

# GUIDANCE DOCUMENT

## Food Safety Management System (FSMS)

Food Industry Guide to Implement GMP/GHP  
Requirements



Food Industry Guide to implement GMP/GHP requirements

# Foodgrain warehouse

Based on Part II of Schedule 4 of Food Safety & Standards (Licensing & Registration of Food Businesses) Regulation, 2011

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## Disclaimer

It is to be noted that this guidance document does not intend to replace any legal provision of Food Safety & Standard Act, 2006 & regulations thereunder. Further, wherever the provision of this document conflicts with Part II of Schedule 4 of Food Safety & Standard (Licensing and Registration of Food Businesses) Regulation, 2011 or any other regulation under Food Safety & Standard Act, 2006 for that matter, the provision given in the regulations shall prevail.

# PREFACE



The continuing integration and consolidation of agriculture, food industries and the globalization of food trade are changing the patterns of food production, distribution, consumption as well as supply and demand. Trends in domestic as well as global food chain present new challenges to food safety. Food safety needs to be given higher priority by Governments, industry and consumers themselves. It is essential to acquire the know-how and skills necessary to understand and manage food safety hazards.

This Guidance Document on Food Safety Management System (FSMS) is intended to provide implementation guidance to food businesses (especially the small and medium businesses) involved in storage of foodgrains to ensure that critical food safety related aspects are addressed throughout the supply chain.

This document contains practical approaches which a business should adopt to ensure food safety; however, food businesses may adopt higher or stringent levels, depending on the needs & complexity of operation. The use of this guidance is voluntary and food business operators may comply with the requirement of the regulation according to other established best practices.

It is important that food handlers involved in the supply chain are trained appropriately to implement the good manufacturing practices and good hygiene practices to ensure food safety. Any successful food safety programme will always need a shared responsibility among producers, industry, trade, government and the consumer. The FBO's should utilize this book to gain guidance about the Food safety plans and its implementation strategies. We acknowledge the contribution of the experts from the technical panel of FSSAI in developing this document.

**Pawan Agarwal – CEO, FSSAI**

# SCOPE & USE

This document is applicable for food businesses involved in storage of the food grains. The major activities in the warehouse comprise of the following:

- a) Procurement of grains
- b) Transportation of the grains
- c) Grain Storage and Handling
- d) Blending/Quality Verification
- e) Packaging and Labelling

All the above activities may or may not be carried by the same facility. Accordingly, the processes for these businesses would be different. Hence, based on their position in the segment, industry could use the guidance document accordingly as per the operations applicable to them.

The document is divided into five main sections. The first section gives an overview of the foodgrain warehouse industry in India along with the rising need for food safety in the sector. The second section contains guidance for implementation of good manufacturing practices and good hygiene practices as outlined in Part II of Schedule 4 of Food Safety & Standard (Licensing & Registration of Food Businesses) Regulation, 2011 which are required to be followed at each step in the supply chain, to ensure food safety. The document has specified requirements where compliance is essential and obligatory for food businesses and in such cases the word “shall” is used. In addition certain good practices are also strongly advised for food safety operation & in such case “should” is used.

The third section of this document is recommendatory in nature and provides the basic knowledge and criteria for implementation of Hazard Analysis and Critical Control Point (HACCP) system by the food businesses. This section includes the detailed manufacturing process with a process flow chart and relevance of main processing steps & two tables: Hazard Analysis and HACCP Plans. Tables of Hazard Analysis is expected to help the industry to identify the food safety risks related to each processing step, to identify the Critical Control Points (CCPs), recommended Corrective actions and other related information. Tables of sample HACCP Plans have been taken from some established practising industries. The sample HACCP Plans could be used as reference by the industry and modified or altered based on their operations.

The fourth section provides an inspection checklist for Food Business Operator to audit their facility & operations. The FBOs can evaluate themselves based on the indicative scoring. The last section gives important templates and forms which will be required by FBOs to maintain the records. This includes mandatory forms as prescribed by FSSAI & few templates for maintaining records of processes critical for food safety.

# CONTENTS

<b>SECTION A –OVERVIEW OF WAREHOUSE IN INDIA</b>	<b>7</b>
<b>SECTION B- GUIDANCE FOR PRE REQUISITE PROGRAMS IMPLEMENTATION</b>	
<b>I. Establishment – Design and Facilities</b>	<b>10</b>
1. Location & Surroundings	
2. Premises & Rooms – Layout, Internal structures & fittings	
3. Equipments & containers	
4. Facilities/Utilities=	
• Water supply	
• Waste disposal,	
• Cleaning,	
• Personal hygiene facilities and Employee facilities	
• Air quality & ventilation,	
• Lighting,	
• Storage Facilities	
<b>II. Control of Operation</b>	<b>17</b>
1. Food Receipt	
2. Grain storage & handling	
3. Food Blending and Quality verification	
4. Food packaging	
5. Storage/handling	
6. Food Transportation	
7. Food Testing	
<b>III. Establishment – Maintenance &amp; Sanitation</b>	<b>23</b>
1. Factory Dis-infestation	
2. Fumigation	
3. Warehouse Cleaning and Hygiene	
4. Pest control plan	
<b>IV. Establishment – Personal Hygiene</b>	<b>31</b>
1. Health of food handlers	
2. Hygiene of food handlers	
3. Safety & Security of Personnel	

<b>V. Training</b>	<b>34</b>
1. Awareness and responsibilities	
2. Training programmes	
3. Instruction and supervision	
4. Management & supervision	
<b>VI. Audit, documentation &amp; Records</b>	<b>35</b>
1. Self-evaluation and review	
2. Documentation and records	
<b>SECTION C: HACCP IMPLEMENTATION FOR CONTROL OF HAZARDS</b>	<b>36</b>
1. Introduction to HACCP	
2. Process Flow Chart	
3. Hazard Analysis & Identification	
4. HACCP Plan	
<b>SECTION D: INSPECTION CHECKLIST</b>	<b>46</b>
<b>SECTION E: PERFORMAS</b>	<b>49</b>

## **A. OVERVIEW OF FOOD GRAIN WAREHOUSING INDUSTRY IN INDIA**

## A. OVERVIEW OF WAREHOUSING INDUSTRY IN INDIA

Warehousing in India is linked to food security and agricultural growth. The Central Government established state owned and controlled warehousing corporations to enable better storage of agricultural commodities

Agricultural warehousing accounts for fifteen percent of the warehousing market in India. Farmers and traders are the key customers for agri-warehouses. 30 percent of the warehousing capacity is held by unorganised small godown players. These unorganised warehouses lack scale and quality. On the other hand, there are a few large national-level players in the warehousing market which own professionally run warehouses and also provide ancillary services around warehousing.

More than 40 percent of the agricultural warehouses are run by state enterprises such as Food Corporation of India (FCI), Central Warehousing Corporation (CWC) and 17 State Warehousing Corporations (SWCs).

Agricultural exports from India are increasing at faster pace and are propelling growth in high-quality demand for warehousing. Recently, private sector participation in agri-warehousing has increased, making this segment more competitive. Private players are focusing on improving the quality of agri warehouses with the use of technologies and are challenging public sector players. Besides, the Government has initiated various schemes and issued policies to improve agri-warehousing infrastructure to reduce agricultural wastage. These policies include The Warehousing (Development & Regulation) Act, Priority Sector Lending by RBI, Subsidy schemes such as Grameen Bhandaran Yojana, National Agricultural Renewal Fund etc. to drive growth in agri-warehousing.

Producing cereal and cereal products in accordance with food safety begins with obtaining safe grains and cereals. In order to achieve flour safety from field to the table; grains should be cultivated using good agricultural practices (GAP), stored in hygienic conditions and milled by good manufacturing practices (GMP) and good hygiene practices (GHP). Thus, the hygiene and sanitation rules followed by the warehousing and storage facilities in their operations plays an important role for providing flour safety and end product safety.



## **B. IMPLEMENTATION GUIDELINES**

## I. ESTABLISHMENT – DESIGN AND FACILITIES

### 1. Location and surroundings

The warehouse shall be located away from environmental pollution and industrial activities that produce disagreeable, odour, fumes and pollutants which pose a threat of contaminating food or areas that are prone to pest infestations. The facility shall be of sound construction and free from leaks and standing water.

Several factors need to be considered in selecting a suitable site. It is preferable to erect the warehouse on level ground, ideally slightly raised above the surrounding area, which is well drained and not prone to flooding. Low locations must be avoided

The internal and external structure shall be free of cracks, holes, openings, or any other areas that would allow harbourage or entry of pests. (Guidance: a mouse can gain entry through a gap of less than 10mm).The utility fixtures shall prevent and shall not present a potential contamination

The surrounding area shall be maintained by taking appropriate measures to protect the food manufacturing area from any potential contamination if any polluting industry is located nearby and also taking following actions on regular basis:

- land, roads, yards, parking lots outside the warehouse shall be free of debris and refuse and from any source of pollution and that areas should not constitute a source of contamination due to dust or any stagnation of water.
- removal of litter, waste, weeds and grass within the immediate vicinity of buildings or structures, as such growth accumulation may constitute an attractant, breeding place, or harbourage for pests.
- Cleaning of dust debris, sweeping shall ensure that fine dust and contaminants are not contaminating the raw grains or processed products in any ways
- drainages are devoid of any stagnation of water to prevent contamination. Drains should have grated covers
- Precautions shall be taken to prevent contamination from trucks, vehicles, forklifts or by foot

The site boundaries shall be clearly identified with appropriate access control to prevent any chances of theft and sabotage. Dogs, cats or other pet animals shall not be allowed to enter the premises. High walls of at least a 3 meter should be built to prevent rodents from entering mill from this area

Vegetation, especially tree branches should be trimmed to prevent the entry of rodents and birds. Shrubs should not be too close to building. It is preferred to have an 18 ft vegetation-free barrier zone. Precautions should be taken to preclude, as far as possible, birds from nesting or perching on the grounds of the plant.

Hard paving of at least 45cm in width should surround the exterior of the storage buildings. Protection from the weather for the receiving and dispatch areas as well as for all materials or products in transit should be provided. The manufacturing premises shall be located away from flood prone area. Where the premises are located in areas prone to flooding, it is recommended that height of the manufacturing area should be suitably elevated to prevent the risks due to flooding.

The structure should be free from passing over of any tension electric line and in the event of such lines passing over, then the relevant Electrical Code provisions should be taken into account while planning the storage structure. The structure should be free from gas / oil pipelines. The Structure may preferably be situated near a transport head or a main road, if the structure is located in the interior an approach road shall be provided. If the structure is situated at a ferry road, railway station, airport etc sufficient berthing, loading & unloading facilities shall be made available. Warehouse shall be located away from flood prone area. The facility shall be capable of providing appropriate temperature and humidity requirements for storage

## **2. Premises and rooms –Layout, internal structures & fittings**

### **2.1 Layout**

The warehouse should be of sufficient size to allow handling and storage of food products in a manner that does not result in product contamination. The building shall provide adequate space with a logical flow of materials, products, and personnel. The storage and processing areas should be enclosed to avoid direct exposure to external environment and to facilitate access control

The plant layout should have a proper space for inward and outward vehicle movement. Conveyors and openings intending for transfer of materials shall be designed to minimize any cross contamination from foreign matter, pests, etc. All the loading and unloading points should have shades to prevent grains from rain water contamination.

