

FOOD TECHNOLOGY

Technology of meat products

Work book





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This work book has to be used in combination with the text book, technology of meat products in the food technology sector. This work book helps the students to put the gained new insights into practise. In this way a better understanding and application of the newly gained knowledge will be realised.

This work book contains the following chapters:

- **Assessment information documents**
- Task 1
- Task 2
- Task 3
- Task 4

We wish you a lot of success and also enjoyment in following the lessons and working on the tasks!

1. Assessment information documents

Module description: Technology of meat products.

Module title	Technology of meat products		
Dates and duration	3 weeks 24 March to 13 April 2019	Total amount of guided learning hours	120
Guided Learning hours	120	Practical training (placement at a company)	0
EQF-level	4		
School and country	Olustvere School of Service and Rural Economisc, Estonia. Address: Müüri 4, 70401 Olustvere, Estonia		

Learning outcomes
<p>Upon completion of this unit, a learner should be able to:</p> <p>LO1: Handle fresh meat</p> <p>LO2: Produce sausages</p> <p>LO3: Produce ham and smoked products</p> <p>LO4: Produce meat products</p>

Assessment Criteria	Underpinning knowledge
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1	<ul style="list-style-type: none">• Describes the chemical composition of the meat tissue and the structure of meat fibres;• Accepts raw material from the supplier and knows how to visually monitor the quality of the raw material• Prepares the meat cutting tables, safety equipment and meat cutting tools including devices• Chops up, debones the sirloin and/or half carcass, quarter carcass of the beef or pig based on the cutting outline with supervision• Sorts the meat according to guidelines into different quality categories• Handles raw meat, devices safely for him/herself and in terms of the raw material; knows how to keep track of the quality of the meat during cutting, observes the quality of packaging and assures hygienic and properly closed packages	<ul style="list-style-type: none">• Food safety• The anatomy of agricultural animals• The chemical composition of meat• The impact of cooling to the quality of meat• The quality of the meat• Initial treatment processes• Evaluating the freshness and quality of meat• Occupational safety in the meat cutting room• The equipment of the meat cutting room• Cutting outlines of sirloins• Meat cutting devices• Dangers with handling raw meat• Meat packaging and packaging materials
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2	<ul style="list-style-type: none"> • Makes the mixes for sausage products based on the given technology and recipe; • Calculates the raw material amounts needed for making the product; uses necessary devices to make the product; • Knows and uses necessary fillers and additives according to the given recipe and technology 	<ul style="list-style-type: none"> • Repairing raw material • Appliances used to make sausage products • Preservation requirements for products • Additives and additional ingredients for sausages and sausage products • Sausage production technology • Appliances used for making sausages and packaging them
3	<ul style="list-style-type: none"> • According to guidelines prepares the raw material using proper work equipment and methods • According to guidelines produces hams • Knows the working principles of necessary appliances, cools and packages products according to the nature of the product while using the packaging machine safely 	<ul style="list-style-type: none"> • The technology of producing smoked meat products • Devices used to make smoked meat products • Devices used to package hams • Energy supply for the devices used to make hams • Waste and by-products from making smoked sausage products • The impact of raw material to ready made products • Possible mistakes with making hams • Packaging and marking of hams



4	<ul style="list-style-type: none"> • Knows the assortment; picks out the pieces which are used to make meat products; • Chooses assisting raw materials which are used in making meat products; • Prepares the raw material according to guidelines using proper tools and working techniques; • Carries out technological calculations in making meat products; • Uses necessary work equipment and devices safely; • Makes technological calculations and uses work manual and the recipe in making different products; • Handles waste and gathers it taking into consideration the requirements for sorting it; • Packs and marks the meat products according to the technological guidelines. 	<ul style="list-style-type: none"> • The concept of meat products • Nomenclature of meat products • Requirements for meat products • Choosing the raw material and quality of it while making meat products • Choosing assisting raw materials and other materials • Preservation and packaging requirements for meat products • Cooling equipment • Additives and extra ingredients for meat products • Requirements for ready made products • Packaging of meat products • • Marking requirements
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Description of unit content
<p>In this module, you will learn about food safety, the anatomy of agricultural animals, the chemical construction of meat, the impact of cooling to the quality of the meat, quality of the meat, initial treatments processes in making sausages, hams and meat products</p>

