

CONTENTS

INTRODUCTION	3
DESCRIPTION OF THE CURRENT SITUATION AND REGULATORY BASE IN THE CROSS-BORDER TERRITORY	6
Current situation in the cross-border territory	6
Regulatory base in Bulgaria	9
Key principles when starting a business	12
PROCESSING METHODS, EQUIPMENT AND TOOLS	18
Processing methods	18
Agricultural products cleaning and preparation techniques	20
Equipment and tools	22
Necessary tools and supplies	23
Selection and maintenance of equipment	24
SAFETY MEASURES AND CERTIFICATION	25
GOOD PRACTICES IN BULGARIA	30
GOOD PRACTICES IN GREECE	35
SOURCES	38



INTRODUCTION



This guide was written in the framework of the project “Support of Entrepreneurship in the Field of In-House Processing of Quality Farm Products in the Districts of Evros, Haskovo, Smolyan and Kardzhali” and the acronym “QUALFARM” and was financed by the Greece - Bulgaria Program 2014 – 2020, and is addressed to those who practice homecraft in the area of intervention of the project in the trans-border territory.


The main objective of the project is to improve the skills of farmers and existing in-house agri-processing firms in the areas of quality, innovation and marketing and to stimulate future entrepreneurship in the field of in-house agri-processing through mentoring and personalized support. The creation and promotion of a cross-border market for agricultural products will increase the population’s awareness of food quality and safety issues. Sharing and exchanging best practices at the cross-border level will facilitate sustainable cooperation between stakeholders in the cross-border region.

People want the food they consume to be fresh, less processed and sustainably produced. During the current pandemic, calls for shorter supply chains have intensified. Consumers should be able to choose sustainably produced food, and all actors in the food chain should see this as their responsibility and opportunity.

The European “Farm to Fork” Strategy aims to build sustainable food chains, protecting nature, providing healthy food and supporting farmers. The system of production, supply and consumption of food and disposal of organic waste has a strong impact on the environment and human health.

The goals set by the 2030 strategy: 50% reduction in the use of pesticides, at least 20% reduction in the use of artificial fertilizers, 50% reduction in sales of antimicrobials for farm animals, 25% of agricultural land to be cultivated under organic farming rules.





“Farm to Fork” is extremely useful for organic production, as well as for small family farms, because the very philosophy of the strategy is the idea that when European consumers put something on their table, they should know where it comes from.

The rapid increase in the price of agricultural production will stimulate the adoption of sustainable food policies. This actually turns out to be a formula for success and an incentive for small farmers to expand, to increase their range of craftsman’s products, with which they can be more attractive to customers. In-house processing of quality farm products gives farmers a unique chance to offer their produce directly to the consumer, independent of resellers and industrial processors.

Agribusiness is becoming increasingly popular among smallholder farmers as it provides them with an opportunity to add value to their produce and diversify their income. Craftsman’s industry involves the transformation of raw agricultural products into value-added products. This process requires specific knowledge, skills and equipment to ensure the quality, safety and preservation of the products.

Agriculture can provide numerous benefits to small farmers. By adding value to their produce, farmers can sell it at a higher price and increase their income. In addition, processed products have a longer shelf life, which can reduce waste and improve profitability. This is especially important for farmers who have to deal with seasonality and fluctuations in demand.

Homemade production can also promote local food production technologies by connecting farmers with consumers in the community. Farmers can sell their processed products directly to consumers at local farmers’ markets or through online platforms. This creates a closer connection between farmers and consumers, which can increase trust and support for local agriculture.

Homemade production can have a positive impact on the environment. By reducing waste and using local ingredients,

farmers can reduce their carbon footprint and promote sustainability. In addition, the craft industry can reduce the need for packaging and transportation, which can further reduce the impact on the environment.

Food safety can be improved by giving farmers more control over the production process. Farmers can ensure that their products are free of contaminants and meet safety standards. Homemade production can reduce the risk of foodborne illness by avoiding cross-contamination during processing and packaging.

“Home-grown/homemade” means food produced through the small-scale processing of agricultural products from the farmer’s own production.

When considering the possibility of starting such activities, it is important to first assess the seasonal availability of crops and livestock, as well as the processing methods that can be applied. The latter may include techniques such as canning, drying and freezing.

Appropriate preparation methods must be used to prepare agricultural products for processing to ensure food safety and quality. In addition, appropriate equipment should be selected and maintained to ensure that processing is carried out safely and efficiently. Food safety should be a top priority for the home grower.



DESCRIPTION OF THE CURRENT SITUATION AND THE REGULATORY BASE IN THE TRANS-BORDER TERRITORY

Current situation in the cross-border territory

Until 1989, the Bulgarian State Food Standards (BDS) were mandatory and strictly controlled by the Directorate of Veterinary-Sanitary Control (DVSK) and the Hygienic-Epidemiological Inspectorate (HEI). With the privatization of the food industry, Bulgarian state standards practically ceased to be respected. The decline of BDS had a very serious impact on the quality of food in our country. The former went down to the limit of their safety. With Bulgaria's accession to the EU and the elimination of customs duties on European foods, Bulgarian consumers steadily reoriented themselves towards imported food products.

