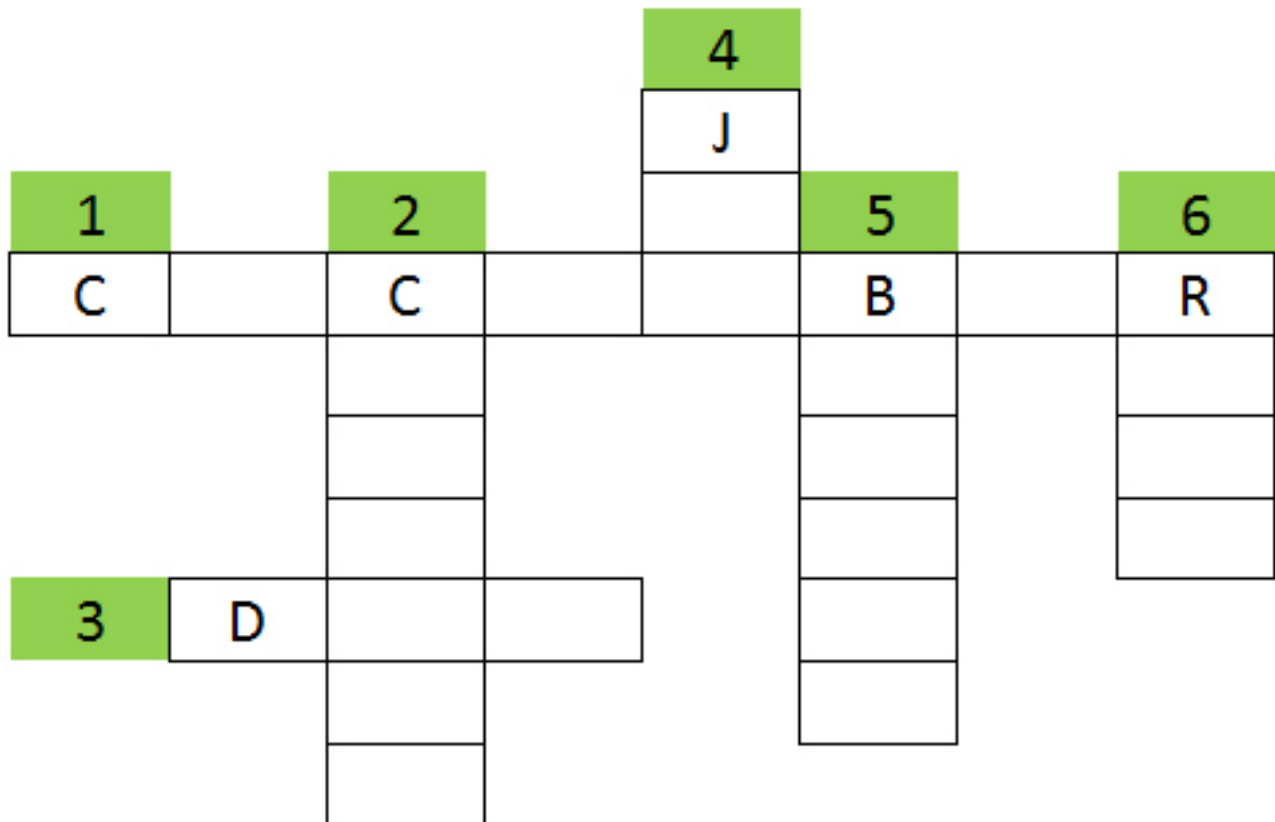
धारा - 63

यदि कोई व्यक्ति या खाद्य कारोबारकर्ता (इस अधिनियम की धारा - 31 की उपधारा (2) के अधीन अनुज्ञाप न से छूट प्राप्त व्यक्तियों को छोड़कर) स्वयं या उसकी ओर से कोई व्यक्ति जिससे अनुज्ञप्ति प्राप्त करना अपेक्षित है, बिना अनुज्ञप्ति के किसी खाद्य पदार्थ का विनिर्माण, विक्रय, भंडार या वितरण या आयात करेगा, तो वह कारावास से जिसकी अवधि छह मास तक हो सकेगी और जुर्माने से भी जो पांच लाख रुपये तक का हो सकेगा, दंडनीय होगा।

