

# Lentils

## Food Safety and FSSAI Regulations



**AATMANIRBHAR BHARAT**  
**Pm Formalisation Of Micro Food Processing**  
**Enterprise Scheme (PM FME Scheme)**

## FOOD SAFETY

- Food safety is used as a scientific discipline describing handling, preparation, and storage of food
- Food safety refers to routine designed to prevent foodborne illness.
- Food products can face health risks during from farm to plant to fork.
- In order to curb these risks and avoid harm to customers, healthy food handling practices and procedures are therefore implemented at every point of the life cycle of food production.
- The principles aim to prevent food from becoming contaminated and causing food poisoning.
- It is achieved through a variety of different avenues.

Handling

Preparation

Storage

Prevent  
Food Borne

## THE IMPORTANCE OF FOOD SAFETY

- Satisfied customers
- Loyal and confident customers
- Good reputation – customer recommendations
- Operating costs under control
- Profit
- Legal compliance – no criminal prosecutions or civil lawsuits
- Pleasant working environment
- Healthy employees
- Motivated employees
- Better job security



## COSTS OF POOR FOOD SAFETY

- Consumer complaints and loss of custom
- Loss of income
- Operating costs increase – employee absenteeism, reduced productivity, food wasted
- Increased insurance premiums
- Lost profit
- Court cases and bad publicity
- Legal fees and possible lawsuit damages



## FOOD CONTAMINATION

- Food contamination refers to foods that are spoiled or infected because they either contain microorganisms, such as bacteria or viruses, or poisonous compounds that make them unfit for eating.

Physical

Chemical

Biological

Microbiological



# PHYSICAL HAZARDS



- Objects that gets into the food during preparation or serving
- Equipment part
- Damaged utensils
- Cleaning Brush

## HOW TO PREVENT PHYSICAL HAZARDS

- Hair restraint using suitable cap or hair net
- Long sleeve uniform
- Jacket's pocket always empty
- Clean environment, closed windows and doors to avoid
- Dust coming from outside
- Equipment well maintained (check the screws, the plastic accessories...)
- Avoid the usage of deteriorated utensils
- Ceiling and walls well maintained





# CHEMICAL HAZARDS



- Mycotoxins
- Natural Toxins
- Marine Toxins
- Environmental Contaminants
- Food Additives
- Processing-induced chemicals
- Pesticides/Agricultural Products
- Veterinary Drug Residues

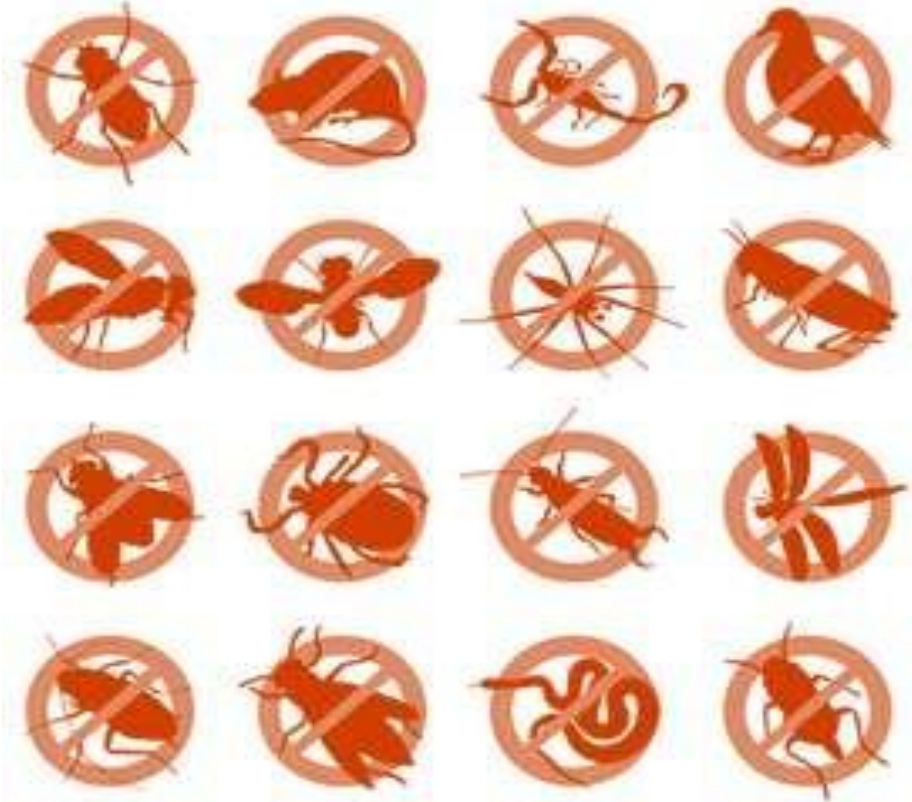


## HOW TO PREVENT CHEMICAL HAZARDS

- Designate a suitable area away from food to store the detergent
- Label the detergent with name and usage
- Rinse with water utensils and equipment after using detergents (White vinegar is ideally to remove the detergent)
- Do not mix between food containers and cleaning containers
- Always check the water you are using, regularly check the filtering system.
- Regularly check the ventilation system
- Cover the food when you are using the pesticides, sanitize everything afterward



## BIOLOGICAL HAZARDS



- Several insects may transfer food poisoning bacteria to food.
- Flies often land on animal faeces where they pick up large numbers of bacteria on their hairy body.
- In addition they poop and vomit previous meals back onto the food as they feed.
- Cockroaches often lives in sewers and commonly feed on infected waste.

# HOW TO PREVENT BIOLOGICAL HAZARDS

- Clean and sanitize the working area
- Clean the unreachable places (Corners...)
- Maintain walls, ceiling and floor to be free from holes
- Make sure that grain, sugar, flour are free from any sort of pest
- Regular pest control check
- Integrated pest management
- Efficient air curtains on doors
- Fly killers machine
- Cover food



# MICROBIOLOGICAL HAZARDS



- Bacteria,
- Yeasts,
- Moulds
- Viruses
- Protozoa

## HOW TO PREVENT MICROBIOLOGICAL HAZARDS

- Purchase foods from reputable suppliers.
- Refrigerate foods that need cold storage..
- Wash hands with soap and water hot enough to tolerate, especially after using the restroom.
- Thoroughly rinse raw vegetables and fruit before cutting or serving.
- Carefully wash cooking equipment, utensils, and food surfaces both before and after food preparation using soap and water hot enough to tolerate or in a dishwasher that uses water at a temperature that kills microorganisms.
- Separate cooked and raw foods to prevent cross-contamination.
- Follow instructions and advisories of local authorities
- Discard any food that has been time and temperature abused, has visible mold, is discolored, or has an unusual odor.