Conveyors and openings intending for transfer of materials shall be designed to minimize any cross contamination from foreign matter, pests, etc.

The structure shall be free of potential sources of contamination (e.g. flaking paint, condensate from overhead pipes or structures, exhaust fans, grease, fraying insulation, undesirable moulds or dirt).Cleaning of dust debris, sweeping shall ensure that fine dust and contaminants are not contaminating the raw grains in any ways. Supply conduits (air, water, electricity) shall be installed in such a way (e.g. under the floor) that they do not provide a cleaning/foreign matter/pest control issue.

Proper signage should be provided for all storage and non-storage-rooms. Be designed with fire protection capacity to accommodate storage of materials with a greater fire hazard,

especially needed with high plastic product content or packaging, and plastic shrink-wrapped pallets

## **2.2 Internal structures**

### **a) Floors:**

Floors shall be maintained in a sound condition to minimize the accumulation of dirt, condensation and growth of undesirable moulds. They should be made of impervious material and should be smooth and easy to clean with no flaking paint or plaster. Floors are to be constructed using, non-toxic, non-absorbent and crack resistant materials, resistant deterioration from product or cleaning chemicals

Proper floor types are an important consideration in the design.

General warehouse space should be floored with a concrete slab to carry wheel loads and withstand the abrasion generated by the continual use of hard rubber and steel-wheeled forklift trucks. Consider adding hardeners and dust proofers to protect the concrete. Floor flatness and levelness requirements are critical, especially for high ceilinged space and safe operation of high-lifting equipment

The floor must be able to bear the weight of the grain which will be stacked upon it, and it must also be impermeable to ground water. For these reasons the floor should consist of a slab of reinforced concrete laid upon well compacted hard core, with a moisture barrier sandwiched between the two. This moisture barrier should consist of a layer of bitumen or asphalt, bitumen felt, or a polyethylene film.

It is recommended that the wall-floor junction is rounded. Examples are- Kota stone flooring, Flooring should be continuous with Epoxy resin with Ironite (to withstand heavy duty trolley movement). Floors should be maintained in good repair with no cracks and crevices. Floors should be non-slip, evenly graded to prevent water stagnation and drained off to trapped outlets protected by a grille. Floors shall be sloped appropriately to facilitate drainage. The drainage shall be easy to clean and where necessary, disinfect. Floors, walls, ceilings, overheads and drains shall be cleanable

### **b) Drainage:**

Adequate control measures shall be in place to prevent insects and rodents from entering the processing area from drains. Example: Covering the openings of the drain with wire mesh in a manner to prevent insects and rodents from entering the processing area. Drainages are to be devoid of any stagnation of water to prevent contamination. Drains should have grated covers

### **c) Doors**

Doors shall be made of smooth and non-absorbent surfaces so that they are easy to clean and wherever necessary, disinfect. The entrance doors to the production area should have openings less than 1 cm between the walls, floor and appropriate barriers to prevent insect ingress. The number of doors will vary according to the size of the warehouse. Double

sliding doors are recommended. Preferably made of steel, or at least reinforced along their lower edges with metal plate as protection against rodents, they should be sufficiently large (at least 2.5 x 2.5 m) and close fitting. If swing doors are fitted they should open outwards in order not to reduce the storage capacity of the warehouse.

The doors should be able to be fully closed and do not allow dust and pests. Gaps if any between the door and the floor should be closed with suitable material like rubber strips, polyurethane etc. to avoid pest entry. Entry/exit points should be suitably protected with such as strip PVC/air curtains/ wire mesh doors/ doors with self-closing devices etc. to ensure dust, insects, birds and animals are kept out

Doors, windows and window frames should be tight fitting at all times. Doors leading into the production areas other than the emergency exits shall be fitted with self-closing devices, air curtains or plastic strips. External doors should be kept closed and constructed in a manner as to prevent the entry of rain water and pests into the facility It is recommended that the doors be protected from rain by an extension of the roof or a separate cover .All exterior doors shall be kept closed and shall form an adequate seal when closed. Self-closing doors are preferred. Loading docks shall be protected to prevent pest entry

#### **d) Walls:**

Walls and partitions shall have a smooth surface, impervious made up of crack-resistant materials and preferably plastered .Walls and partitions shall be easily cleanable. They shall be sealed to prevent the entry of dirt, dust and pests. They shall be free from flaking paint or plaster, finished and maintained to prevent the accumulation of dust, minimise condensation, and shedding of particles. Wall floor joints should be covered in processing and packaging areas to facilitate cleaning. Design walls to permit any infiltrating water to evaporate harmlessly without collecting in the wall cavities or damaging stored product. Walls should be painted with light colour. This reduces dark corners where rats prefer to stay.

#### **e) Ceilings and overhead fixtures**

Ceilings should be smooth, impervious to water and dust and easily cleanable. They shall be sealed free from flaking paint or plaster, finished and maintained in such a manner so as to minimize any accumulation of dirt, condensation and growth of undesirable moulds and shedding of paint or plaster particles.

The overhead fixtures shall be suitably protected so that they do not act as contaminants in case of breakage. Openings in ceilings for conveyors, vents, piping etc. should be properly sealed and the edges should be smooth. No Asbestos Sheets shall be allowed in Ceilings

#### **f) Windows, roof vents, doors and all other openings**

Windows, doors & all other openings to outside environment shall be well screened with wire-mesh or insect proof screen as applicable to protect the premise from fly and other insects / pests / animals & the doors be fitted with automatic closing springs.

The mesh or the screen should be of such type which can be easily removed for cleaning. They shall be constructed to minimize the accumulation of dirt. Windows, roof vents or exhaust fans that open to the external environment shall be fitted with removable and cleanable insect-proof screens. Where open windows would result in contamination, windows must remain closed and fixed during operations. The ends should be secured to prevent the entry of pests. Openings leading to exterior should be meshed to prevent the entry of pests. Windows should be kept closed or in some instances, installed with insect-mesh screens

If window panes made of glass, it should be laminated. Glass windows in the production areas should be protected or constructed of alternative materials such as PVC to ensure that the product is not contaminated by breakages.

The doors and windows at the lower floors should be made of metal, tight windows and doors, barriers such as elevated docks, metal flashings, overhangs and rung steps discourage and prevent rodent access. The frames of exterior windows should fit properly and it should be completely sealed to prevent insect ingress. Cracks and crevices should be sealed. Doors, windows and window frames should be free from mould, flaking paint etc. and kept clean as well as in good condition. Cracked or broken windows should be replaced immediately

Doors and window frames should be of steel and properly fixed with wall avoiding any gap between frame and wall. Doors should not be left open when not in use. Doors which are required to be left open for longer durations should be provided with transparent plastic panels to prevent entry of birds. Provide proper cement plaster slopes below the windows to prevent birds from making nests.

### **3. FACILITIES/UTILITIES**

#### **a) Water supply:**

Potable water meeting the requirements of BIS standard on drinking water i.e. IS 10500 as an ingredients shall be used for operational and cleaning needs. Water shall be tested for compliance at least once a year. Water storage tanks shall be cleaned periodically. At least once in a year /six months and records of the same shall be maintained. The tanks shall be covered to prevent access by animals, birds, pests and other extraneous matter. The manholes to the tanks shall be locked and access shall be granted to authorised personnel

#### **b) Waste disposal**

Waste disposal systems and facilities shall be designed and constructed so that the risk of contaminating storage area is avoided. Waste in Warehouses include corrugated card board, wooden pallets, wooden crates, paper board boxes, shrink-wrap, plastic bags & damaged goods.

No waste shall be kept open inside the premise and shall be disposed of periodically in an appropriate manner as per local rules and regulations including those for plastics and other

non-environment friendly materials. Discarded equipment and boxes should not be dumped around the building. Do not have a garbage dump near the storage area.

Containers/bins used to carry waste materials shall be dedicated and may be color coded for identification. Such containers/bins shall be cleaned adequately in timely manner to prevent accumulation of dirt/dust/infestation etc. Clutter like unused pallets, used packaging material, used gunny bags should be removed. Different types of waste shall be segregated for correct disposal and to prevent contamination. Set up a convenient collection bins for packaging materials that can be reused. All waste from the warehouse will be taken to the appropriate licensed location for disposal. Transport of waste materials to the appropriate location should be as per local rules and regulations or as instructed by environmental agency.

### **c) Personal hygiene facilities and Employee facilities**

Personnel hygiene facilities shall be provided to ensure the maintenance of an appropriate degree of personal hygiene in order to avoid any cross contamination. Adequate clothing and safety footwear shall be provided to employees working in processing areas. Appropriate facility for hand washing and drying of hands and sanitizing before touching food shall be available. . Hand wash basins equipped with liquid detergent and disposable paper hand towels are to be provided adjacent to the toilets.

Toilets must not open directly into any place where food products are stored. Such facilities shall be suitably located & designated Adequate number of toilets facility shall be provided depending on the number of employees (male /female) in the establishment and they should be made aware of the cleanliness requirement while handling food. Separate toilets for males and females should be constructed in the establishment.

Appropriate Rest & refreshment room facility should be provided for employees. It should not directly open to manufacturing/processing/packaging areas. Adequate changing facilities for personnel, suitably located, not to open directly into food processing, handling or storage areas .A display board mentioning Do's &Don'ts for the workers shall be put up inside at a prominent place in the premise in English or in local language for everyone's understanding .Adequate health check up shall be conducted for all food handlers as per local regulation Employees suffering from communicable diseases shall not be allowed to enter the food facility

### **d) Air quality & ventilation**

Ventilation systems natural and /or mechanical including air filters, exhaust fans, wherever required, shall be designed and constructed so that air does not flow from contaminated areas to clean areas. The warehouse should be properly ventilated to prevent condensation. Entrance of air shall be limited by vestibules, air curtains as appropriate.

### **e) Lighting**

Adequate natural or artificial lightings have to be provided to permit effective cleaning and to ensure that the Storage operations can be carried out in a hygienic manner. Lightings are

to be enclosed with shatterproof covers so as to ensure that food or food package surfaces are not contaminated by breakages.

## **f) Storage Facilities**

The produce accepted at the warehouse to be preserved scientifically and protected against rodents, insects and pests and other infestations. Storage of materials in bulk quantity shall be done off the floor on pallets/tarpaulins and off the walls to ensure easy and adequate cleaning and prevent harbouring of any insects, pests or rodents. Stack numbering scheme (layout) should be displayed in each warehouse/godown clearly labelling the location and number of each stack. Each material/lot should be stacked separately, ensuring no mix-ups.

Ensuring periodic fumigation, as appropriate Periodical dusting and fumigation are done at the cost of the warehouse in order to preserve the goods. Following FEFO / FIFO system while releasing material from store. All openings such as manholes, inlets, outlets, draining out of points, etc. should be made such that they can be locked and/or effectively sealed.

