



REPUBLIC OF SERBIA  
MINISTRY OF AGRICULTURE, FORESTRY, AND WATER MANAGEMENT  
Veterinary Directorate

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# GUIDE FOR SMALL-SCALE PRODUCTION AND PROCESSING OF PLANT-BASED FOODS

National Measures for Derogations from and Adaptation  
to General and Specific Conditions of Food Hygiene



Belgrade, 2021  
FIRST EDITION





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## National Measures for Derogations from and Adaptations to General and Specific Conditions of Food Hygiene

First Edition

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## PREFACE

This is yet another Guide published by the Ministry of Agriculture, Forestry, and Water Management that provides detailed instructions on the application of “flexible” rules of general hygiene. It is written for the plant-food production and processing sector on farms or small-scale establishments.

The Guide provides information on good production and hygiene practice that can help farmers get products of high quality and food safety, that can be produced on small scale farms and usually according to traditional recipes and skills. These are usually fruits (marmelades, jams, juices) and vegetable products (ajvar, pindjur, marinated or biologically preserved vegetables), baked goods and pasta, spreads, dried or marinated forest foods, herbs, and various processed foods from small holdings and small-scale farms. The rules defined in regulations are further developed in this Guide with the aim of preserving local gastronomic experience and heritage and of supporting small-scale farm food businesses through diversification of, and added-value to, the basic products.

The contents and design of this Guide are the result of the continued support of the Food and Agriculture Organization of the United Nations, whose aim is to establish more efficient food production in the Republic of Serbia and improve the quality and safety of the plant-food production and processing. The Guide was prepared by the SEEDDEV “Agriculture” team in consultation with and support from the Ministry of Agriculture, Forestry, and Water Management of the Republic of Serbia.

### Legal ground and enforcement

Based on the Law of Food Safety, Rulebook on the small-scale production and distribution of plant-based foods was published in the early 2020. It covered the regions where such activities can take place, as well as when situations when the exclusion from, adaptation to, or derogations from food hygiene laws can be applied. The Rulebook lists the hygiene requirements, as well as the requirements for the construction, design, and equipment of small-scale food business establishments used for the production and distribution of plant-based foods, including the traditional production methods.

The goal of this Guide is to support small-scale food businesses by providing information on the contents and scope of procedures which, in line with the regulations, can be applied in plant-food processing establishments, as well as on how to meet those requirements.

Small-scale food producers are not obliged to follow the advice prescribed by this Guide and they have the right to use other sources of information and look for alternative solutions that can help them meet the requirements of food hygiene and safety.

However, the Guide cannot replace any of the current laws and regulations governing the production, processing, and distribution of food, and only provides an understanding of the ways in which the processing should be done and how to apply special criteria during the production process.

However, this document does not provide explanations of all the provisions of the legislation of food hygiene and safety but only the most important requirements whose appropriate application can ensure good work hygiene and safety of raw and processed plant-foods. In case of the special requirements, the producer should seek help from the competent authority of the implemented legislation.

This Guide can also be used as a source of information regarding the minimum requirements that the competent authority (inspection) should look for when performing an official control in food business establishments, assessing compliance with the general and specific hygiene requirements, as well as with the results of the operator's self-control program.

The Guide will be periodically updated to take into account the latest experiences and information from scientific institutions, competent authorities, and food-business operators.

To improve the quality and effectiveness of future editions, we welcome all critical analysis, comments, and suggestions.

## Who Can Use This Guide?

This Guide is aimed at small-scale plant-food businesses, as well as the producers of traditional products, ie producers who use traditional production methods on their small-scale or smallholding farms. This sector usually includes producers of vegetables, fruits, grains, and mushrooms who process these foods on their farms using traditional processing methods. Many farmers process not only primary plant-foods grown on their farms but also primary plant products obtained from the market.

Small-scale plant-food producer and processor usually performs two or three jobs at the same time:

- ▶ They grow plant-foods – farmer/producer of primary plant-foods
- ▶ They process primary plant products to get the final product ready for the consumer
- ▶ They sell the whole of their production or part thereof to the end user or distribute their products locally or nationally

To sell their products, small-scale food producers sometimes use short (direct) supply chains but sometimes they also use long (indirect) supply chains (supermarkets, wholesalers), in line with the growing consumer demand.

Although this Guide is meant to be used by food producers, it can also be used by other interested parties such as:

- Technical experts/consultants who are in touch with producers and who can use the information from this Guide to provide an adequate/adapted training of the producers
- Teachers in schools of agriculture and other schools
- Competent authorities – the Guide provides examples of derogation from and adaptation to this sector, which may be taken into consideration during official controls

## What Does the Guide Contain?

The Guide describes the entire Food Safety Management System regarding the processing of plant-based foods based on good hygiene and good management practices. It's essential to conform with these good practices in order to prevent hazards that are a potential risk to consumer's health. These practices also provide a foundation of the effective implementation of the HACCP-based plans.

As a national document, the Guide consists of:

1. A general part that gives directions for good hygiene practice and application of the regulations regarding the small-scale production and distribution of plant-based foods
2. A special part that addresses general models of self-control plans based on the HACCP principles and concerns the production of:
  - 2.1 Pasteurized fruits
  - 2.2 Pasteurized vegetables
  - 2.3 Pasteurized ajvar and vegetable ajvar

Each of the plans is presented separately to make it easier for the producers to use only those that concern the products and good practice criteria that apply to them.

The information and recommendations from this Guide should be regarded as technical advice but not as a regulatory obligation. Based on these, producers can further develop

their internal food safety system, their own procedures, as well as self-control models. They can directly refer to the good hygiene and production practices mentioned in this Guide, while when using the self-control plan model, they should estimate how applicable the steps and procedures that refer to the products/processes are and check their safety and quality.

The Guide provides only the general information and does not address the issues of good agricultural and hygiene practice in primary production of plant-based foods.



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### **Annex 1:**

**General model of HACCP plan for the production of pasteurized fruits**

### **Annex 2:**

**General model of HACCP plan for the production of pasteurized vegetables**

## ABBREVIATIONS

**HACCP:** Hazard Analysis and Critical Control Points

**GPP:** Good Production Practice

**GHP:** Good Hygiene Practice

## DEFINITIONS

Certain phrases used in this Guide have the following meaning:

- **Fairs and exhibitions** (hereinafter referred to as: events) are events whose goal is not the sale but service provision and direct food sale to the end user. These events are also places which provide products associated with the nature of those events, and are made available in places designated by the organizers;
- **End consumer** is a food consumer who does not use food for business operation or activity;
- **Local market** is an area of the municipality or of the neighboring municipalities close to where the farm is situated, where producers can sell their products;
- **Local sale by home delivery** is “door to door” sale in the municipality (or the neighboring municipalities) where the farm of the producer is situated;
- **Local retail establishment** is an establishment dealing with food distribution in the municipality (or the neighboring municipalities) close to where the producer’s farm is;
- **Small-scale foods** are quantities that a food operator can distribute in accordance with this Rulebook;
- **Small-scale plant-based food business operator** is a legal person or entrepreneur who produces and distributes quantities of food that are regulated by the *Rulebook on the production and distribution of small scale plant-based foods, on locations designated for such activities, and on exclusions, derogations, and adaptations from the food hygiene regulations*;
- **Site of the farm** is the farmyard or the producer’s production facility;
- **Competent authority** is an authority competent for agriculture inspection affairs;
- **Small-scale establishment** is an establishment where at least 50% of the food grown and processed comes from that farm;
- **Processed products** refer to food obtained by processing of unprocessed food and which may contain certain ingredients that are necessary for the production process, or that give the final products their specific characteristics;
- **Primary plant products** are products of primary plant-food production;

- **Primary plant product grown on the farm** is a product which the producer sowed, planted, or raised on his farm until the harvest or vintage;
- **Retail** means the handling and/or processing, preparation, or storage of food at the point of sale or delivery to the final consumer and may refer to green markets, shops, supermarkets, institutional catering (canteen, club, public institution, school, hospital, kinder-garten), distribution terminals, catering operations, restaurants, and other similar food service operations as well as to vehicle or a fixed or mobile stalls and vending machines;
- **Provision of catering services in home industry or in rural tourist households** are the services that are associated with rural, scattered farms or rural food or culinary tradition that offer food on the site of the farm in accordance with the Law on Tourism (hereinafter referred to as: agrotourism);
- **Food business operator** is a legal or natural person, ie an entrepreneur responsible for the implementing the laws that regulate the food business operation he's involved in;
- **Traditional plant-foods production methods** are production and distribution methods with traditional characteristics;
- **Food with traditional characteristics** is food that is recognized as a traditional product. or as a product produced according to technical specifications, or according to the traditional production method, or is protected as traditional food in line with the geographical indication regulations concerning agricultural and food products;

## REGULATORY FRAMEWORK

The following regulations shall apply to the small-scale food business establishments and activities regarding the processing of plant-based foods:

- Law on Food Safety (Official Gazette of the Republic of Serbia, No. 41/2009, 17/2019)
- Law on objects for wide and general use (Official Gazette of the Republic of Serbia, No. 25/2019)
- Rulebook on Food Hygiene Conditions (Official Gazette of the Republic of Serbia, No. 73/2010)
- Rulebook on production and distribution of small-scale plant-based foods, regions where such activities are performed, as well as exclusion, adaptation, or derogation of food hygiene requirements (Official Gazette of the Republic of Serbia, No. 13/2020)

- Rulebook on the contents and the way of managing of the central registrar of establishments. (“Official Gazette of the Republic of Serbia, No 20/2010);
- Rulebook on the drinking water quality (Official Gazette of the Republic of Serbia, No. 42/1998, 44/1999, 28/2019);
- Rulebook on general and specific food hygiene requirements in any phase of food production, processing, and distribution (Official Gazette of the Republic of Serbia, No. 72/10, 62/2018)
- Rulebook on food declaration, marking, and marketing (Official Gazette of the Republic of Serbia, No. 19/17);
- Rulebook on designating occupations regarded as old and artistic crafts, ie home industry, the way they can be certified, and keeping of special records of issued certificates (Official Gazette of the Republic of Serbia, No 56/2012)
- Rulebook on maximum permitted quantities of pesticide residue in food and in animal feed (Official gazette of the Republic of Serbia, No 22/2018, 90/2018, 76/2019, 81/2019;
- Rulebook on the quality of fruit, vegetable, and mushroom products, and pectine preparations (Official Gazette of the Republic of Serbia, No 1/1979, 20/12982, 39/1989, 74/1990, 46/1991; Official Gazette SRJ, No 33/1995, 58/1995; Official Gazette SCG, No 56/2003, 4/2004, 12/2005; Official Gazette RS, No. 43/ 2013, 72/2014, 101/2015);
- Rulebook on the quality of fruit jams, jellies, marmelades, and sweetened chestnut puree (Official Gazette RS, No 101/2015);
- Rulebook on the quality of fruit juices, concentrated fruit juices, fruit juice powders, fruit nectars, and similar products (Official Gazette of the Republic of Serbia, No. 27/2010, 67/2010, 70/2010 – испр., 44/2011, 77/2011, 103/2018);
- Rulebook on fruit juices and certain similar products intended for human consumption (Official Gazette of the Republic of Serbia, No. 103/2018, 94/2019, 2/2020).
- Rulebook on the quality of grains, baked products, and pasta (Official Gazette of the Republic of Serbia , No. 68/2016, 56/2018);
- Rulebook on the quality and other requirements of edible plant oils and fats, margarine and other fat spreads, mayonnaise and similar products (Official Gazette SCG, No. 23/2006, Official Gazette of the Republic of Serbia, No 43/2013;
- Rulebook on the quality of spices, spice extracts, and spice mixtures (Official Gazette of SFRJ, No. 4/85, 84/87; Official Gazette SCG, No. 56/2003, 4/2004; Official Gazette of the Republic of Serbia, No 43/2013);

# THE PRODUCTION, PROCESSING, AND DISTRIBUTION OF PLANT-BASED FOODS

## Responsibility of Producers for Food Safety

A food business operator (hereinafter referred to as: producer) who is involved with the processing and distribution of small-scale plant-based foods, has to meet the requirements regarding the food safety to ensure that the food he produces and distributes is safe. Food safety should be guaranteed in all phases of the food production process, beginning with the primary production. Besides, the producer is expected to provide and keep records on the origin, ie traceability, of the products he produces, buys, processes, distributes, or delivers, as well as to undertake self-control and keep records on implementation of specific laws and/or internal self-control system.