Now it all depends on the farmers - will they meet the quality requirements of consumers? Farmers cannot compete with industrial producers through lower cost, especially at the expense of quality. Farm produce is an expensive, luxury, boutique commodity that beats the competition with authentic quality, not low cost.

However, on the territory of Haskovo, Kardzhali and Smolyan regions, in-house processing of farm products is almost non-existent, the interest of farmers is also not great. There are also cases of farmers giving up their idea due to the heavy registration procedure associated with the numerous required documents. Excessively high hygiene requirements regarding the building stock reflect much more strongly on small traditional industries.

On the other hand, the interest of consumers in this type of food products is increasing more and more. Existing processors of their own farm produce maintain online stores to reach their customers across the country.

In-house food production has traditions in Greece. There, production activities carried out in facilities with an installed engine power of no more than 10 kW are regulated by Law 3982/2011 (A'143). Basic concepts are also defined:

“Unit of home-made products” is defined as the area of the farm or rural residence where home-made food is prepared.

“Primary ingredient” defines the product ingredient or ingredients that account for more than 50% of this food or that are usually associated by the consumer with the name of the product and for which, in most cases, a quantitative indication is required.

“Agricultural residence”: the producer’s private residence is defined.

“Responsible for a home-grown product unit”: is defined as a natural person, a professional farmer who owns a home-grown product unit and is responsible for complying with the provisions of this decision and of Regulation (EC) 178/2002, Regulation (E.E) 852/2004 and Reg. (EU) 1169/2011.


“Headquarters of a home-made product unit” is defined as the one designated by the producer in the area of the rural residence and/or the agricultural holding.

“Disposal points” are defined as the headquarters of the home-made product unit, periodic local events (such as trade fairs and municipal events), street markets, producer markets, and retail and mass catering businesses.

Products may be available in prepackaged or unpackaged form.

The quantities of the finished products are calculated based on the production of the primary product, which is the main primary component of the product, from the producer’s crops in accordance with article 56 of Law 4235/ 2014. The producer of the primary agricultural products that constitute the primary component of the final product has the right to manufacture eco-technical products.

It is possible for two or more producers to cooperate for eco-technical production.



After primary production, at all stages of processing, transportation, distribution and display of homemade food, homemade food units comply with the general hygiene requirements of Chapters III to XII of Annex II of Regulation (EU) 852 /2004, as well as the provisions of Regulation (EC) 178/2002 and point 2 of article 3 of Regulation 853/2004.

In Greece, food businesses, including craftsmen, are regulated by the Hellenic Food Agency (EFET), which is responsible for ensuring the safety and quality of food products. According to EFET, all food businesses must have a food business operator (FBO) registration number and comply with the general hygiene requirements and food safety standards set by the European Union.

In addition to the general requirements, entrepreneurs must comply with specific regulations related to their operations. For example, if they process meat, they must comply with regulations on the slaughter of animals and the handling and storage of meat. If they process dairy products, they must comply with regulations on the hygiene and quality of milk and dairy products.

It's also important to obtain any necessary permits before starting in-house production. For example, if the homemaker intends to sell his products in markets or through retailers, he may need to obtain a license from the local food control authority. If they plan to process and sell products that are considered high risk, such as meat or dairy products, they may need to obtain additional licenses and undergo regular inspections.

Failure to comply with regulations can result in fines or even the closure of the business, which can have negative economic and social impacts on the community.

Regulatory base in Bulgaria



It was only in 2010 that the legislation was created in our country, which was supposed to stimulate the development of small family farms and ease the path of their products to consumers, and which enabled farmers to sell part of their own production directly on the market, without making them lawbreakers. Livestock and poultry farmers, game and fish farms, beekeepers and fishermen can now process and sell ready-to-eat raw and processed foods themselves without having to price their goods with high factory standards. The former will allow primary producers of agricultural inputs to realize greater profits, bypassing commercial intermediaries and businesses that buy their goods cheaply. On the other hand, users will have greater access to more diverse, quality, cheaper and boutique products based on original Bulgarian recipes, guaranteed by the manufacturers themselves. The Ordinance excludes any intermediaries.

The products that can be sold under this Ordinance are divided into 4 categories:

- primary products - raw milk, honey and bee products, eggs from hens and quails and fresh and chilled sea and freshwater fish;
- fresh meat from birds and rabbits slaughtered on the farm;
- shot big and small game or meat from big and small game;
- processed foods of animal origin.

The general requirement for the direct sale of the three categories of raw products of animal origin is that they must be processed, sold or supplied by the animal breeder himself, with the only exception being game. Therefore, only farmers who are the owners of the livestock facilities can apply for registration under the Ordinance.

Animal owners can process raw milk from cows, sheep, goats





and buffaloes only from their own farm. They can also directly offer meat from domestic ungulates, poultry, rabbits and ostriches from their own farm. Producers must equip a slaughterhouse.

The processing of the raw materials must be carried out in a facility registered under the Food Act, of which the farmer must be the owner, user or tenant. The sales shop may be located on the farm or elsewhere in the respective district, and the producer may have another such facility in a neighboring district.