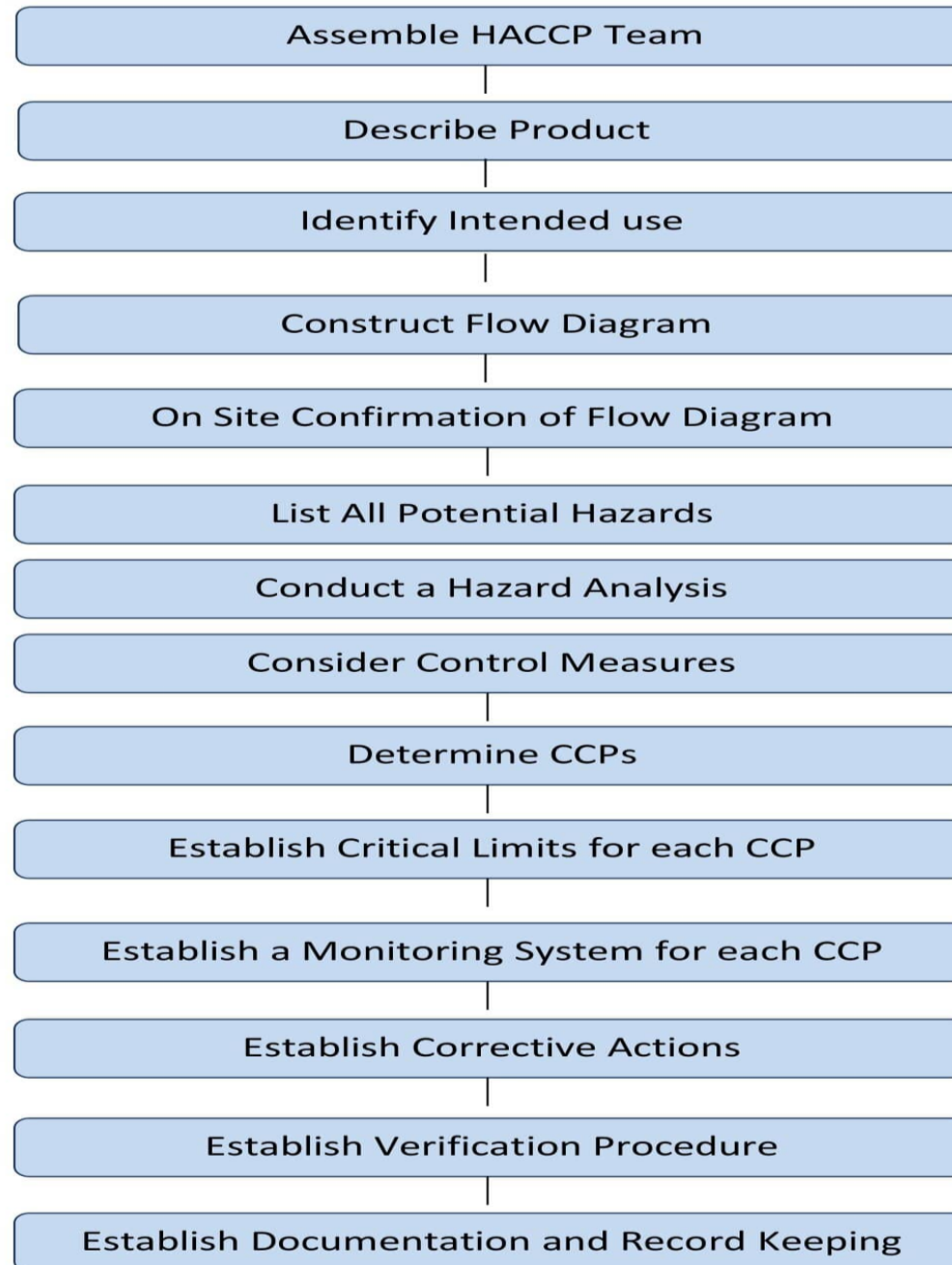


# HOW TO PREVENT CONTAMINATION

## HACCP

- HACCP – Hazard analysis and critical Control Points is a systematic risk-based approach
- to the prevention of biological, chemical and physical contamination of food in processing, packaging and distribution conditions.
- The HACCP concept is intended to resolve health risks by detecting possible food safety concerns before they emerge.
- The HACCP definition includes managing contaminants at a variety of key junctures in the food processing process and strict commitment to hygiene standards in the whole process.







- **GMP**

- Good Manufacturing Practices are globally accepted quality improvement principles for food, drinks, cosmetics, pharmaceuticals, dietary supplements and medical devices.

- These guidelines set out the procedures to be followed by producers to ensure that their products are reliably of good quality from batch to batch.

- including mandatory control points.

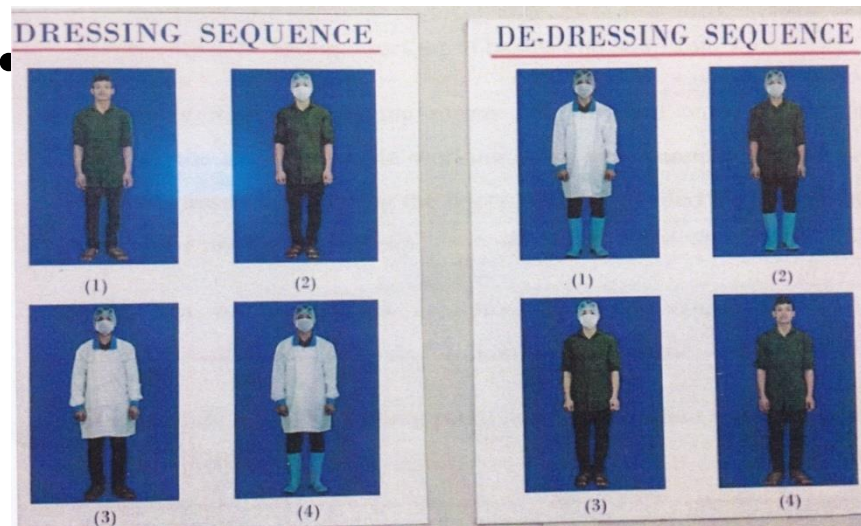
products at critical control



# SAFETY MEASURES

## PERSONAL HYGIENE

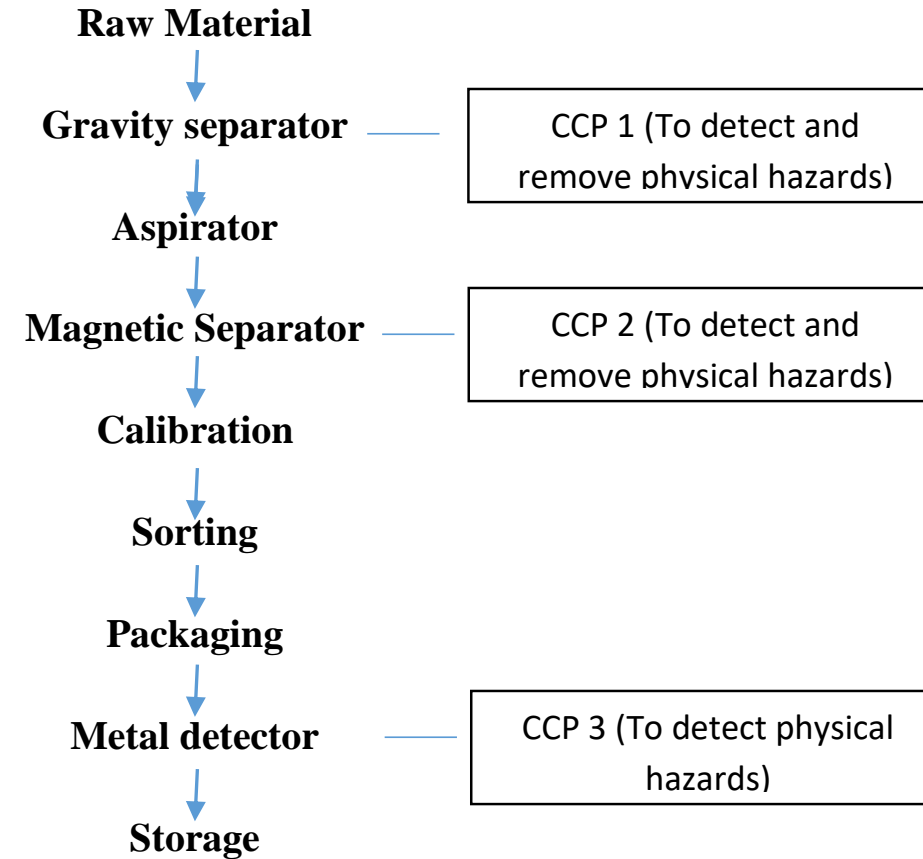
- Mask:- To avoid microbial contamination through mouth.
- Cap:- To avoid hair fall in to the food material
- Coat:- To avoid dust particle and other unwanted material entering in to the food material



