



**Western Macedonia University of Applied Sciences,
Kozani, Greece**

**Faculty of Agriculture Technology, and Food
Technology and Nutrition, Florina**

Department of Agricultural Technology

**University of Food Technologies,
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Technological Faculty

Department of Meat & Fish Technology



Postgraduate Course MSFP101

SYSTEMS FOR FOOD RISK MANAGEMENT

**Prof. Eng. Stefan G. Dragoev DSc.
Corresponding Member of Bulgarian Academy of Sciences**



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Chapter 3

**GOOD MANUFACTURING AND HYGIENE PRACTICES BASED ON
THE PRINCIPLES OF FOOD HYGIENE
OF THE CODEX ALIMENTARIUS –
THE BASIS FOR THE PRODUCTION AND SALE OF SAFE FOOD**



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3.1. Structure of GMP.

The first principle of food hygiene by Codex Alimentarius.





Parts of the Codex Alimentarius



- Part I. Objectives and general principles of the Code of Food Hygiene;
- Part II. Scope, application and definitions;
- Part III. Primary production;
- Part IV. Construction and putting into operation the project and technological equipment;
- Part V. The control of the production process;
- Part VI. Cleaning and disinfection of the processing plant;
- Part VII. Implementation and maintenance of personal hygiene and health;
- Part VIII. Transport and storage of finished products;
- Part IX. Product information and consumer demand;
- Part X. Education.

The First Principle of Food Hygiene

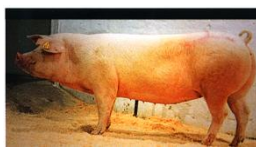
"Primary Production"



1 . Environmental Hygiene

The impact on plant selection and animal breeding; hygiene requirements to soil, water, air, greenhouses, pastures and stables set in the GMPs grazing trace contamination (feed) of pesticides, heavy metals, radionuclides, etc. Application of hazard for residues of veterinary medicaments. Periodically monitor the purity of the water for irrigation, for watering animals, etc.

- ✓ Prerequisite programme GMPs' PRP 1-1. Hygiene for crop production, fish, poultry and the slaughter animals;
- ✓ Prerequisite programme GMPs' PRP 1-2. Post harvesting transport and processing of grains, fruits, vegetables, from the field as after the fish catching and slaughtering;
- ✓ Prerequisite programme GMPs' PRP 1-3. Cleaning, maintenance and hygiene in primary production



3.2. Second principle of food hygiene by Codex Alimentarius.





The Second Principle of Food Hygiene

"Construction of Companies put into Operation"



1 . Parcel and the plant location

A folder with permissions for the organization work

Drawings: General plan with technological flows

2. Blueprints allocation of manufacturing plant of the organization

- ✓ Prerequisite programme GMPs' PRP 2-1 Prevention of cross contamination;
- ✓ A working procedure GMPs' WP 2-1-1 Internal monitoring program for control of final products;
- ✓ A working instruction GMPs' WI 2-1-1 Blueprints allocation of manufacturing plant at elevation levels marked with colorful technological flows;
- ✓ Operational document for records GMPs' ODR 2-1-1 Folder for identification of final products
- ✓ Operational document for records GMPs' ODR 2-1-2 Folder for nonconforming product

3. Technological equipment and rules for working with them

4. Technological equipment, machinery, inventory and technical tools

3.3. Third principle of food hygiene by Codex Alimentarius.



The Third Principle of Food Hygiene "Control of Technological Processes"



1. Hazard control

DRAWING: Plan of technological processes

DRAWING: Process flow diagram

Prerequisite programme GMPs' PRP 3-1 Cleanliness of the surfaces which are in contact with food and beverages



The Third Principle of Food Hygiene "Control of Technological Processes"



2. Key aspects of hygiene control systems

Prerequisite programme GMPs' PRP 3-2 Cleanliness of contact surfaces and the working premises;

A working procedure GMPs' WP 3-2-1 Programme for cleaning and disinfection of the working premises;