The processing of sheep, goat and buffalo milk can also be done in a mobile facility, which will be located in a mobile dairy in the meadow where the farmer's animals graze. The mobile dairy must be registered as a temporary commercial establishment with the Regional Directorate of Food Safety (ODBH). The ripening and storage of dairy products from the mobile dairy can also take place in another room of the farm or the farmer's house. There is no limit to the quantities that will be processed.

For the direct sale of raw milk, honey, eggs, fish and meat from birds and rabbits, the mandatory procedure is registration. Once the producers are ready with the installations, equipment, premises and documentation, they must submit to the Regional Directorate of Food Safety (ODBH) an Application for registration according to the template that they will find on the website of the Bulgarian Food Safety Agency (BABH).

Registration for a retail establishment is done under the Food Act, similar to the registration of a grocery store. The sale of farm dairy and meat products is possible at the place where they are processed or from a mobile refrigerated display case located in the own one and in a neighboring administrative district.

Registration is required for farm-processed dairy and meat products in ready-to-eat foods. The procedure includes submitting an application for registration accompanied by copies of listed documents, on-site inspection, approval and registration.

For the production of processed foods of non-animal origin in small farms - jam, compotes, lutenitsa, syrups, etc., there is no regulation analogous to Ordinance 26 for products of animal origin. Currently, a small plant processor can only enter the market if he/she is registered under the Food Act.

Food safety requirements in Bulgaria are regulated in the Food Act (with latest amendments and additions from 19.09.2023). In addition to safety, the law also regulates the requirements for business operators and persons working in production and processing facilities, the requirements for packaging, labeling, presentation and advertising of food, the requirements for transportation and trade, the authorities for official control in production and processing, the terms and conditions for food export, etc.

The law aims to ensure a high degree of protection of the health and interests of consumers in relation to food and to ensure the application of European Union law and national measures in



the field of food.


The food must be fit for human consumption in terms of its physical, chemical, radiological and microbiological properties and composition, and must not pose a danger to human health. The food must meet the requirements for production, processing and/or distribution provided for in the law, the by-laws on its implementation and the European Union food law.

The national measures related to food requirements are based on and are in accordance with Art. 1, paragraph 3 and Art. 13, paragraph 3 of Regulation (EC) No. 852/2004 of the European Parliament and of the Council of 29 April 2004 on food hygiene; Art. 1, paragraphs 4 and 5 and Art. 10, paragraph 3 of Regulation (EC) No. 853/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific hygiene rules for food of animal origin; Council Directive 2002/99/EC of 16 December 2002 laying down animal health rules governing the production, processing, distribution and placing on the market of products of animal origin for human consumption.

Key principles when starting a business


Starting a business is an expensive and risky venture. The most important thing for any new beginning is to know the state and development of the market well.

According to an analysis of the market and prospects for the processing of fruits, vegetables, milk and meat, made before the Covid-19 pandemic, the food industry in Bulgaria produces products worth nearly BGN 9.7 billion and 3.5% of the total added value in the economy. The share of the sector in total production, value added and employment is higher than the EU average. The problems in the sector with finding labor with different qualifications are deepening. In addition, the costs for one employee are also increasing strongly - both in terms of wages and social security



payments. The number of farmers who, in search of more added value, profit and market security, process their own produce is constantly increasing. This trend poses a risk of rapid saturation of the market niche for the so-called “farm” foods and return on investment issues. Low income in the country and the large share of it that is spent on food makes demand extremely sensitive to prices and strengthens price competition in mass production. At the same time, average income is steadily increasing and a premium market niche for high-quality and/or boutique products is gradually forming (mainly in the largest cities and some resorts). Food is becoming an increasingly important part of the structure of Bulgarian exports. The production of fruit and vegetable foods has grown steadily since 2011. Canned products have the largest share in both categories. The number of processors is also increasing. Consumption is oriented towards the increasingly available year-round fresh fruits and vegetables, at the expense of processed ones. Dairy production has been growing since 2011. The goat and buffalo milk used in processing grows permanently. Sheep and buffalo milk cheese finds good sales in foreign markets as well. The dairy sector is the one in which the tendency for farmers to process and market their produce is most pronounced, which provides certain opportunities for higher profitability. The production of meat products remains relatively stable. Domestic consumption shifts to longer shelf life sausages, dried meats and semi-finished and finished meat foods, at the expense of short shelf life sausages and canned meat.

The negative consequences of the pandemic - both for business and for the purchasing power of the population - pose new challenges to farmers processing their produce in-house. Their advantage is that they have a small staff, small volumes and the possibility of flexibility and adaptability to the conditions. The success of a business idea depends on a well-developed marketing strategy, financial and business plan.



It is important to research existing and potential users as well as competitors on the market. Key elements of marketing strategy are: product, price, distribution and advertising. The name, the logo and its visualization, possibly the website, the way of communication with users must be well thought out. This is how the identity of the business will be formed. The price of the products must be optimal to attract customers and at the same time communicate high quality. It must be tailored to the competitors and to the purchasing power of the customers.