If business operation of the producer exceeds the limits regulated by special regulation on the production and distribution of small-scale plant-based foods, competent authority can undertake certain measures in line with the regulations concerning food safety.

## Registration of Food Business Establishments

The reason you need to register an establishment in which food is produced is for the competent authority to have access to information about the food operator, ie about the location of the establishment, the activities taking place in the establishment, the kind of food that is produced, and the scope it is being produced and distributed in.

- ▶ A registered facility is an establishment that is NOT required to meet the requirements of the prescribed food safety conditions
- ▶ A registered facility is registered in the Register of establishments based on the registration of the food business operator

Registration in the Register is carried out upon the written request of the producer and in line with the special regulations regarding the contents and the way of managing the central register of establishments. Upon receipt of the registration certificate, producer may start a small-scale production and distribution (selling or delivering) of processed plant-based products.

Based on the official control plan, the establishment registered in the Reister of establishments will be checked regarding the prescribed conditions relating to the establishment and its equipment, as well as the self-control system and mandatory documentation.

**For a businessse involved in processing plant-based foods on a smallholding farm,** the producer needs to provide the following information in his registration application: the quantity of primary products that originate from his farm, ie the type and quantity of processed plant-based products, as well as the area/location of direct sale.

**For a business involved in processing plant-based foods on a small-scale farm,** a producer should mention the following in his registration application: the quantity of primary products originatig from his farm, if he intends to use a certain quantity of primary products that he will obtain from elsewhere, the type and the quantity of processed plant products, as well as the area/location of direct sale.

Establishment on both the smallholding and small-scale farm that is used for processing of plant-based foods has to meet the requirements of food hygiene as well as of those regarding the small-scale production and distribution of plant-based foods, in line with the type of product and regulations regarding the quality of plant products.

A producer cannot start the production and distribution of plant products processed on a smallholding or a small-scale farm unless he is registered with the Central establishment register.

A food business operator is obliged to register every establishment, ie every food business operation that he is in charge of, including any changes, such as: the change of owner or the address of the owner/renter of the establishment, the change of activity/type of product and the scope of business/quantity of food that is produced and/or is dealing with. A food business operator is obliged to report every change to the Ministry and provide supporting documentation within 15 days from the day of the change.

### **Removal of the producer/establishment from the Register**

The legal entity or entrepreneur will be removed from the Register if they decide to terminate the activity they were registered for or if they no longer meet the requirements of the Food Safety Regulations, ie special regulatios regarding the production and processing of plant-based foods.

# PRIMARY PLANT-BASED FOODS PRODUCTION

## Food Hygiene Requirements in the Primary Production

Food business operations require that, if possible, primary products be protected against contamination taking into account the processes taking place during the primary production and that the primary products are exposed to.

As for the food safety regulations, activities associated with the primary production are transport, storage, and handling of primary products at the place of production, providing that these activities do not significantly change the characteristics of those primary products.

Primary products can be protected against contamination by applying:

- Measures that control contamination from the air, soil, water, plant fertilizers, soil enhancers, pesticides, and biocides, as well as during storage, handling, and waste removal.
- Measures regarding plant health that affect human health, including programs on following and controlling diseases that can be transmitted to people.

## Conditions for Receiving of Raw and Other Materials Into the Establishment

Each step in the food production process needs to be carried out according to good production and good hygiene practices because that is essential for the quality and safety of food, as well as for gaining and maintaining consumer trust. Traceability and continued quality and safety of all incoming materials (primary plant products, other raw materials, packaging), all contribute to the quality and safety of the final product.

Producer should develop and apply a documented system of supply, selection, and receiving of raw materials he uses in the plant-food production and distribution. Good practice requires that all products are obtained in accordance with determined specification and that measures that enable receiving of materials of good quality and safety are implemented.

The criteria and procedures should, first of all, prevent receiving of products of unknown suppliers as well as of those from unregistered businesses. The selection procedure should exclude all unverified and unsuitable suppliers. Activities and measures used by the producer should prevent entry of raw materials that have been contaminated with microorganisms or toxins, pesticides and other chemicals that exceed the legal limit. In some cases, they should reject even the products whose temperature is above the set limit. Upon receiving or after the receiving, and before the preparation and processing



begins, raw materials and other ingredients should be visually examined and any suspicious-looking parts removed, and, if necessary, they may be laboratory-tested to check how suitable they really are.

## PLANT-FOOD PROCESSING

### Conditions for Plant-Based Food Business Operations

To meet the food safety requirements in the plant-food processing, the following measures need to be taken:

- The equipment, containers, and transport vehicles need to be kept clean and, if there's a need, after cleaning may have to be disinfected;
- The production, transport, and storage of plant-based foods are carried out in line with good hygiene practice;
- Contamination is prevented by using only drinking water;
- The person who handles food should be of good physical health and should have been taught on potential risks to human health; data regarding the training levels (certificates, training programs) should be kept on record;
- If at all possible, contamination by animals and pests should be prevented;
- Storage and handling of waste materials and hazardous materials is carried out in a way that prevents contamination;
- Plants may need to be tested and other tests relevant for human health may need to be performed;
- Pesticides and biocides are applied according to regulations and in accordance with the special regulations;

In food-business operations that include the production or gathering of plant-foods, all risk-control measures undertaken need to be recorded, particularly the information on:

- Each application of pesticides and biocides, in accordance with the special regulations
- Each appearance of pests that can affect the plant-food safety
- Results of all the tests performed on plant samples and other samples that are relevant to human health

The recorded data on measures undertaken to control the risks of food safety need to be kept for at least three years. The producer is obliged to, upon request, make these

data available to the competent authority, as well as to other parties involved in the food-business who rely on the food produced by the producer.

## Basic Steps in Plant-Based Food Preservation

One of the major problems that producers of primary plant products face is how to prevent the products from easily and quickly becoming spoiled and unsuitable for human consumption and how to extend their shelf life.

Preserving products allows the producer to enjoy the fruits of his labor for longer but it also enables the consumer to have access to good-quality seasonal products preserved in line with their nutritional requirements, throughout the year. There are different ways of preserving plant-based foods and which one will be used depend on the type of the plant product that needs to be preserved.

Although food preservation methods can vary, the basic principles of preparation and processing are the same for most of the primary plant products.

The basic and most common methods of herbs, fruits, and vegetables preservation in our regions include:

- Drying,
- Thermal processing (pasteurization and sterilization,)
- Marination (eg brine, vinegar),
- Biological preservation (fermentation),
- Deep-freezing,
- Sugar-preservation.

## DRYING

Drying is the easiest and the most natural way of food preservation. It stabilizes and preserves the nutrients by removing most of the water from the products that are dried. The drying process inhibits the microorganism activity and lowers the food-safety risk.

Nutrients of the dried plant products remain almost unchanged. Dried foods are easy to handle and keep and can last for a long time. Dried plant products can be used as a ready-made product for direct consumption or as a semi-finished product for culinary purposes. Drying also extends the time when such foods need to be processed.

Drying fruits, vegetables, and herbs is a very simple process. It can be done naturally (in the sun) or with the use of artificial dryers (with controlled temperature, air, and humidity circulation).

## **THERMAL PROCESSING (pasteurization and sterilization)**

The main purpose of heat in food processing is the destruction of the pathogen activity (pathogens can cause many diseases and are dangerous to human health) and of microorganisms that can spoil food. This method also destroys the enzymes in foods which enables the preservation of food quality and extension of its shelf life. Thermal processing also improves digestibility and other food characteristics. Higher temperatures used for shorter periods achieve the same shelf life extension as the food treated on lower temperatures but for longer, and both processing methods enable preservation of sensory and nutritional characteristics of the final product.

Fruits and vegetables whose acidity does not exceed pH 4.6 are regarded as “acidic” foods and need to be thermally processed by pasteurization, ie at temperatures of 80-100 degrees Centigrade and kept at room temperature in hermetically sealed containers. If the container cannot be hermetically sealed (eg PVC or triplex foil), legally approved preservatives need to be added to the pasteurized products.

The preserved plant-foods in hermetically sealed containers (eg tin or glass containers), particularly those that are known as “low-acidity” foods (pH above 4.6), can be thermally processed by sterilization and can be kept at room temperature.

Once the container with thermally processed foods has been opened, it should be refrigerated (4-6 degrees Centigrade).

## **MARINATION**

The primary plant products (eg vegetables) can be preserved in brine (eg with vinegar and salt) which enables them to last for a long time. The adequate concentration of salt and vinegar of the brine solution inhibits the development of bacteria and other microorganisms that spoil and change the taste, flavor, color, and texture of plant foods.

## **BIOLOGICAL PRESERVATION (FERMENTATION)**

Plant foods (eg vegetables) can also be successfully preserved by fermentation. During the fermentation of raw vegetables, lactic acid develops, converting the natural (and added) sugar into acid. Generally speaking, a low salt concentration of 2.5 – 5% is used at the beginning of the process in order to inhibit the development of bacteria at a time

when lactic acid is being developed. The characteristic taste and texture of fermented foods develops through the action of lactic acid bacteria. Vegetables need to be completely soaked in the liquid/brine in order to prevent contact with air, as that would cause decay of the surface vegetables because of the action of yeast and mould.

During the fermentation process (2-3 weeks), the concentration of salt in the liquid is gradually reduced because it is diluted by the water that seeps from the vegetables so it is necessary to add salt in order to maintain the desired salinity.

## **DEEP-FREEZING**

Deep-freezing is one of the food-preservation methods. The formation of ice crystals inhibits the growth of microorganisms but does not destroy them. Good freezing practice (good hygiene, good-quality products, the speed at which products are frozen, and maintenance of constant temperature in the room/storage space where the frozen foods are kept) can inhibit the growth of microorganisms and the negative effect of ice crystals on the quality of deep-frozen plant-based foods.