A working procedure GMPs' WP 3-2-2 Procedures for cleaning and disinfection of workplaces;

A working procedure GMPs' WP 3-2-3 Procedures for cleaning and current disinfection of the technological equipment;

A working procedure GMPs' WP 3-2-4 Internal monitoring program for hygiene control in the enterprise;

A working procedure GMPs' WP 3-2-5 Schedule of the technical support and prophylactics of the machinery and equipment;

A working instruction GMPs' WI 3-2-1 Use of detergents and disinfecting agents;

A working instruction GMPs' WI 3-2-2 Information for safe handling with detergents and disinfecting agents;

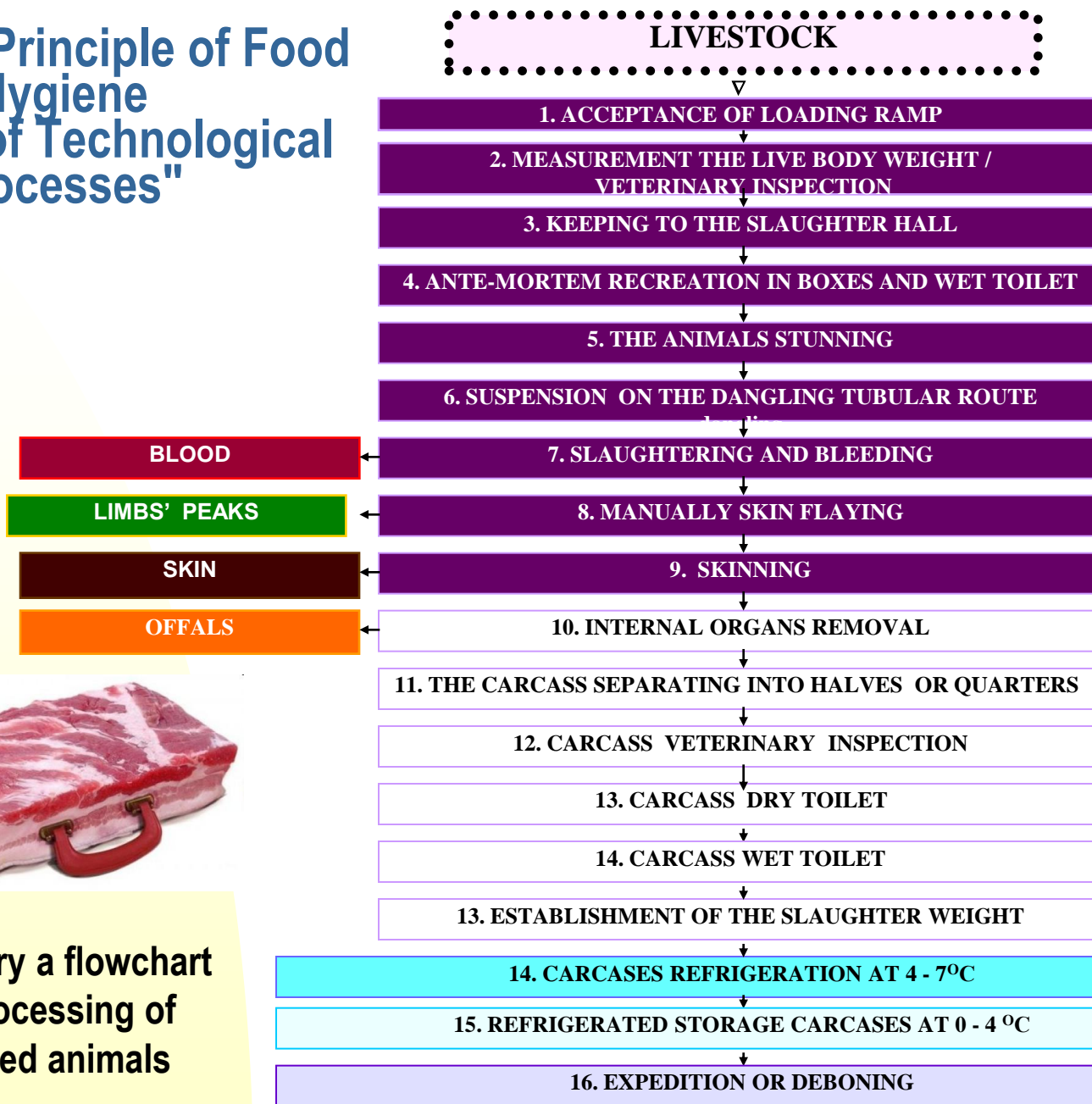
Operational document for records GMPs' ODR 3-2-1 An order for the appointment of persons carrying out the cleaning, flushing and disinfection;