The business plan represents an estimate for the future development of the activity and reflects all aspects of the establishment or development of the enterprise: economic, managerial, legal, financial, environmental. Including the objectives, technologies, required resources, market participation and strategy, main financial results and expectations, deadlines, it should reflect the ways and means of achieving the desired results.

The operational business plan is that part of the business plan that describes the company's physical assets - process lines, equipment, buildings, warehouses, as well as any important details related to the product manufacturing process. The operational plan provides information on:

- The production process. How the product is manufactured? What are the main stages? What is the production time? What are the main problems within the production? What are the risks?
- The supplies. Who are the key suppliers? Who are the alternative suppliers in case the current ones are discontinued? What are the sources of supply of raw materials, materials and equipment?
- Quality control. How is quality control performed? Is the enterprise certified according to the rules of a certain quality system?
- Tangible assets. What tangible assets does the company own? What buildings? What technique and equipment? What


materials? What other important tangible assets does the firm have or should have to ensure smooth production of the product? What are they worth?

- Cost. How to calculate product cost?

The financial plan provides information on the sources of financing - own funds, bank credit, funds from subsidies; for estimated revenues and expenses – revenue from product sales, salary expenses, materials, marketing expenses, consumables, maintenance, etc.; for the estimated cash flows.

Consolidation of food producers and traders and of suppliers of agricultural inputs means that farmers do not have the economic power to negotiate better prices for their raw materials and crops. Their profits are shrinking, leaving many farmers with few resources to improve their environment and working conditions. Joining production, processing or marketing cooperatives is one way farmers can improve their economic status. Doing on-





farm processing, building direct delivery capabilities without intermediaries, and finding niche markets are ways farmers can add value to what they produce.

Short supply chains represent traditional and/or alternative ways of producing, distributing, retailing food and other agricultural products. They enable producers and consumers to trade directly. Short supply chains play an important role in local economies. Through the former, funds are kept in the local community that would be exported if people bought food produced and traded by companies that do not work in the local economy. Farmers' income is increased because, by shortening the chain, more of the final price, and sometimes the entire price, remains with the farmer. This improves his/her economic situation and allows him/her to spend more money himself/herself in the local economy. In addition, local food production and short supply chains combine extremely well with the development of local tourism. An important social effect is that not only is emigration limited, but the opportunity to do business in this niche brings many people back from the cities to the villages.

Communication without intermediaries leads to a better awareness of both consumers about their food and producers about the demands and needs of consumers, so that farmers can adapt their production to the former.

In existing short food supply chain systems, respect and trust are key. More and more consumers are looking for farm-raised foods and are taking the time to get them in a variety of ways. There is an increasing demand for fresh food, produced by traditional home methods, without preservatives and enhancers usually added during industrial processing. Consumers believe that farm foods are just that. There are already commercial chains that are looking for ways to present the produce of farmers on their stands.

Farmers often lack a high degree of business skills, but working in short supply chains gain knowledge and develop these skills.

Through short chains, it is possible to have a variety of recipes, to stimulate craftsman's production with manual labor and traditional technology. The society's eating culture is increasing, culinary traditions are also developing. The environmental effects are also positive – carbon emissions are reduced because food is not transported thousands of kilometers to reach



consumers. Farmers are given the opportunity to implement more sustainable farming methods. The pattern of growing food changes, the diversity of agricultural crops is preserved, while with longer supply chains, production tends to be narrowed down to the product most in demand, thus slowly and gradually limiting the varieties and species for consumption. In these systems, less packaging is used, which leads to a reduction in the amount of waste.



PROCESSING METHODS, EQUIPMENT AND TOOLS

Processing methods

Canning

Canning is a method of preserving food by sealing it in airtight containers and then heating the containers to destroy bacteria and other microorganisms. Canning is a popular method of processing



fruits and vegetables, especially during peak seasons when there is an abundance of produce. Canned fruits and vegetables can be stored for long periods and can be used for cooking or eaten as snacks. Canning provides a shelf life that typically ranges from one to five years, although under certain conditions, it can be

much longer.

In addition to extending the shelf life of these products, canning also helps preserve the nutritional value, taste and color of the products. Using home preserved food also reduces the need for store-bought cans, which can be expensive and contain added preservatives and other chemicals.

Drying

Drying is a food preservation method that involves removing water from food to prevent bacterial growth. Dried produce is light, easy to store and has a longer shelf life than fresh produce. In addition, the dried products can be used in various ways, such as as a seasoning, in tea or as an ingredient in pastries.

The following methods are usually used to dry food: Dehydrator drying, which uses heat fans that blow hot air over the food. Drying in an oven, in which the

food is placed. However, we need to be very careful about the temperature we will use, so that the food does not burn.



Freezing


Freezing is a method of preserving food by storing it at low temperatures. Frozen products can be stored for long periods and can be used for cooking or eaten as a snack. In addition, freezing can help preserve the color, texture and flavor of food products.



Raw materials are stored under appropriate temperature and humidity conditions. Dry products are stored, in closed containers, at ambient temperature (around 20 °C) and in a dry environment. Refrigerated products must be stored at temperatures of 0-5 °C and frozen products at a temperature of about -18 °C and lower.