The speed at which a product is frozen and the freezing temperature, as well as the storage temperature, are determined by a special regulation dealing with the quality of fruits, vegetables, mushrooms, and pectin products.

Food-hygiene regulation does not address the length of storage of the frozen plant foods. The producer determines the shelf life of the frozen products in his production specification. The determined temperature regimens must be maintained during the storage and transport.

After de-freezing, the frozen plant foods should not be frozen again.

The type of product, the type of packaging, the speed at which it should be frozen, and the storage temperature (including temperature variations), all contribute to shelf life of the frozen foods.

## **CANDIED FRUITS**

This preservation method is based on osmotic dehydration (removal of water) from the plant tissue by impregnating/soaking whole or parts of the fruits in sugar syrup. By reducing the water content in the fruit tissue and by increasing the sugar concentration, you get a high osmotic pressure, ie an environment where microorganisms find it hard to grow, which is how preservation is achieved, while the shape and the appearance of the fruit remains unchanged.

## PREREQUISITE PROGRAMS

“Prerequisite programs” are the requirements and procedures that enable adequate hygiene conditions in a work environment which meet the food-safety requirements.

Prerequisite programs are clearly determined by food-safety regulations and the main goal of their application is to reduce a low-risk situation becoming a major food-health problem.

Prerequisite programs include good hygiene practice (GHP), good production practice (GPP), and standard working procedures (SWP).

Prerequisite programs consist of principles that should be adhered to in the same way by all those who produce, process, and distribute food. GHP and GPP are not specific for individual producers who are in the same type of business (eg the production of preserved fruits and vegetables). On the other hand, HACCP plan, ie a self-control plan of a single producer, is specific for both the production procedure and the product.

### Location of the Premises

Premises for the production and processing of plant foods should be built in a location where the preventive measure can ensure food safety and environment protection.

Premises for the production and processing of plant-foods on a smallholding can be built only at the site of the smallholding (in the farm yard), ie it can be placed in a building on the land that belongs to the farm.

The premises for the production and processing of plant-based foods on a small-scale farm can be built on the farm or in another location that suits the producer.

**In any case, to build the premises for the processing of plant-based foods in a certain location, a producer/food business operator needs the approval of the competent authority of the local government.**

### Water Supply

“Drinking water” is water that, in line with the special national regulations, meets the minimum criteria referring to the quality of water intended for the public water supply, including water intended for the production and processing of food and maintaining of hygiene in a food-production business.

The quality and safety of water are some of the most important good hygiene and good production practice requirements for a food operation business because water can be a source of many different types of microorganisms and chemical toxins.

Water springs and sources (public water supply and wells) can be contaminated with microorganisms from feces and different chemical toxins (eg metals, pesticides, nitrates, etc) from the sewage and/or waste-waters originating from agricultural and other industries. Bacteria can multiply in public water supply system, especially if the water has not been used for a long time and is kept in cisterns/tanks or pipes.

Special attention needs to be paid if using water from individual wells. Such water needs to be tested for quality, protected from contamination, and if being used, it needs to be regularly tested and prepared/processed (eg filtering, sedimentation, chlorination).

Water supply system needs to be of an adequate capacity so that it can always meet the highest demands of work and hygiene maintenance in a food-business establishment.

**Water self-control plan** needs to include a schematic diagram of water distribution with corresponding legend, plan/location, and frequency of sampling and testing, testing results, measures to be undertaken in case of unsuitable results and measures to be undertaken for cleaning/maintaining of water supply (wells) and public water supply system in the food operating establishment.

Schematic diagram of water distribution on the premises should include: a place where water enters the building (from the point of the public water meter or from an individual well), a place where water is being prepared/processed, if there is one (eg purification, chlorination), as well as the complete distribution of hot and cold water with water collection points, ie places where water can be accessed.

## Temperature Control

In establishments involved with food production, processing, and distribution, depending on the type of work being performed there, temperature control should enable adequate cooling (achieving and maintaining cooling temperature) and heating (heating of water for sanitation/hygiene maintenance and thermal processing of products during pasteurization or sterilization).

If plant-based foods are to be deep-frozen, good production practice is described in the part of the document that deals with the Basic activities regarding the preservation of plant-based foods.

## Health and Personal Hygiene

Individuals who work in food business establishments need to be healthy, ie not be affected by diseases that can be transmitted to food; they must also maintain a high level of personal hygiene and avoid behavior that could potentially affect the hygiene of the food production environment and food safety. Dangers that can be inflicted by those that handle food can easily be controlled by simple good hygiene practice.

### Employee Health

Those affected by conditions that can be transmitted to others through food should be forbidden access to the premises where food is being handled.

Employees need to be in good health and those in food production business need to make sure they don't bring a contagious diseases into the establishment. Regular check-ups are mandatory both for the employees and the employer. Employees should all have a written record of the health check-ups.

If their health is compromised, employees should stay away from work so as not to contaminate raw materials, finished products (eg harvest, preparation, and processing of raw materials, packing of products, etc) and/or the surfaces that come in contact with food. Individuals with health issues that can affect food safety, should not come to work or should be removed from their jobs and perhaps go for a medical check-up and/or be removed from food-handling operations for a while.

All employees should stop working of their own accord or upon recommendation by a doctor if:

- They have had diarrhea and/or vomiting in the previous 48 hours
- They had a fever, throat inflammation with a high temperature, inflammation of ear, eye, or nose
- They have an infectious disease that will probably be transmitted during food handling, eg *salmonella*
- If they have a skin injury/infection (cut, burn) that cannot be covered and that represents a risk of contamination of food; when using waterproof protection (eg plaster, cover, gloves) it has to be of a visible color that is different from the color of food they are working with; all protective equipment should be for single use, replaced at least once a day and sometimes more often (eg when stopping work to go to a toilet or after a visit to a restaurant); the used protective materials should be discarded into special containers/bags.

First-aid kit should be made available to all employees on a farm, ie both inside the establishment and its immediate surroundings.

## Personal Hygiene and the Employees Behavior

During the course of their work, individuals who are involved in food business need to maintain a high level of personal hygiene. Handwashing with soap and water is the basic way of infection control during the production (eg harvest, treatment, processing) and distribution. The tips of fingers and the space between the fingers should be washed carefully if one is expected to handle food. If there is no water, one should wear single-use gloves, and one can also use cleaning gels or tissues (scent-free). However, hands should be washed with soap and water at the first opportunity.

Those who work in the primary production and processing of plant foods need to wash their hands:

- Before, and if necessary, after the harvest
- When entering space for food production
- Before handling food or its ingredients
- After using a toilet
- After using a phone
- After handling material that is possibly contaminated
- Whenever their hands are dirty

**NOTE!** Wash your hands both before you start and before you continue working.

Toilets should be placed in the food-processing establishments or in their immediate surroundings. Toilets should also be placed near the area where primary production activities take place (eg harvest). Toilets and the way they are used should not pose a threat to the environmental hygiene and the safety of primary plant-products. Toilets should be kept clean.

Employees should wear suitable, clean, and dry working and protective uniforms whose main purpose is:

- To prevent food contamination
- To protect the employees from potential danger lurking from food/material, and environment during work

Staff from the production rooms that come into contact with raw materials and with the finished products, should always use working uniforms and shoes, and where there is a need they should use protective clothes and shoes. Working and protective clothing consists of overcoats (overalls, suits, aprons, gloves, caps, boots, and shoe protections. In the rooms where food is being handled, working and protective clothing and footwear should completely cover one's clothes/shoes. The entire hair should be under a cap and



masks should cover beard and moustache. The work and protective clothing should, ideally, be made from durable material that can be washed at high temperatures. Single-use clothes and protective gear should be strong enough to serve their purpose.

Employees should have a changing facility and when working outdoors (eg during the harvest) should also be provided with space where they can change and leave their personal belongings.

Employees should be provided with sufficient number of work clothes so they can change them every day or whenever they need to. Work and protective clothes should be kept in a clean place set aside for that purpose, while the clothes that had been used, should be left in marked/designated areas.

Protective clothes and shoes should be examined to make sure they are not damaged (they should not have parts that can fall off, eg end of thread, loosely sewn buttons/labels) and if necessary, they should be repaired or changed. It is crucial that such clothes suit employees by size and model so they feel comfortable wearing them.

Working and protective clothing used in an unclean environment should differ from the clothing intended for working during food processing. Staff should use a certain type of clothing when handling primary plant products (raw materials) and different clothes during the food production/processing ie they should not use same clothes in the food production establishment and for outdoor work on the farm. If employees have to leave the premises (eg to go into the yard or outside the premises), on return, ie upon re-entering the premises, a regular and supplementary personal hygiene process should be undertaken, including the possibility or obligation of changing both the clothes and the shoes. Working and protective clothes should be taken off before one leaves the premises or uses the toilet.

When going through the disinfection barrier at the entrance, the container contents/equipment should be regularly refreshed or changed to ensure its efficacy.

If one person works in both primary production and plant-food processing, to ensure adequate hygiene, these activities should be separated, and both the clothes and shoes changed, hand hygiene maintained, and all other necessary measure taken.

If possible, employees should move from the clean to the unclean sections of the establishment, and not the other way round, in order to reduce the risk of cross-contamination by unclean working or protective clothing and shoes. However, if entering from a clean to an unclean environment cannot be avoided, employees need to adhere to certain procedures regarding personal hygiene (eg change of working clothes and shoes, shoes disinfection, washing and disinfecting hands, etc).

The behavior and habits of employees should be such that contamination and cross-contamination of products are avoided at all costs, particularly:

- While handling food, employees should refrain from smoking, spitting, chewing gums, etc.
- Bringing and consuming food and drink (except in the premises designed for such activities)
- Those that handle food should avoid sneezing and coughing over food
- Hand watches, artificial nails, polished nails, the use of scented lotions, and jewelry (a wedding ring and small earrings are excluded) and anything else that could contaminate food, is undesirable on the food-production premises
- Allergens that could accidentally cause food contamination (eg grains that contain gluten, eggs, fish, peanuts, walnuts, soy, celery, mustard, sesame, and sulphur-dioxide) should not be brought into the food-production premises, unless they are supposed to be an ingredient that goes into the final product.

To make it easier for the employees to meet the required hygiene standards, they should be given a brief and simple written guidelines regarding hygiene and should attend a course on good hygiene practice and on what is expected from them regarding hygiene and behavior. Another method that gives good results when it comes to maintenance of good hygiene and acceptable behavior when handling food, is marking the area (eg labels, posters, etc) in prominent places that will continuously remind the employees of the importance of good hygiene practice and/or of behaviors that should be avoided.

## **Visitors**

If there is not a separate room for the sale of final products, the sale can be done on the premises, provided customers follow certain rules that relate to all visitors.

On the premises where food is being processed and handled, visitors must wear protective clothes and shoes and meet all other criteria regarding health, personal hygiene, and hygienic behaviour, that apply to the employed.