## **4. EQUIPMENTS & CONTAINERS**

Containers used to hold cleaning chemicals and other dangerous substances shall be identified and stored separately to prevent malicious or accidental contamination of food. Such chemicals shall be stored under controlled access and dedicated personnel should be granted access to storage premises. Such chemicals shall not be issued without authorization of competent personnel in the organization



## II. ESTABLISHMENT – CONTROL OF OPERATIONS

Control of operation is necessary to produce safe food which is fit for human consumption and is free from contamination and/or cross contamination by:

- (a) Developed and validated methods of manufacturing and handling of food items throughout procurement, storage, processing, packaging, warehousing, and
- (b) Designing, implementing, monitoring and reviewing effective control systems.

### 1. Food receipt

Raw materials should be purchased from approved suppliers. A system should be in place to evaluate the delivered ingredients such as the raw materials and packaging materials. No raw material or ingredient should be accepted if it is known to contain insects, micro-organisms pesticides, veterinary drugs or other toxic substances that would not be reduced to an acceptable level by further processing downstream.

A suitable, qualified person should be available to identify, list and establish the appropriate chemical, functional and organoleptic specifications for all raw materials and in-process materials.

Wheat is usually received at the mill by truck or rail. The sample should be inspected and tested for impurities, moisture content, insect infestation and sprout damage. If it is found that the quality is acceptable as is stated on the grading certificate received, the wheat can be unloaded.

Certificates of acceptability for raw materials and a certificate of analysis (COA) for ingredients, raw materials and packaging materials should be received with each deliver and maintained. Written specifications for all materials purchased as well as for the finished product should be established by the manufacturer to ensure that the food source is free from foreign bodies. All raw materials as well as the packaging materials should have a batch code and accompanying documentation to identify them in storage and processing. Raw material reception areas and distribution areas should be isolated from the other process steps.

#### 1. 1. Transportation:

The list of factors such as temperature, humidity, moisture, ventilation, biotic activity, gases, odour, contamination, self-heating, mechanical influences, shrinkage, shortage, and insect infestation/disease, play a role in transportation. For example, wheat requires specific temperature, humidity, moisture and ventilation conditions to be transported safely

Each vehicle must be inspected before loading for infestation, spills, rodents, insects/pests as well as any vehicle damages or spillages and residual grains which may be allergenic in nature coming from transport of such grains by the vehicle. It should also be checked to ensure, that they are weatherproof and to certify the absence of humidity, material incompatible with a food product

Ensure that transportation vehicles are dedicated for food products and there is no cross-contamination from other non-food commodities. The bottom of the delivery vehicle should be covered with hygienic and infestation-free tarpaulin and after loading the grain, cover the surface as well with a clean tarpaulin.

The dead ends in bulk tankers where old product can accumulate should be cleaned on a regular basis. Conveyances, containers and bulk transport should be suitable for food use. The internal surfaces of the vehicle body should be impervious to water, easy to clean and the vehicle body should be sealed to avoid the entry of pests, exhaust fumes or other sources of contamination. The outside of an insulated container or vehicle body should be weatherproof, clean and in good condition

Doors and latches should be tight to prevent the entry of moisture and pests. Hatch covers must be in weather-tight condition.. Broken or contaminated pallets should not be used for transportation. Food carriers should be loaded, arranged or unloaded in a manner that prevents damage, contamination or deterioration of the food and packaging materials. The load should be equally distributed on the vehicle. Records should be kept of daily checks and maintenance.

Reception and unloading of foodstuffs must be performed by adequately trained personnel. The receiving company should establish proper receiving and unloading procedures to ensure that the product is not contaminated at the point of receipt. Damaged or infested goods shall not be accepted

## **1.2 Raw material receiving & Sampling**

### **1.2.1 Truck inspection should be carried out to ensure:**

- ✓ stock is fully covered with tarpaulin
- ✓ there is no physical damage to the stock
- ✓ Factories receiving Grain via rake
  - Sampling shall happen from different spots across the vehicle in composite form
  - Materials of different varieties/from different seller shall be sampled separately to adequately assess quality and maintain traceability
  - Unloading of Grain should be done in individual Stacks, with tarpaulin layer or on the floor directly, provided it is non-absorbent.
  - All parameters should be analysed as per specification
  - If any infestation is found, the corresponding stacks should be segregated for fumigation

### **1.2.2 Factories with storage facility and receiving raw material via trucks**

- ✓ Sampling should be done for assessment of grain quality as per specification from externally visible bags in the truck
- ✓ If heavy infestations as well as larvae are not found, then material can be unloaded for in-house fumigation.
- ✓ Checks for infestation should be done in the evening time (between 16:30 hrs to 19:00 hrs) as the likelihood of finding infestation is high at this time.

**1.2.3** Millers supplying milled product as raw material for further food processing should have controls to ensure infestation free product to the subsequent user in the Supply Chain.

**1.2.4** Even if the stock is fumigated before despatch, there must be pre-despatch sieving as final check prior to despatch.

## **2. Storage and handling**

Adequate storage facilities (silos) should be provided for the storage of incoming wheat. Different grades of wheat shall be stored separately in different silos. The raw product storage area and packing area should also be separated physically. Food products are to be stored separately from non food products. Grains must be stored in clean area and not directly on the ground. Tarpaulins and/or pallets must be used as appropriate. Stocks are rotated according to the 'First In First Out, FIFO system' or 'First ExpireFirst Out, FEFO system' and adequate records for the system must be kept.

Always implement and follow Good Warehousing Practices (GWP) like FIFO principle etc. The food products, if stacked up, should be of a reasonable height for ease of handling and to prevent falling. The condition of product in stock shall be assessed at appropriate intervals in order to detect contamination, tampering, theft or deterioration, e.g. due to pest infestation, age, unsanitary conditions and temperature/humidity control abuses. The food products should be stored off the floor and away from the walls.

Wheat storage silos should be rodent-, insect- and bird proof, should be kept in a hygienic condition and cleaned and fumigated regularly. Maintenance of silos should take place regularly. Silos should be constructed of suitable materials such as cement and fitted with suitable close- fitting covers kept in place at all times.

The interior of these grain storage bins should be smooth and free from cracks and crevices. In cases where these storage tanks are vented, the venting should be maintained and designed to not contaminate the contents. Inlet valves and pipe work should be kept in a hygienic condition and precautions taken to avoid access to the pipe work by rodents, birds and insects.

Pallets used for the storage of food products are in good usable condition and free from damages such as cracks, protrusion of nails and wooden splinters. Pallets, racks and equipment shall be maintained in good condition to prevent any physical damage to materials or products (e.g. free from nails, wood splinters etc.). Proper management of storage pallets used inside food warehouses is important as they harbour various pests.

Racking and storage areas (e.g. staging areas, bins) shall be adequately spaced from the walls (minimum 12 inches / 30 cm) to allow for inspection of areas for cleanliness, insect or rodent activity. Additionally, where rodent control devices are placed there shall be an 18 inch / 45 cm gap to allow for inspection. Where this is not possible, alternative means of access shall be demonstrated. Inspection aisles next to wall should be painted white and products are to be stored away from walls. Infested packaging materials act as breeding grounds for insects. Proper cleaning, quarantine and pest management procedures must be implemented to prevent infestation

Access to storage areas, including products, packaging materials and exterior storage areas (e.g. tanks, silos) shall be restricted to authorized personnel only. Cleaning materials or any other hazardous chemicals should not be stored in the warehouse, but in designated areas with proper labelling. Sampling and quality testing of the product must be carried-out in parallel to production.

Approved, Rejected and under test product must be clearly segregated and stored. Quality testing and approval of the product is mandatory before despatch of the product. Records of the same must be maintained. Fork lift trucks (FLT) shall be in good repair, clean, free from leaks. FTL utilized inside a facility shall preferably be electric powered. Liquid Petroleum Gas (LPG)(Propane) is acceptable. Gasoline or diesel powered FTL only allowed to be used outside facility . FLT batteries shall be stored in a designated area in such a way as to avoid risk of material or product contamination.

Food, returned products and non–food items shall be handled and stored in a manner to avoid taint / contamination transfer of odours or any quality or food safety risk. Dividers or other precautions, e.g. traffic controls, separate air systems should be used for protection.

### **Pallets handling**

Direct sunlight on product shall be avoided. Pallets shall be stored in areas that are free of moisture, dirt and litter and free of bird, insect or rodent contamination. A pallet inspection program shall be in place to verify that pallets are suitable for use (e.g. clean, dry, free from mold, off-odors and infestation, no broken wood or loose nails). The program shall cover:

- ✓ New pallets ,Incoming goods pallets ,Shipped product pallets &Waste / disposable pallets
- ✓ Pallets shall not be stored outside (i.e. exterior to the building).
- ✓ Wooden Pallets with following critical defects shall be rejected following a defined visual inspection process (utilizing the incoming vehicle check list for pallet deliveries).
- ✓ Pest infestation (pests dead or alive)
- ✓ Unacceptable moisture (reference to defined max. humidity level in Specifications), decayed, rotten or mouldy
- ✓ Snow, ice or standing water
- ✓ Glass slinters, loose nails or staples
- ✓ Off-odours (e.g. fish, taint, chemicals)
- ✓ Unacceptable level of dirt, dust or chemicals, glue, oil or pieces of other material (e.g. cement, packaging materials, etc.)
- ✓ Protruding nail heads
- ✓ Any missing Pallet Elements
- ✓ Baseboards that are not securely nailed
- ✓ Cross-grain splits running the full width of the board
- ✓ Open horizontal splits across any block
- ✓ Greater than 50% of missing wood across the nail area
- ✓ Any form of transferable contamination presenting a risk of taint, damage to product or risk for foreign material exposure or potential harmful to human health.

- ✓ The pallet has major structural defect that could lead to a pallet collapse or serious health, safety or quality implications, or the pallet has been contaminated rendering it unusable
- ✓ Fresh paint
- ✓ Spillage, liquid or dry
- ✓ Pallet does not comply with any other pre-agreed specifications.

## Stacking of Grains

Stack numbering scheme (layout) should be displayed in each warehouse/godown clearly labelling the location and number of each stack. Unloading of Grain should be done in individual Stacks, with at least One Meter gap with next immediate stack or the wall. This is for people movement, cleaning/house-keeping as well as for proper sealing of the stack for any future fumigation.

Stack the Grain with a tarpaulin sheet on the floor, with the sheet extending at least half-a-meter beyond the stack. Each material/lot should be stacked separately, ensuring no mix-ups. Size of each stack should be a maximum of 180MT (around 20 layers high), for easy and efficient fumigation. Stack register should be maintained which shows the entire history of each stack. Infestation check should be done on regular basis, preferably weekly in the evening time for all stacks and a report of this Commodity Health Register (CHR) should be maintained. The dose and duration of fumigation exposure should depend on the counts obtained in CHR.

All fumigated stocks should be always kept under covering to avoid cross-infestation. Alternately, un-fumigated stocks can be kept under covering to avoid chances of cross-infestation. Stack card for each stack should be displayed prominently and should be always accessible. The data should be updated immediately after completion of stacking or issuance or any treatment/disinfestations.