Fermentation

Fermentation is a process in which microorganisms, such as yeast or bacteria, convert sugars and starches into alcohol or acids. Fermented products have a distinctive flavor and are often used



in cooking or as a condiment. In addition, fermentation can help increase the shelf life of food products.

The fermentation method can improve the quality of the products and give them a special taste. It is the basis of products such as yogurts and cheeses, such as olives in brine, pickles and legumes.

Smoking

Smoking is a food preservation method that involves exposing food to smoke from burning wood or other materials. Smoked products have a distinctive flavor and can be stored for long periods. In addition, smoking can help preserve the color and texture of meat and fish products.

Agricultural products cleaning and preparation techniques

Washing

It involves the use of water to remove dirt, debris and other contaminants from the surface of the product. Washing can help reduce the risk of bacterial contamination and improve the shelf life of produce. However, excessive washing can damage the product.

Decontamination

Disinfection is a technique to reduce the number of microorganisms on the surface of agricultural products. It involves



the use of chemical or physical agents to kill bacteria, viruses and other microorganisms. Disinfection can help prevent foodborne illnesses and improve product shelf life. However, improper use of disinfectants can leave harmful residues on products, leading to health risks.

Peeling

Peeling is a technique for removing the outer layer of fruits and vegetables. It can help remove dirt, pesticides and other contaminants that may be present on the surface of the product. Peeling can also improve the texture and appearance of the product. However, peeling can also remove important nutrients from the product and can lead to food waste.

Classification

Sorting is a technique for separating agricultural products based on their size, shape, color and other characteristics. It can help improve the quality and appearance of the product and make it more marketable. However, sorting can be time-consuming and can lead to food waste.





Equipment and tools

Mills

Mills are essential equipment for processing agricultural products such as grains, nuts and seeds into flour and meal. Farmers use manual and electric mills to process products such as wheat, corn and chickpeas. These products can then be used to make bread, pasta and other baked goods.

Canning equipment

Canning equipment is essential for preserving fruits and vegetables through canning. Homemakers use pressure cans, water bath cans, and canning jars to preserve produce such as tomatoes, cucumbers, and peppers. These canning methods ensure the safe preservation of products and extend their shelf life.

Dehumidifiers

Dehydrators are equipment used to remove moisture from fruits, vegetables and meats for preservation purposes. Traditional sun and oven drying methods still prevail in our country. However, farmers and homemakers also use electric dehydrators to preserve produce such as figs and grapes, which can be stored for later use.

Freezers

Freezers are a critical tool for preserving meat, poultry and fish products. Freezing these products not only extends their shelf life but also preserves their nutritional value.



Necessary tools and supplies



Cutting tools

Cutting tools are essential for preparing fruits and vegetables for processing. Knives, peelers and cutting boards are used to prepare produce such as tomatoes, cucumbers and peppers for canning.

Mixing and blending tools

Mixing and blending tools are essential for combining ingredients for processing. Mixers, blenders, and food processors are used to mix and blend ingredients for products such as jams, sauces, and dips. These tools ensure that the ingredients are carefully combined, resulting in a perfect product.

Thermometers

Thermometers are essential to ensure that products are processed and stored at the correct temperatures. Digital and analog thermometers are used to monitor the temperature of produce during canning, drying, and freezing. These tools ensure that products are safe to eat and free from harmful bacteria.


Pressure cookers

Pressure cookers are essential for processing products such as meats and vegetables that require high temperatures and pressure for safe preservation. Homemakers use pressure cookers to process products such as lamb, beef and chicken. These tools ensure that the products are safe for consumption and have an extended shelf life.

Storage containers

Storage containers are essential for storing processed products for future use. Household units use glass jars, plastic containers,






and vacuum-sealed bags to store products such as canned goods, dried fruits and vegetables, and frozen meats. These containers ensure that products are stored properly, maintaining their quality and safety.



Selection and maintenance of equipment

Equipment selection

When choosing equipment for home crafting, several factors should be taken into account, such as the type of product being processed, the volume of production and the available budget. Homemakers typically rely on traditional equipment such as pressure cookers, canning jars, and dehumidifiers. However, more modern equipment such as food processors and blenders can also be useful.



When choosing equipment, it is important to consider the material used in construction. For example, stainless steel equipment is preferred for processing acidic products such as tomatoes, while aluminum equipment can react with acids and compromise the quality of the processed product. In addition, it is necessary to select equipment that is appropriate for the size of the operation and can handle the required production volume.

Equipment maintenance

Proper equipment maintenance is essential to ensure its longevity and functionality. Regular cleaning and lubrication of moving parts can help prevent corrosion and ensure smooth operation. It is also important to follow the manufacturer's instructions for maintenance and repair to ensure that the equipment is properly cared for.


SAFETY MEASURES AND CERTIFICATION

Food safety is critical to ensuring the health and well-being of consumers. Inadequate food safety practices can lead to the spread of foodborne illnesses, which can cause significant health problems, particularly in vulnerable groups such as children, the elderly, and people with weakened immune systems.