Operational document for records GMPs' ODR 3-2-2
Form for checking the cleanliness of the premises and machines before starting work
Operational document for records GMPs' ODR 3-2-3
Contract with an accredited laboratory for analysis of swabs in monitoring the cleanliness of the contact surfaces.



The Third Principle of Food Hygiene

"Control of Technological Processes"

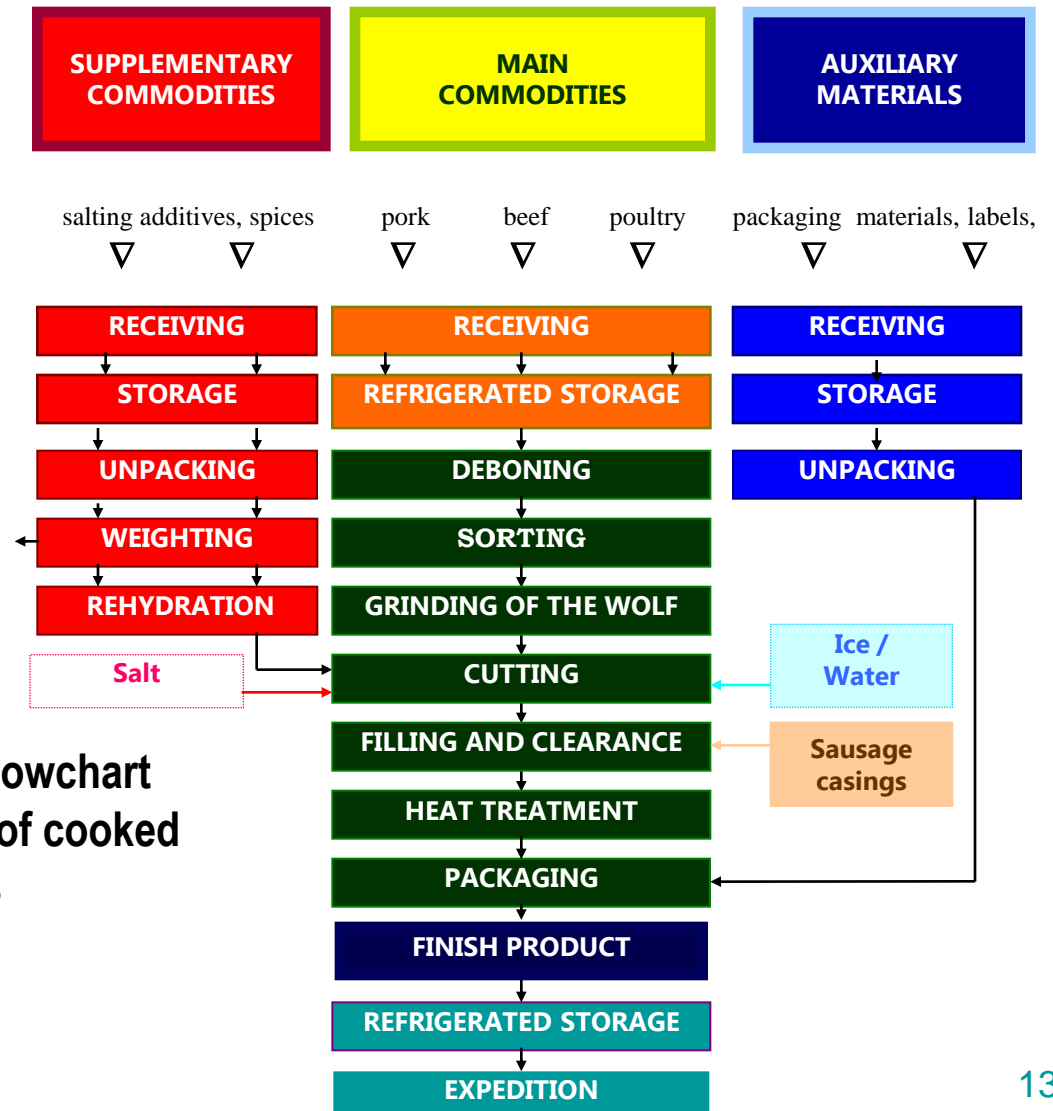


An exemplary a flowchart during processing of slaughtered animals

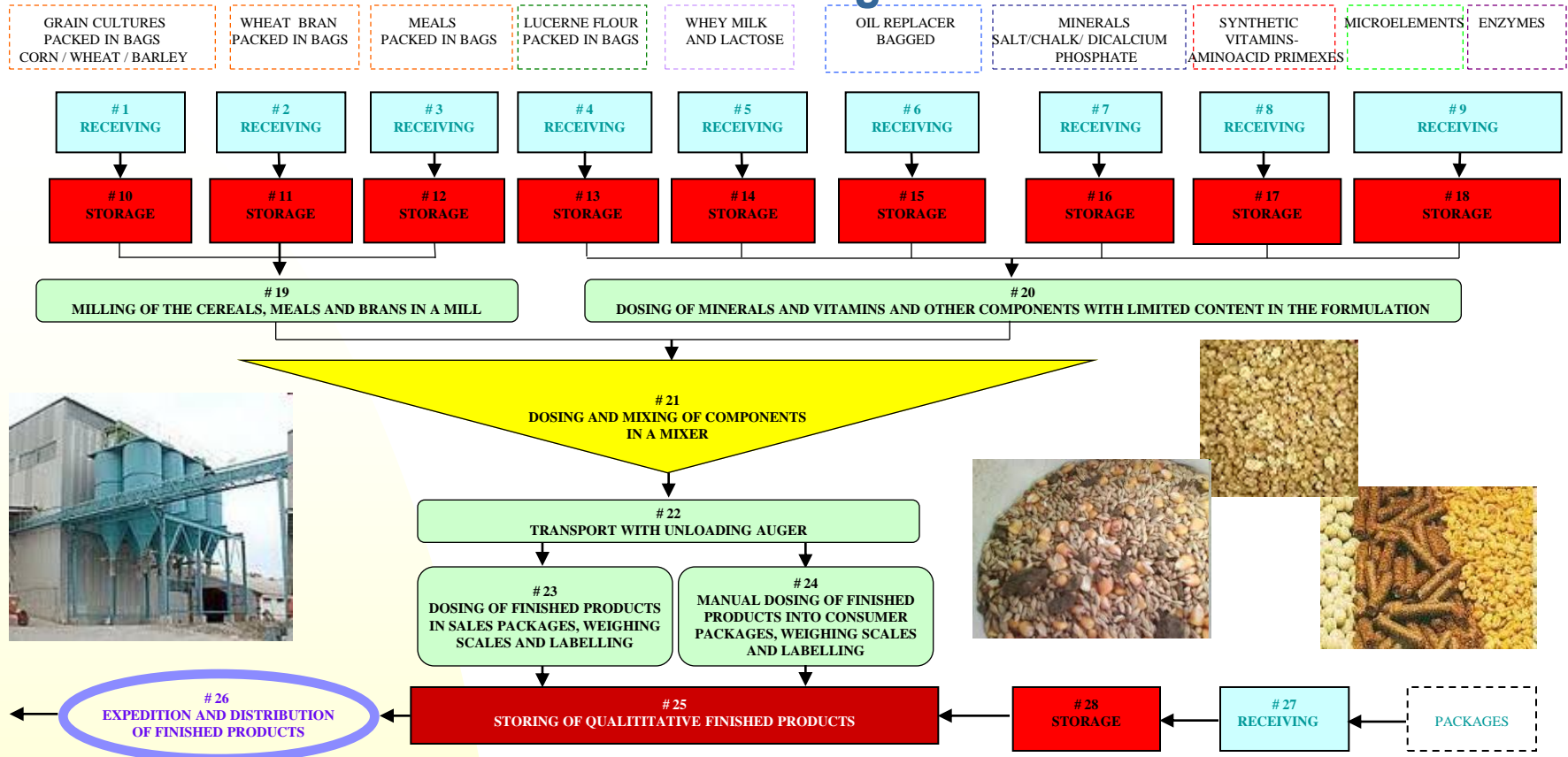
The Third Principle of Food Hygiene "Control of Technological Processes"