Unused gunny bags, any chemicals/pesticides or any other ancillary equipment should be always kept away from Grain stacks in covered condition. There should be a dedicated area for the sand bags, which should be under a covered roof – not left in the open area.

Infestation control including fumigation must be carried-out by a trained and experienced fumigator, holding a recognised, approved and current/valid certification. Fumigation activity must capture all details including, date, temperature, fumigation sheet sand bags, compound used, dosage, area and service person's initials

Stacks/bags under fumigation must be adequately covered and sealed to ensure no open ends or loose seals are present. Stocks under fumigation must be identified and labelled. Floor must be flat and free of stones and other sharp objects, drains, so that a gastight seal can be made between the sheets and the surface

If a concrete floor is cracked or has unsealed expansion joints, these gaps should be cleaned out and sealed with good-quality cement mortar, asphalt, or other sealant. It should be made sure the area around the stack is swept clean so that a good floor seal can be achieved, especially remove and clean any spillages beneath the tarpaulin sheet or under the stack.

## Handling the Damaged Goods

The damaged goods should be stored in a designated area in order to not expose other products within the storage facility to contamination or probable infestation. Returned, damaged or goods segregated for reprocessing should be physically segregated from other finished product to avoid contamination. An entire different storage facility for recall work shall be preferred. Where damaged goods should be disposed, all labeling should be removed to prevent the products from re-entering the distribution chain.

### 3. Blending and quality verification

Approved and rejected material must be clearly marked and segregated. Being an agricultural commodity, there is inherent variability in the grain quality. Therefore, blending becomes a critical aspect to ensure consistent product quality.

Prior to issuance of any grain consignment/stack for production, sampling must be done to ensure representative quality as per specification and absence of infestation is ascertained. All the records must be preserved till the shelf-life of the product or one year whichever is longer. All samples should be retained till the declared shelf-life of the product

### 4. Food transportation

- Ensure that transportation vehicles are dedicated for food products and there is no cross-contamination from other non-food commodities.
- Each vehicle must be inspected before loading for infestation, spills, rodents, insects/pests as well as any vehicle damages or spillages and residual grains which may be allergenic in nature coming from transport of such grains by the vehicle
- Cover the bottom of the delivery vehicle with hygienic and infestation-free tarpaulin and after loading the grain, cover the surface as well with a clean tarpaulin.

### 5. Food testing

Representative samples from material lots shall be tested for all quality parameters, residues, contaminants, toxins etc., at least once in six months.

### 6. Food packaging

Packing area must be designed to ensure no external contamination and care must be taken to avoid product being directly exposed to the environment. Air-curtains, strip curtains, wire-mesh, partitions etc. must be in place to avoid any contamination.

All personnel involved in packing must be vaccinated annually and records of the same must be maintained. All personnel involved in packing and handling of product must have protective covering. Recycling of packaging or product rejects must be done with prior approval from quality control department and with extreme care so as to avoid contamination. All "Industrial" packaged products like sacks of 50 kg Maida must have details such as Lot No, FSSAI logo, Lic No., Veg logo, Ingredient name, for immediate identification in supply chain

## III. ESTABLISHMENT – MAINTENANCE & SANITATION

### 1. Purpose

In Warehouse maintenance of facility play equivalent role as adopting right sanitation practices. The main purpose of sanitation in warehouse shall be to create environment that will discourage pests/insects harbourage and growth. Only deployment of pest management program will not be sufficient to control pests and insects in the mills, pest management shall be strongly supported by robust maintenance, cleaning and sanitation programs.

### 2. Sanitation strategies

Warehouse shall adopt adequate strategies inclusive of but not limited to:

- Clean exterior grain handling areas and equipments
- Clean processing areas and equipments

Entire warehouse facility shall be periodically inspected and cleaned to avoid development of dust, unintended debris built up in difficult to access areas.

Sanitation Methods: Warehouse shall adopt dry cleaning methods and avoid introduction of water.

Common practices are

- Brooming/sweeping
- Dry wiping
- Vacuum Cleaning

### 3. Factory disinfestation

Warehouse must be disinfested with approved agents or thermally at periodic intervals. This is different from grain fumigation. The objective is to reduce infestation load in the manufacturing facility to negligible level.

Pesticides application within warehouses may involve fumigation, space treatment and the application of residual sprays. When considering using pesticides in the food warehouse, the approved list of pesticides given by Central Insecticide Board must be selected. Refer pesticide labels for detail information regarding the correct use of pesticides. Pesticide application should always be done by licensed and trained PCOs by using appropriate personnel protective equipment. Pesticides should not contaminate foods stored in the warehouse.

## 4. Fumigation

There are only two fumigants registered in India, namely phosphine and methyl bromide. Both are classified as restricted pesticides due to extremely toxic nature. Fumigants are gases quickly disperse to reach the target organism. Fumigants used are broad spectrum insecticide and kill all living creatures in enclosed area. No protective residues are left behind (if used properly), unlike liquid and solid pesticides.

Methyl bromide is an ozone depleting gas, its use is legally restricted only for quarantine and pre-shipment fumigation purposes in India and governed by Directorate of Plant Protection, Quarantine and Storage which authorizes and issues licenses to fumigators. It is very important for exporters/warehouse owners to select a pest management company carefully. They must ensure that company has all the valid govt. licenses and approvals. The company must also have experience, well qualified and trained personnel and the knowledge of Indian fumigation standards, quarantine procedures also the guidelines & procedures laid down by the European, Australian, American plant protection and quarantine authorities to carry out these extremely dangerous services.

The most effective method to ensure food safety against pests is fumigation with phosphine (PH<sub>3</sub>) gas. Phosphine fumigation is preferred because of leaving little amount of residuals and ease of application. 650 ppm phosphine gas concentration of the storage atmosphere in the fumigation is determined as the optimum value for pest control.

As the phosphine gas is oxidized into the phosphoric acid with the existence of light, it is more suitable to make the fumigation applications in the evening. Besides, as phosphine gas reaches high concentration (>1.79%) in the closed atmosphere, great attention is needed in terms of job security. Phosphine application is extremely effective in the modified atmosphere environment. All pests and even resistant flour lice are killed easily within 15 hours of phosphine application when the environment temperature is 40°C and the atmosphere CO<sub>2</sub> rate is over 70 % at a flour mill that is closed firmly and where impermeability is provided.

### • Fumigation with Phosphine

- ✓ Fumigators must remember that the exposure period is deemed to start from the time that the fumigant is first found to be evenly distributed inside the fumigation enclosure.

#### **Phosphine must not be used:**

- **when there is no trained, qualified and properly protected fumigation team**
- **in unsealed enclosures**
- **when the temperature is below 10°C**
- **where resistance to it is known to exist in an insect population**
- **where a rapid treatment is required, i.e. less than 7 days**
- **in immediate vicinity to workspaces and places where people live.**



- ✓ Before gassing an enclosure for fumigation, a warning placard with a warning symbol must be displayed.
- ✓ Aluminium phosphide (ALP) products usually release 33% Phosphine from the total weight of the product i.e. tablets weigh approximately 3 grams and release 1 gram of phosphine gas and pellets weigh approximately 0.6 grams and release 0.2 grams of phosphine gas.
- ✓ The generation of phosphine generated from ALP formulations may be delayed by about 15 minutes after they are exposed to air. In hot, humid conditions, phosphine is produced almost immediately on exposure to the air, so the dispensing process must be completed within 15 minutes.
- ✓ ALP Formulation Dose: (a) Tablets: keep @ 10 tablets (10tablets X3 grams = 30 grams) in a cloth bag (or) (b) Sachets: 34 grams sachet.
- ✓ Fumigation period – at least 7 Days for the control of all live stages
- ✓ Target Phosphine concentrations more than 700 ppm for 7 days for grains in flat storage
- ✓ Increasing the dosage above the rate(s) recommended on the label will not compensate for poor gas-tightness.
- ✓ Post Fumigation Protection of Fumigated stacks: Prophylactic spray with approved agents like Deltamethrin 2.5%WP as per recommended dose on all sides of the stack.

## 5. Warehouse cleaning and hygiene

- During storage, the food grains, and other agricultural commodities are deteriorated by physical and biological factors. These factors include moisture, temperature, insects, birds and storage fungi. Losses by these factors may be reduced to a minimum level by maintaining cleanliness and hygiene in the warehouses. The following steps should be taken to ensure cleanliness and hygiene in the godowns/warehouses:
  - ✓ The floor space in the godowns/warehouses should be cleaned regularly, preferably daily.
  - ✓ The stacks (foodgrains bags) should be brushed at weekly intervals and after every fumigation
  - ✓ Cleanliness should be maintained in entire warehousing complex.
  - ✓ The sweepings including dead insects after spraying of insecticides and Fumigation should not be left in godowns/warehouses and should be immediately removed.
  - ✓ The waste material and dead stock items including used old gunny bags, wooden crates, polythene sheets etc. should not be stored in warehouse. These should be stored in separate rooms.
  - ✓ Spilled grain should be immediately collected, sieved and filled in grain bags(palla bags).
  - ✓ Timely prophylactic and curative treatments (spraying of chemicals and fumigation for insect/pest control) should be carried out in the warehouses. Similarly, rodent control operations in and around warehouses should also be carried out as and when required and dead rats should be collected and buried in the earth.
  - ✓ Measures to check birds' entry in the warehouses should be carried out and these should not be allowed to contaminate the grain and other commodities with their excreta and dead birds.
  - ✓ Warehouses can be made bird proof by fixing wire meshes on windows, ventilators and other possible entries. Polythene strips or nylon curtains may be used on doors of godowns / warehouses to check the entry of birds.

- ✓ Proper and timely aeration which reduces the grain temperature and moisture and also eliminates the psocids infestation should be carried.
- ✓ Warehouse official shall insure that vegetative growth, if any, is removed at periodical intervals to keep the premises free from birds, reptiles, rat burrows etc.
- ✓ Warehouse shall ensure that there are adequate light arrangements in the warehouse.
- ✓ Warehouseman shall ensure that all the pipes/ducts entering the warehouse are fixed with wire mesh properly to check the entry of rats.
- ✓ All the roofs of the warehouses should be painted with waterproof material and should be leak proof.
- ✓ Cracks and crevices should get repaired periodically. A location wise register about the cleanliness and hygiene in the warehouse should be maintained along with a written schedule.
- If during periodic inspection of goods in storage, it is observed that these have been damaged or deteriorated either due to packaging failure, infestation, moisture absorption or due to natural calamity like fire, flood, excessive rain, etc, these shall be handled as under:
  - ✓ Segregate the damaged goods and determine possibility of salvaging. In case it is possible to salvage, carryout the same under intimation to HO and insurance company, as applicable
  - ✓ Salvaged goods shall be tested separately for suitability before acceptance. Similarly, damaged goods shall be tested before declaring non recoverable damaged. Records of such testing shall be maintained.
  - ✓ Salvaged goods shall be kept in separate stacks with proper identification in the "Stack Card" clearly indicating the parent stack(s) details.
  - ✓ Damaged goods shall be kept separately to prevent mix up with acceptable goods. All damaged goods shall be stacked and marked "NOT FOR ISSUE".
  - ✓ There shall also be identification of goods description and quantity on each such stack. Warehouse shall maintain record of "Damaged Goods Records".
  - ✓ If the damaged goods requires immediate disposal, dispose-off the same as per company guidelines.