There are many measures that can be taken to ensure the safety of household products. These measures include:

1. Good Agricultural Practices (GAPs): GAPs are agricultural practices that focus on preventing contamination of crops from soil, water and air. This can be achieved by using safe water sources, proper manure handling and the use of appropriate pesticides (FAO, 2018).

2. Good Manufacturing Practices (GMPs): GMPs are guidelines that focus on ensuring that the processing environment



is clean, hygienic and free of contaminants. This can be achieved by using proper cleaning and sanitation procedures, proper storage and handling of raw materials and finished products, and using appropriate personal protective equipment (FDA, 2021).


3. Hazard Analysis and Critical Control Points (HACCP): HACCP is a food safety management system that identifies potential hazards in the food production process and establishes control measures to prevent their occurrence. This system focuses on monitoring critical control points in the production process and taking corrective action when necessary (FAO/WHO, 2020).

4. Food testing: Regular testing of farm products and finished products can help identify potential contaminants and ensure that food is safe for consumption. Testing can be performed for a range of infectious agents, including bacteria, viruses, and chemicals (FDA, 2021).

Food safety is a critical aspect of home economics. The measures described in this guide can help ensure that the final product is safe for consumption. By implementing good agricultural and processing practices, implementing a HACCP system and carrying out regular food testing, farmers and homemakers can help protect consumers from the risks associated with contaminated food.

The body that monitors compliance with food requirements, measures and conditions to ensure food hygiene and food safety is the Bulgarian Food Safety Agency (BABH). The agency also controls the packaging, labelling, presentation, including advertising of foods. Its task is to monitor compliance with the requirements for all stages of food production, processing and distribution. It defines the terms and conditions for food production and trade, specifies the rights and obligations of persons who produce or trade food. The samples of documents necessary for the start-up, production and trade of food products can be found on the BABH website.


A preventive system for ensuring safe production of food



products is HACCP (Hazard Analysis and Critical Control Points). It is based on the generally accepted application of technical and scientific knowledge of principles in the food production process. In the food handling process, there must be sufficient information about the food and related procedures being used so that the possibilities of a food safety problem occurring and how it would occur can be determined. If the “where” and “how” are known, prevention becomes easy. The system aims to control the factors affecting the ingredients, the product and the process to make the product safe and to be able to prove that it is safe. Based on this basic concept, the HACCP system is a methodical and systematic application of appropriate technology to plan, control and document safe food production. Personal hygiene practices as well as daily hygiene of food contact surfaces and equipment should be included. Good hygiene practices are the foundation for safe food production and preparation. Food safety is achieved through the analysis and control of biological, chemical and physical hazards during production, the supply and processing of raw materials to the production, distribution and consumption of the finished product.

The practical steps in implementing HACCP are:

- Detailed examination of the technological processes, consistency and hygiene of the site’s activity.
- Analysis of all stages for possible dangers, places and time of their manifestation.
- Developing a package of safeguards and internal supervision to control food contamination and contamination hazards.
- Preparation of documentation for monitoring and control, which accurately registers who, when and in what way carries out or checks what has been done.



ISO 9001 defines the criteria for a quality management system and is the standard against which certification can be made. It can be used by any organization, large or small, regardless of its field of activity.


This standard is based on a number of quality management principles, including a strong customer focus, a process approach and continuous improvement. Using ISO 9001 helps to ensure that customers receive good quality products and services, which in turn brings many benefits to the business.

ISO 22000:2018 certification covers all processes in the food chain that affect the safety of the final product. The standard specifies the requirements for comprehensive food safety management systems, as well as for the implementation of elements of good manufacturing practice (GMP) and risk analysis in relation to critical control points (HACCP). This internationally recognized food safety standard can be used by all organizations in the food supply chain - from agriculture to food service, processing, transport and storage - from packaging to retail.

Obtaining an ISO 22000:2018 certificate helps a food manufacturer confirm their commitment to the food safety, more easily sell their products, control and reduce food safety risks.

In Bulgaria, certification of organic products is carried out according to the requirements of REGULATION (EC) No. 834/2007, REGULATION (EC) No. 889/2008. The control and compliance of organic production is carried out by organizations that have received permission from the Ministry of Agriculture and Food (MZH) to carry out this activity. There are specific requirements for organic farming, as well as for the control and certification of organic agricultural products. Documents and forms for organic certification are different depending on the subject of activity and can be found on the websites of the certifying organizations.

The implementation of good hygiene practices in the in-house



processing of agricultural products involves several stages. First, the processing area must be kept clean and free of debris. Any potential sources of contamination, such as animal waste, must be removed from the area. Hand washing is another key aspect of good hygiene practices. All personnel involved in processing should wash their hands regularly with soap and warm water to prevent the spread of bacteria and viruses. Gloves should also be worn when handling food to minimize the risk of contamination.

Cleaning and disinfecting equipment and surfaces is also critical to prevent contamination. All equipment and surfaces that come into contact with food products must be thoroughly cleaned and disinfected using appropriate cleaners. Food grade sanitizers are recommended as they are safe to use on food contact surfaces.

Strict hygiene and sanitation protocols must be followed at every stage of processing, from harvest to final packaging. By implementing these practices, farmers and processors can produce safe, high-quality processed foods that meet consumer needs and comply with food safety regulations.