Description of units of learning outcomes

Unit: Making of meat products		
LO1: understands the quality of raw material, knows how to assess it and handle it hygenically; knows how to debone meat, chops according to the cutting outline using proper devices; marks, packages and preserves the product according to the requirements of food safety		
Knowledge	Skills	Competence
He/she has knowledge of <ul style="list-style-type: none"> • raw material requirements • meat acceptance • meat deboning, preserving and packaging 	He/she can <ul style="list-style-type: none"> • assess the quality of the meat • handle meat hygenically • debone and chop the meat accordindg to the chopping outline • mark, package and preserve the products according to food safety requirements • 	He/she is able to <ul style="list-style-type: none"> • understand the requirements for raw material • accept the raw material and prepare it for cutting • debone, sort and package meat
LO 2: The student knows the technology and raw material of sausages, can put together the mixes of sausages and make sausages according to the technology, uses the devices necessary for making sausage products, marks, packages and preserves it according to the instructions		
Knowledge	Skills	Competence
He/she has knowledge of <ul style="list-style-type: none"> • making sausages 	He/she is able to <ul style="list-style-type: none"> • make different mixes for sausage products • make different sausage products 	He/she is able to <ul style="list-style-type: none"> • prepare mixes for sausages and sausages according to the technology and recipe; • calculate the necessary material amounts; use the necessary devices to make products; • know and use necessary fillers and additional ingredients



		according to the recipe and technology
LO 3: the goal of the teaching is that the student would know the raw materials used in making hams, makes products according to the technology, uses proper devices in production, marks, packages and preserves it according to guidelines		
Knowledge	Skills	Competence
<p>He/she has knowledge of</p> <ul style="list-style-type: none"> making hams 	<p>He/she is able to</p> <ul style="list-style-type: none"> prepare different ham and smoked products 	<p>He/she is</p> <ul style="list-style-type: none"> prepare hams and smoked products according to the technology and recipe; calculate the necessary amounts of raw material to make the product; use the devices to make necessary products; know and use the necessary fillers and additional ingredients to make products according to the recipe and technology
LO4: the student understands the raw materials used in making meat products, makes them according to the technology, uses proper devices during production process, marks, packages and preserves the products according to the requirements of food safety		
Knowledge	Skills	Competence
<p>He/she has knowledge of</p> <ul style="list-style-type: none"> making meat products 	<p>He/she is able to</p> <ul style="list-style-type: none"> make different meat products 	<p>He/she is able to</p> <ul style="list-style-type: none"> make meat products according to the technology and recipe; calculate the necessary raw material amounts ; use necessary devices when making

		the product; <ul style="list-style-type: none"> know and use necessary fillers and additional ingredients for the products according to the recipe and technology
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Task 1. Food safety, sanitation, food hygiene

Assessment criteria	Learning outcome	KSC
1	1,2,3,4	K1

Task:

- Put together a room plan with the equipment and furniture locations.
- Mark the regulatable temperature or relative humidity values.
- Put together a technological schema along with important info about food safety for one product.
- Prepare a cleaning and disinfecting plan for the meat study industry, which includes information about cleaning the equipment and rooms and about methods and substances to be used for disinfecting.
- Name and categorize waste in the meat study industry.

Task 2. Meat products

Assessment criteria	Learning outcome	KSC
2,4	1,2,3,4	K1

Group work (3 students in a group):

- How much water and concentrated (26%) NaCl solution do you need to get 50 kg of 14% brine?
- How much curing additives and water do you need to prepare 300 kg of brine for spraying?
- How much raw salt was received as a slaughter by-product and how much common salt was used if in the base preparation 700 pigs with an average liveweight of 110 kg



were processed? The release of fine salt is 0.2% of the pig's liveweight. The consumption of salt is 40% of the crude salts.

4. Discussing the results together

1. Task 3. Meat products

Assessment criteria	Learning outcome	KSC
2,4	1,2,3,4	K1

1. What are the reasons for using mostly dry seasonings, their mixes and herbs nowadays?
2. Which of these herbs are authentic spices? Pepper, clove, marjoram, garlic, basil, laurel, sage, thyme, nutmeg, onion

Task 4. Food safety, sanitation, food hygiene

Assessment criteria	Learning outcome	KSC
1	1,2,3,4	K1

Group work – the entire group

1. At the end of the day it is necessary to sanitize the thermal meat processing room. The following items need to be cleaned:
 - metal traps
 - tiles on the walls that have water splashing marks
 - smoking oven that has oil or other greases on it
 - sticks and hooks that are used while smoking and have meat and smoke stuck on them
 - sinks that have dried meat leftovers
 - floor that has dry ingredients spilled on it and water and dirt stuck to it
2. Before starting to work write down (on the pages on the paper board):
 - List the order and methods (brushing, soaking, etc.) for cleaning the room;
 - the materials (sponges, brooms, etc.) used in cleaning;
 - necessary cleaning and disinfecting materials;
 - what temperature the water needs to be.