## 6. Common pests & control plan

Several categories of pests may be found in warehouses, but the common types of warehouse pest control services can be grouped into three: birds, insects and rodents. Insect pests are a whole range and may include weevils, several kinds of beetles and moths. Rodents, especially rats, are also a major concern in many production establishments and storage warehouses –In food processing areas and warehouses, that could spell disaster owing to contamination and causing very serious health concerns. Birds which may make their nests in factories and warehouses. Their droppings cause huge sanitation problems.

Basic steps for insect control In order to control insects in a storage warehouse or processing plants the following steps must be followed:

- **Monitoring** : Have an inspection or surveillance programme which will yield prompt awareness of a possible problem (presence, level, source) before it occurs
- **Identification** : Determine the extent and nature of the possible problem (species, type, level, means of transmission)

- **Control:** Devise a plan for controlling the problem (integration of all possible means to achieve good, cheap and safe pest control)

Grain and grain products in flour mills are at risk of being contaminated by foreign material, insects, microbes and vertebrate pests. There are three types of pests that affect milling process and product quality. Besides structural and exterior pests (such as cockroaches, ants, rodents, birds and exterior flying insects), the type of pests that are most critical to flour mills are stored product arthropods (internal and external feeder insects and mites) found within the commodity (grain and flour). Good engineering for food safety and sanitation are first and most important considerations while setting up a flour mill to avoid these pests

As an important risk element, bird residues and faeces are known as the main contamination source for salmonella bacteria's contamination to the flour which can cause serious food poisonings, because of their numbers and breeding speed insects and mites constitute the most important pest group that gives damages to the grains and threatens the flour safety.

The rats that threaten the flour safety are split into three groups as *Rattus norvegicus* (Norway rat, brown rat), *Rattus rattus* (roof or ship rat, black rat) and *Mus musculus* (home rat); birds are defined as local bird species living in the business area.

Pests such as *Sitophilus granaries* L. (weevil), *S. oryzae* L. (rice louse), *S. zeamais* (corn borer), *Trogoderma granarium* (Khapra beetle), *Rhizopertha dominica* F. (crop hump beetle), *Tribolium confusum* and *T. castaneum* (half-blood lice), *Ptinus fur* L. (white-spotted spider mite), *Nemapogon granellus* L. (crop warehouse moth), *Ephestia kuehniella* (mill moth), *Acarus siro* L. (flour mite) are the common insect and mite species that create important risks on flour safety.

Stored grain and flour are subject to insect infestations and deterioration from molds and bacteria. High grain temperature and moisture, along with dockage and broken kernels and even milled flour, provide conditions that accelerate mold and insect development.

Some insects damage grain by developing inside kernels, feeding on the inner endosperm and producing holes in the kernel through which the adult insect exist. These insects are called "internal feeders". The cycle is repeated when the female lays eggs inside the kernels. Examples of internal feeders are maize weevil, rice weevil, granary weevil, lesser grain borer, and Angoumois moth. The grain (maize, rice, granary) weevils are small recognizable as a group because the head projects forward as a prolonged snout. The adult's lesser grain borer head projects downward, not forward, and does not bear a snout. The Angoumois grain moth lays its eggs on grain kernels and the larvae bore into the kernels and feed there.

Other insect species that do not develop within the kernels, although they may hide inside cracked grain, making detection very difficult are flat grain beetle, rusty grain beetle, and the foreign grain beetle. They primarily feed on mold. Other species such as the saw-toothed grain beetle, the red and confused flour beetles, the Indian meal moth, and the larger black flour beetle feed on damaged grain or fines.

Stored product insects are one of two types – invaders and penetrators. The invaders, like red flour beetle, confused flour beetle, saw-toothed grain beetle, Indian meal moth, and almond moth look for opportunities to get inside food containers by searching for cracks, crevices and holes. The penetrators like the lesser grain borer, cigarette beetle, warehouse beetle, and rice moth chew holes even into multi-layered packages.

## Prevention of infestation

### Stored grain:

Stored grain management is the organised, long-term approach to maintaining the quality, minimizing chemical control inputs, and preserving the integrity of the grain storage system. Techniques can be integrated into grain storage systems to prevent or minimise losses from insect and mold infestations. These management techniques must focus on the factors that regulate storability, including grain temperature, grain moisture, storage air relative humidity and storage time.

Most insect and mold activity is greatly reduced at grain temperatures below 15°C. Planned temperature reductions by controlled aeration can significantly reduce insect population. Mold populations follow similar temperature control patterns. Aeration is the forced movement of air through grain to lower or equalise grain temperatures. Higher levels of grain moisture increase the potential for high populations of stored-grain insects and molds. To achieve safe storage moisture contents, force heat or natural air drying of some crops is necessary.

### Pest control plan

- There should be pest management practices in place to prevent the harbourage and breeding of pests on the grounds and within the warehouse facility. No pets including birds and animals are to be kept within or around the warehouse premises.
- Pest Control must be designed as a comprehensive system at food manufacturing facilities. This must include,
  - ✓ Insect light traps with catch-pan: should not be above 6 feet height from the floor and not be directly visible from outside– tubes must be changed at defined intervals basis specified hours of operation
  - ✓ Rodent Control: Roda-boxes must be placed at both sides (externally place rodent boxes with bait must be fixed and always be locked all entry points
  - ✓ All pest control devices must have serial number and a master lay-out depicting its position
  - ✓ All windows and exhaust duct/openings in the facility must have at least 600 micron mesh covering to avoid pest entry and all doors and shutters must have strip/air-curtains with outer stream of air flow.

S.No	Treatment name	Recommended Frequency	Area	Against
1	Integrated Fly Management (IFM)	Daily thrice	In & Around Building, Entry Points(Doors &	House Flies

			Shutters) & Breeding Grounds	
2	Disinfestation (HPM)	Weekly	In & Around Building, Entry Points(Doors & Shutters) & Breeding Grounds	House Flies, Cockroaches, Silver fish, Ants and Bed Bugs
3	Rodent Management	Daily Check & 15days Change	First Line of Control	Rodents
		Daily Check & 15days Change	Second & Third Line of Control	Rats, Mice & Bandicots
4	Prophylactic Treatment	Monthly (Nov - Feb) Fortnightly (Mar - Oct)	Insect Hiding Places	Crawling Insects
5	Lizard Management	Weekly	Outside Plant Area	Lizards
6	Cockroach Management	Monthly	Cracks & Cervices	Cockroaches
7	Pest O Flash	Daily Cleaning (4 nos)	FG Godown, Bran Collection, Coding Room, Packing Room	Flying Insects
8	Fumigation	45 days (As and When required)	Grain	Store Grain Pest
		45 days (As and When required)	Grain, All equipment	Store Grain Pest

**Following documents must be available on site**

- Pest control plan- lay out, pest control devices, treatment details
- License copy of pest control service provider
- Labels of pesticides used
- MSDS of pesticides used
- ID proof copy of PCO ( Pest control operator) representative on site and his liability insurance certificate as well as his training/qualification certificate
- If pesticides are stored on site- a dedicated access controlled area must be available to store pesticides
- Pest sighting log

**Building design and Pest proofing**

Pest proofing means preventing pests from entering the warehouse. It provides the best long term solution and reduces the need for repeated chemical control.

Exterior area: Many pest problems originate outside the food plant and can be effectively managed by eliminating conditions around the structure which allows the pest to find harbourage. Exterior pest proofing techniques involves:

Entrance and Exit doors – automatic door closing mechanism must be used. Metal doors instead of wood are preferred as wood is susceptible to weathering and gnawing by rodents. Screen doors should be fitted. Air curtains or plastic stripes should be installed to prevent entry or movement of flying incoming pests.

Windows – should be properly designed and fitted with a mesh.

Foundation – all openings greater than ¼ inch should be sealed to prevent rodents.

Drains and Vents – These provide convenient entry points for insects as well as rodents and hence must be adequately screened and cleaned.

Utility lines – Plumbing pipes, electrical conduits etc, all serve as convenient runways for pest entry into the building as gaps are created wherever they enter the structure. These gaps must be sealed.

Roofs – All openings in the roof must be tight fitting and properly sealed to prevent any entry of pests.

Shipping and receiving docks – All exterior docks should be constructed with an overhang, this act as a barrier against rodents.

Interior area: Proper building design and interior pest-proofing of a food warehouse discourages proliferation of any pests that have already gained access in to the building. Ceiling, wall and floor should be free of cracks.

## IV. ESTABLISHMENT – PERSONAL HYGIENE

### 1. Health of food handlers

Food handlers suffering from, or to be a carrier of a disease or illness likely to be transmitted through food, shall not be allowed to enter into any food handling area.

A system shall develop by Food Business Operators, whereby any person affected by illness or symptoms of illness shall report to the management and medical examination of a food handler shall be carried out apart from the periodic checkups, if clinically or epidemiologically indicated. Food handlers/ employees of the establishment shall be medically examined once in a year to ensure that they are free from any infectious, contagious and other communicable diseases. A record of these examinations signed by a registered medical practitioner shall be maintained for inspection purpose.

The factory staff shall be compulsorily inoculated against the enteric group of diseases as per recommended schedule of the vaccine and a record shall be kept for inspection.

In food-handling areas, personnel with open cuts, wounds or burns shall be required to cover them with suitable water-proof dressings before starting operations. Any lost dressing must be reported to supervision immediately. The dressings should preferably be brightly coloured and metal detectable

### 2. Hygiene of food handlers

Food handlers shall maintain a high degree of personal cleanliness. Food business shall provide to all food handlers adequate and suitable clean protective clothing and footwear every day. Head-covers or caps, masks, gloves, shoe-covers (where product is directly touched) and such other hygiene measures must be in place as appropriate to ensure product contamination risk is avoided.

Food handlers shall always wash their hands with soap and clean potable water, disinfect their hands and then dry with hand drier or clean cloth towel or disposable paper at the beginning of food handling activities immediately after handling raw food or any contaminated material, tools, equipment or work surface, where this could result in contamination of other food items or after using the toilet.

Toilets and canteen for employees must be away from production area. All toilets must be equipped with soaps or liquid detergents and provision for uninterrupted water supply. Food handlers engaged in food handling activities shall refrain from smoking, spitting, chewing, sneezing or coughing over any food whether protected or unprotected and eating in food preparation and food service areas. Food handlers should trim their nails and hair periodically, does not encourage or practice unhygienic habits while handling food. Persons working directly with and handling raw materials or food products shall maintain high standards of personal cleanliness at all times. In particular:

- they shall not smoke, spit, eat or drink in areas or rooms where raw materials and food products are handled or stored;

- wash their hands at least each time work is resumed and whenever contamination of their hands has occurred; e.g. after coughin / sneezing, visiting toilet, using telephone, smoking etc.
- avoid certain hand habits - e.g. scratching nose, running finger through hair, rubbing eyes, ears and mouth, scratching beard, scratching parts of bodies etc.-which might lead to food contamination through the transfer of bacteria from the employee to product during its preparation. When unavoidable, hands should be effectively washed before resuming work after such actions.