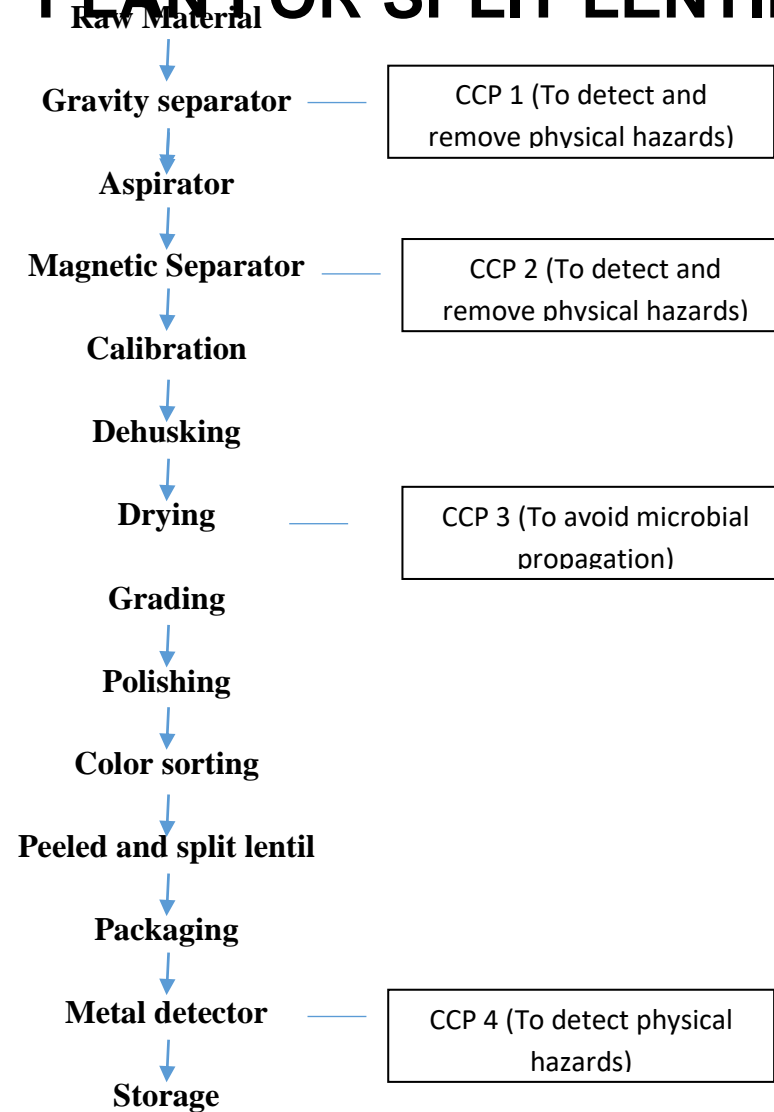
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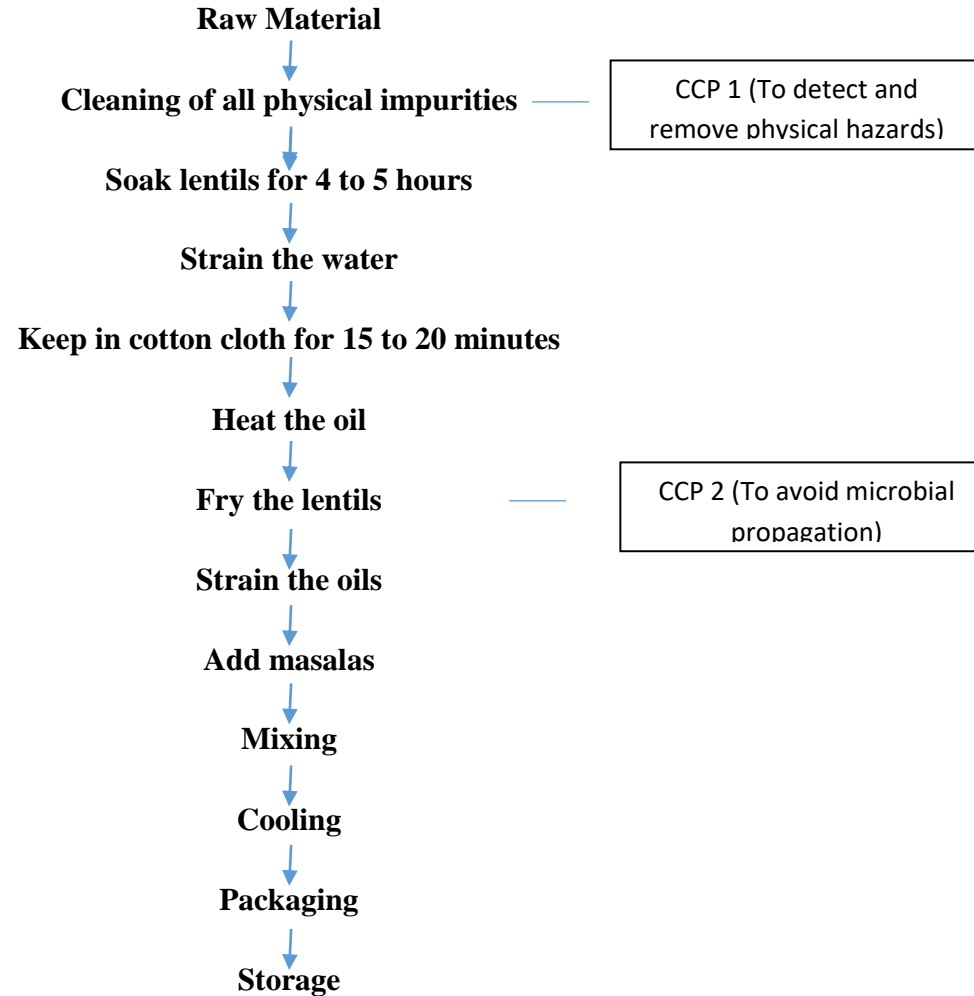
# 1. HACCP PLAN FOR WHOLE LENTIL