सुरक्षित आहार, स्वास्थ्य का आधार

Cross-Word Puzzle

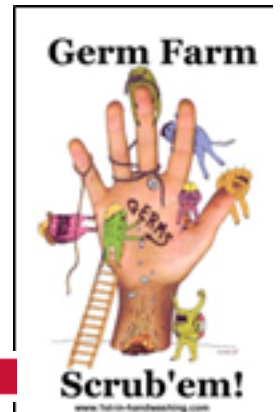
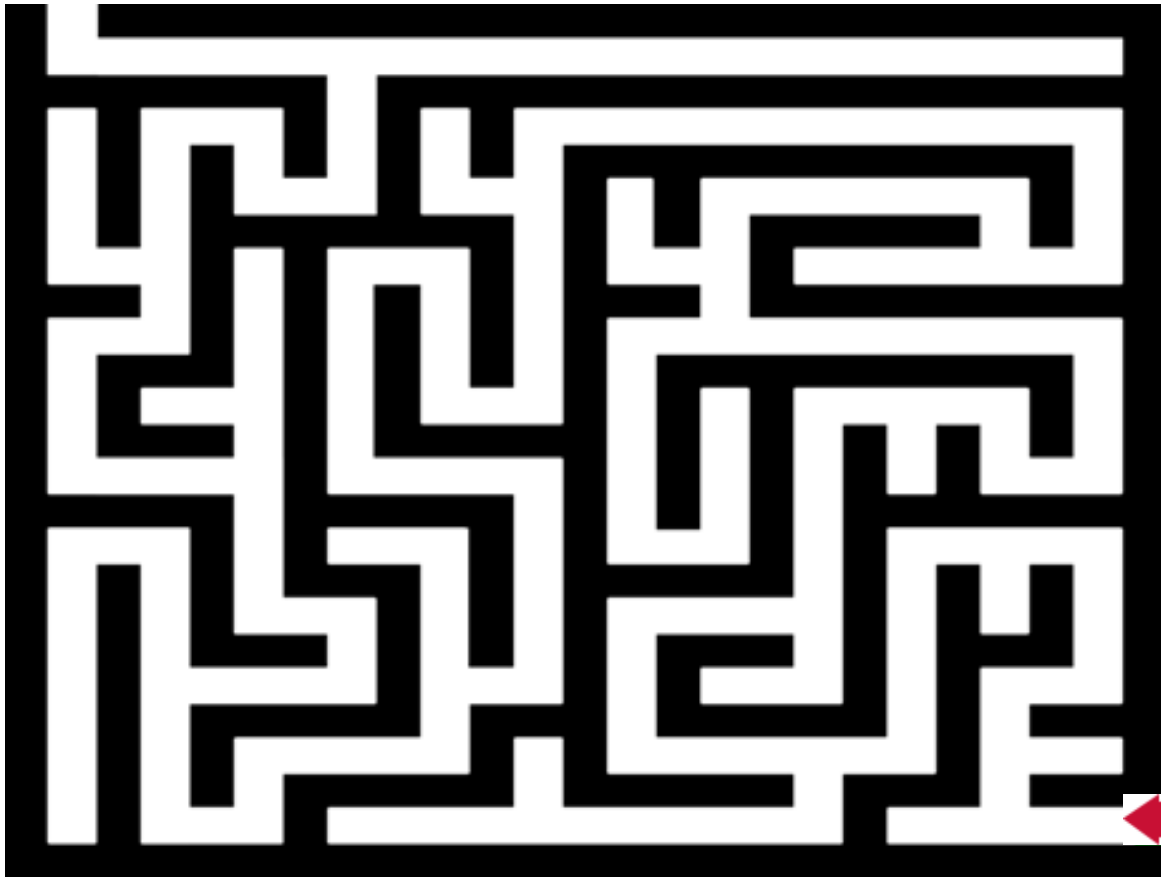
Cross Word Puzzle on Healthy Tiffin



Hint:

1. The green fruit used in Salad
2. The round shaped food made from wheat
3. Yellow yellow tasty fellow
4. It makes the breakfast yummy
5. Monkey's favourite fruit
6. White coloured grains comes from paddy

Crazy Maze



Solved Cross Word Puzzle on Healthy Tiffin

				4			
				J			
1		2		A	5		6
C	U	C	U	M	B	E	R
		H			A		I
		A			N		C
		P			A		E
					N		
3	D	A	L		A		
		T					
		I					

Photo Album/Image Gallery



CEO, FSSAI with delegations from Sweden



The inaugural function of the Mass Contact Activation Programme (MCAP) in Uttar Pradesh