Visitors should be escorted by one of the employees to ensure their behavior is in line with general hygienic requirements and regulations of the establishment. If the visitors' clothes are believed to pose a risk of contamination, visitors in the food production rooms should be given protective clothing, a hair net, and protective shoes. Visitors that feel like vomiting, have diarrhea, or a contagious disease should not be allowed on the premises where food is being handled/produced.

## Maintenance, cleaning, and pest-control

### Pest Control

Insects, rodents, birds, domestic and other animals pose a serious threat to food safety. Many of the pests carry certain microorganism that can cause food poisoning (eg many birds can transmit *Campylobacter spp.* and insects and rodents can transmit *Salmonella spp.*). Flies in particular can contaminate surfaces. Pests are a significant source of foreign bodies and matter (eg hairs, feathers, feces, urine, nest materials, eggs, larvae, and corpses of the pests themselves) and/or may cause physical damage of products and packed food, including damage to the installations, constructions, and equipment which in turn can contaminate food and increase the risk for food safety and health of the consumers. Inadequate pest control and inadequate storage and use of chemicals (eg poisons) can also pose a danger to human health.

Permanent inhabitation of pests indicates serious mistakes in maintenance and cleaning, ie considerable shortcomings in good production and hygiene practices.

Producer should prevent the pests from entering the premises and having access to products, materials, and the production equipment.

### Prevention of pest invasion

The design, constructions, layout (planning), and equipping of a food production establishment should be such that it prevents pest infestation as much as possible. All possible entrance point should be considered (eg doors, windows, ventilation openings, sewage) as well as ways of reducing the risk of pests getting onto the premises, eg: automatic door closure, air curtains, insect nets, grid on sewage openings, clappers, etc.

Outdoor openings, sewage, and other places where pests could get into should, if necessary and if possible, be physically protected (eg sealing of all openings and cracks; outdoor ends of sewage; openings around the gutter and pipes, roof openings).

Implementation of good practice measures enables an important protection level (eg opening only outside windows into which very dense fly nets had been installed – the net should not be wider than 2 mm; minimal opening and regular closing of outside doors; maintaining the automatic door-closing and air curtains mechanisms, if they are used; control of entry/keeping of domestic animals or pets within the food-production premises, eg guard dogs, at special approval of competent authority; adequate procedures of receipt/examination and storage of supplied goods in order to prevent arrival of pests and insects).

Availability of water and food makes it easier for pests to inhabit an area. The area should be regularly and thoroughly cleaned and maintained, and good practice of material storage applied (eg raw materials, spices, packaging) as this can prevent pest invasion. Protective measures that are essential for successful pest control should include: inability for the inaccessible/hidden places to be found, occasional moving of stores that have been kept in one place for a long time (this will reduce the risk of pest habitation), and the way of removal and storage of waste material (eg covering of containers when not used or when full, and protecting of containers from insects, rodents, birds and other animals).

**Outdoor pest invasion can be prevented by:**

- Maintaining a clean and dry environment – by constructing buildings or roads of hard material and if necessary, by introducing adequate land draining system
- Placing an adequate number of rodent traps around production premises or if necessary, calling in deratization services
- Preventing wild birds from nesting in the roof or near the farm
- Visual control of traps and removal of dead pests
- Adequate welding of joints in the construction of the building to prevent insects from getting inside
- Spraying with insecticides outside the premises where there's a large concentration of insects
- Using adequate approved desinsection and deratization materials within their shelf-life.

**Repression and eradication of pests (desinsection and deratization).**

This can be achieved with chemical (eg insecticides, rodenticides), physical (eg mouse-traps), and biological means (eg natural pest enemies).

Before using chemical means, food needs to be removed from the premises which is being treated and equipment should be covered. Only a qualified person trained for the purpose should be allowed to handle these chemicals and should follow the directions given by the manufacturer.

Device for the destruction of insects should be placed near the entrance so as to prevent them from entering the premises/rooms but not above unpacked raw and other materials intended for production, unpacked food, or production equipment. To work properly, these devices should be cleaned and maintained regularly. If there is a large presence of insects, first it needs to be established what species they are so that the suitable insecticide is used.

Rodents are a common problem around food establishments. To control pests, a producer should develop and apply a rodent-control plan which, besides the other rodent-protection measures, includes laying out poison traps within the perimeter of the farm and on the premises, the type of chemical preparation (active substance has to be sufficient/approved for the use in food establishments, frequency of trap installation for regular and irregular deratization, control procedures, record-keeping about the undertaken deratization, as well as name of the authorized/contracted organization.

Baits are set up along rodent routes. The baits need to be regularly checked to establish the presence of rodents (eg bait that has been partly or completely eaten, dead rodents, etc) and the findings need to be recorded so that further steps can be planned. Baits are not set up in the rooms that contain unpacked food. Dead rodents are removed quickly and safely, and the type and the number of dead rodents is recorded.

Mousetraps for catching live rodents can be used in case of a small rodent-infestation or if there is a very real threat of food contamination with chemical substances used for the killing of rodents (rodenticides). The place where rodents are caught can serve as an indication of where their movement routes are.

Discouraging birds from food business establishments can be done by placing protective nets, removing foodsources, nests, and broods or with means used for their discouraging or scaring (eg gels, scarecrows, etc).

However, wild birds are protected by law and poisoning them is forbidden, regardless of the circumstances.

The following measures may be undertaken to prevent pest-caused danger on the food-production premises:

- Visual examination of the premises
- The use of ultra-violet devices (UV lamps) for killing insects or sticky tapes in the production rooms, storehouses, and other premises. These devices should be placed and used in such a way that killed insects don't fall on the equipment/containers, or in/on the products or packaging
- Periodic cleaning of UV lamps and cleaning or replacing of light bulb covers according to the manufacturer's directions
- Replacement of sticky tapes on which a large number of insects had already been trapped
- Placement of thick insect nets on all windows that open, doors whenever that is possible or outside ventilation openings and their replacement in case of damage; unprotected windows and doors must be kept closed during the production process

- Placing of suitable bars/nets on sewage openings to prevent the entry of rodents and other pests
- Keeping the packaging materials in dry places, inaccessible to rodents, insects and other pests
- By packing the unpacked products as soon as possible
- By using rodent baits in places that are dark or are rarely used (eg cellars, lofts, etc) provided that the place and the way the bait is used do not pose a threat to raw materials, products, and packaging
- By using suitable and approved means for deratization within their shelf-life

The following is recommended when rodents are found on the premises, in the products, or in/on the packaging:

- Remove the dead pests as well as the damaged or partly eaten baits
- Remove all products with visible signs of rodent activity as well as all the packaging damaged by the pests
- Thoroughly clean and disinfect the affected rooms including the relevant equipment (eg shelves, cupboards, etc)
- Follow the protective procedure and take the necessary protection measures
- To prevent the entry of pests or if they are already on the premises, the producer may also contact professional pest control teams

## Waste Removal

Waste that results from food production may be a significant source of microbiological, physical, and chemical food contamination. It represents a source of food for pests who can distribute it or additionally pollute it and in that way, affect the food safety and the human health. That's why waste needs to be stored and removed in a correct way.

Waste needs to be regularly removed from the premises where it originated and/or be placed in an adequate container or space. Accumulation of waste in areas where food is handled should not be allowed. Waste should be kept in a location that does not jeopardize food production. Collection of waste from a work space, its storage, and its safe removal must be carried out in a hygienic way and without risk of contamination of products intended for human consumption.

Everyone who has been in contact with waste is obliged to immediately wash their hands and if they are supposed to start working with food, they should undertake other necessary personal hygiene measures (eg change of work and protective clothing and

shoes, disinfection of shoes and hands, etc).

The size of containers and rooms for collection and storage of waste within a food-business establishment should be in line with the amount and type of material that is collected on a daily basis and with the dynamics of removal. The containers and the storage space should not be overfilled with waste, should not pollute the environment, and if it's a liquid waste, it shouldn't be allowed to leak into the sewers or water courses. The equipment for collection, temporary storage, and transport of waste should suit the purpose and enable implementation of good production and hygiene practice.

## Product Traceability

Having information on the origin/suppliers and buyers in each stage of the production, processing, and distribution of food makes it easy to track food backwards (to the supplier) and forwards (to the subject/object of sale throughout the entire supply chain). The purpose of traceability is to make it easier to quickly withdraw or recall from the market a production batch or a package which is believed or known not to be safe or not to be of adequate quality. This is why the use of suitable markings on loose or bulk products are important, eg the address of the producer, registration number of the object, the production date/sell-by date, production batch mark, etc.

Traceability is defined by the Law on food safety as “ability to track and trace food, raw materials, and ingredients intended for or expected to be used in all the phases of production, processing, and distribution.”

A producer must be able to identify and trace the following:

- **One step backward:** the origin of all the ingredients used in the processing: primary plant product (eg fruits, vegetables), salt, additives, etc.
- **One step forward:** who is the buyer/receiver of the product (except in cases when the product is being sold to the end user), including products/ingredients intended for further processing of food intended for human consumption.

Producers should have an established system, including a written information on suppliers and buyers and a reliable and fast way of establishing who they are receiving their products from and who they are distributing it to, including all the ingredients/additives built into the food or coming into contact with food (eg materials and packing materials).

The set-up documented system, processes, and written information must enable easy access to information, ie upon request, to be made available to competent authorities.

Good practice and availability of information and data on traceability of products improves and strengthens consumers' trust in the national and individual food safety system of each of the producers/entities in food business.

### **What information should be available and maintained?**

The following traceability information should be available for the plant-based raw material (eg fresh or frozen fruits and vegetables) and finished products that are received or distributed to other entities for production and food distribution (which excludes the end users):

- Type/description of the product (eg fresh and frozen fruits and vegetables, semi-products, finished products, etc);
- Quantity of the given product;
- The name and address of the producer/entity who supplied the product;
- The name and address of the individual/entity who the product was delivered/sold to;
- Identification mark that shows the production batch and delivery;
- Delivery date/shipment date;

Producer must be able to provide documentation and identify each of the suppliers and receivers/individuals of the products.

Producer doesn't have to keep written information of end users, ie if the food is used for personal needs or for food business.

### **How to provide information?**

In a special regulation on microbiological criteria, production batch or lot is defined as "a group or a sequence of traceable products that were produced during a certain process in identical conditions and in a particular location during a single production period".

According to this definition, a producer defines his production batch as long as a group of products "produced under identical conditions", "in a particular location", and "in one production process".

Other producers identify a production batch by using the production date or a single longer common production period, or a sell-by date, etc. Producers accept the responsibility for the choice of their own type of identification of the production batch; however, when defining the size of the batch that is bigger than a single production day, producers accept the risk of losing more products in case of discrepancy or any other problem regarding the food.



Producer should keep his own records on received raw materials and products as well as on the distributed products. The easiest identification systems are those that are easy to implement and these are usually the most effective. They include:

- Keeping copies of invoices or bills of lading, or
- Keeping a journal on the turnover ( receipt and delivery of goods) – records written by hand where besides the name of the goods, one also records the date of production and/or the number of batch, the size, date of receipt and delivery – this enables easy traceability of suppliers and buyers.