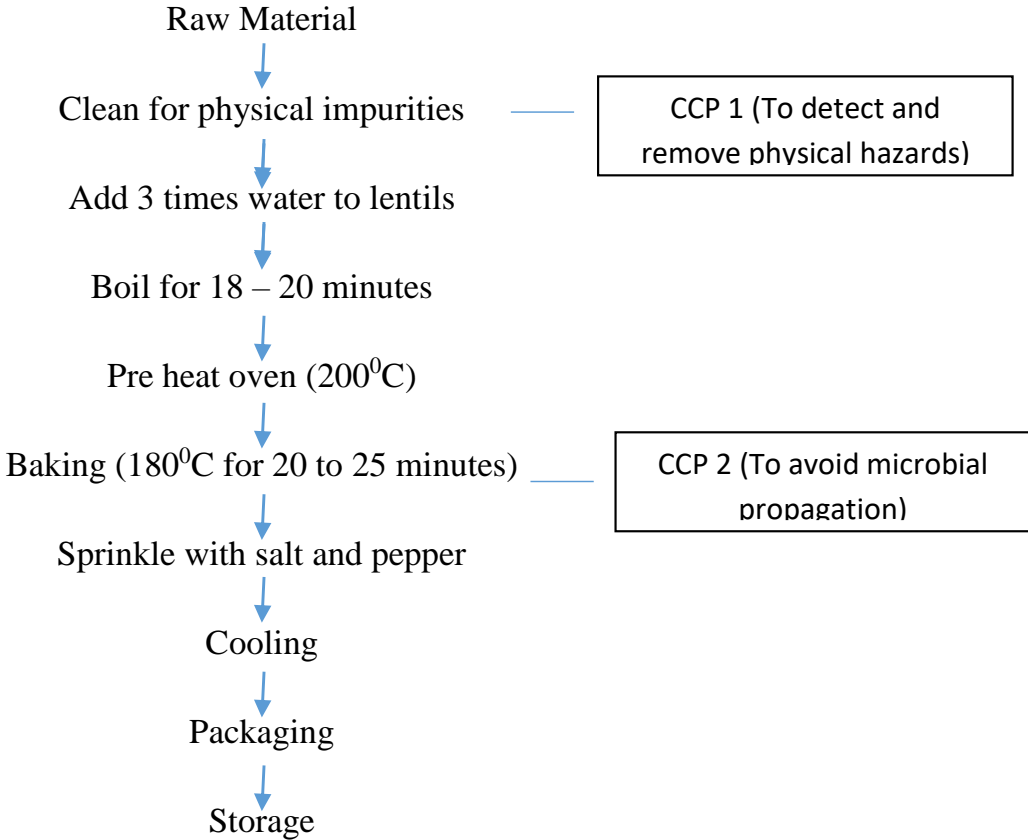
## 2. HACCP PLAN FOR SPLIT LENTIL PULSE



### 3. HACCP PLAN FOR FRIED CRISPY WHOLE LENTIL

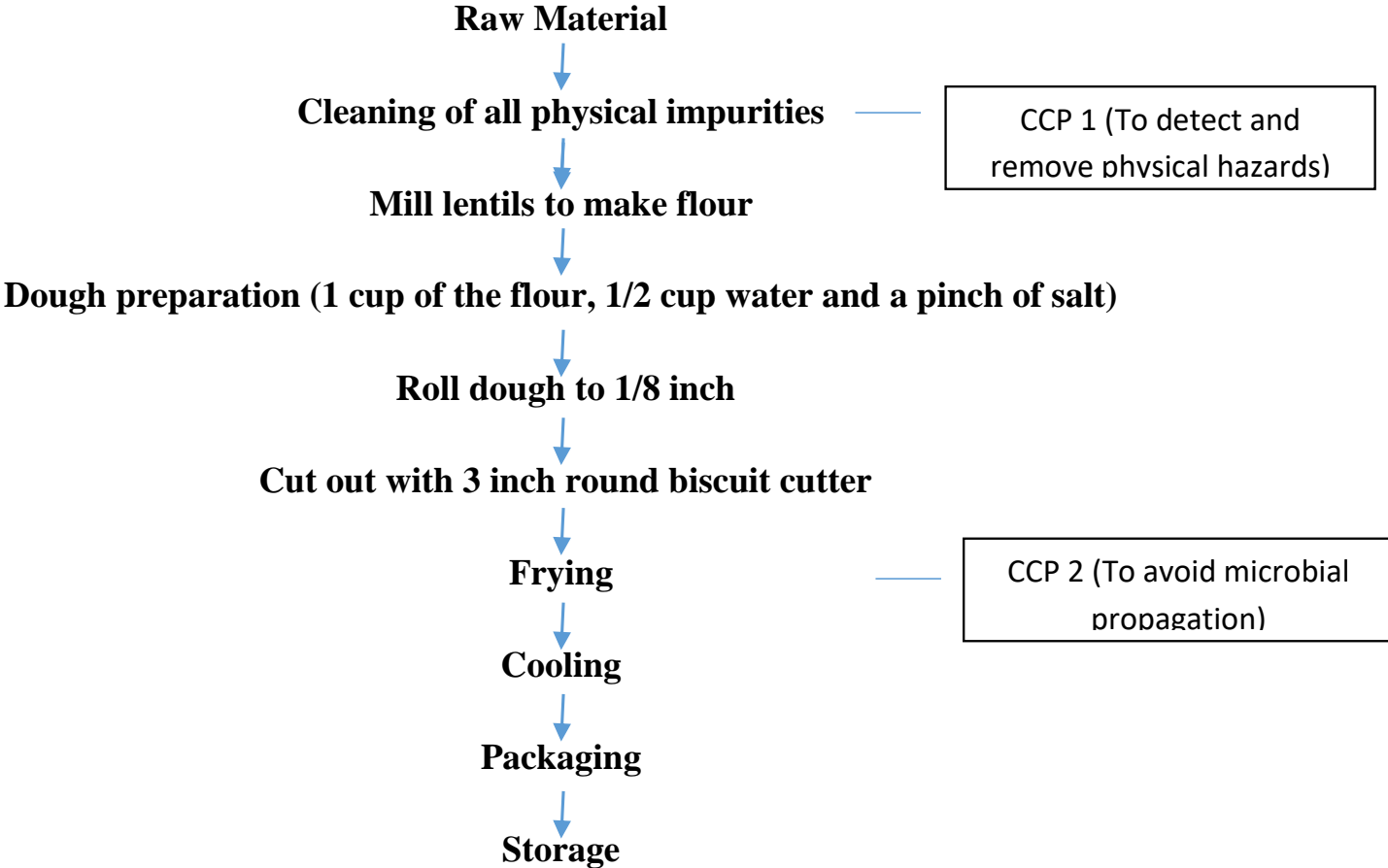


# 4. HACCP PLAN FOR ROASTED CRISPY WHOLE LENTIL



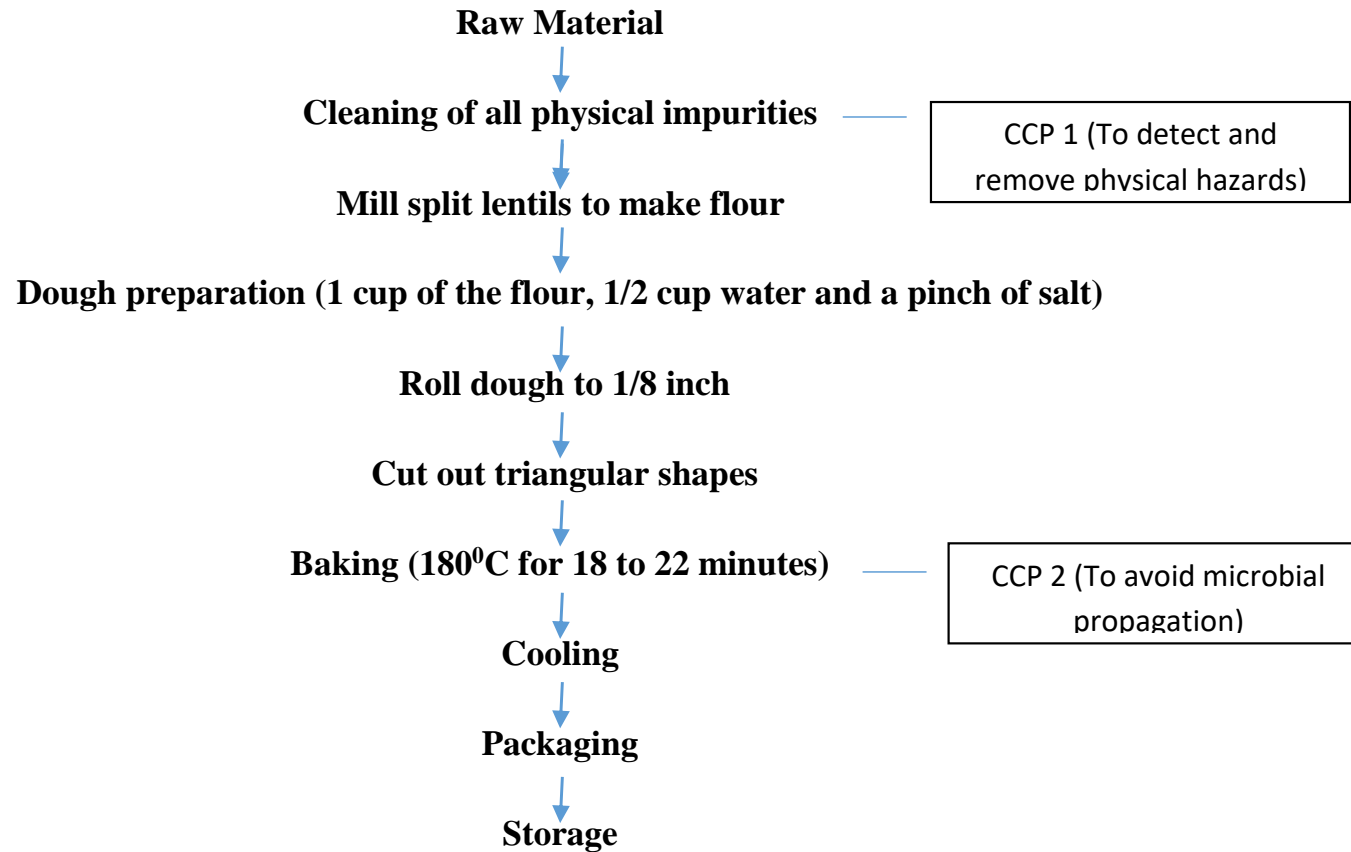


# 5. HACCP PLAN FOR LENTIL CRACKERS

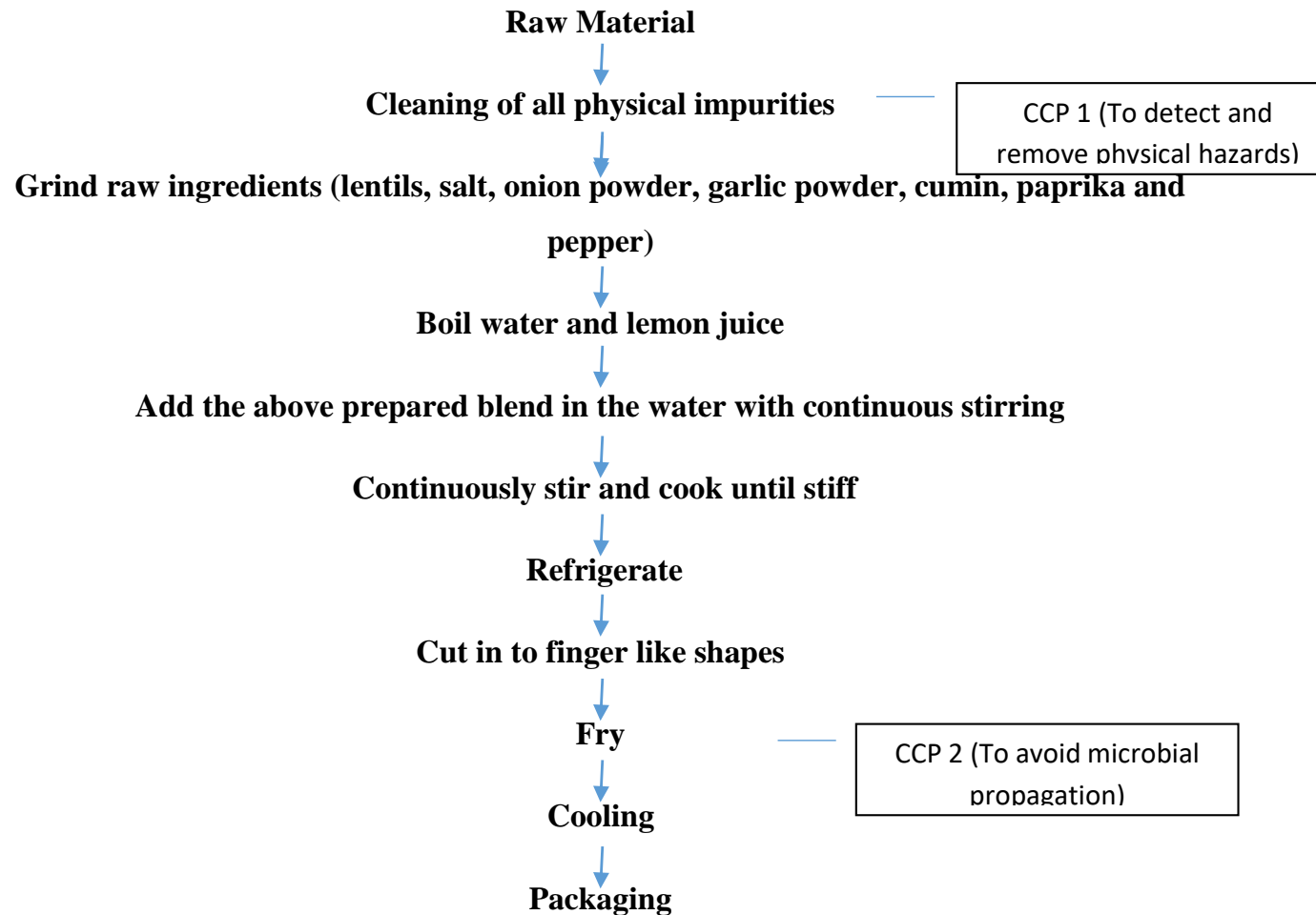




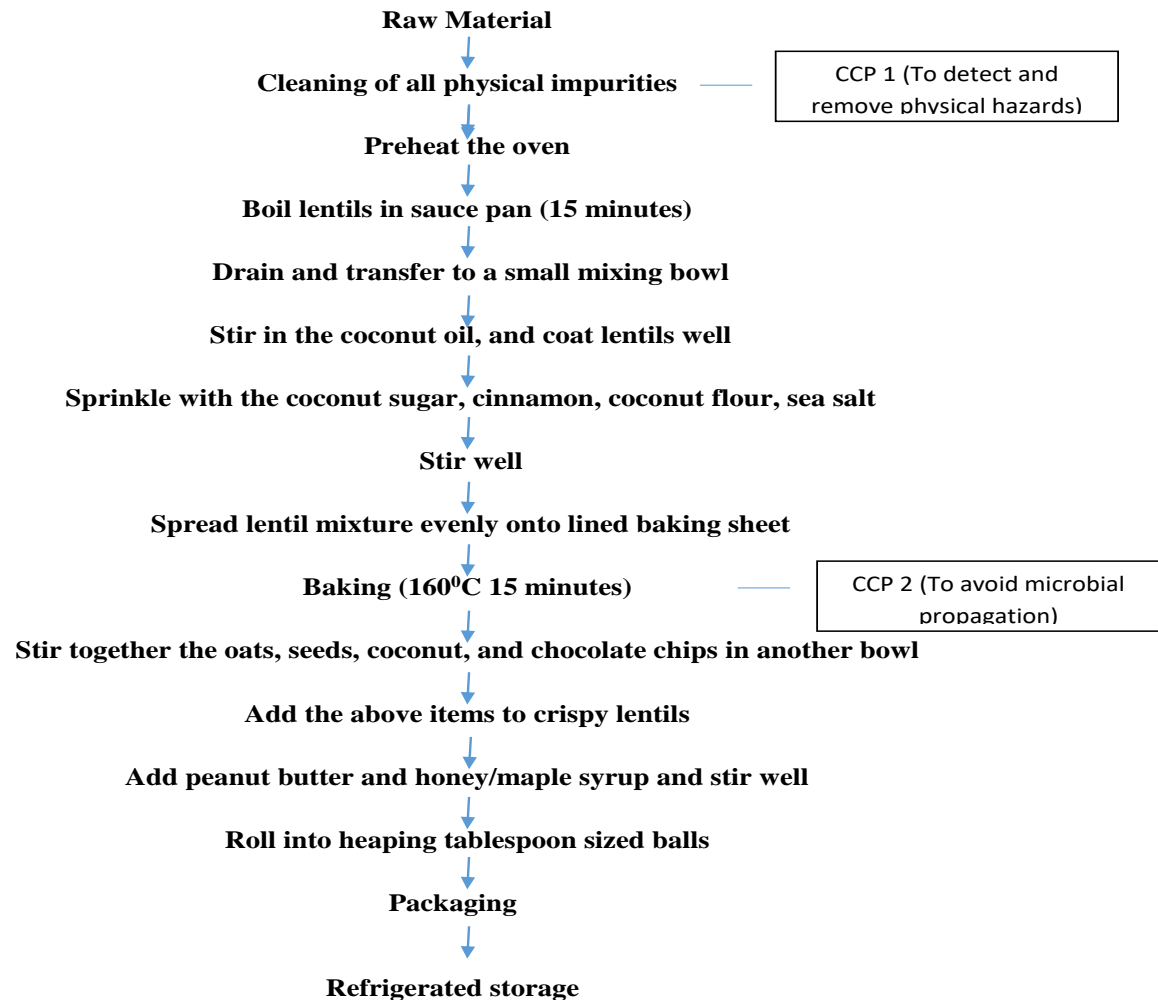
## 6. HACCP PLAN FOR LENTIL BAKED CRACKERS



# 7. HACCP PLAN FOR LENTIL FINGER FRIES



# 8. HACCP PLAN FOR CRISPY LENTIL ENERGY BITES



## DRY STORAGE

- Clean/orderly, items 15 cm off floor
- Good ventilation,
- 10 – 24 C (verify temp periodically)
- First In, First Out (FIFO) rotation
- Dating packages, place new to rear
- Clean spills promptly, trash kept out of . . . . .
- Segregate cleaning supplies (avoid contamination)
- Pest Control



## FSSAI

- The FSSAI has been established under Food Safety and Standards Act, 2006.
- Food Safety and Standards Authority of India (FSSAI) is an autonomous body established under the Ministry of Health & Family Welfare, Government of India.
- This act consolidates various acts & orders that have hitherto handled food related issues in various Ministries and Departments.
- FSSAI is responsible for protecting and promoting public health through the regulation and supervision of food safety
- The FSSAI is headed by a non-executive Chairperson, appointed by the Central Government, either holding or has held the position of not below the rank of Secretary to the Government of India
- The FSSAI has its headquarters at New Delhi.





cont....

- Rita Teatonia is the current Chairperson for FSSAI and Shri Arun Singhal is the current Chief Executive Officer for FSSAI