GOOD PRACTICES IN BULGARIA

In Bulgaria, there is no special register of farmers processing their own products. A register of agricultural producers is maintained, but it covers only those registered for the purpose of receiving subsidies for used agricultural land and livestock, and these are not all companies and individuals engaged in farming. After studying the information from various publicly available sources, several good practices were identified in the Haskovo, Smolyan and Kardzhali regions.

**„The wild farm“ – Gorno pole village (Madzharovo Municipality) - <https://divataferma.com/>;
<https://www.facebook.com/divataferma/>**



The family farm is the first one in Bulgaria to produce organic beef. The beginning has been set in 1994 with a dozen sheep and goats, and today more than 1,200 indigenous cattle are bred, which are bred freely throughout the year. One of the owners of the “Wild Farm” is a food technologist and author of the recipes for

delicacies. The products are produced entirely on the farm, which also houses the first in Bulgaria bio-certified slaughterhouse and the first processing plant for organic beef.


Products on offer are chilled organic beef, raw-dried sausages, sterilized beef in jars, sazdarma (head cheese/brawn), broth, pate, etc.

In their home, farmers also offer accommodation to friends and guests. The house has double and triple rooms with private bathrooms, of a total of 15 beds and a large yard.

In addition to accommodation, adventures in the area are also offered - wild bird watching, horseback riding, gold mining by ancient methods, a tour for minerals, searching for wild bees, etc.

“The Forest” Farm - the village of Malko Gradishte -
<https://fermagorata.com/>;
<https://www.facebook.com/fermagorata/>





The Forest is a multicultural farm for free range grazing and has existed since the beginning of 2017. The team consists of 7 people.

Owners believe there is a way to raise animals in a free and humane manner, instead of investing huge sums of money in an industrial farm. Animals get sick less and eat naturally - with food that is natural to them and that they get themselves from pastures.

The products on offer are chilled beef, veal, pork, sausages, chicken in its own sauce, cheese, yellow cheese, canned fruit and vegetables.

Eco farm “Kehayovi” - Devin (Smolyan) <https://www.facebook.com/vilakehayovi/>

The owners of the family farm have found a successful formula to combine animal husbandry and closed cycle of dairy production with rural tourism in the Rhodopes.

About 250 sheep, 60 goats, 12 dairy cows and 25 horses of the Karakachanska breed are bred in the farm. All animals are grazed



on pastures high over 1125 meters above sea level, on the slopes and meadows of the central Rhodopes. Livestock breeders process their own milk according to traditional methods. They are working on the construction of the dairy farm and have equipped it with solar panels in order to use the electricity from the sun.

A small guest house has been built on the farm and the farmers note the interest of visitors and guests towards the way of product presentation – they come to the farm to see where the animals graze, how they are milked, how cheese itself is being made and to be able to buy the latter there.

Basarea Villa (<https://sakarwine.com/bg-catalog-details-4.html>) has been created in 2014 in the town of Harmanli and produces small batches of wine from local grapes, combining modern technology with tradition. The wines are from the Syrah, Merlot, Cabernet Sauvignon, Cabernet Franc, Malbec, Pamid, Mavrud, Tamianca, Muscat and Viognier variety. Some massifs are more than forty years old, which ensures the distinctive character of wines produced by classical technologies with a lot of manual labor.





Wine tastings, led by a technologist, are often organized in the winery.

According to information received from the Local Initiative Groups on the territory of Haskovo, Smolyan and Kardzhali regions, there are the following ideas for in-house processing of farm products:

A bio-certified producer of fruits and vegetables from the municipality of Mineralni Bani, Haskovo region, plans to build a dryer for fruits and vegetables. He has received funding from the State Fund Agriculture (DFZ) and construction has begun.

A honey producer from Dimitrovgrad municipality, Haskovo region, plans to start production of honey products with the addition of nut oils and tahini, the nuts not being his own production.



GOOD PRACTICES IN GREECE



Ecotechnion Therapeion
(Therapeio Evros)

At **Οἰκοτεχνεῖον**
“Therapeion”, traditional handmade Greek products are prepared based on recipes and techniques. The products prepared with raw materials from the farm fields are: traditional Hebrew red trachanas, noodles, couscous, spoon sweets, jams and tomato sauces.



The cottage industry also has a rose garden with the roses from which the romantic and special traditional handmade sweet of the spoon rose is prepared. Their flowering period begins at the beginning of May and is a unique experience for the visitor.



Pasta: Trachanas, Couscous, Noodles (made from hard and soft wheat).


Spoon sweets: Watermelon, Richeli (from pumpkin), Quince, Fig, Apple, Carrot, Lemon, Rose, Strawberry.



Jam: Strawberry, Pear, Plum, Pumpkin, Apple, Quince, Chapurna, Watermelon - rosemary.

Also, the following products are produced: beans, chickpeas, chickpea salad, hummus and pop corn.





Melisakos (Evrou Bag) – Products produced: Honey, Pollen, Royal jelly, Honeycomb, Creamy honey, Honey with hazelnuts, Wax, Propolis, (Royal ointment).