### **Internal Traceability**

Internal traceability in a food processing establishment, between own and bought raw materials, additives, and finished plant-based products (eg preserved fruits and vegetables), is voluntarily done by the producer and it can help limit/reduce returned or recalled goods in case when there is a safety or quality issue.

If the product is delivered directly to the end user, identification marks on the packed products are put only on the outside of the package (eg labels). If a product is to be delivered to another entity for further processing, treatment, or packing, identification marks of such goods may be placed on the bulk package.

Labels with declaration and identification of the products should be monitored to avoid or minimize possible mistakes or abuse.

Traceability system of products in establishments of plant-based foods processing on a smallholding should have at least the following information: identification of the smallholding (name and address of the producer and the registration number of the plant-based food processing establishment on that smallholding, information on the product (type of product, date of production, produced quantity for a particular date and the production batch), as well as the information on the individual to whom the goods were delivered.

### **Food withdrawal and recall**

Withdrawal and/or recall refer to any amount of products that is believed or known to pose microbiological, physical, or chemical risk to consumers. The producer is obliged to prepare and apply documented procedures that enable quick and thorough withdrawal – product is still not available to end users and the producer on his own, without involving consumers, takes measures to collect and remove the products in question, or recall of products from the market – this is when a product has already become available to consumers or is already being used by the end users and the producer takes steps, or publicly asks/advises the public to return or destroy the product.

When required, suitable written information on processing, treatment, and distribution of food should be kept even after the sell-by date of the product because a product can remain for longer in the supply chain or with end users.

If a product has to be withdrawn or recalled because it poses a direct threat to human health, other food that was produced under similar conditions and that can also pose a similar threat to public health should be checked for its safety and, and if necessary, also be withdrawn. In such cases, one should consider giving a public warning through media about the type of food and the potential risk.

The products that were withdrawn or recalled should be kept under control until:

- They are destroyed;
- They are used for other purposes but not for human consumption;
- They are used for human consumption if it is subsequently established they are safe to use;
- They are re-processed in a way that makes them safe to use;

If there are concerns about the safety of products that are no longer under the producer's control, and where withdrawal and recall of such foods are necessary, traceability system should make it easier for the producer to:

- Collect the following information about the food in question
  - Name and description of food
  - Marking/code of the contentious production batch or delivery
  - The amount of the products in question
  - Details on delivery/distribution
  - If the products in question had already reached consumers
- Inform the competent authority about this and make it easier for them to oversee the implementation of the action plan adopted by the producer
- Withdraw the food or, if the food represents a serious threat to human health, inform the consumers and recall the product.

## Packing and Declaration of Food

### Conditions regarding hygienic packing

Packing is done with materials that are suitable for food contact and that do not affect the smell and taste of the product. Packing materials should protect from, rather than be a source of contamination of the product.

The purpose of packing is:

- To prevent food contamination (microbiological, physical, and chemical)
- To prevent physical damage of food during handling
- To enable correct product marking (declaration)
- To market the product

Materials used for food packing must be safe, non-toxic, and should not affect the usability of food.

When a food-production establishment is being built, reconstructed, and furnished, attention should be paid to the following:

- Storage of the packed goods should be done in a hygienic manner (it should not be kept on the floor)
- Packing materials must be kept in adequate conditions before they are used
- Separate storage for packed and unpacked food must be provided

It is essential that good practice is implemented in the storage space and that packing material is regularly checked so that pest infestation is prevented.

### Packing procedure

Moving/distribution of packing material in a space that contains unpacked products should be carried out in a way that reduces the possibility of cross-contamination. When packing an unpacked product, only the inside of the packing material should come into contact with food.

Hands need to be washed after handling packing material and before handling food, and vice versa.

To lower the risk of cross-contamination, packing should be done in a place where food is kept for as little time as possible.

To prevent cross-contamination between packed and unpacked food, they should be kept:

- In separate rooms, or
- In the same room but not at the same time, or
- At the same time but by covering the unpacked food with polyethylene cover (foil) to protect it from air-borne microorganisms

Mistakes that occur during food packing usually occur for the following reasons:

- Using packing material whose quality has not been tested
- Poor storage and inadequate handling of packing materials (eg untidy keeping, damaging, material not protected from dirt/dust, poor hygiene, and the presence of pests)
- The use of dusty or damaged materials
- Poor storage and handling of packing materials

A producer has to provide proof of material safety as well as of objects that come into contact with food, including the equipment (certification of packing material producer, report on testing results, etc).

### **Product declaration**

To protect health and interest of consumers, producers should make sure consumers are well-informed about the food they buy and how to use it safely.

All food products should contain information that enables consumers to safely keep, prepare, and use such foods. Consumers should be particularly well-informed on the sell-by date and temperature at which food should be kept.

The relevant laws on food declaration provide more details on how to inform consumers about food, as well as how to inform them on different types and categories of food, marking, information providing, etc.

In the case of food that goes-off quickly because of microbiological risks, and which after only a short time becomes dangerous for human health, the date of the minimal duration is indicated as “sell by” date. Once this date expires, the food is considered unsafe to use.

The way to keep food and/or when to use it are indicated on the packing or a label.

To ensure the food is kept and used correctly once it's been opened, the packing or the label should contain information on how to keep it and/or by when it should be used.

These instructions need to be given in a way that makes it possible to use food safely.

## Allergens

The food safety system should include allergens (ingredients that can cause allergic reactions/oversensitivity of organism) because they pose a threat to certain/sensitive consumers. After determining which allergens are relevant for which product, the producer may prevent their presence in the product in the following way:

- Suppliers guarantee which ingredients were used in the production to make sure allergens don't get into the food production establishment, and/or
- By using strict measures for prevention of cross-contamination (eg separating products that could contain allergens from other products during the process of production, different production lines, containers and storage, separate processes, employee awareness and following the hygienic rules after returning from a lunch break or after being in contact with other foods).

All the ingredients or additives used during the production process have to be listed on the declaration of the packed food, if they can cause allergies and/or food intolerance or were derived from ingredients or products that were used in the production process or food preparation and which can be found in the finished product even if in a changed form. All this should be listed in a way regulated by declaration, marking, and marketing of food.

## EMPLOYEE TRAINING

Employees in a food-production business can be a significant factor of its physical and microbiological contamination if personal hygiene and behavior are not at the required level. Poor work practice and derogation from work instructions increase the possibility of food and environment contamination. That is why adequate training and instructions need to be given to employees so they understand the importance of hygiene, consequences of their work, as well as the need to report any derogation from the standards and the usual practice. A good-quality training and clear work instructions combined with constant supervision, are of paramount importance for hygienic and safe food production.

All employees that handle food need to be trained about the conditions and processes of work. This can be achieved through formal training/qualification for food hygiene and the required expertise or through direct instructions by a more experienced colleague. Training should focus on the risk of food contamination during the production of primary plant products and on understanding the importance of good hygiene and good production practice for further processing and production.

Training should be planned and scheduled in accordance with the scope of work and the level of a particular work place so that all employees have an opportunity to gain

the necessary and sufficient knowledge and skills (what they need to do and how they should do it), as well as develop a mental attitude necessary for a successful work in line with the good practice standards, ie with the procedures associated with health and personal hygiene of the employed.

Besides, the person in charge of maintaining and following the internal food safety system, needs to be adequately trained for that job and be familiar with the danger analysis principle and critical control points (HACCP).

There are several ways to train employees in line with the requirements of the production process and the type of product, eg:

- By organising internal training programs created by that particular food-business operation
- By using the available written materials and guides
- By learning through available Internet programs
- By engaging an external consultant

Written records (certificates) of individual programs should be kept as a proof that employees attended a particular training program on the food hygiene at the level suitable for their position.

Training should be periodically repeated (refresher courses) at least every two or three years depending on the type of the job, particularly if there are significant changes in the work practice, technology, equipment, or regulations, or if the current practice is unsuccessful. Food safety training program in one establishment can, if necessary, be changed and added to.

# ESTABLISHMENT FOR THE PRODUCTION AND DISTRIBUTION OF PLANT-BASED FOODS

## General Conditions of Food Hygiene in a Plant-Based Food Processing Establishment

Management of the plant-based food processing establishment needs to take all the necessary measures to prevent or lower the risk of environmental contamination. And, during the food-processing, certain steps need to be followed to avoid cross-contamination.

Individuals involved with food production and food distribution should have the necessary space and and maintain a certain level of hygiene that are in line with the type and quantity of products, as well as with the way of organizing and carrying out preparation/processing, and storage of food.

**Produce a Quantity of Food That Can be Sold Within the Sell-by Date or Until the Next Season/Crop!**

The equipment and materials kept in the rooms where plant-based food is prepared, treated, or processed, need to meet the criteria determined by the food hygiene regulations.

The equipment and surfaces that come into contact with food need to be produced from materials that are easy to clean and disinfect and that are not harmful for human health. The surfaces that come into contact with food need to be manufactured from materials that are approved of for food production.

In some cases, equipment/utensils/tools used for the production of traditional plant-based products can be exempt from certain food hygiene regulations that apply to the traditional methods and production of traditional food-based products (Guidelines for the establishments for traditional food products of plant origin).

Those who work with food should use only potable water in all the phases of production.

Food-production operators should treat waste waters and foods and other types of waste in a way that prevents product contamination and that protects the environment.

Food may only be kept in clean containers or in packages made from materials approved for certain types of food.

Unpacked food is packed into clean containers at the point of sale in front of, ie at the request of the end user, unless it was prepacked for direct sale.

Transport and equipment for food delivery should be such that they enable protection of food hygiene, safety, and quality.

If necessary, before and during the transport, presentation, and sale of food, food should be kept at a certain temperature. All necessary measures should be taken to protect the products from contamination in line with the self-control documents.

Producer declares the food aimed for distribution in line with special regulations concerning declaration, marking, and marketing, ie this Guide.

When plant-based food is processed on a smallholding or a small-scale farm, where the producer or just a few people control all the processes, it may suffice to write down discrepancies and corrective measures that were applied.

That means that discrepancies determined during routine controls during the processing (eg temperature, pH, organoleptic product quality, cleaning manner, etc) may be written down only if unusual results appear (ie deviation from the critical border), together with all corrective measures that were undertaken. However, the results of laboratory tests that check the efficiency of the self-control plan (eg microbiological test results), should be updated and kept on record. These results represent historical data that demonstrate effective food safety management and that enable one to see how reliable self-control and entry trends are.



## PREMISES FOR PLANT-FOOD PROCESING ON A SMALLHOLDING - **that as approved by the local government**

Only primary plant products that had been produced on a farm can be processed in the plant-based food processing establishment.

Quantities of the finished products that the producer may annually produce/process in an establishment on his farm are given in Table 1 of the Special regulation on small-scale production and distribution of plant-based foods.