- The authority also has 6 regional offices located in Delhi, Guwahati, Mumbai, Kolkata, Cochin, and Chennai
- FSSAI has been created for laying down science based standards for articles of food and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption.
- Ministry of Health & Family Welfare, Government of <sup>28</sup>

## FOOD LICENCING & REGISTRATION SYSTEM

- The process of application starts with identification of the premise.
- Depending on the installed capacity in case of manufacturers and/or turnover for businesses and/or location, the premise may be eligible for any of the following categories.
  - Central License
  - State License/Registration



## FOOD CATEGORIES

- Dairy products and analogues
- Fats and oils, and fat emulsions
- Edible ices, including sorbet
- Fruits and vegetables (including mushrooms and fungi, roots and tubers, fresh pulses and legumes, and aloe Vera), seaweeds, and nuts and seeds
- Confectionery
- Cereals and cereal products, derived from cereal grains, from roots and tubers, pulses, legumes (fresh pulses and legumes are covered in category 4.2) and pith or soft core of palm tree, excluding bakery wares of food category 07.0 .
- Bakery products
- Meat and meat products, including poultry and game

## **FOOD CATEGORIES**

- Fish and fish products, including molluscs, crustaceans, and echinoder
- Eggs and egg products
- Sweeteners, including honey
- Salts, spices, soups, sauces, salads and protein products.
- Foodstuffs intended for particular nutritional uses.
- Beverages, excluding dairy products
- Ready-to-eat savouries
- Prepared Foods/dishes including Composite foods
- Products not covered into category 1-16
- Substances added to food which are 'not for direct consumption as food'