An exemplary a flowchart
for the production of cooked
sausages



The Third Principle of Food Hygiene "Control of Technological Processes"



An exemplary a flow diagram for
production of mixed feed for farm and
domestic animals



The Third Principle of Food Hygiene "Control of Technological Processes"



3 . Requirements for acceptance of raw materials

Prerequisite programme GMPs' PRP 3-3 Characteristics and control of suppliers;
A working procedure GMPs' WP 3-3-1 Internal monitoring program for the control of raw materials;
A working procedure GMPs' WP 3-2-2 Program for raw material suppliers;
A working instruction GMPs' WI 3-3-1 Guidelines for adoption of raw materials;
Operational document for records GMPs' ODR 3-3-1 Checklist of raw materials;
Operational document for records GMPs' ODR 3-3-2 Journal for incoming raw materials;
Operational document for records GMPs' ODR 3-3-3 Journal for supplementary commodities;
Operational document for records GMPs' ODR 3-3-4 Technological specification or standards for the food production;
Operational document for records GMPs' ODR 3-3-5 Quality Certificates for the additional raw materials and auxiliary materials;

4 . Control of food and beverages contamination

Prerequisite programme GMPs' PRP 3-4 Prevention of foreign substances and toxic compounds;;
A working instruction GMPs' WI 3-4-1 Instructions for use and storage of chemicals and the cleaning and disinfections' preparations;
Operational document for records GMPs' ODR 3-4-1 The list of medications for cleaning and disinfection;
Operational document for records GMPs' ODR 3-4-2 Quality certificates of medications for cleaning and disinfection.



The Third Principle of Food Hygiene "Control of Technological Processes"



5. Proper packaging, labeling and safe storage of toxic compounds

Prerequisite programme GMPs' PRP 3-5 Marking, storage and use of chemicals and toxic substances;

A working procedure GMPs' WP 3-5-1 Labeling, rules for safe storage and use of chemical compounds;

A working instruction GMPs' WI 3-5-1 Use of toxic chemicals and compounds;

A working instruction GMPs' WI 3-5-2 Safety instructions when using cleaning agents and disinfectants;

Operational document for records GMPs' ODR 3-5-1 Checklist of labeling, safe storage and use of chemicals;

Operational document for records GMPs' ODR 3-5-2 \equiv Operational document for records GMPs' ODR 3-4-1 The list of cleaning and disinfection preparations;

Operational document for records GMPs' ODR 3-5-3 \equiv Operational document for records GMPs' ODR 3-4-2 Quality certificates of products

for cleaning and disinfection;

Operational document for records GMPs' ODR 3-5-4

Permission to use of chemicals, toxic compounds, disinfectants, detergents and others chemical compounds.