The farmer's estate in the Greek village of Evros Didymoteicho (Tsirnas) - Products: Tahini (from sesame), Tahini with milk chocolate, Peanut butter (from peanut), Peanut butter with bueno , Thracian Trahanas (from durum wheat, flour, vegetables (leek, pumpkin, red pepper, tomato, carrot, tahini), Milk Trahanas (pasteurized milk, eggs, flour, semolina), Couscous (milk, eggs, semolina, flour), Noodles (milk, eggs, semolina, flour), Sesame, Semolina (cracked wheat), Beans, Lentils, Chickpeas.

All products are baked in a traditional wood oven and ground on a millstone.







SOURCES

Samples of documents required for the launch, production and trade of food products on the BABH website: <https://www.bfsa.bg/bg/Page/61/index/61>

Information register of the persons, who have received permission from the Minister of Agriculture and Food to exercise control over the conformity of the organic production: <https://bioreg.mzh.government.bg/Home/Controllers>

Procedures for certification of phytoproducts: https://www.naas.government.bg/bilki/doc/prerabotvane/12_bio_sertificirane.pdf

General requirements, control and certification on the processing of unprocessed and processed organic agricultural products: <https://t.ly/Cnmyk>

Documents and forms for organic certification: <https://biocertification.eu/%D0%B4%D0%BE%D0%BA%D1%83%D0%BC%D0%B5%D0%BD%D1%82%D0%B8-%D0%B7%D0%B0-%D0%B1%D0%B8%D0%BE%D0%BB%D0%BE%D0%B3%D0%B8%D1%87%D0%BD%D0%B0-%D1%81%D0%B5%D1%80%D1%82%D0%B8%D1%84%D0%B8%D0%BA%D0%B0%D1%86%D0%B8/>

Aguilera, JM, & Stanley, DW (2014). Microstructural principles of food processing and engineering. Springer.

Akanbi, WB, Akanbi, CT, Akomolafe, OS, & Atiba, EO (2018). Sorting and grading of agricultural products: A review. *Journal of Agricultural Technology*, 14(1), 1-18.

Bourlakis, MA, Papagiannidis, S., & Maglaras, G. (2019). In-house processing in Greek agri-food SMEs: Determinants, challenges and opportunities. *British Food Journal*, 121(8), 1827-1841.

Bourlakis, M., & Weightman, P. (2013). Re-thinking the supply chain: An international perspective. Kogan Page Publishers.

CDC. (2021). Foodborne Germs and Illnesses. Centers for Disease Control and Prevention. <https://www.cdc.gov/foodsafety/foodborne-germs.html>

Duman, S., & Karabacak, H. (2019). Traditional meat products and their processing. In *Handbook of Meat Processing* (pp).

FAO. (2018). Good Agricultural Practices. Food and Agriculture Organization of the United Nations. <http://www.fao.org/3/a-i7844e.pdf>

FAO/WHO. (2020). Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for Its Application. Food and Agriculture Organization of the United Nations /World Health Organization/. <http://www.fao.org/3/a-y1579e.pdf>

Farnsworth, CR, & Thompson, CW (2018). Adding value to small farm products: A case study of farmers in the Appalachian region. *Journal of Agriculture, Food Systems, and Community Development*, 8(3), 131-147.

FDA. (2021). Food Safety Modernization Act (FSMA). US Food and Drug Administration. <https://www.fda.gov/food/food-safety-modernization-act-fsma>


Galanopoulos, K., Chouliaras, N., Balafoutis, A., & Bournaris, T. (2015). Small-scale family farming in Greece: Current status and future prospects. *Agriculture and Agricultural Science Proceedings*, 4, 176-185.

González- Fandos, E., García-Linares, MC, García- Armesto, MR, & Coello, N. (2015). Comparison of different sanitizers on microbial and sensory quality of minimally processed lettuce.

Jay, JM, Loessner, MJ, & Golden, DA (2019). *Modern Food Microbiology*. Springer International Publishing.

Kader, AA (2019). *Postharvest technology of horticultural crops*. University of California, Agriculture and Natural Resources.

Kourmoussi, N., & Karali, E. (2017). Regulations for processing and marketing of agricultural products. *Journal of Agricultural Engineering and Technology*, 25(4), 1-10.



Lamichhane, JR, Adhikari, P., & Pant, ND (2018). Microbiological safety of street foods in developing countries: A systematic review. *International Journal of Food Science*, 2018, 12.

Rajkumar, G., Manikantan, MR, & Bhagavan, S. (2018). Processing of fruits and vegetables: A review. *Journal of Food Science and Technology*, 55(2), 387-399.

Rivas, A., Rodrigo, D., Martínez, A., García- Armesto, MR, & Fernández, MJ (2019). Food safety and hygiene practices in domestic kitchens: A risky business. *International Journal of Environmental Research and Public Health*, 16(18), 3312.

Vamvoukakis, D., Manolas, K., & Tsiouvaras, C. (2019). Agricultural development in Greece during the post-war period: A regional approach. *International Journal of Agricultural Resources, Governance and Ecology*, 15(2), 153-174.