Explanation of the Table 1 contents: Small-scale food production on a smallholding:

- ▶ **Type of food** – these are usually groups of products, as well as plant-based food production and processing procedures
- ▶ **Food quantity\*** (quantity of individual type of food) – **Maximum annual quantities** – means that one producer may produce a certain quantity **in one season** (eg from fresh fruits/vegetables) or **during the year** (eg from fresh fruits/vegetables while they are in season and from frozen fruits/vegetables during the rest of the year).

\* If one producer on a smallholding produces several types of foods/products, the total percentage of individual types of foods that are produced and distributed, should not exceed 100% of the total quantity of that particular type of food that he is allowed to produce annually;

For example:

One producer produces the following types of products on his farm:

TYPE OF FOOD/PRODUCT	FOOD QUANTITY (maximum quantities per product on an annual basis)	FOOD QUANTITY (%) (maximum percentage of the total quantity per product on an annual basis)
<b>Products from thermally- processed fruits</b> Production and distribution of thermally-processed fruits – cooking/pasteurization, eg jams, preserves, marmelades, compotes, etc.	10.000 kg*	<b>30 %</b> <b>(3.000 kg)</b>
<b>Products from thermally- processed vegetables</b> Production and distribution of thermally-processed vegetables – cooking/pasteurization, eg ajvar, pindjur, ljutenica, pureed tomatoes, etc	8000 kg*	<b>40 %</b> <b>(3.200 kg)</b>
<b>Marinated vegetables</b> Production and distribution of products produced by marination in brine	20.000 kg*	<b>20 %</b> <b>(4.000 kg)*</b>
<b>Biologically preserved vegetables</b> Production and distribution of biologically preserved vegetables, eg sauerkraut, pickled peppers, etc	20.000 kg*	<b>10 %</b> <b>(2.000 kg)*</b>
<b>ANNUAL TOTAL:</b>		<b>100.00 %</b> <b>(12.200 kg)</b>

Quantities refer to the total quantity – “nett quantity” of the single unit/package

► **Place of the occupation** – an establishment on a smallholding is a food-processing establishment that had been entered into the Central Register of Establishments

**Place on a smallholding** is the yard on a smallholding, ie the place where food is produced, the location (plot) which had been approved of by the local government

► **Area and location of direct sale/distribution**

Products that had been produced in a food processing establishment on a smallholding may be sold by the producer directly on the local market (in the local municipality or in the neighboring municipalities in relation to the location of the farm), or,

- **to end users** - (on the location of a farm (on the doorstep of the farm), through agrotourism, on the green market and through sale/distribution on the home address (“door to door”), or
- **in local retail stores** that directly supply end users

- In the Republic of Serbia, plant-based foods processed on smallholdings can be sold at various events organized throughout the country.

Marketing and promotions of smallholdings involved in plant-based foods processing is allowed in the Republic of Serbia.

If business activities of the food-operator exceed the limits determined by the *Rulebook on the production and distribution of small quantities of plant-based foods, areas for such activities, as well as exclusion, adjustment, or derogation from food hygiene requirements*, such as the origin of primary plant products (when the primary plant products had not been produced on the producer's farm), the quantity of processed products (if it is higher than the determined quantity of food) and/or area/location of the sale of plant-based products (outside the local market), competent authority can undertake certain measures in line with the food safety regulations.

### Adjustments of Food Hygiene Requirements for Smallholding Establishments/Premises

Premises, spaces, and equipment for production and distribution may be located within the residential area of the smallholding.

Premises, spaces, and equipment for production and distribution that are within the residential area of the smallholding, may also be used for the household requirements.

Producer has to ensure that the activities within the residential area of the farm do not interfere with the hygiene and safety conditions.

Space for direct sale of food products to end users can be located on the smallholding.

The following conditions have to be met in the plant-based food processing facility:

- 1) Processing premises need to be separated from the premises where livestock is kept so that environmental contamination risks are avoided;
- 2) Different activities necessary for the production process and preparation for distribution (eg chopping, grinding, wrapping/vacuuming, and packing) do not have to be done at the same time;
- 3) Home equipment for thermal processing may be used if the production activities are not done at the same time as home meal preparation;
- 4) The establishment needs to have premises for biological preservation as well as for cold storage, depending on the production process and the type of food;

- 5) Inside the food processing premises or in its vicinity there has to be at least one hand washing facility;
- 6) Utensils, tools, and equipment may be cleaned, disinfected, and kept in the production area;
- 7) Home toilet can be used if it is in the vicinity;
- 8) Changing room may be inside the house or outside of the food-production facility, provided it's in the vicinity;
- 9) Raw materials and products may be kept in the same refrigeration or storage space

### Processing Facilities

Premises used for storage of primary products/raw materials intended for processing, space for preparation and processing, including if necessary special premises for biological preservation of plant-based products, have to be completely separated from premises used for keeping and working with animals, the space used for storing manure or rubbish, as well as collection tanks and/or open sewage.

Processing capacity of the establishment has to be adjusted to the available space (eg the quantity of products), as well as to the possibility of performing various tasks without causing cross-contamination in these separate spaces.

All the necessary measures need to be taken to prevent or lower the risk of environmental contamination of the products (eg from neighboring yards).

Ideally, the establishment and the part of the yard that is used for food-production and distribution activities should be separated with a fence/wall from the part of the yard where the main and side buildings are located, as well as from the spaces set aside for primary production. However, separating a yard should be done in a way that does not interfere with human and vehicle traffic and does not prevent access to other parts of the yard.

Space needed for movement of people and vehicles around the production area should be made from hard materials (eg cement, asphalt, etc), ie organized in a way that enables easy atmospheric and waste water drainage and where the amount of dust can be kept to a minimum.

## Different Activities Related to the Production Process and Preparation for Distribution Do Not Have to be Performed at the Same Time

Different activities related to the production process and the preparation of the products for distribution (eg chopping, grinding, wrapping/vacuuming, and packing) may be carried out on the same premises (eg processing rooms), provided they are not performed at the same time and at the same place. **Washing, inspection, cleaning (stone removal, seed removal, etc) can be done under a canopy; it has to have: water (cold, warm?), water-resistant floor, drainage for waste waters, containers for raw materials that are to be processed, and containers for the waste material.**

**Chopping, grinding, blanching, pureeing, cooking, stuffing, and sealing, “resting” after pasteurization, pasteurization, storage – need to be done in a closed space (as protection against insects/pests, dust) – it is necessary that the premises/arrangements and equipment make hygienic cleaning possible.**

It is a good idea to separate “unclean” activities (eg work with raw materials, eg washing, cleaning) from the “clean” phases of the production process (eg further processing and work with the final product, eg chopping, grinding, marinade preparation, stuffing, and packing).

Producer should take all necessary measures to ensure cross-contamination is avoided, eg washing of hands and equipment that come into contact with food during the different phases of production. However, it is possible to carry out different processes and production phases in the same room, if there is enough space between or adequate protection of the products (eg covers, partitions) during processing and/or during the transport both outside and inside the production premises (raw materials, products, materials/packaging materials). However, if the production technology requires, there have to be separate rooms or devices for certain activities/phases of the production (eg fermentation/biological preservation, cooling, selling, etc).

## Home Equipment for Thermal Food-Processing Can be Used.

One can use home equipment for thermal food-processing if home food cooking is not done at the same time as the food processing.

## Facilities for Biological Preservation of Plant-Based Products and Cold Storage Space

Depending on the production process and the type of the product, plant-food processing establishment on a smallholding has to have a separate/specialized room

for biological preservation (fermentation) of plant foods as well as a space for cold storage of finished products. The fermentation process requires lower temperatures so depending on the outside temperatures it could be a space that enables natural maintenance of the necessary temperature for the stable fermentation process and storing (cellar) or a space equipped with controlled temperatures for production and storage of biologically preserved foods.

Rooms set aside for biological food preservation and storage of such products have to have adequate hygienic conditions that prevent contamination during the process of fermentation and guarantee the necessary and constant temperature conditions and air humidity.

Controlled fermentation conditions ensure safety and quality of the final product.

Biologically fermented products should be kept away from the sun.

### **At Least One Hand-Washing Facility**

The establishment on a smallholding should have at least one hand washing facility on the premises where food is being processed or in its vicinity.

Hand washing equipment should have running warm and cold water, cleaning and disinfecting materials, as well as single-use paper towels.

### **Cleaning, Disinfecting, and Keeping of Utensils, Tools, and Equipment**

Rooms and equipment for cleaning and disinfection of tools, working utensils, and equipment are necessary in most of the establishment that deal with food. To encourage regular use, it is recommended to install the cleaning and washing equipment near the rooms where food is handled, provided there are measures that prevent the risk of cross-contamination or condensation.

Utensils, equipment, and tools may be cleaned, washed, disinfected, and kept in a room that is used for preparation and/or production, provided that measures that prevent contamination are implemented.

Plant-food processing establishments on a farm usually have manual equipment and simple production tools that can be cleaned, washed, and if need be, disinfected in a small space, ie they can be carried outside to an area allocated for processing or to its vicinity, and after the work has been done and products and equipment that need to be protected from contamination, removed.

Areas that can be used for that purpose include: cupboard, locker, device, and equipment, eg sink (ideally double sink) depending on the type of tools/equipment used that needs to be washed.

Washing equipment needs to be produced from material that is corrosion-resistant and that is easy to wash (eg stainless steel).

Containers with cold and/or hot standing water are not recommended for washing of equipment/tools because such water quickly becomes dirty.

Clean equipment or tools need to be kept in a way that makes the dry quickly (on an erased surface, on a shelf with a net or perforated plate).

### **Toilet and Changing Facilities**

If it is placed outside the plant-food processing establishment on a smallholding, a home toilet and a changing facility need to be in its vicinity.

These sanitary facilities may be inside the house provided they are easily accessible during the work hours and their use does not affect hygiene in the production rooms and products' safety, something that the producer should have documented measures and procedures for.

### **Storage of Raw Materials and Processed Products**

Raw materials and finished products may be stored in the same cold storage/chamber, ie storage space, provided they are separated and that all the necessary measures to avoid contamination have been taken.

In a smallholding establishment for plant-food processing, primary products (raw materials) and processed products (finished plant products), as well as the waste materials (eg discarded fruits or parts of herbs, fruits, or vegetables) may be stored in the same cold storage and at the same time, provided there are documented records of measures taken that ensure work hygiene and product safety.

## Product Declaration

Producer will, in a clear and visible way either on the label of the packed product or in the place of direct sale of an unpacked product, except in the case of agrotourism display the following information intended for the end user:

- Name and address of the producer
- Name of the product
- Date of production
- Shelf life (use-by date)
- Conditions of keeping (eg temperature)
- Registration number of the establishment
- Net weight/quantity of the original packaging\*

\*When solid food is kept in “liquid solution,” the producer is obliged to give the net weight on the declaration/label (net quantity of the content of a single unit) as well as to mention “drained matter” (eg net weight of fruits, vegetables) without the liquid/brine.