The Third Principle of Food Hygiene "Control of Technological Processes"



6. Control and safety of water and ice

Prerequisite programme GMPs' PRP 3-6 Control and safety of water and ice;

A working procedure GMPs' WP 3-6-1 Internal monitoring program according to the year for sampling at monitoring of the water and ice safety;

A working instruction GMPs' WI 3-6-1 Instruction for the sampling from water and ice for microbiological testing;

A working instruction GMPs' WI 3-6-2 Instruction for the sampling from water and ice for survey the heavy metals content;

A working instruction GMPs' WI 3-6-3 Instruction for the sampling from water and ice for determination of the content of chloroorganic pesticides' residues;

Operational document for records GMPs' ODR 3-6-1 Check list for control of water and ice safety;

Operational document for records GMPs' ODR 3-6-2 Colored plan sketch of plumbing systems – part "Water and Sewage" with numbered water abstraction sources;

Operational document for records GMPs' ODR 3-6-3 Note to the type of water sources;

Operational document for records GMPs' ODR 3-6-4 Contract with a "Water and Sewage" supplier with the water flow indicating;



The Third Principle of Food Hygiene "Control of Technological Processes"



6. Control and safety of water and ice

Operational document for records GMPs' ODR 3-6-5 A copy of internal monitoring program for first quarter of the current year;

Operational document for records GMPs' ODR 3-6-6 Letters of assignment to accredited laboratory for control of water and ice, and the protocols for analysis of water and ice;

Operational document for records GMPs' ODR 3-6-7 Copy of Ordinance No 9 from March 16, 2001;

Operational document for records GMPs' ODR 3-6-8 Contract with accredited laboratory for testing of water and ice;

Operational document for records GMPs' ODR 3-6-9 Order for appointing a person responsible and authorized to collect samples of water and ice during their monitoring and control.

The Third Principle of Food Hygiene "Control of Technological Processes"



7. Control and management of technological parameters of manufacturing process

Operational prerequisite programme HACCPs' OPR 03 Monitoring system of CCP;

Operational document for records OPRs' ODR 03-02 Check list for monitoring of the air temperature in refrigerators for storage of chilled finished products;

Operational prerequisite programme HACCPs' OPR 04 Control of technological parameters in CCP or in the products;

Operational document for records OPRs' ODR 04-01 Check list for monitoring of the air temperature in technological refrigerators for storage of chilled raw materials and semi-finished products;

Operational document for records OPRs' ODR 04-02 Check list for monitoring of the air temperature in refrigerators for storage of chilled raw materials;

Operational document for records OPRs' ODR 04-03 Check list for monitoring of the air temperature in air-conditioned operating rooms and halls;

Operational document for records OPRs' ODR 04-04 Check list for monitoring in the centre of frozen commodities;

Operational document for records OPRs' ODR 04-05 Check list for monitoring of the air temperature in booths for cooking;

Operational prerequisite programme HACCPs' OPR P 05 Internal monitoring program according to the year for sampling at monitoring of the water and ice safety/ cross-contamination/ raw materials and finished products;

Operational prerequisite programme HACCPs' OPR 08 Control of the measuring instruments;

Operational document for records OPRs' ODR 08-01 Summary list of the measuring equipment and intervals of their inspections;

Operational document for records OPRs' ODR 08-02 Registration cards;



The Third Principle of Food Hygiene

"Control of Technological Processes"

8. Recall and traceability of nonconforming products

Operational prerequisite programme HACCPs' OPR 06 Nonconforming product, corrective action and corrections;

A working card from the HACCPs' plans WC X-09 Determining of corrective action and corrective measures in the HACCP plan;

Operational prerequisite programme HACCPs' OPR 07 Notification and back withdrawal from the market

Prerequisite programme GMPs' PRP 3-7 Feedback and traceability;

A working procedure GMPs' WP GMP 3-7-1 Requirements for packaging and labeling of the finished products;

A working instruction GMPs' WI 3-7-1 Instruction for tracking and recall of nonconforming product;