### 3. Safety & Security of Personnel

- The traditional life safety and health concerns common to all buildings, including measures to prevent occupational injuries and illnesses (work-related musculoskeletal disorders (WMSD), trips, falls, etc.), should be addressed. Ensure electrical safety, and eliminate exposure to hazardous materials.
- 
- The operations contributed significant numbers of warehouse injuries and are considered to be the most hazardous: docks, powered industrial trucks, conveyors, materials storage, manual lifting/handling, roof ladders and hatches, and charging stations. Other serious operational safety problems include inadequate fire safety provisions, improper blocking of exits and egress paths, chemical exposure, improper use of lockout procedures, lack of ergonomics, and failure to wear personal protective equipment.
- Incorporate proper signage to clearly warn of hazards or to direct personnel to take precaution. The specific strategy for the warehouses signs must be determined early in the facility design process.
- Possess non-slip surface treatments on floors subject to wetting, such as outdoor docks, to eliminate slips and falls to personnel.
- Be designed with fire sprinkler system engineered to cover the specific commodity classification in the specific storage configuration for the planned warehouse. The adequacy of the sprinkler system must be evaluated when changes occur that can increase the hazard classification, such as introducing a new product line, using a different packaging material, or changing from wood pallets to plastic pallets.
- Include appropriate security system incorporated into the overall warehouse design.

### 4. Visitors

Food Business Operator should implement and display visitor control policy. The Food Business shall ensure that visitors to its food manufacturing, cooking, preparation, storage or handling areas must wherever appropriate, wear protective clothing, footwear and adhere to the other personal hygiene provisions envisaged in this section. Visitors do & don'ts rules shall be displayed at prominent areas



## V. TRAINING

### 1. Awareness and responsibilities

All personnel shall be aware of their role and responsibility in protecting food from contamination or deterioration. Food handlers shall have the necessary knowledge and skills to enable them to handle food hygienically. Those handling strong chemicals or potentially hazardous substances shall be trained in safe handling procedures and techniques.

### 2. Training programmes

- Suitable trainings shall be given to all personnel handling food to enable them to have the required knowledge and skills in GHP and GMP for specific tasks along with personal hygiene requirements commensurate with their work activities, the nature of food, its handling, processing, preparation, packaging, storage, service and distribution.
- The person in charge of receiving the grain (wheat grader), should be well trained to do so, knowledgeable and dependable in order to do his specified task. A suitable wheat grading certificate that shows that the wheat grader is qualified should be kept on record. The wheat grader should have the authority to reject wheat if it does not conform to the minimum requirements or re-classify it into another class if necessary.
- Personnel employed as drivers should be adequately trained to meet the specific quality to the hygienic and safety requirements of the transported goods.
- These training programmes shall be delivered by qualified and trained personnel. Records of training shall be kept.

### 3. Instruction and supervision

Periodic assessments of the effectiveness of training, instructions programmes as well as routine supervision and checks should be made to ensure that food hygiene and food safety procedures are being implemented correctly and effectively by all personnel.

Managers and supervisors of food processes shall have the necessary knowledge and skills in food hygiene (GHP and GMP) principles and practices to be able to judge potential risks and take necessary action to remedy deficiencies.

### 4. Management & supervision

FBO management shall lead establishment of Food safety management systems in their premises. FBO management shall ensure providing necessary trainings & resources to their employees to develop food safety culture at plant site.

FBO shall appoint trained & competent managers and supervisors for management and supervision of food safety systems.

FBO management shall provide and maintain documented standard operating procedure for FSMS systems compliance and its supervision at site through records /checklists on routine basis to control any possible hazards throughout supply chain. Management is responsible to arrange training for all food handlers regarding the hygienic handling of food as well as personal hygiene (good hygiene practices).

## **VI. AUDIT, DOCUMENTATION & RECORDS**

### **1. Self-evaluation and review**

The FBO shall conduct a self-evaluation process to review the effectiveness of the implemented food safety system at periodic intervals through internal and external audits or other mechanisms, but at least once in a year. Necessary corrective actions based on self-evaluation results shall be taken.

FBO should also undertake a complete review of the systems including self-evaluation results, customer feedback, complaints, new technologies and regulatory updates at periodic intervals, but at least once in a year for continual improvement.

### **2. Documentation and records**

Appropriate documentation & records of processing, production and distributions shall be maintained in a legible manner, retained in good condition for a period of one year or the shelf-life of the product, whichever is more. Suppliers should have effective pre-requisite programs in place and should be verified annually. Audits should be carried out on suppliers of raw materials.

## SECTION C - HACCP IMPLEMENTATION

Implementing Hazard Analysis and Critical Control Point (HACCP) is crucial for any food manufacturing process. A HACCP plan covers the total supply chain, from inbound logistics, through storage, processing, sanitation and maintenance to the final use by the consumer. Across the operations, it must be ensured that procedures are available for internal logistics, processing specifications, working instructions, hygiene procedures and preventive maintenance plans. These procedures must cover start-ups, shutdown and unexpected stoppages during processing.

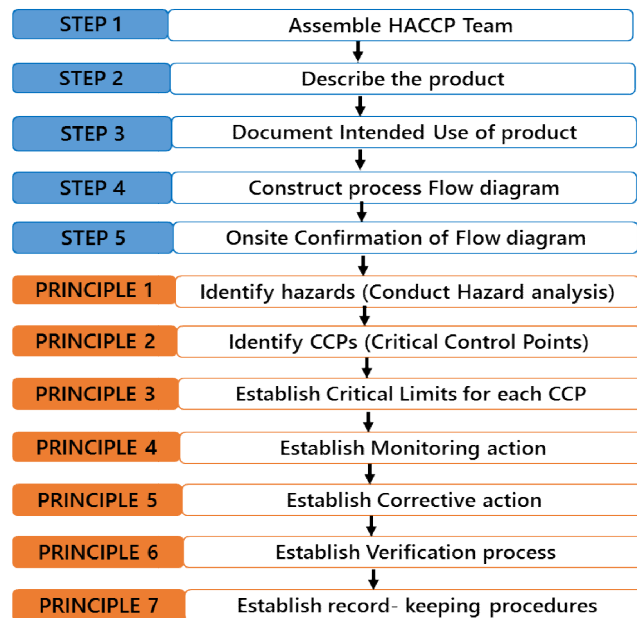
### I. INTRODUCTION TO HACCP

Hazard Analysis Critical Control Point (HACCP) is essential to carry out to identify the weakness of the production line and to suggest critical limits in compliance with legislation and therefore the preventive and corrective measures.

Though HACCP system was designed to aim zero defect products, yet it is not feasible to achieve 100% defect free products. However, it sets a goal to minimize the associated risks during production and subsequently reduce unacceptable unsafe products.

During implementation of HACCP, it is imperative to set controls at each point of the production line at which safety problems (physical, chemical and microbiological) are likely to occur.

A HACCP plan is required to be in place before initiating the HACCP system. A HACCP plan consists of 5 initial steps and 7 major HACCP principles.



The requirements for Sanitation Standard Operating Procedures (SSOPs) along with Good Manufacturing Practices (GMPs) should be considered as Pre-Requisite for HACCP.

Risk assessment is a critical step in a HACCP plan. Below is a template to determine what severity and probability a processing step is involved with and therefore what level of criticality is holds in the processing line.

		Consequence/ Severity					
		How severe could the outcome be if the risk event occurs?					
		Severe	Major	Significant	Minor	Insignificant	
Probability/ Likelihood	What's the chance of the risk occurring?	Frequent	Extreme	Extreme	Very High	High	Medium
	Likely	Extreme	Very High	High	Medium	Medium	
	Occasional	Very High	High	Medium	Medium	Low	
	Seldom	High	Medium	Medium	Low	Very Low	
	Unlikely	Medium	Medium	Low	Very Low	Very Low	

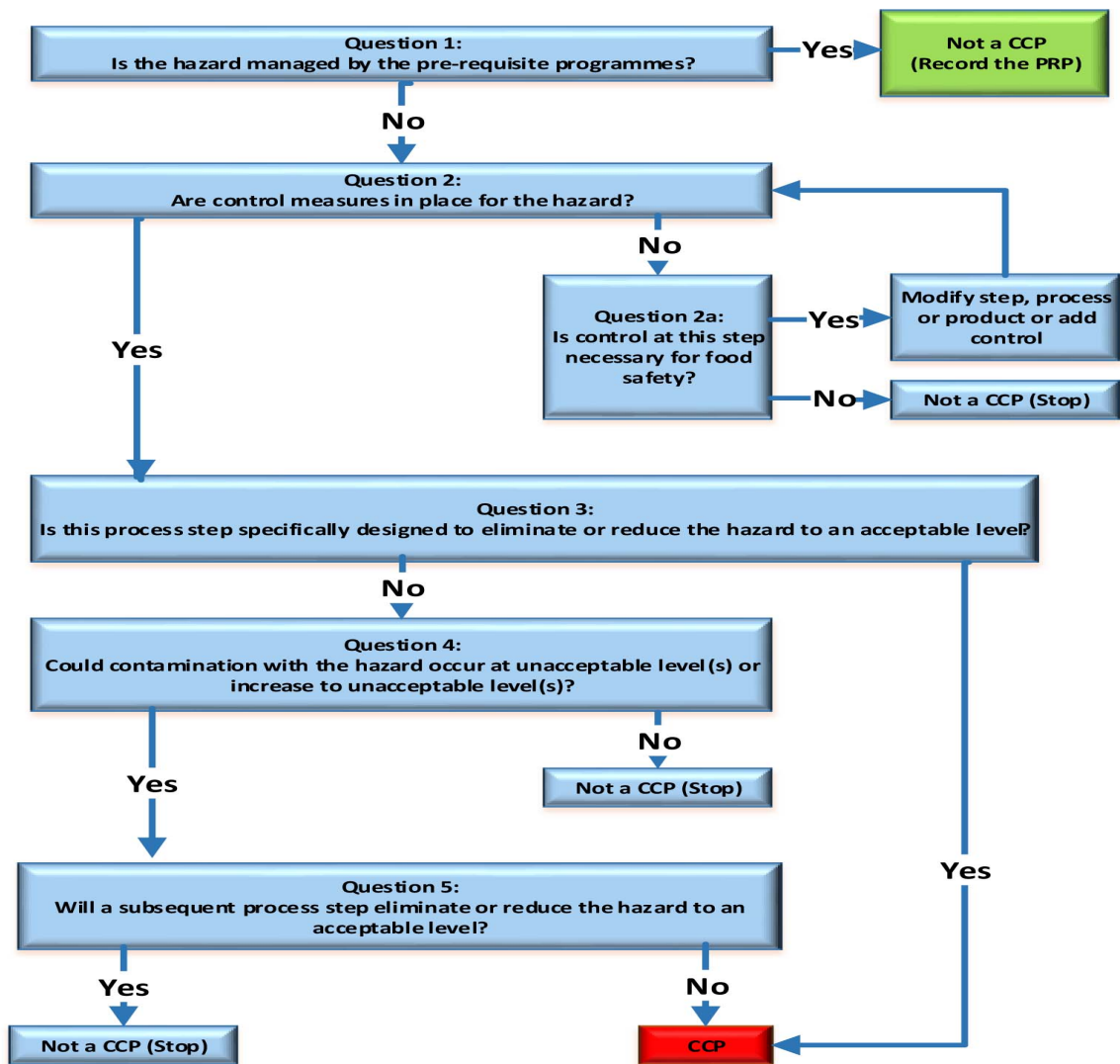
## II. INTRODUCTION TO DECISION TREE

Hazard Analysis and Critical Control Point (HACCP) decision trees are tools that can be used to help you decide whether a hazard control point is a critical control point (CCP) or not. A CCP is a step at which control can be applied. However, it is not always possible to eliminate or prevent a food safety hazard, so this allows you to reduce it to an acceptable level.