## Records on the Production and Sale of the Products

Food-production operator has to keep records and documentation on: production date, type and quantity of the produced products, origins of and quantity of raw materials, temperature during the production process, and if necessary: information on the product temperature (when applicable – eg storage, fermentation); food safety and quality criteria; records of the establishment and equipment hygiene conditions; undertaken corrective measures; traceability of food production, distribution to retail businesses (date, type and quantity of products, name and address of buyer/receiver).

Producer must keep records and documentation copies regarding the purchase of raw materials, ingredients, and packaging materials, as well as the product delivery, for up to three years so they can be made available to the competent authorities upon request.

At the place of production, a producer must have a **Certificate** for the plant-food production on a smallholding containing basic information in line with the special regulation on production and distribution of small quantities of plant-based foods - Form 1.



## SMALL-SCALE ESTABLISHMENTS FOR THE PRODUCTION OF PLANT-BASED FOODS

In a small-scale establishment for the processing of plant-based foods, producer must produce and process at least 50% of food that comes from his own farm. This means that he can produce up to 50% of the total quantity of finished products from the primary plant products that he had obtained from elsewhere or from the market.

The quantity of finished products that a producer may produce/process annually in a small-scale establishment are given in Table 2 of the special regulation on production and distribution of small-scale establishments of plant-based foods.

Explanation of Table 2: Small-scale food production on a smallholding:

- ▶ **Type of food** are the most common groups of products, as well as the production and processing procedures concerning plant-based foods
- ▶ **Quantity of food\*** (quantity of single type of food) – **maximum quantity on an annual basis** refers to the quantity that a single producer may produce **in a season** (eg from fresh fruits/vegetables) or **in a year** (eg from fresh seasonal fruits/vegetable or frozen fruits/vegetables during the rest of the year);

\* In the case when a single smallholding producer produces several types of foods/products, the total percentage of all individual types of food produced and distributed, in relation to the maximum quantity allowed to be produced annually for that type of food, should not exceed 100%.

For example:

A producer produces the following types of products:

<b>TYPE OF FOOD/PRODUCT</b>	<b>FOOD QUANTITY</b> (maximum quantities per product on an annual basis)	<b>FOOD QUANTITY (%)</b> (maximum percentage of the total quantity per product on an annual basis)
<b>Products from thermally- processed fruits</b> Production and distribution of thermally-processed fruits – cooking/pasteurization, eg jams, preserves, marmelades, compotes, etc.	20.000 kg*	<b>30 %</b> <b>(6.000 kg)</b>
<b>Products from thermally- processed vegetables</b> Production and distribution of thermally-processed vegetables – cooking/pasteurization, eg ajvar, pindjur, ljutenica, pureed tomatoes, etc	16.000 kg*	<b>40 %</b> <b>(6.400 kg)</b>
<b>Marinated vegetables</b> Production and distribution of products produced by marination in brine	40.000 kg*	<b>20 %</b> <b>(8.000 kg)*</b>
<b>Biologically preserved vegetables</b> Production and distribution of biologically preserved vegetables, eg sauerkraut, pickled peppers, etc	40.000 kg*	<b>10 %</b> <b>(4.000 kg)*</b>
<b>ANNUAL TOTAL:</b>		<b>100.00 %</b> <b>(24.400 kg)</b>

\*The quantity refers to the total quantity – “net quantity” of the contents of a single package/unit.

► **Location of activity**

A small-scale establishment needs to be entered into the Central register of establishments.

A small-scale establishment may be located on a smallholding (eg the farm yard) or anywhere else, on a location/plot which had been approved of by the local government

► **Region and location of direct sale/distribution**

Products produced in a small-scale plant-based establishment, may be sold anywhere in the Republic of Serbia, including locally and at events.

If business activities of the food-producer exceed the limits set by the Rulebook, such as the quantity of primary plant-based products (50% of the primary plant products were not

produced by the producer on his farm) and the quantity of processed products, competent authority can take certain steps in line with the regulations regulating food security.

### Adaptations of Hygienic Conditions Requirements for a Small-Scale Establishment

The following conditions apply with regards to the construction, design, and equipping of small-scale establishment for plant-based food processing:

- 1) If the establishment is within the smallholding farm, the production rooms and equipment should be kept separately from the place where animals are kept so that the environmental contamination risk is avoided;
- 2) The same entry/exit can be used for raw materials, packaging, finished products, employees, and food waste, provided all necessary measures to avoid cross contamination have been taken;
- 3) There has to be a space and equipment for receiving raw materials;
- 4) Producer can carry out different technological production phases, ie different products can be produced in the same room, provided the production doesn't take place at the same time and adequate cleaning, washing, and disinfection is carried out between the different production phases or between the production of different products;
- 5) Production space can be used for other activities, eg chopping, grinding, wrapping/vacuuming, and packing provided they are not done at the same time as the production process and if there are documented measures and procedures that prevent cross-contamination of products;
- 6) Raw materials and products may be kept/stored in the same storage space provided they are separated and that all necessary measures to prevent contamination have been taken;
- 7) Products that are not safe for human consumption may be kept in the storage space, provided they are packed, sealed, and clearly marked;
- 8) The production room may be used for cleaning, washing, and disinfection of utensils, tools, and equipment, provided procedures that prevent contamination are followed;
- 9) The space for storage of ingredients, packaging materials, and cleaning, washing, and disinfection products may be outside of the production facility, but within its perimeters;
- 10) There has to be at least one changing facility for employees;
- 11) There has to be at least one toilet with cleaning and disinfection facilities;

## Space and Equipment for Receiving of Primary Plant-Based Products (Raw Materials)

A small-scale establishment must have space and equipment for receiving raw plant-based materials.

Space for receiving and unloading of vehicles and space/room for storing of raw materials should be at least covered so it prevents physical contamination and provides protection from the elements. Conditions and practices should enable hygienic unloading, cleaning/washing, and disinfection of vehicles and equipment, as well as adequate procedures regarding the receiving of raw materials.

### Small-Scale Establishment in the the Farmer's Yard

To prevent environmental contamination, if the establishment is located in the farmer's yard, the production space and equipment must be kept separated from the area where animals are kept, from the area where manure is kept, from the rubbish dump, as well as from the collection tanks and/or open sewage.

Ideally, the part of the yard used for the activities related to the food production and distribution, should be separated with a fence/wall from the part of the yard where the main and side buildings and premises intended for primary production are. However, fencing should allow both human and vehicle traffic as well as access to all parts of the yard.

Areas around the production establishment intended for traffic of humans and vehicles should be constructed from hard material (eg concrete, asphalt, etc).

Construction, design, and layout of the plant-based food processing facility, as well as the organization and way of operation of such a facility, must be organized in a way that prevents or reduces the risk of contamination.

By adjusting production capacity to the available space, or

By performing activities that present a risk of cross-contamination in separate rooms/space, or

By performing different activities in the same room but at a different time. However, these can only be activities and rooms which with the adequate cleaning and disinfection between different activities will not increase the risk of cross-

contamination or when separating such activities is not necessary in order to lower the risk and spread of contamination.

Washing, inspection, cleaning (stone removal, deseeding) – may be done under a canopy; there must be: water (cold, warm?), waterproof floor, waste water drainage system, containers for raw materials intended for processing, containers for waste materials.

Chopping, grinding, blanching, pureeing, cooking, stuffing, sealing, “resting” of products after pasteurization, pasteurization, storage – must be carried out indoors (where there is a protection from insects/pests, dust) – it’s necessary that the available space/design and equipment enable maintenance of hygiene.

### **One Entry/Exit for Employees, Raw Materials, Packaging Materials, Finished Products, and Waste**

A small-scale establishment may use the same entry/exit for raw materials, ingredients, packaging materials, finished products, waste, and employees.

In the case when the same entry/exit is used but at a different time, for unloading/receiving raw materials, ingredients, and packaging materials, as well as for loading of finished products intended for human consumption and waste materials, producer must apply documented good practice and hygienic procedures that will prevent the possibility of food contamination and that will ensure the establishment is protected from the external environmental conditions.

The structural solution for the place of loading and unloading and measures and activities that are applied, should prevent food contamination in the passage/transfer between premises and vehicles (eg dust, insects, birds, leaves, adverse weather conditions). This is best achieved with an adequate “ramp” system for direct communication between premises and vehicles or, if that is not possible (eg because of the space and/or altitude), a covered space (a canopy or awning) may be sufficient.

### **Premises and Equipment for Receiving of Raw Materials**

A small-scale establishment for plant-based food processing must have premises and equipment for processing of fresh fruits and vegetables.

To prevent physical contamination, premises for receiving and storage of raw materials should, at least, be covered. If necessary, storage premises must be protected from external weather conditions (temperature).

Upon receiving raw materials, they may be stored or may be immediately processed.

### **Different Technological Production Phases or the Production of Different Products in the Same Room**

Different technological production phases or the production of different products may be carried out in the same room provided it is not done at the same time and if cleaning, washing, and disinfection is carried out between the production phases or production of different products.

If simultaneous work in different technological phases of one product and/or the production of different products at the same time has adverse effects on the safety and quality of the products being prepared, such production phases and production of such products must be carried out in special rooms (eg fermentation) or in the same room but at a different time.

If time separation is required, producer should apply good production and good hygiene practices.

Processing and treatment of primary plant-based products is done in line with the production specification.

### **The Production Premises May be Used for Other Activities**

Different activities can take place in the production room (eg preparation/processing – washing, cleaning, peeling, chopping, grinding, wrapping/vacuuming, and packing), provided these activities are not performed at the same time and if there are documented and applied measures and procedures to prevent product cross-contamination.

If performed on the same premises, the sale and entrance for buyers should not affect the room hygiene and product safety.

### **Raw Materials and Finished Products May be Kept/Stored on the Same Premises**

Raw materials and finished products may be kept/stored in the same space provided they are separated from one another and that all necessary measures are taken to prevent contamination.

### **Products That are not Safe for Human Consumption May be Kept in the Storage Space**

Storage space used for storing finished products, can also be used for storing waste materials (eg leftovers from cleaning the raw materials) provided they are packed, sealed, and clearly marked.

### **Working Utensils, Tools, and Equipment May be Cleaned, Washed, Desinfected, and Stored in the Production Area**

Working utensils, tools, and equipment may be cleaned, washed, disinfected, and stored in the production area provided the procedures that prevent contamination are followed.

The equipment may successfully be cleaned and washed in: space and/or easily accessible facilities with hot and cold water (cabinet, sink – preferable a double sink), depending on the type of utensils/equipment used, provided cross-contamination can be avoided. The clean tools, utensils, and equipment may be kept in the production room on open shelves.

Cleaning and washing of the production equipment and the production room can be organized at the end of the day. The products and equipment that need to be protected from contamination should also be removed.

Washing facilities must be made of corrosion-resistant material that can be easily cleaned (eg stainless steel).

Containers with cold and hot standing water are not recommended for washing of equipment/utensils because such water quickly gets dirty.

Clean utensils or equipment must be kept on raised stands or on a shelf with a grid or perforated plate, positioned in a way so they can quickly dry and remain protected from splashing and contact with contaminated surfaces.