Training of Technical Officers at FSSAI, Kolkata



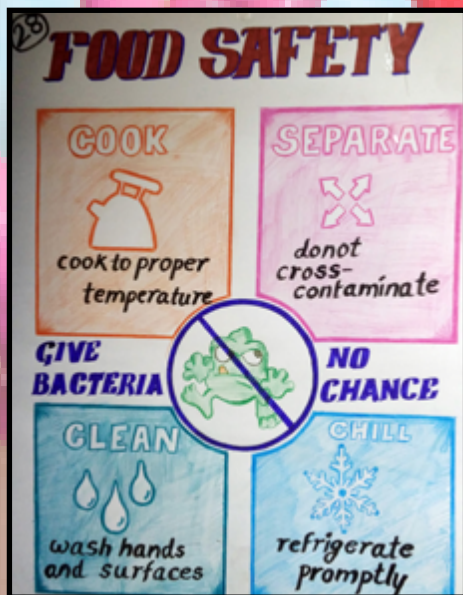
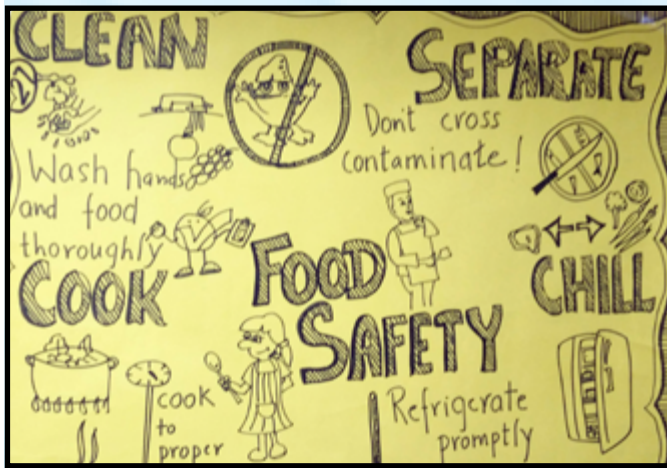
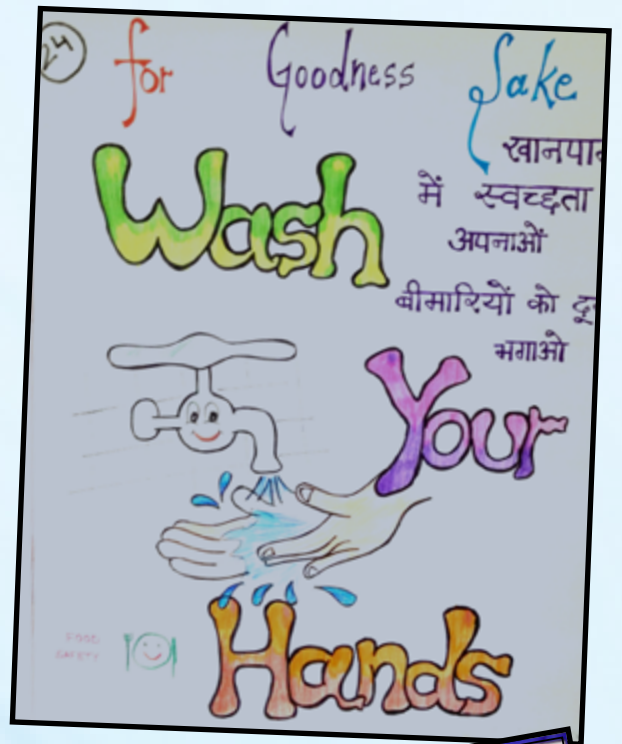
Registration of participants for 13th Meeting of the Central Advisory Committee (CAC)



13th Meeting of the Central Advisory Committee (CAC)



Interaction during break (Meeting of the CAC)



Paintings made by the students of Lady Hardinge Medical College, New Delhi on Food Safety, World Health Day theme.



सुरक्षित आहार, स्वास्थ्य का आधार

fssai

FOOD SAFETY AND STANDARDS AUTHORITY OF INDIA

(Ministry of Health and Family Welfare)

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