A working instruction GMPs' WI 3-7-2 Instruction for formation of batch number of the finished products;

Operational document for records GMPs' ODR 3-7-1 Order for the crisis teams;

Operational document for records GMPs' ODR 3-7-2 List of crisis teams operating under recall of nonconforming production by the market;

Operational document for records GMPs' ODR 3-7-3 Production logbook for the storage of finished products;

Operational document for records GMPs' ODR 3-7-4 Forms for claims of finished products;

Operational document for records GMPs' ODR 3-7-5 Folder for incoming claims;

Operational document for records GMPs' ODR 3-7-6 Inventory of back seized finished products;

Operational document for records GMPs' ODR 3-7-7 Inventory of processed products;





The Third Principle of Food Hygiene "Control of Technological Processes"



9. Documentation and records related to the control procedures

Operational prerequisite programme HACCPs' OPR 01 Document management;

Operational document for records OPRs' ODR 01-01 Sheet for changes registrations;

Operational document for records OPRs' ODR 01-02 Sheet for changes registrations of subscribers;

Operational document for records OPRs' ODR 01-03 Proposal for amendments;

Operational document for records OPRs' ODR 01-04 Order for amendments;

Operational document for records OPRs' ODR 01-05 Chief sheet;

Operational document for records OPRs' ODR 01-06 Logbook for the dissemination of regulations;

Operational prerequisite programme HACCPs' OPR 02 Records management;

Operational document for records OPRs' ODR 02-01 Protocols for the disposal of records of HACCP/ GMP-s;

Operational prerequisite programme HACCPs' OPR 09. Internal exchange of specific information with HACCP team;

Operational prerequisite programme HACCPs' OPR 10. Verification and validation of the HACCP system;

A working card from the HACCPs' plans WC X-11 Pattern for the shaping of working card for introduction of procedures for HACCP plans verification;

Operational document for records OPRs' ODR 10-01 Annual timetable for HACCP verification;

Operational document for records OPRs' ODR 10-02 Plan for HACCP verification;

Operational document for records OPRs' ODR 10-03 The HACCP verification report;

Operational document for records OPRs' ODR 10-04 Logbook of completed HACCP verification checks;

3.4. Forth principle of food hygiene by Codex Alimentarius.





The Forth Principle of Food Hygiene "Cleaning and Disinfection"



1. Cleaning and disinfection of PRODUCTION PREMISES

Prerequisite programme GMPs' PRP 4-1 \equiv

Prerequisite programme GMPs' PRP 3-2 Cleaning and disinfection of production premises;



The Forth Principle of Food Hygiene "Cleaning and Disinfection"



2. Pest management

Prerequisite programme GMPs' PRP 4-2 Pest control;

A working procedure GMPs' WP 4-2-1 Procedure for pest control;

A working instruction GMPs' WI 4-2-1 Instruction for deratization;

A working instruction GMPs' WI 4-2-2 Instruction for control of large storage pests;

A working instruction GMPs' WI 4-2-3 Instruction for disinsection;

A working instruction GMPs' WI 4-2-4 Instruction for use of poisons and safety guidelines at work with them;

Operational document for records GMPs' ODR 4-2-1 Scheme with marked poisonous points (drains and around the enterprise);

Operational document for records GMPs' ODR 4-2-2 Check list for the reporting of disinsection results;

Operational document for records GMPs' ODR 4-2-3 Check list for the reporting of deratization results;

Operational document for records GMPs' ODR 4-2-4 Check list for pest control insects - flies and insects;

Operational document for records GMPs' ODR 4-2-5 Check list for the control of large storage pests;

Operational document for records GMPs' ODR 4-2-6 Corrective actions when an ascertainment of positive results of pests;





The Forth Principle of Food Hygiene "Cleaning and Disinfection"

3. Management of activities on waste disposal

Prerequisite programme GMPs' PRP 4-3 Management of activities on waste disposal;

A working instruction GMPs' WI 4-3-1 Instructions for disposal of waste as required by Regulation (EC) No 1069/2009 .