## **CENTRAL LICENCING**

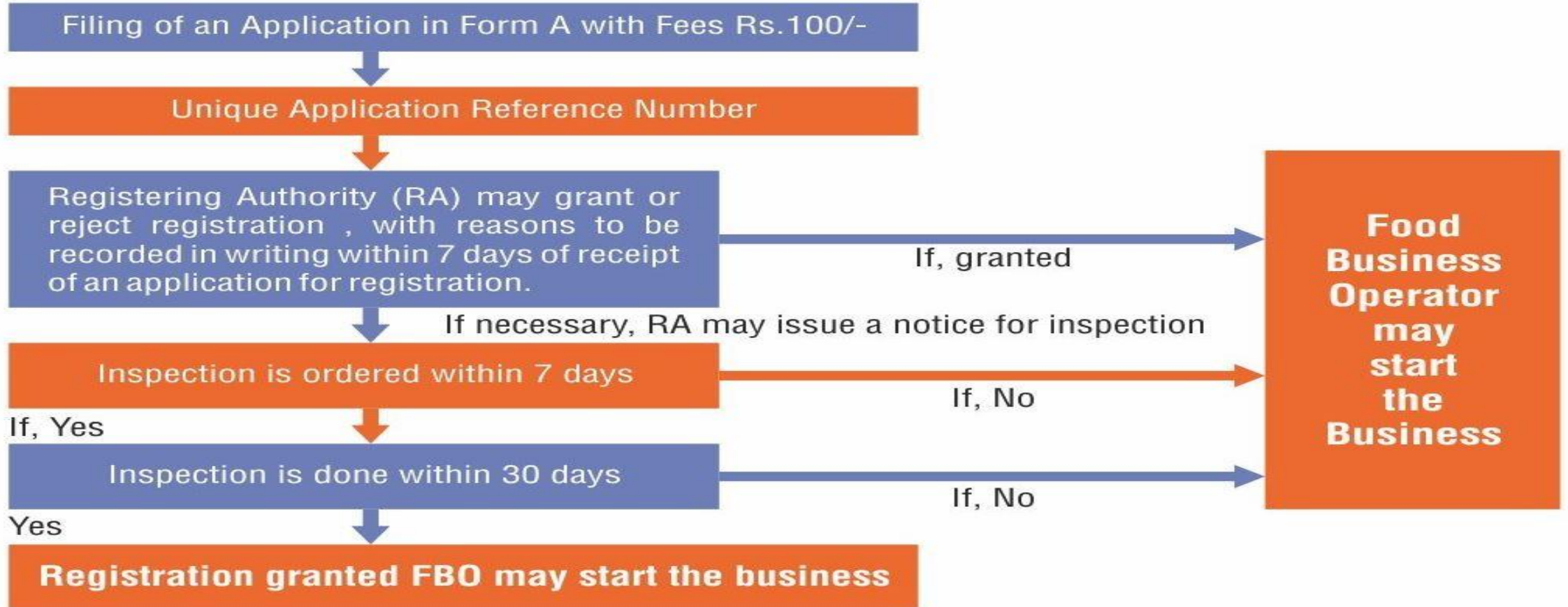
- Eligible Food Business Operators (FBO) need to procure a License from the Central Authority. They include,
  - Importers
  - 100% EoUs
  - Manufacturers
  - Operators in
    - Central Govt. Agencies
    - Airports
    - Seaports
- After issuance of license, any Modification, Renewal, Duplicates Request are carried out Online

## **STATE LICENCING AND REGISTRATION**

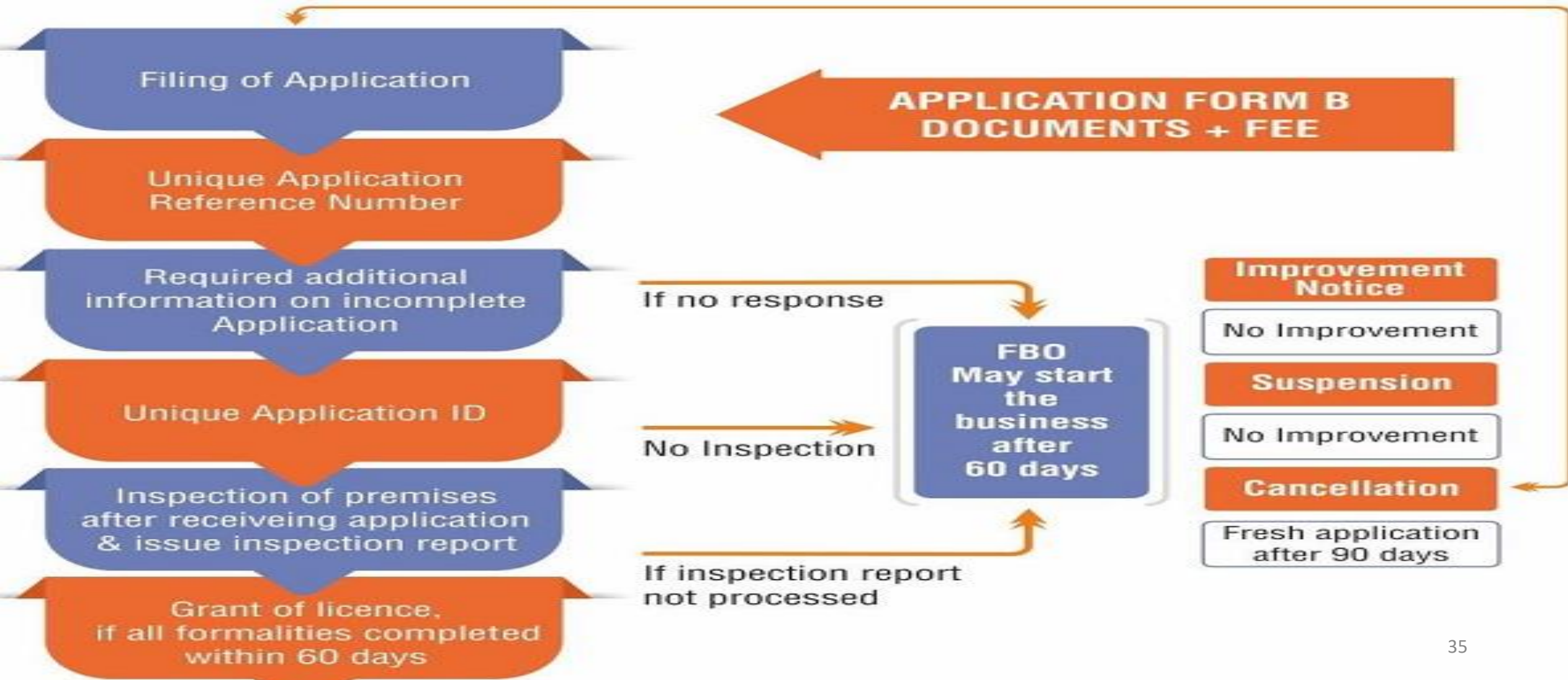
- Eligible Food Business Operators (FBO) need to procure a License from the State Authority. They include,
- Manufacturers
- Storage
- Transporters
- Retailers
- Marketers
- Distributors
- After issuance of license, any Modification, Renewal, Duplicate Request are carried out Online.

## PROCEDURE FOR LICENCE

Every petty Food Business Operator shall register themselves with the Registering Authority by submitting an application along with a fee of Rs.100/-