### **Storage Space for Additives, Packaging Materials, and Cleaning, Washing, and Disinfecting Products May be Kept Outside the Production Premises**

Storage space for additives, packaging materials, and cleaning, washing, and disinfecting products may be located outside the production premises but should be within the perimeter of the establishment.

If the storage of additives and packaging materials requires getting out of the premises into the perimeter/yard of the establishment, ie it requires going outdoors, the producer must document and apply good practice activities when handling and protecting the ingredients (eg salt, additives) and packing materials during receipt, storage, and transfer from the storage to the point of use in the production area.

The use of pre-packed (collective packaging) or protected products (sealed/covered containers), enables storage of additional ingredients and packaging materials in the same area.

Added ingredients and packaging – Adequate space should be provided for the storage of added ingredients (eg salt, spice, additives) – in a clean, dry, and if necessary, temperature-controlled space. This space/facility may be located in the production area or in an annexed or adjacent building, as long as the suitable storage requirements are met and the added ingredients and packaging (eg jars, bottles) are protected from contamination.

Cleaning, washing, and disinfection – Chemical products for cleaning and disinfection should be kept/stored in a separate, locked room or, exceptionally, in the case of a small establishment, in a place that can be locked (eg cupboard) and that is used only for that purpose so there is no risk to human health or food contamination. Chemicals must be clearly marked.

A producer should document and apply good practice procedures during receiving, handling, and using the chemical products.

### Changing Facilities for Employees

In a small-scale establishment for plant-based food processing, there has to be at least one changing facility where employees can change their clothes with an adequate number of lockers where employees can leave their clothes and personal belongings.

It is unacceptable that the production rooms and corridors are used as a changing place and as a place where working clothes and footwear are kept.

If protective clothes are used (eg aprons), they should be kept in a way that prevents contamination (eg hooks, lockers, etc.).

### Toilet Facilities for Employees

In a small-scale establishment, there has to be at least one toilet for employees with



washing and disinfection facilities. The location, arrangement, and the way of use should not affect the hygiene of the production rooms and equipment or the product safety.

Toilet doors must not open to the food-handling rooms.

The toilet should have an ante-room with hand-washing facilities, so the employees can take off their protective clothes before entering the toilet.

Toilets should be directly connected to the sewage system and have adequate natural and artificial ventilation.

Maintaining of documented procedures is particularly important where employees who use one changing room, perform different operations, especially when such operations are connected with clean and unclean areas of the establishment.

## Product Declaration

The following information has to be included on the label of the packed, or in the case of direct sale unpacked product, in a visible and clear way, except in the case of agrotourism.

- Name and address of the producer
- Type of product
- Production date
- Sell-by date
- Conditions of keeping (eg temperature)
- Registration number of the establishment
- Nett weight/quantity of the original package\*

\*When solid food is kept in a “liquid solution”, a producer is obliged to declare/label the total “net quantity” of a single pack (net quantity of the contents of a single packaging) and also to add the information on “net weight” (eg net weight of vegetable, fruit) excluding the weight of liquid solution/brine.

## Records on Production and Sales

Food business operator has to ensure that records and documentation he keeps contain the following information: production date; type and quantity of produced products; origins and quantity of raw materials; production process temperature, where necessary; product temperature (when applicable – eg storage, fermentation); safety and food quality criteria; hygiene of the establishment and equipment; corrective measures undertaken; traceability in food production; delivery to retail establishments (date, type, and quantity of products, name and address of buyers/receivers).

Producer needs to keep records and copies of documents concerning the purchase of raw materials, ingredients, and packaging materials, as well as on the delivery of products, for up to three years so he can make them available, upon request, to the competent authority.

At the place of production, producer needs to have a **Certificate** for the small-scale establishment for the plant-based food production with basic information in line with special regulations on production and distribution of small-scale plant-based foods – Form 2.

## APPLICATION OF TRADITIONAL PRODUCTION METHODS AND THE PRODUCTION OF TRADITIONAL PRODUCTS

### What are Traditional Products?

Food with traditional characteristics is food that has historically been recognized as a traditional product or has been produced according to technical specifications in a traditional manner or according to traditional production methods, or is protected as traditional food by a national or other legislation.

Traditional products represent a part of tradition and national identity, ie something that people and a nation, or its part, are known by, and is recognized both in the country and around the world.

The identity of products with a geographical origin as products whose characteristics differ depending on the place of origin, is a unique combination of local natural resources (soil, microclimate, different species/varieties of plants), production conditions (facilities and materials, use of traditional equipment and utensils, etc), as well as cultural heritage (tradition, knowledge and skills that have been passed on through

generations) in a specific territory. Awareness of the special characteristics of traditional products, their protection and promotion, link people and boost consumers' interest in the diversity and quality of food that reflects national and local culture and identity, as well as natural resources and characteristics of a particular climate.

“Traditionally” means the proven use of certain food on the domestic market in a period allowing transmission between generations and this period should be at least 30 years.

### **Why the Need for Traditional Foods Derogation?**

To preserve a connection between a product, a place, and the people/consumer, when determining legislation on food hygiene, there was a need for flexibility regarding structural requirements for facilities, that would enable continued traditional practice in the prall the phases – the production, processing, and distribution of food. These measures would also preserve the production specification (recipe) and the value of traditional product on the market.

That's why it's necessary to first define the products with traditional characteristics and the conditions of their production, on the basis of which derogation from the structural requirements for establishments/rooms can be determined, withing the special regulation on food hygiene. Such derogations may be general or unique and are applied when an establishment for the production of food with traditional characteristics needs to be registered.

### **Does Traditional Production Means Small-Scale Production?**

To produce in the traditional way does not have to refer to craftsmanship, ie the production of small quantities. Food with traditional characteristics may also be produced in establishments with industrial facilities that use permitted derogations from the general food hygiene requirements with regards to the materials used for the construction of production rooms, materials used for the production of equipment and tools, and methods and frequency of cleaning and disinfection of space in which the traditional products are exposed to an environment which is necessary for the development of their characteristics.

### **What About Hygiene During the “Traditional” Production?**

The basic principle of traditional food production means – working clean! Basic rules of hygiene have to be followed in all production phases, during storage, and during food distribution.

## **Can Traditional Products Only be Produced in a Facility Where Authorized Derogations for This Type of Products are Applied?**

The production of traditional products and achieving the specific characteristics of the (finished) traditional product may be done in a classical, ie traditionally constructed and equipped facility where the production takes place in natural microclimatic conditions, or in constructions that are equipped with modern facilities (establishment, rooms, and equipment meet all the general requirements on food hygiene), in which the necessary microclimatic conditions are achieved artificially, by the use of certain equipment and technologies.

Work in the natural microclimatic conditions is seasonal and the production process and the characteristics of the product depend on the possibility that the most important parameters of the production process are achieved, but also on their stability during a certain period (temperature, air humidity and circulation). The end result depends on the length of the production process and inconsistent quality. On the other hand, production in the artificial microclimatic conditions enables continued production during the whole year, and critical parameters variability and the duration of the production process are minimized, so the quality of the end product is consistent. However, it has to be said that the traditional production methods in certain regions of Serbia have given certain product characteristics that the consumers are still looking for.

So, it is up to the buyer/consumer to make a choice according to his own criteria.

## **DEROGATIONS REGARDING THE TRADITIONAL PLANT-BASED FOODS ESTABLISHMENTS**

### **General Hygiene Derogations**

Derogations can be applied if they do not jeopardize public health or affect food safety.

A food-business operator who applies traditional production methods and produces products with traditional characteristics is allowed certain exclusions, adjustments, or derogations from the general food hygiene requirements, when it comes to the construction, layout, and equipping of the food production establishment.

- 1) Construction, layout, and the size of premises;
- 2) Material and surface of floors, walls, ceilings, windows, and doors;
- 3) Production tools and equipment;
- 4) Tools, utensils, equipment, and procedures for cleaning, washing, and disinfection

Establishments/facilities in which traditional products are produced can:

- Be constructed from natural materials necessary for the development of specific characteristics of traditional products;
- Have walls, ceilings, and doors that are not from smooth, waterproof, non-absorbant. or corrosion-resistant materials, ie they can have natural geological walls, ceilings, and floors;
- Can be constructed from stone and wood;
- Can, in all production and packing phases, use equipment and tools made from materials that are not smooth, corrosion-resistant, or non-absorbant, ie they can use wood, stone, and other natural materials that are traditionally used in for fermentation, drying keeping and distribution of traditional products;
- Procedures and frequency of cleaning and disinfection should be adjusted to the production process and to the idea of preserving natural production conditions but only provided that food safety goals are not compromised;

Derogations may be applied provided they do not jeopardize public health or food safety.

## PROCESSED PLANT-BASED FOODS DISTRIBUTION

### Food Transport

Small-scale food producers should use the kind of transport and delivery equipment that guarantees hygienic transport, maintenance, and protection of food safety and quality.

Insufficiently cleaned, poorly maintained, and unsuitable transport vehicles and containers, including unsuitable procedures of separation of raw materials and finished products, result in conditions that contribute to food contamination during handling and transport. To avoid contamination during multiple deliveries, transport vehicles need to be clean.

During loading, unloading, and transport, food has to be protected from harmful effects of microbiological, physical, and chemical agents and where necessary, from the negative environmental effects (eg high temperatures, direct sunlight, unfavorable weather conditions, dust, smoke, leaves, pests, etc).

When a delivery contains products that need to be refrigerated, equipment and transport vehicles used are those that can provide cold storage without lowering the product

temperature. For short-distance transport of products that require special temperatures (up to two hours from loading), vehicles and equipment do not have to have cooling equipment, ie they may just have walls that ensure good thermal isolation. The cargo area of the vehicle needs to have doors that fit well and a waterproof film on the floor for easy hygiene maintenance.

If necessary, the cargo area temperature may be visible or measurable during transport.

Drivers and loading and unloading staff should be trained about food risks and safety during transport. They should understand the procedures concerning adequate cleaning, separation of clean from unclean loads or packed from unpacked foods, as well as the importance of adhering to the instructions and timely reporting of problems.

### **Distribution Documentation**

At the place of sale, a food-business operator should have clearly displayed basic information on the plant-based food production on his farm – Form 1, ie basic information on the small-scale plant-based food production – Form 2, as well as a copy of the Certificate regarding registration in the Central register of establishments.

## **SELF-CONTROL**

In the production, processing, and distribution facility, food-business operator is allowed certain derogations from the implementation of the risk analysis principles, as well as critical control points (HACCP). Taking into account the potential risk factors related to food production, a producer may implement the HACCP principles by using the good practice Guide, so that applied derogations do not affect neither food hygiene nor food safety.

### **Self-Control Plan**

To develop and establish HACCP plan, ie food safety self-control system, a producer may also use the Small general guide for HACCP plan preparation.

<https://malafarma.rs/wp-content/uploads/2019/05/MALI-OPSTI-VODIC-ZA-PRIPREMU-PLANA-HACCP.pdf>

To make it easier to do business, producers who work on a smallholding or on a small-scale plant-based food establishment, may also use the General HACCP plan models for plant-based products, that are part of this Guide.

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