The purpose of a decision tree is to support the judgement of the team and help you to confirm whether the hazard needs more food safety controls. Decision trees are not mandatory elements of HACCP but they can be useful in helping you determine whether a particular step is a CCP.

It is vital that you determine the correct CCPs to ensure that food is managed effectively and safely. The number of CCPs in a process will depend on how complex the process is and how many hazards are present.

### An example of a HACCP Decision tree



○ **APPLICATION OF HACCP SYSTEM**

Assessment Criteria for Control Measure	
Assessment criteria for control measure	Parameters
a) Control measure effect on identify food safety hazard relative to the strictness applied	<ol style="list-style-type: none"> <li>1. Not eliminate completely.</li> <li>2. Reduce or control to meet acceptable level</li> <li>3. Reduce to within acceptable level or eliminate hazard completely</li> </ol>
b) Control measure feasibility for monitoring (e.g. ability to be monitored in a timely manner to enable immediate corrections)	<ol style="list-style-type: none"> <li>1. No feasibility</li> <li>2. Has limitation</li> <li>3. Feasible</li> </ol>
c) Control measure place within system relative to other control measures	<ol style="list-style-type: none"> <li>1. First</li> <li>2. Middle</li> <li>3. Final measure</li> </ol>
d) The likelihood of failure in the functioning of a control measure or significant processing variability	<ol style="list-style-type: none"> <li>1. High</li> <li>2. Medium</li> <li>3. Low</li> </ol>
e) The severity of consequence(s) in the case of failure in its functioning	<ol style="list-style-type: none"> <li>1. Negligible effect</li> <li>2. Complaint</li> <li>3. Health implications</li> </ol>
f) whether the control measure specifically established and applied to eliminate or significantly reduce the level of hazard	<ol style="list-style-type: none"> <li>1. No</li> <li>2. Somewhat</li> <li>3. Definitely</li> </ol>
g) synergistic effects (i.e. interactions that occurs between two or more measures resulting in their combined effect being higher than the sum of their individual effects)	<ol style="list-style-type: none"> <li>1. No</li> <li>2. Somewhat</li> <li>3. Yes</li> </ol>
<b>If a+b+c+d+e+f+g =</b>	
<b>10 to 15 is OPRP</b>	
<b>15+ is CCP</b>	

### Typical Hazard analysis- Storage of Grains

#### HAZARD IDENTIFICATION AND DETERMINATION OF ACCEPTABLE LEVELS, HAZARD ASSESSMENT, SELECTION AND ASSESSMENT OF CONTROL MEASURES

Process Step & Description	Hazard	Severity (A)	Frequency (B)	Risk adverse health effect (A x B)	Justification	Control measures	Assessment Criteria (Level of Effectiveness)							PRP/OPRP/CCP
							a	b	c	d	e	f	g	
Receiving of Grains	<b>PHYSICAL</b> Chance of Foreign matter such as Wood, Metal, Dust, Spoiled material, Inferior quality material, etc.	2	2	4	[1] Effective control of supplier & processing. [2] Effective PRP in place ( Due to source of material packing & transportation condition ) [3] Likely to occur.	[1] Approval, evaluation & re-evaluation of suppliers. [2] RM specification give to the supplier & purchase of material after approval of the sample [3] Vehicle Cleanliness check [4] Good handling & Good hygiene practices are follow. [5] Supplier visit - once / year for site visit. [6] Quality checking at the wheat receiving.	1	2	2	2	1	1	1	PRP



	<p><b><u>CHEMICAL</u></b> Pesticide residue, Heavy Metals, Banned chemical usage, Secretion of uric acid, lack of decreased amount of food nutrient, Undeclared allergens etc.</p>	3	1	3	<p>[1] Effective control of supplier &amp; processing. [2] Heavy Metals test results. ( Due to improper pesticide treatment, usage of banned pesticide &amp; heavy metal contamination in the agriculture land itself). [3] Insects and rodents pest are natural reservoir of many bacterial pathogens. [4] From the farmer source and soil source. [5] Undeclared allergen also hamper the product.</p>	<p>[1] Approval, evaluation &amp; re- evaluation of suppliers. [2] RM specification given to the supplier &amp; purchase of material after approval of the sample. [3] Vehicle Cleanliness check [4] Heavy metal test result carried out once in a year. [5] Good handling &amp; Good hygiene practices are follow. [6] Transporter are communicated to follow food safety compliance. [7] Supplier visit - once / year for site visit. [8] Allergen declaration and allergen control policy has been implemented and maintained.</p>	1	2	2	2	1	1	1
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	<p><b><u>BIOLOGICAL</u></b> Chances of microbial contamination due to improper handling of raw material by food handler, microbes contamination ( E. Coli, Salmonella etc.) and Illness of the employee.</p>	2	2	4	<p>[1] Effective control of supplier &amp; processing. [2] Effective PRP in place ( Due to source of harvesting, packing &amp; transportation condition )</p>	<p>[1] Approval, evaluation &amp; re-evaluation of suppliers [2]RM specification give to the supplier &amp; purchase of material after approval of the sample [3] RM Inspection by QC at the time of material receiving. [4] Vehicle Cleanliness check [5] Good handling &amp; Good hygiene practices are follow [6] Raw material product testing for chemical &amp; microbial parameter. [7] Supplier visit - once / year for site visit. [8] PPE implemented and maintained [9] COA procured for the microbial testing and third party testing for the assurance.</p>	1	2	2	2	1	1	1	
<p><b>Packing material receiving</b></p>	<p><b><u>PHYSICAL</u></b> Foreign matter such as Dust, glass, Stones, Plastic foreign matter, Supplier source and transportation condition.</p>	1	2	2	<p>[1] Improper material supplied from the supplier and vehicle condition, Uncleanliness of processing machinery may hamper the product.</p>	<p>[1] Approval, evaluation &amp; re-evaluation of suppliers [2] PM Specification. [3] PM Inspection. [4] Vehicle Cleanliness check. [5] Inspection of packing material at the time of receiving. [6] Supplier visit for food grade compliance and checking of the product.</p>	1	2	2	2	1	1	1	PRP

	<p><b><u>CHEMICAL</u></b> Non Food grade / non virgin packing material used for the manufacturing of Packing bag / In process Packing Material, transportation condition</p>	1	1	1	<p>[1] Non food grade chemical or ink and unapproved colour use hamper the product. [2] Other non food grade chemical residue. [3] Improper transportation condition may contaminate the product.</p>	<p>[1] Approval, evaluation &amp; re-evaluation of suppliers [2] PM Specification [3] PM Inspection [4] Vehicle Cleanliness check [5] Food grade material compliance certificate from each supplier - Once / year [6] Supplier visit - once / year for site visit.</p>	1	2	2	2	1	1	1
	<p><b><u>BIOLOGICAL</u></b> Microbial contamination</p>	2	1	2	<p>[1] Improper material transportation and non food grade material and uncovered material contaminate the product.</p>	<p>[1] Approval, evaluation &amp; re-evaluation of suppliers [2] PM Specification [3] PM Inspection [4] Vehicle Cleanliness check [5] Material comes with the covered condition only.</p>	1	2	2	2	1	1	1
<b>Packing material inspection</b>	<p><b><u>PHYSICAL</u></b> Improper uncovered material i.e. dust and other foreign matter contamination</p>	1	1	1	<p>[1] Improper material comes in the vehicle contaminate through the dust and foreign matter.</p>	<p>[1] Checking by the trained quality person. [2] Material COA procured where applicable. [3] PPE implemented and maintained.</p>	1	2	2	2	1	1	1
	<p><b><u>CHEMICAL</u></b> Non food chemical contamination and transport condition</p>	2	1	2	<p>[1] Improper transport condition and Improper checking of the material</p>	<p>[1] COA Procure and material procured in covered condition only and trained chemist perform the analysis. [2] Food grade certificate are procured.</p>	1	2	2	2	1	1	1
													PRP

	<b><u>BIOLOGICAL</u></b> Food handler contamination, Illness of the handler	2	1	2	[1] Insufficient implementation of the PPE and food handler contamination.	[1] Material comes in prospered covered condition. [2] Trained chemist perform the analysis and ill person are not allowed in the manufacturing area or for sampling procedure. [3] Medical checkup of the employee has been done as per defined frequency.	1	2	2	2	1	1	1	
<b>Packing material storage</b>	<b><u>PHYSICAL</u></b> Bristles, hair ,dust, broken gaskets.	2	2	4	[1] Improper storage of the packing material, Plant hygiene condition and improper handling.	[1] Plant hygiene and sanitation programme has been implemented and maintained. [2] Trained workers for the material handling.	1	2	2	2	1	1	1	PRP
	<b><u>CHEMICAL</u></b> <b><u>Non food grade chemical</u></b>	2	1	2	[1] Non food grade material storage may contaminate the product.	[1] Food grade and non food grade material are separated and stored physically separated.	1	2	2	2	1	1	1	PRP
	<b><u>BIOLOGICAL</u></b> contaminate from the tarpaulin over the storage time. Bacterial contamination. Pest and rodent droppings.	3	1	3	[1] Material may get contaminated through the improper storage, bird droppings and rodent droppings.	[1] All the material are properly stored in storage room. [2] FIFO or FEFO maintained. [3] Pest control programme has been implemented and maintained. [4] EFK monitoring.	1	2	2	2	1	1	1	PRP
<b>Raw material testing</b>	<b><u>PHYSICAL</u></b> Bristles, hair ,dust, broken gaskets.	2	2	4	[1] Improper qc checking and improper PPE implementation.	[1] Bags are properly open for sampling and close it properly. [2] PPE implemented and maintained [3] Trained chemist perform the analysis.	1	2	2	2	1	1	1	PRP
	<b><u>CHEMICAL</u></b> <b><u>N.A</u></b>	NA	NA	NA			1	2	2	2	1	1	1	PRP