# PROCEDURE FOR REGISTRATION





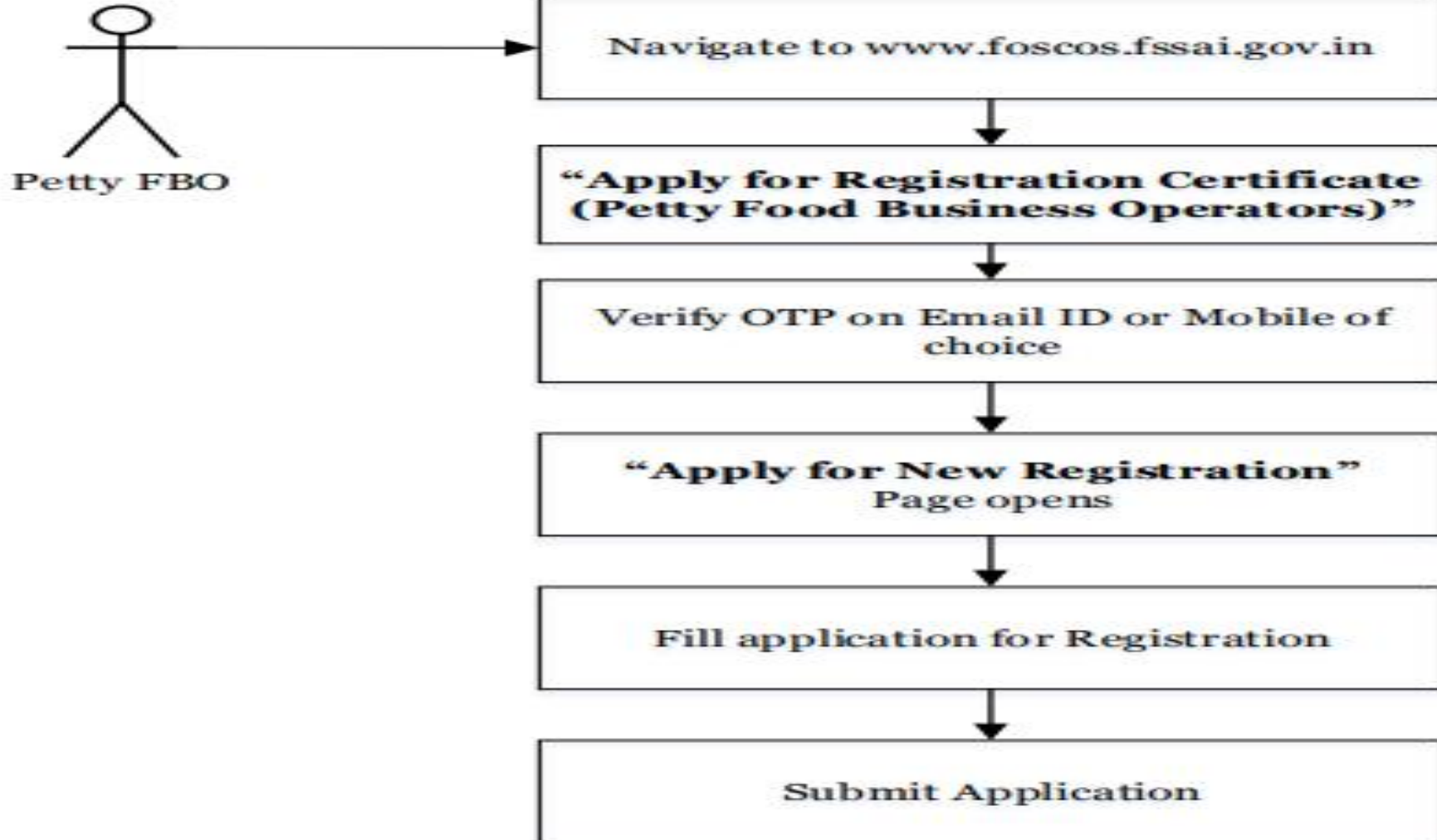
## FOSCOS

- FSSAI had earlier implemented a Food Licensing and Registration System (FLRS) - an online application to provide licensing and registration functionality
- Food Safety Compliance System (FoSCoS) is an enhanced version of Food Licensing and Registration System (FLRS).
- which was launched in 2012 for issuance of pan-India FSSAI Licenses and Registration.
- It had evolved incrementally and organically with changing regulatory needs.
- FoSCoS shall also be integrated with other platforms of Government of India such as GST, PAN, MCA etc.
- Integrated for further ease out the processes for businesses and also ensure a 360 degree profiling of businesses.

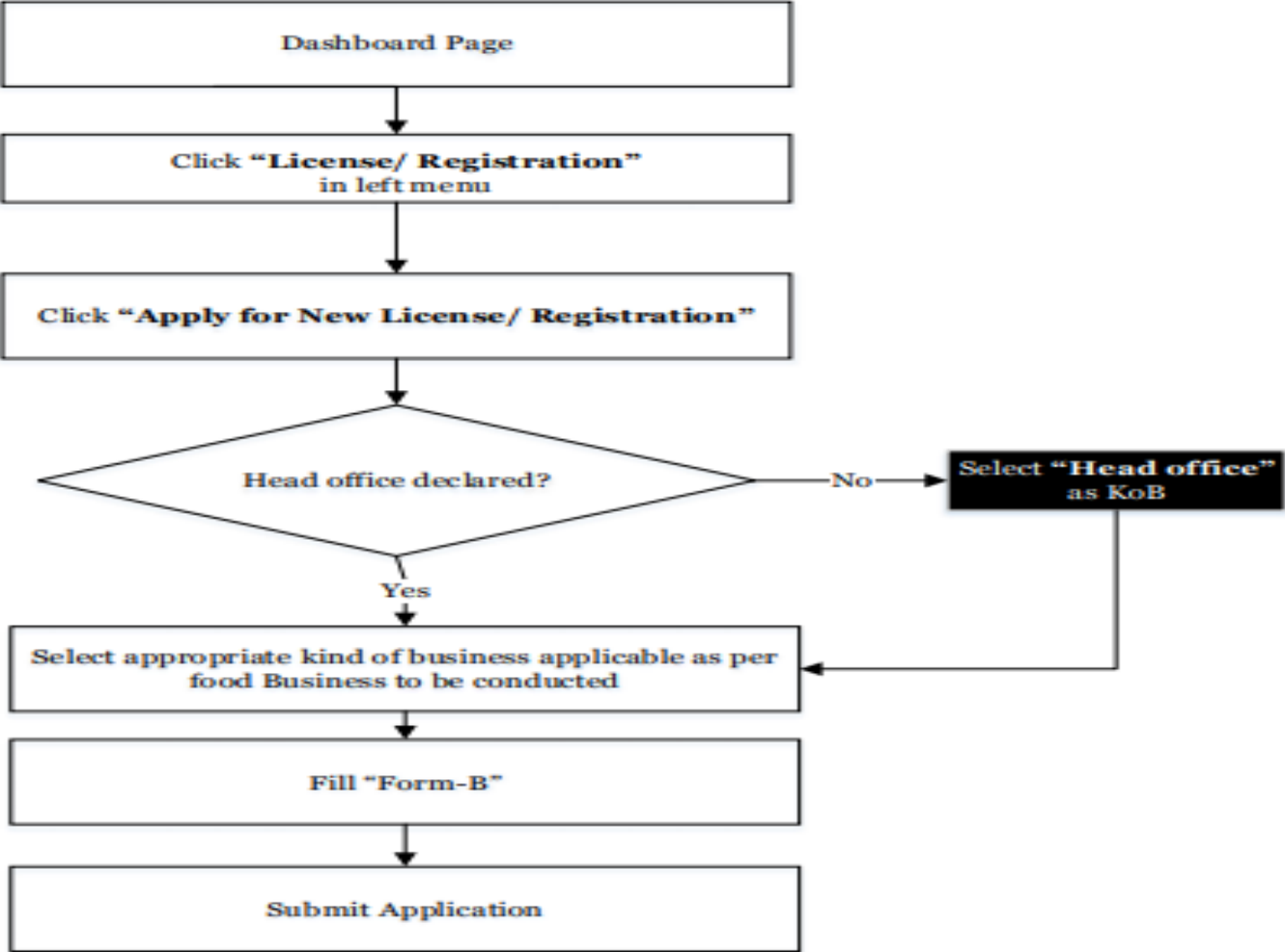
## **OBJECTIVES OF FOSCOS**

- Transform from the present FLRS which is only a licensing platform to a central food safety compliance regulatory platform.
- Build a technically advanced integrated application to achieve interoperability with other applications, capable of higher user traffic, and has potential for future upgrades and functionalities.
- Enhance user performance of the application and make application process simpler and efficient to promote ease of doing business amongst FBOs.
- Achieve minimal physical documentation and streamline business process flows for FBOs for online application.
- Achieve and enable the application to have standardized product approach rather than text box approach for

# APPLICATION PROCEDURE FOR REGISTRATION



# APPLICATION PROCEDURE FOR LICENSING



**Tip: Nutraceuticals and Novel food are visible under manufacturers KoB**

## FOOD SAFETY AND STANDARDS (FOOD PRODUCTS STANDARDS AND FOOD ADDITIVES) REGULATIONS, 2011

Common Standards of Pulses (Whole or shelled (de-husked) or split) covered in Sub-regulation 2.4.6.22

Sr. No	Parameter	Limit
1	Moisture Content (percent by mass)	Maximum 14 percent by weight (obtained by heating the pulverized grains at 130 <sup>0</sup> C-133 <sup>0</sup> C for 2 hours Maximum 12 percent for pulses without seed coat
2	Extraneous Matter	Not more than 1.0 percent by mass of which not more than 0.25 percent. by mass shall be mineral matter and not more than 0.10 percent by mass shall be impurities of animal origin
3	Uric acid (not more than)	100 mg per kg