Operational document for records GMPs' ODR 4-3-1 Logbook for waste removal;

Operational document for records GMPs' ODR 4-3-2 Check sheets for checking in waste disposal;

Operational document for records GMPs' ODR 4-3-3

Agreement with rendering plant;

Operational document for records GMPs' ODR 4-3-4

Arrendering plant notes.



3.5. Fifth principle of food hygiene by Codex Alimentarius.





The Fifth Principle of Food Hygiene

"Maintaining the Systems of Personal Hygiene and Health"

1. Staffs' personal hygiene and health

- Prerequisite programme GMPs' PRP 5-1 Staffs' personal hygiene and health;
- A working instruction GMPs' WI 5-1-1 Instruction to maintaining of working places hygiene;
- A working instruction GMPs' WI 5-1-2 Instruction for maintaining of personal hygiene, general hygiene, order and safety;
- A working instruction GMPs' WI 5-1-3 Safety instruction for work with technological equipment in the enterprise;
- Operational document for records GMPs' ODR 5-1-1 Order for person controlling the hygiene procedures;
- Operational document for records GMPs' ODR 5-1-2 Characteristics of workplaces;
- Operational document for records GMPs' ODR 5-1-3 List of working staff;
- Operational document for records GMPs' ODR 5-1-4 Lists for the handed out work wear and frequency of its change;
- Operational document for records GMPs' ODR 5-1-5 Check lists for the control of staff personal hygiene and health;
- Operational document for records GMPs' ODR 5-1-6 Protocols of training in theme "Personal hygiene and health";



3.6. Sixth principle of food hygiene by Codex Alimentarius.



The Sixth Principle of Food Hygiene

"Transport and Storage of Finished Products"

1. Transport and storage of finished products

Prerequisite programme GMPs' PRP 6-1 Transport and storage of finished products

A working procedure GMPs' WP 6-1-1 Cleaning and disinfection of refrigerated vans of vehicles for the finished products transport;

A working instruction GMPs' WI 6-1-1 Storage and transport of finished products;

Operational document for records

GMPs' ODR 6-1-1 Certificates for vehicles disinfection;



3.7. Seventh principle of food hygiene by Codex Alimentarius.



The Seventh Principle of Food Hygiene

"Product Information and Consumer Culture"

1. Product information and culture of consumers

1. Classification of production schedule in food groups
2. Description of manufacturing foods and beverages
3. Labeling and marking of finished products
4. Consumer's culture

Operational prerequisite programme HACCPs' OPR 09. Internal information exchange with HACCP team;

A working card from the HACCPs' plans WC X-02 Description of products in HACCP plan

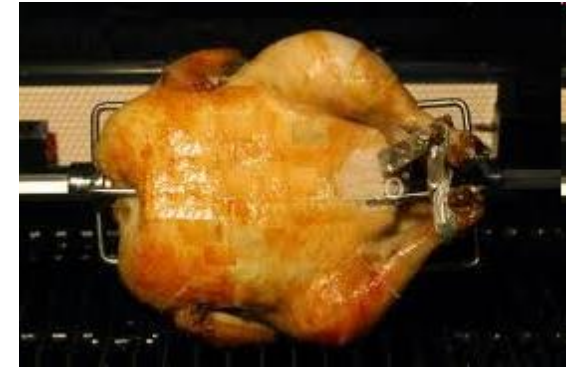


3.8. Eighth principle of food hygiene by Codex Alimentarius.





The Eighth Principle of Food Hygiene "Training"



1. Training

Prerequisite programme GMPs' PRP 8-1 Staff training;

A working procedure GMPs' WP 8-1-1 The annual training program (the respective half of the current year);

Operational document for records GMPs' ODR 8-1-1 Protocols of trained staff with a list of their signatures;

Operational document for records GMPs' ODR 8-1-2 ≡ Operational document for records GMPs' ODR 5-1-2 Characteristics of workplaces;