	<b>BIOLOGICAL</b> Food handler contamination, Illness of the handler	2	1	2	[1] Improper quality checking and PPE.	[1] PPE implemented and maintained. [2] Trained chemist perform the analysis.	1	2	2	2	1	1	1	PRP
<b>Raw material and Processed food storage</b>	<b>PHYSICAL</b> Foreign matter such as Dust,dirt etc.	3	1	3	[1] Improper cleaning, Improper storage condition, Improper material segregation contaminate the product.	[1] Material stored away from walls [2] Leak proof roofs [3] Storage condition inspection [4] Stock rotation (FIFO) [5] Daily plant sanitation checklist has been implemented.	1	2	2	2	1	1	1	PRP
	<b>CHEMICAL</b> Food and non food grade material contamination	2	2	4	[1] Cross mixing of the food and non food grade material contamination.	[1] Material are separated and stored properly on pallet or tarpaulin. [2] Chemical are stored separately and tagged properly. [3] Worker are trained for the material identification and separation food and non food material.	1	2	2	2	1	1	1	PRP
	<b>BIOLOGICAL</b> Pest infestation by Live insects, Y&M, salmonella. Etc.	5	1	5	[1] Effective PRP in place ( Due to storage adjacent to wall, broken bags during storage , pest infestation due to open window, in effective pest control )	[1] Material stored away from walls [2] Leak proof roofs [3] Storage condition inspection [4] Stock rotation (FIFO) [5] Daily pest control checklist has been implemented and maintained [6] Daily personnel and plant checklist has been implemented and maintained. [7] Glass checklist implemented and maintained. [8] Pest control programme has been implemented and maintained.	1	2	2	2	1	1	1	PRP

## **D. INSPECTION CHECKLIST**

**STORAGE & WAREHOUSES**

Date		FBO Name	
Food Safety Officer		FBO's representative	
FBO License No.		Address	

*Indicate the following – Compliance (C), Noncompliance (NC), Partial Compliance (PC) or Not Applicable (NA)*

S. No.	Audit Question	Scoring	
1	Food establishment has an updated FSSAI license and is displayed at a prominent location.	2	
<b>I</b>	<b>Design &amp; facilities</b>		
2	The design and layout of warehouse permit adequate maintenance and cleaning and do not provide harbourage to pests.	2	
3	There is adequate facility for potable & non-potable water supply.	2	
4	There is adequate facility for drainage & waste disposal.	2	
5	Premise has sufficient lighting. Lighting fixtures are covered to protect food from contamination (especially where unpacked food is stored).	2	
6	Adequate ventilation is provided within the premise.	2	
7	An adequate and separate storage facility is in place for food products; chemicals & other hazardous substances; personal items etc.	2	
8*	<i>Facility capable of achieving &amp; maintaining temperature is available (such as freezer, chillers etc.) for storing products requiring temperature control.</i>	4	
9	Ante room is available with frozen room maintaining temperature below 4 <sup>0</sup> C for picking of frozen product.	2	
10	Personnel hygiene facilities are available. (Adequate number of hand washing facilities, toilets, change rooms, rest & refreshment room etc).	2	
<b>II</b>	<b>Control of operation</b>		
11	Food material is stored on pallets/racks off the floor and away from walls.	2	
12	Products handled with care at receiving picking and dispatch – material not lying on floor or in an unorganized manner or allowed to accumulate.	2	
13	Chilled products are received at 5 <sup>0</sup> C or below. Frozen products are received at -18 <sup>0</sup> C or below	2	
14*	<i>Frozen products are stored in frozen rooms maintained at -18<sup>0</sup>C or below. Chilled products are stored in cold rooms maintained at 5<sup>0</sup>C or below. Records of temperature monitoring are maintained.</i>	4	
15	Cold room and frozen room are maintained neat and clean, free from mold growth and any unwanted materials.	2	
16	Stock rotation is practiced through FIFO/FEFO and no expired product is available on shelf for sale.	2	

<b>III</b>	<b>Maintenance &amp; sanitation</b>		
17	The premises is kept clean and there are no seepage, cobwebs, dirt, dust, etc. that can compromise food safety. Check for records.	2	
18	Cleaning of storage equipments (silos, pallets etc.), food premises is done as per cleaning schedule & cleaning programme.	2	
19	Food premises and equipment are maintained in an appropriate state of repair and condition. Check for records.	2	
20*	<i>Pest control program is available Only approved pest control chemicals or fumigants (in case of food grains) are used. Check for records.</i>	4	
21	Pest control activities are carried out by trained and experienced personnel. Check for records.	2	
22	Rodent traps are in sufficient numbers and are mapped. Insecticutors used are functional and cleaned regularly.	2	
23	No signs of pest activity or infestation in premises (eggs, larvae, faeces etc.)	2	
24	Food waste and other refuse are removed periodically from food storage areas to avoid accumulation.	2	
<b>IV</b>	<b>Personal Hygiene</b>		
25	Annual medical examination & inoculation of food handlers against the enteric group of diseases as per recommended schedule of the vaccine is done. Check for records.	2	
26	No person suffering from a disease or illness or with open wounds or burns is involved in handling of food or materials which come in contact with food.	2	
27*	<i>Food handlers maintain personal cleanliness (clean clothes, trimmed nails &amp; water proof bandage etc) and personal behaviour (hand washing, no loose jewellery, no smoking, no spitting etc).</i>	4	
28	Food handlers equipped with suitable aprons, gloves, headgear, shoe cover etc; wherever necessary.	2	
<b>V</b>	<b>Training &amp; records keeping</b>		
29	Internal / External audit of the system is done periodically. Check for records.	2	
30	Food business has an effective customer complaints redressal mechanism.	2	
31	Food handlers have the necessary knowledge and skills & trained to handle food safely. Check for training records.	2	
32*	<i>Appropriate documentation &amp; records are available and retained for specific period.</i>	4	

**Total points ...../74**

Asterisk mark (\*) questions may significantly impact food safety & therefore must be addressed as a priority. Failure in any of the asterisk mark questions, will lead to Non-compliance

**Grading –**

<input type="checkbox"/>	<b>A<sup>+</sup></b>	66 - 74	Compliance – Exemplar
<input type="checkbox"/>	<b>A</b>	60 - 65	Compliance – Satisfactory
<input type="checkbox"/>	<b>B</b>	27 - 59	Needs Improvement
<input type="checkbox"/>	<b>No grade</b>	<27	Non Compliance



## **E. PROFORMAS**

# Mandatory Proformas

## 1.1 Medical Fitness Certificate for Food handlers

### PERFORMA FOR MEDICAL FITNESS CERTIFICATE FOR FOOD HANDLERS (FOR THE YEAR .....)

(See Para No. 10.1.2, Part- II, Schedule - 4 of FSS Regulation, 2011)

It is certified that Shri/Smt./Miss.....  
employed with M/s....., coming in direct  
contact with food items has been carefully examined\* by me on date .....  
Based on the medical examination conducted, he/she is found free from any  
infectious or communicable diseases and the person is fit to work in the above  
mentioned food establishment.

**Name and Signature with Seal**  
of Registered Medical Practitioner /  
Civil Surgeon

**\*Medical Examination to be conducted:**

1. Physical Examination
2. Eye Test
3. Skin Examination
4. Compliance with schedule of Vaccine to be inoculated against enteric group of diseases
5. Any test required to confirm any communicable or infectious disease which the person suspected to be suffering from on clinical examination.

## 1.2 Form E – Form of Guarantee

### FORM E

#### Form of Guarantee

Date of sale	Nature and quality of article/brand name, if any	Batch No. or Code No.	Quantity	Price
1	2	3	4	5

Invoice No. \_\_\_\_\_

Place: \_\_\_\_\_

From: \_\_\_\_\_

Date: \_\_\_\_\_

To: \_\_\_\_\_

I/We hereby certify that food/foods mentioned in this invoice is/are warranted to be of the nature and quality which it/ these purports/purported to be.

Signature of the  
Manufacturer/Distributor/Dealer

Name and address of

Manufacturer/Packer

(in case of packed article)

License No. (wherever applicable)

## 2. Recommendatory Proformas

### 2.1 Approved Supplier List

S.No.	Item/Material Name	Location of Use	Primary Approved Supplier (Name & complete address)					Secondary Approved Supplier (Name & complete address)				
			Complete Address	Contact Person	Contact No.	Email id	Fax	Complete Address	Contact Person	Contact No.	Email id	Fax

### 2.2 Incoming Vehicle Inspection Record

Date of Incoming Vehicle:

Vehicle Type:

Material in Vehicle received:

Number of Persons accompanying Driver:

PARAMETER EVALUATED	REMARKS
Security lock	
Type of carrier (full covered/ Open Roof)	
Mode of covering products (in case of Open Roof)	
Overall Hygiene in the interior	
Overall Hygiene on the exterior	
Any sharp edges / points in the interior of vehicle	
Any pests detected	
Any grease /oil detected	

Authorized Signature

## 2.3 Incoming Material Inspection

*Includes all type: Raw materials, Ingredients, Food additives, Processing aids, Packaging materials, Cleaning and sanitation chemicals, etc.*

<b>Material Name:</b>	
<b>Supplier Name:</b>	
<b>Identification/Location of Supplier:</b>	
<b>Quantity received:</b>	
<b>Pack size received:</b>	
<b>Material Receipt Date:</b>	
<b>Transport Mode:</b>	
<b>Rejected (Yes/No):</b>	
<b>Reason for Rejection:</b>	

PARAMETER EVALUATED	STATUS/RESULTS	Signature
Temperature (Degree Celsius)		
Visual Inspection Condition (OK/Not OK)		
Packaging & Labelling Condition (OK/Not OK)		
Production Date/Shelf Life Date/Expiry Date		
Vehicle Inspection Condition (OK/Not OK)		
Quality Lab Results (If applicable)		
Certificate Of Analysis (COA) received (Yes/No)		
Remarks		
Clearance Date		
Authorized Signatore		

## 2.4 Outgoing Vehicle Inspection Record

**Date of Outgoing Vehicle:**

**Vehicle Type:**

**Material in Vehicle to be dispatched:**

**Date of Manufacturing:**

**Time of Manufacturing:**

**Batch/Lot No.:**

**Number of Persons accompanying Driver:**

PARAMETER EVALUATED	REMARKS
Security lock	
Type of carrier (full covered/ Open Roof)	
Mode of covering products (in case of Open Roof)	
Overall Hygiene in the interior	
Overall Hygiene on the exterior	
Any sharp edges / points in the interior of vehicle	
Any pests detected	
Any grease /oil detected	

**Authorized Singature**

## 2.5 Pest Management Plan

Type of Pest	Mode of Control	Station (locations) monitored	Number designated	Frequency of Monitoring	Remarks

## 2.6 Pest monitoring record

Date	Type of Pest	Mode of Control	Station (locations) monitored	Number designated	Frequency of Monitoring	Clean (ok/Not ok)	Remarks	Sign

## 2.7 Monitoring of Personnel hygiene

Date:

S.No.	Employee Code	Employee name	Area of work	Hand wash, sanitize (and Gloves where necessary)	Clean & trimmed Nails	No open Wounds	No Jewellery	Covered Hair	Clean outer garments / protective clothing	Clean Shoes/ shoe covers	Infectious Disease / Skin infection / Allergy, if any	No Tobacco/ Smoking / Chewing	Overall Hygiene Status upon examination (Yes/No)	Action needed on non-compliance	Re-examination status (Yes/No)
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															

*Jewellery, wrist watches, cufflinks, ear rings, glass bangles, stick bindis*