# Cont...

4	<p>Defects</p> <p>(I) Seeds with serious defects. (Seeds in which the cotyledons have been affected or attacked by pests; seeds with very slight traces of mould or decay; or slight cotyledon staining.) (% not more than)</p> <p>(II) Seeds with slight defects. (Seeds which have not reached normal development; seeds with extensive seed-coat staining, without the cotyledon being affected; seeds in which the seed coat is wrinkled, with pronounced folding or broken pulses)</p>	<p>1.0</p> <p>Not more than 7.0% of which broken pulses must not exceed 3.0%</p>
5	Other edible pulses (not more than), % by mass	2.0
6	Discolored seeds (not more than), % by mass	3.0



# STANDARDS OF UNPROCESSED RAW WHOLE PULSES (NOT FOR DIRECT HUMAN CONSUMPTION)

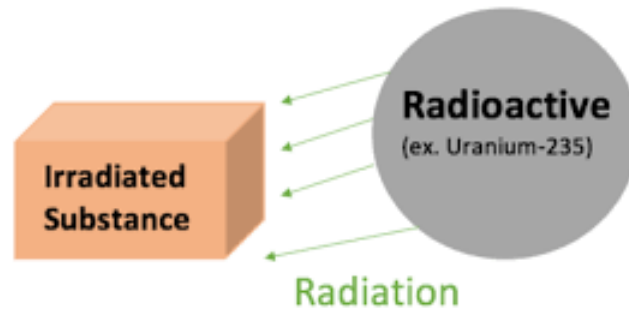
Covered in sub-regulation 2.4.6.16

Sr. No	Parameter	Limit
1	Foreign matter(percent by mass)	3%
2	Inorganic matter	0.5%
3	Impurities of Animal origin	0.5%

## Limits of Irradiation by FSSAI for Lentil

Sub regulation 2.13 permits irradiation of Pulses as per the following doses

Sr. No.	Food	Purpose	Dose Limit (Kilo Gray)	
			Min	Max
1.	Lentils	Insect disinfestations	0.25	1.0
		Reduction of microbial load	1.5	5.0



# FOOD SAFETY AND STANDARDS (CONTAMINANTS, TOXINS AND RESIDUES) REGULATIONS, 2011

## Metal Residue

S.No	Parameter	Limit(Parts per Million (mg/kg or mg/L) )
1	Lead	0.2
2	Cadmium	0.1

# FOOD SAFETY AND STANDARDS (CONTAMINANTS, TOXINS AND RESIDUES) REGULATIONS, 2011

## Crop contaminants and naturally occurring toxic substances

S.No	Parameter	Limit $\mu\text{g}/\text{kg}$
1	Total Aflatoxin	15
2	Aflatoxin B1	10

## PROVISIONS RELATING TO IMPORTS

### Food Safety and Standards (Import) Regulations, 2017

As per schedule 25 The Food Safety and Standards Act, 2006 All imports of articles of food to be subject to this Act.

1) No person shall import into India –

- Any unsafe or misbranded or sub-standard food or food containing extraneous matter;
- Any article of food for the import of which a license is required under any Act or rules or regulations, except in accordance with the conditions of the license;
- Any article of food in contravention of any other provision of this Act or of any rule or regulation made there under or any other Act.

# FOOD IMPORT ENTRY POINTS

Total entry points (418)

FSSAI is present at 22  
Entry Points with offices at  
6 locations- Delhi, Mumbai,  
Kolkata, Chennai,  
Tuticorin, and Kochi

396 Entry Points (where  
FSSAI has notified Custom  
Officials as Authorised  
Officers)



## **FOOD SAFETY AND STANDARDS (ORGANIC FOODS) REGULATIONS, 2017**

- The organic food offered or promoted for sale shall comply with all the applicable provisions of one of the following systems, namely:—
  - i. National Programme for Organic Production (NPOP);
  - ii. Participatory Guarantee System for India (PGS-India).
- The Organic Foods should comply with the requirements of Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011.
- In case of Residues of insecticides, the limit of

## Cont....

- All organic foods shall comply with the packaging and labelling requirements specified under the Food Safety and Standards (Packaging and Labelling) Regulations, 2011.
- A label may carry a certification or quality assurance mark of one of the systems mentioned above
- in addition to the Food Safety and Standard Authority of India's organic logo i.e. Jaivik Bharat Logo



Products certified under NPOP

operators shall  
regulations by



Products certified under PGSIndia

## FOOD SAFETY STANDARDS BY FSSAI FOR BAKERY PRODUCTS

- As per FSSAI draft notification dated 14 December, 2017 on Food Safety and Standards (Food Product Standard and Food Additives) Amendment Regulation the baked products may contain food additives specified under FSSAI regulations.
- These products shall conform to following standards, namely:-
  - a) Ash insoluble in dilute hydrochloric acid (on dry basis): shall not be more than 0.1 per cent.
  - b) Acidity of extracted fat (as oleic acid):- not exceeding 1.5 per cent.
  - c) It may contain Oligofructose (dietary fibres) upto 15% maximum subject to label declaration under Regulation 6.1.3

# **CODEX STANDARDS FOR LENTILS**

## **Quality factors – general**

- Lentil shall be safe and suitable for human consumption.
- Lentil shall be free from abnormal flavour, odours, and living insects.
- Lentil shall be free from filth (impurities of animal origin, including dead insects) in amounts which may represent a hazard to human health.
- Lentil shall be free from the following toxic or noxious seeds in amounts which may represent a hazard to human health. –
- *Crotolaria* (*Crotalaria* spp.), Corn cockle (*Agrostemma githago* L.), Castor bean (*Ricinus communis* L.), Jimson weed (*Datura* spp.), and other seeds that are commonly recognized as harmful to health.

## Quality Factors- Specific

Sr. No	Parameter	Limit
1	Moisture content With seed coat Without seed coat	15% 13%
2	Extraneous Matter	1%
3	Mineral matter	0.25%
4	Impurities of animal origin	0.1%

# Heavy metals

S.No	Parameter	Limit(Parts per Million (mg/kg or mg/L) )
1	Lead	0.2
2	Cadmium	0.1

## Hygiene

- When tested by appropriate methods of sampling and examination, the products:
- shall be free from micro-organisms in amounts which may represent a hazard to health. shall be free from parasites which may represent a hazard to health
- shall not contain any substance originating from micro-organisms in amounts which may represent a hazard to health.



## SEED DISCOLORATION

<b>S.No</b>	<b>Refractions</b>	<b>Max. Limit</b>
1	Seeds of a similar colour but a different commercial type (Except in beans with white seeds)	Max: 3.0%
2	Seeds of different colour (Other than discoloured seeds)	Max: 6.0%
3	Discoloured seeds	Max: 3.0%
4	Discoloured seeds of the same commercial type	Max: 10.0%
5	Beans with green seed and peas with green seeds with slight discolouration of the seed	Max: 20.0%



## QUALITY SPECIFICATIONS FOR PROCUREMENT OF LENTIL BY FCI

S.No	Refractions	Max. Limit
1	Foreign Matter	3.0% by weight of which Max. 0.57% by weight shall be mineral matter and impurities of animal oriqn
2	Other Edible Grains	2.07% by weight
3	Damaged grains/Slightly damaged/Touched (including Insect damage)	3.% by weight
4	Immature, shrivilled and broken (unhusked/husked splits) including fragments	
5	Ad mixture	2 % by weight
6	Weevilled pulses	3 per count
7	Moisture	12% by weight



## UNITED STATES STANDARDS FOR LENTILS

		Grades U.S. Nos.		
		1	2	3
1	Defective Lentils			
	Total	2	3.5	5
	Weevil-Damaged Lentils	0.3	0.8	0.8
	Heat-Damaged Lentils	0.2	0.5	0.1
2	Foreign Material			
	Total	0.2	0.5	0.5
	Stones	0.1	0.2	0.2
3	Skinned Lentils	4.0	7.0	10.0
	Wrinkled Lentils	5.0	10.0	>10.0
	Contrasting Lentils	2.0	4.0	>4.0
	Admixture	0.5	0.8	1.0

## PM FORMALISATION OF MICRO FOOD PROCESSING ENTERPRISES SCHEME (PMFME)

**TOTAL OUTLAY: RS.10,000 CRORE**

- **2,00,000** FPOs/SHGs/Cooperatives and working micro enterprises to be directly benefitted
- Expected to generate **9 lakh** skilled and semi-skilled jobs
- To be implemented over a **5-yr period from 2020-21 to 2024-25**
- Cluster approach
- Focus on Perishables.

**Helpline Number**

+911302281089



For More details Contact:

National Institute of Food Technology and Entrepreneurship and Management  
Ministry of Food Processing Industries

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